

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES



In the Matter of

Tronox Limited
a corporation,

National Industrialization Company
(TASNEE)
a corporation,

National Titanium Dioxide Company
Limited (Cristal)
a corporation,

And

Cristal USA Inc.
a corporation.

Docket No. 9377

**RESPONDENTS' REPLIES TO COMPLAINT COUNSEL'S POST-TRIAL
PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW**

Dated: September 10, 2018

SUMMARY TABLE OF CONTENTS

I.	JURISDICTION	1
II.	BACKGROUND	1
III.	MARKET DEFINITION	7
IV.	MARKET STRUCTURE	177
V.	ANTICOMPETITIVE EFFECTS	191
VI.	ENTRY AND EXPANSION	366
VII.	EFFICIENCIES	431

* * *

TABLE OF CONTENTS

I.	JURISDICTION	1
II.	BACKGROUND	1
	A. Proposed Transaction.....	1
	B. Merging Parties.....	1
	C. Titanium Dioxide (TiO ₂).....	3
III.	MARKET DEFINITION	7
	A. The Sale of Chloride TiO ₂ to Customers in North America Is a Relevant Market.....	7
	i. Chloride TiO ₂ Is a Relevant Product Market.....	8
	(a) Chloride TiO ₂ and sulfate TiO ₂ are not close substitutes for North American customers.....	10
	(1) North American customers demand chloride TiO ₂ over sulfate TiO ₂ for most of their products	19
	(2) North American customers and producers agree that chloride TiO ₂ has superior performance characteristics and other advantages that sulfate TiO ₂ lacks	26

(b)	North American customers cannot readily switch their formulation of products from chloride TiO ₂ to sulfate TiO ₂ due to high costs and testing time	46
(c)	North American customers overwhelmingly purchase chloride TiO ₂ even when it becomes significantly more expensive than sulfate TiO ₂	55
ii.	Sales to Customers in the United States and Canada (“North America”) Is a Relevant Geographic Market	70
(a)	Suppliers price-discriminate based on customer location by region	76
(1)	North American customers receive delivery of chloride TiO ₂ at their locations in North America, with delivered pricing	85
(2)	Customers negotiate and purchase chloride TiO ₂ separately for each geographic region and pay different prices in each region.....	88
(3)	Tronox and Cristal’s ordinary course documents and their executives’ testimony confirm the regional nature of chloride TiO ₂ pricing and purchasing.....	101
(4)	Testimony from other chloride TiO ₂ producers also confirms the regional nature of chloride TiO ₂ pricing and purchasing.....	115
(5)	Between 2012 and 2016, North America sustained higher prices for chloride TiO ₂ compared to the rest of the world.....	117
(b)	Arbitrage by customers is inadequate to defeat a price increase in North America.....	126
(1)	Arbitrage is expensive and impractical.....	129
(2)	North American customers do not engage in meaningful arbitrage today and cannot arbitrage in sufficient quantities to defeat a small but significant price increase	139
(c)	North American customers have distinct product demands and requirements.....	145
iii.	The Market for the Sale of Chloride TiO ₂ to North American Customers Passes the Hypothetical Monopolist Test	155
B.	Alternatively, the Sale of Rutile TiO ₂ to Customers in North America Is Also a Relevant Market.....	159
i.	For North American Customers, There Are No Substitutes for TiO ₂	159
ii.	Anatase TiO ₂ Is Not a Substitute for Rutile TiO ₂ and Should Be Excluded.....	160

iii. The Market for the Sale of Rutile TiO ₂ to North American Customers Passes the Hypothetical Monopolist Test.....	164
C. Dr. Shehadeh’s Analysis of Market Definition Is at Odds with the Facts and Established Market Definition Principles	166
i. The Quantitative Tools for Analyzing the “Comovement” of Data Series Are Unreliable for Defining Antitrust Markets.....	166
ii. Dr. Shehadeh Misapplies the Hypothetical Monopolist Test in Defining the Relevant Geographic Market	170
iii. Dr. Shehadeh Wrongly Criticizes Dr. Hill’s Use of the North American Producer Price Index to Measure the TiO ₂ Price.....	173
iv. Dr. Shehadeh Errs in Criticizing Dr. Hill’s Decision Not to Include the Sulfate TiO ₂ Price in His Chloride TiO ₂ Demand Regressions	174
v. Dr. Shehadeh Wrongly Characterizes the Extent of the Evidence Indicating Price Gaps Across Regions	176
IV. MARKET STRUCTURE.....	177
A. The North American Chloride TiO ₂ Market Is Already Highly Concentrated	177
i. There Are Five Major Producers in the Relevant Market	177
ii. Other Producers Have Minimal Chloride TiO ₂ Sales to North American Customers and Are Not Rapid Entrants	179
B. The Merger Significantly Increases Concentration in an Already Concentrated Market and Is Presumptively Anticompetitive	187
C. The Merger Is Presumptively Anticompetitive Even in a North American Rutile TiO ₂ Market.....	189
V. ANTICOMPETITIVE EFFECTS.....	191
A. The Merger Would Make the Relevant Market More Vulnerable to Coordinated Interaction	191
i. The North American Chloride TiO ₂ Market Is Already Vulnerable to Coordination.....	194
(a) The number of firms in the relevant market is small.....	194
(b) North American chloride TiO ₂ producers recognize their mutual interdependence	195

(1)	North American chloride TiO ₂ producers’ price increase efforts are highly interdependent	199
(2)	North American chloride TiO ₂ producers’ production decisions are highly interdependent	206
(c)	The mutually recognized interdependence among North American TiO ₂ producers is reflected in their efforts to maintain “discipline” and avoid triggering competitive responses	210
(d)	TiO ₂ producers are able to observe each other’s competitive actions; i.e., the relevant market is transparent	222
(1)	TiO ₂ producers gather competitive intelligence from each other’s public disclosures.....	223
(2)	TiO ₂ producers gather competitive pricing information	231
(e)	Products in the North American chloride TiO ₂ market are relatively homogenous	240
(f)	The price elasticity of demand for chloride TiO ₂ in North America is low.....	242
ii.	The Merger Would Likely Enhance That Vulnerability and Facilitate Future Coordination.....	243
(a)	Eliminating a firm makes coordination easier for the remaining firms in a market	243
(b)	The merger would eliminate the impact of competition from Cristal	244
(c)	The merger would increase transparency among North American chloride TiO ₂ producers	259
(d)	The merger would result in greater symmetry between the merged firm and Chemours, making it easier to coordinate.....	262
B.	The Merger Would Increase Tronox’s Incentive to Unilaterally Reduce Output	265
i.	The Merger Guidelines Recognize that Mergers Like This One May Lead to Output Suppression	265
ii.	TiO ₂ Producers Recognize that Withholding Chloride TiO ₂ Output Supports Higher Prices	274
(a)	Tronox’s public statements and internal correspondence demonstrate that the company recognizes that withholding chloride TiO ₂ output supports higher prices.....	274

(b)	Cristal’s internal documents likewise demonstrate that the company recognizes that withholding chloride TiO ₂ output increases prices	279
(c)	Respondents’ competitors also recognize that reducing chloride TiO ₂ output in North America can support higher prices.....	282
iii.	Respondents Have a History of Withholding Output to Support North American Chloride TiO ₂ Pricing	283
(a)	Tronox has reduced North American chloride TiO ₂ output over the past decade in order to support North American TiO ₂ prices.....	283
(1)	Tronox has closed TiO ₂ production facilities to support TiO ₂ prices	283
(2)	Tronox reduced its North American TiO ₂ output in 2012 in order to support North American chloride TiO ₂ prices	288
(3)	Tronox reduced its North American TiO ₂ output again in 2013 in order to support North American chloride TiO ₂ prices.....	290
(4)	Tronox reduced its North American chloride TiO ₂ output in 2015 in order to support North American chloride TiO ₂ prices.....	292
(b)	Tronox remains committed to adjusting output to support North American chloride TiO ₂ prices	296
(c)	Cristal has also withheld chloride TiO ₂ output in North America to support chloride TiO ₂ pricing.....	300
(d)	A recent real world example shows the impact an output reduction can have on TiO ₂ pricing	306
iv.	North American Chloride TiO ₂ Producers Are Unlikely to Increase Output in North America Sufficiently to Offset a Price Increase Resulting from the Merged Firm’s Unilateral Output Reduction	310
v.	Economic Modelling Shows that the Merged Firm Has an Even Greater Incentive to Withhold Output than the Stand-alone Firms	327
(a)	The capacity closure model predicts that the merged firm has a stronger incentive to reduce output than the stand-alone firms	327
(b)	Dr. Shehadeh’s attack on the capacity closure model is unavailing.....	335
(c)	The Cournot model also predicts that the merged firm has a stronger incentive to reduce output relative to the stand-alone firms	341
(d)	Dr. Shehadeh’s criticism of Dr. Hill’s Cournot model is unavailing.....	344

C. The Merger Will Eliminate Beneficial Competition Between Tronox and Cristal	349
D. Industry Participants Believe Consolidation Will Lead to Higher Chloride TiO2 Prices in North America.....	352
VI. ENTRY AND EXPANSION	366
A. Entry or Expansion by Building a New Plant in North America Would Not Be Timely, Likely or Sufficient to Deter or Counteract the Merger’s Anticompetitive Effects	366
B. Entry or Expansion by Chinese Producers Would Not Be Timely, Likely, or Sufficient to Deter or Counteract the Likely Anticompetitive Effects from the Merger.....	376
i. Imported Chinese Chloride TiO2 Would Not Offset Likely Anticompetitive Effects in the Relevant Market for Sale of Chloride TiO2 to North American Customers	379
(a) Chinese chloride TiO2 does not meet the standards North American customers require	379
(b) No Chinese producer is currently supplying chloride TiO2 to North American customers in significant volume in part because of technology issues and lack of know-how	384
(c) There is no cost advantage to manufacturing chloride TiO2 in China	393
(d) Local Chinese demand for chloride TiO2 is increasing and there are limits on availability of chloride TiO2 from China	400
(e) Import costs and other logistical issues present additional hurdles for increasing imports of chloride TiO2 from China.....	411
(f) Chloride TiO2 expansion by Lomon Billions will not deter or counteract the likely anticompetitive effects in North America.....	415
ii. Imported Chinese Sulfate TiO2 Would Not Offset Likely Anticompetitive Effects in the Relevant Market for Sale of Rutile TiO2 to North American Customers.....	423
C. There Are No Rapid Entrants Who Would Provide Sufficient Supply Responses to Deter or Counteract the Likely Anticompetitive Effects from the Merger.....	427
VII. EFFICIENCIES	431
A. Respondents Failed to Substantiate Cognizable Efficiencies Under the Guidelines	431

i. Dr. Zmijewski Is the Only Expert to Provide a Methodology for Evaluating the Claimed Efficiencies and the Only Expert to Opine About the Claimed Efficiencies in a Guidelines Framework	431
(a) Tronox’s experts do not conduct a guidelines analysis of the claimed efficiencies	437
ii. Tronox’s Claimed Efficiency of Increased Production at Cristal’s Pigment Plant in Yanbu, Saudi Arabia, Is Not Cognizable	441
(a) The Yanbu improvement synergy is not verifiable.....	442
(b) The Yanbu improvement synergy is not merger-specific.....	454
iii. Tronox’s Claimed Efficiency of Activating the Jazan Slagger in Saudi Arabia Is Not Cognizable.....	473
(a) The activating Jazan synergy is speculative and not verifiable	477
(1) The option agreement highlights the speculative nature of the activating Jazan synergy	477
(2) Other factors make the activating Jazan synergy speculative	480
(b) The activating Jazan synergy is not merger-specific	483
iv. Tronox’s Other Claimed Output Efficiencies Are Not Cognizable	495
(a) Respondents’ claimed synergy of applying best practices across TiO ₂ pigment plants is not cognizable.....	495
(b) Respondents have not provided sufficient information to evaluate their claimed synergy of activating capacity, idled because of Tronox’s current “net long” position	499
(c) Respondents’ claimed synergy of swapping ilmenite between mines at reactivated slag furnaces is not cognizable.....	501
v. Tronox’s Claimed Cost Savings Efficiencies Are Not Cognizable.....	502
(a) Respondents’ claimed “value in use” synergy is not cognizable.....	502
(b) Respondents’ claimed “optimize pigment logistics cost” synergy is not cognizable	504
(c) Respondents’ claimed “supply chain, including PET coke savings” synergy is not cognizable.....	505

(d) Respondents’ claimed “Western Australia chlorine optimization” synergy is not cognizable511

(e) Respondents’ claimed “optimize chlorinator control” synergy is not cognizable513

(f) Respondents’ claimed “recover rail car heels” synergy is not cognizable514

(g) Respondents’ claimed “duplicative fixed and corporate costs—3rd party spend” synergy is not cognizable.....516

(h) Respondents’ claimed “duplicative fixed and corporate costs—headcount related + corp allocation Tasnee” synergy is not cognizable.....517

vi. Tronox’s Claimed Efficiencies of Vertical Integration Are Not Cognizable.....520

(a) Since becoming vertically integrated with the Exxaro merger, Tronox has on multiple occasions reduced production of both feedstock and TiO2 pigment520

(b) Through increased production of TiO2 pigment, Tronox has ability to enhance its vertical integration absent the proposed acquisition526

B. Tronox Has Not Demonstrated that the Claimed Efficiencies at Facilities Located Outside North America Would Positively Impact North American Customers.....529

Complaint Counsel’s Proposed Conclusions of Law

Witness Index

Exhibit Index

Demonstrative Index

I. JURISDICTION

1. Tronox Limited (“Tronox”) and Cristal USA Inc. engage in activities in or affecting “commerce” as defined in Section 4 of the FTC Act, 15 U.S.C. § 44, and Section 1 of the Clayton Act, 15 U.S.C. § 12. (JX0001 at 001 (Joint Stipulations of Jurisdiction, Law, and Fact)).

Response to Finding No. 1:

Respondents have no specific response.

II. BACKGROUND

A. Proposed Transaction

2. On February 21, 2017, Tronox announced a definitive agreement to acquire Cristal’s TiO₂ business for \$1.673 billion of cash plus Class A ordinary shares representing 24 percent ownership in Tronox post-transaction. (JX0001 at 002 (Joint Stipulations of Jurisdiction, Law, and Fact)).

Response to Finding No. 2:

Respondents have no specific response.

3. The transaction, including equity, was valued at \$2.215 billion on February 17, 2017, the last trading day prior to the public announcement of the Proposed Transaction. (PX9021 at 003 (Tronox SEC FORM PREM14A)).

Response to Finding No. 3:

Respondents have no specific response.

B. Merging Parties

4. Tronox is a publicly traded company headquartered in Stamford, Connecticut. (JX0001 at 001 (Joint Stipulations of Jurisdiction, Law, and Fact)).

Response to Finding No. 4:

Respondents have no specific response.

5. Tronox owns and operates three chloride TiO₂ plants, which are located in Hamilton, Mississippi, Botlek, Netherlands, and Kwinana, Australia. (PX9040 at 010 (Tronox investor presentation)).

Response to Finding No. 5:

Respondents have no specific response.

6. Tronox owns and operates titanium feedstock mining and smelting assets to produce titanium slag in South Africa. (PX9040 at 010 (Tronox investor presentation)).

Response to Finding No. 6:

Respondents have no specific response.

7. Tronox owns and operates titanium feedstock mining assets and a titanium feedstock plant producing synthetic rutile in Chandala, Australia. (PX9040 at 010 (Tronox investor presentation)).

Response to Finding No. 7:

Respondents have no specific response.

8. Three legal entities collectively represent “Cristal.” Cristal USA Inc. is a Delaware corporation and an indirectly owned subsidiary of Saudi Arabian companies The National Industrialization Company (“Tasnee”) and The National Titanium Dioxide Company. (JX0001 at 001 (Joint Stipulations of Jurisdiction, Law, and Fact)).

Response to Finding No. 8:

Respondents have no specific response.

9. Cristal owns and operates five chloride TiO₂ plants, two of which are located in Ashtabula, Ohio, one in Yanbu, Saudi Arabia, one in Stallingborough, United Kingdom, and one in Bunbury, Australia. (PX9040 at 010 (Tronox investor presentation); PX7008 (Hewson, Dep. at 11) (*in camera*)).

Response to Finding No. 9:

Respondents have no specific response.

10. Cristal owns and operates three sulfate TiO₂ plants, located in Thann, France, Bahia, Brazil, and its Tikon plant located in China. (PX9040 at 010 (Tronox investor presentation); PX7008 (Hewson, Dep. at 11-12) (*in camera*)).

Response to Finding No. 10:

Respondents have no specific response.

11. Cristal owns and operates titanium feedstock mining assets in Australia, formerly known as Bemax. (PX9040 at 010 (Tronox investor presentation); PX7006 (Stoll, IHT at 42) (*in camera*)).

Response to Finding No. 11:

Respondents have no specific response.

12. Cristal owns and operates a titanium feedstock mining asset in Paraiba, Brazil. (PX9040 at 010 (Tronox investor presentation); PX0002 at 024 (Cristal's Narrative Response to the Second Request) (*in camera*)).

Response to Finding No. 12:

Respondents have no specific response.

13. Cristal owns a titanium feedstock smelter in Jazan, Saudi Arabia [REDACTED] (PX7018 (Trabzuni, Dep. at 179-80) (*in camera*)).

Response to Finding No. 13:

Complaint Counsel's proposed finding is misleading to the extent it suggests that Cristal has by itself made any significant progress to make Jazan operational. Jazan is not currently operating, and Cristal requires Tronox's assistance to make it operational. (Van Niekerk, Tr. 3900-01; Stoll, Tr. 2125). [REDACTED]

C. Titanium Dioxide (TiO₂)

14. TiO₂ is an essential pigment used to add whiteness, brightness, opacity and durability to paints, industrial and automotive coatings, plastics, and other specialty products. (Young, Tr. 642; Pschaidt, Tr. 965; PX3011 at 012 (Kronos Investor Presentation); PX9020 at 006, 013, 045, 083, 117 (Chemical Economics Handbook); PX1001 at 005 (Tronox investor presentation)).

Response to Finding No. 14:

Respondents have no specific response.

15. The primary customers of TiO₂ include paint and coatings manufacturers and plastic producers, which account for approximately 60% and 25% of the TiO₂ consumed in North America, respectively. (PX9020 at 042 (Chemical Economics Handbook); PX3011 at 012 (Kronos Investor Presentation)). Paper and other specialty products, such as ink, food, cosmetics, and pharmaceuticals, use the remainder. (PX9020 at 042 (Chemical Economics Handbook); PX3011 at 012 (Kronos investor presentation)).

Response to Finding No. 15:

Respondents have no specific response.

16. For nearly all customers, there are no commercially reasonable substitutes for TiO₂. (PX9104 at 042 (Tronox 10-K); PX1000 at 006 (Tronox Presentation) (*in camera*); PX1073 at 117 (Bain Presentation to the Tronox Board) (*in camera*); PX7002 (Mouland, IHT at 38-40) (*in camera*); PX8002 at 001 (¶3) (Christian Decl.) (*in camera*); PX8006 at 001 (¶ 5) (Pschaidt Decl.) (*in camera*); PX8003 at 002 (¶¶ 6-7) (Young Decl.) (*in camera*); Vanderpool, Tr. 173-74; Malichky, Tr. 273-74).

Response to Finding No. 16:

Complaint Counsel's proposed finding is misleading to the extent that it [REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 840). For example,

[REDACTED]

[REDACTED]. (Malichky, Tr. 401). [REDACTED]

[REDACTED] (Christian, Tr. 840).

17. TiO₂ is produced from titanium-containing ores through one of two manufacturing processes that extract TiO₂ from ore: (1) the chloride process that uses chlorine; and (2) the sulfate process that uses sulfuric acid. (PX9020 at 021-23, 025-28 (Chemical Economics Handbook)). The chloride process is environmentally cleaner but technically more difficult to master and operate. (PX9020 at 027-30 (Chemical Economics Handbook)).

Response to Finding No. 17:

Respondents have no specific response.

18. The chloride process generally produces higher quality TiO₂ with a bluer tint, compared to a yellower tint for TiO₂ manufactured from the sulfate process. (Vanderpool, Tr. 182-83; Malichky, Tr. 274-75; Young, Tr. 665 [REDACTED] [REDACTED] (*in camera*); Pschaidt, Tr. 978 (*in camera*); PX7049 (Zamec, Dep. at 131-32) (*in camera*); PX1322 at 003 (Tronox Presentation) (*in camera*)). Chloride TiO₂ is more durable than sulfate TiO₂. (Malichky, Tr. at 274-75; PX1324 at 001 (Romano email to Casey) (*in camera*)).

Response to Finding No. 18:

Complaint Counsel’s proposed finding is inaccurate, misleading, and based on testimony for which the witnesses lack personal knowledge or foundation. The cited testimony does not stand for the broad and ambiguous proposition that the chloride process produces “higher quality” TiO₂ compared to the sulfate process. Further, the proposed finding is based on testimony from witnesses with little or no experience or expertise in the TiO₂ production process. Mr. Malichky is the global director of raw materials sourcing for all raw materials at PPG (Malichky, Tr. 267), Mr. Young is a senior vice president of global procurement and supply chain (Young, Tr. 630-31), Mr. Pschaidt is a vice president of procurement (Pschaidt, Tr. 963-64), and Mr. Zamec is a CEO of a plastics company (Zamec Dep. 98.) Mr. Malichky testified that he is not a chemist and only knows enough about chemistry that he “can survive in most conversations.” (Malichky, Tr. 275). Complaint Counsel’s proposed finding also selectively cites the record. For the “vast majority” of applications, “it doesn’t matter for the end result, the end product” whether chloride-process or sulfate-process TiO₂ is used. (Turgeon, Tr. 2623; Stern, Tr. 3836, 3838; PX9020-007; RX1503.0013). The proposed finding also ignores the fact that “80% of end-applications are indifferent towards chloride and sulphate, provided quality is the same.” (RX1503.0014).

19. The vast majority of TiO₂ sold to and consumed by North American customers is chloride TiO₂. (PX7000 (Snider, Dep. at 82-83) (*in camera*); PX8002 at 004 (¶17) (Christian Decl.) (*in camera*); Malichky, Tr. 294 (*in camera*)). [REDACTED] PX5000 at 047-48 (¶101 & Figs. 17-18) (Hill Initial Report) (*in camera*)).

Response to Finding No. 19:

Complaint Counsel’s proposed finding is not supported by the cited evidence. Indeed, *none* of the cited evidence even *refers* to North American TiO₂ sales or consumption. The cited

testimony from Mr. Snider speaks to the effect of *anatase* duties on the demand for anatase TiO₂ in *Brazil*; “North America” is not even mentioned. (Snider, Dep. Tr. 82-83). [REDACTED]

[REDACTED] (PX8002.004 (¶ 17) (Christian Decl.) (*in camera*)). [REDACTED]

[REDACTED]. (Malichky, Tr. 294). Finally, by citing to

[REDACTED] Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents. (Tr. 3792-3793 (Judge Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”).

20. TiO₂ can also have two different crystal structures—rutile and anatase. (PX9020 at 013 (Chemical Economics Handbook)). Rutile TiO₂ and anatase TiO₂ have different physical characteristics and applications and are not substitutes for any use relevant to this matter. (PX1424 at 010 (Tronox presentation) (*in camera*); PX9022 at 120 (Venator SEC Filing)).

Response to Finding No. 20:

Respondents have no specific response.

21. In North America, customers purchase TiO₂ either in a liquid slurry or in a bagged dry powder form. (PX9020 at 033 (Chemical Economics Handbook); Christian, Tr. 782). TiO₂ slurry is made by dispersing TiO₂ powder in water with other additives. (Christian, Tr. 782; Engle, Tr. 2451-52; PX7007 (Van Niekerk, Dep. at 44.) (*in camera*)). TiO₂ slurry is then delivered to customers by rail cars or tank cars. (Malichky, Tr. 303 (*in camera*); Christian, Tr. 782; Pschaidt, Tr. 981 (*in camera*)). Slurry TiO₂ can be pumped directly into customers’ storage tanks, which simplifies handling and manufacturing. (PX9020 at 045 (Chemical Economic Handbook); Pschaidt, Tr. 982 (*in camera*); Engle, Tr. 2451-52).

Response to Finding No. 21:

Respondents have no specific response.

22. TiO₂ slurry demand is much higher in North America than in other regions. (Engle, Tr. 2535; PX8004 at 002 (¶ 7) (O’Sullivan Decl.) (*in camera*)). Large paint and coatings manufacturers in North America generally purchase [REDACTED] (PX7035 (Christian, Dep. at 202-03) (*in camera*); PX7025 (Malichky, Dep. at 112) (*in camera*); PX7027 (Pschaidt, Dep. at 33-34) (*in camera*); PX7007 (Van Niekerk, Dep. at 44) (*in camera*); PX9020 at 045 (Chemical Economic Handbook)). North American slurry TiO₂ is [REDACTED] (Malichky, Tr. 310 (*in camera*); PX7016 (DeCastro, Dep. at 84) (*in camera*)).

Response to Finding No. 22:

Complaint Counsel’s proposed finding is not supported by the cited evidence. Indeed, *none* of the cited evidence speaks to overall TiO₂ slurry demand in North America. As Mr. Engle made clear, his testimony about TiO₂ slurry demand in North America is “for architectural water-based customers only, so that doesn’t include the plastics customers or some of the other segments.” (Engle, Tr. 2535). Thus, it is misleading to suggest that Mr. Engle testified broadly to “TiO₂ slurry demand” in North America, when he only testified regarding a specific end-use market in North America. Further, the cited testimony from Mr. O’Sullivan, a representative of Chemours, [REDACTED] [REDACTED]. (PX8004.002 (O’Sullivan, Decl. ¶ 7)).

Likewise, the cited testimony from Mr. Malichky, a representative of PPG, speaks only to PPG’s sales in the United States, and does not speak to other customers’ or purchasers’ sales practices in North America. (Malichky, Dep. Tr. 112). Additionally, the proposed finding that North American slurry is “entirely made from chloride TiO₂” is not supported by the cited testimony;

[REDACTED] (Malichky, Tr. 310). [REDACTED]

[REDACTED] (Malichky, Tr. 310).

III. MARKET DEFINITION

A. The Sale of Chloride TiO₂ to Customers in North America Is a Relevant Market

23. Under the Horizontal Merger Guidelines, market definition serves two purposes: first, to identify a product in a particular geography in which a competitive concern may arise as a result of a transaction; and two, to define the markets so that competitors can be identified and concentration measured. (PX9085 at 010 (Horizontal Merger Guidelines, § 4); Hill, Tr. 1667; PX5000 at 040 (¶ 86) (Hill Initial Report) (*in camera*)).

Response to Finding No. 23:

Complaint Counsel’s proposed finding of fact is not a fact, but improper legal argument.

24. Market definition under the Horizontal Merger Guidelines “focuses solely on demand substitution factors,” determining whether a hypothetical monopolist would find it profitable to raise the price of the product, or, in the alternative, if customers would substitute to other products in such large numbers that it would not be profitable for the hypothetical monopolist to raise the price of the product. (PX9085 at 010 (Horizontal Merger Guidelines, § 4); Hill, Tr. 1667-68; PX5000 at 040 (¶¶ 87-88) (Hill Initial Report) (*in camera*)).

Response to Finding No. 24:

Complaint Counsel’s proposed finding of fact is not a fact, but improper legal argument.

25. Dr. Hill followed the Horizontal Merger Guidelines for his analysis of market definition in this case. (Hill, Tr. 1663-64). Using the hypothetical monopolist test prescribed by the Horizontal Merger Guidelines, Dr. Hill concluded that the sale of chloride TiO₂ to customers in North America is the relevant market to assess the competitive effects of this transaction. (Hill, Tr. 1734; PX5000 at 040 (¶ 89) (Hill Initial Report) (*in camera*); *see* CCF Section III.A.iii., ¶¶ 323-29, below).

Response to Finding No. 25:

To the extent Complaint Counsel’s proposed finding claims that Dr. Hill “followed the Horizontal Merger Guidelines for his analysis of market definition in this case,” the proposed finding of fact is not a fact, but improper legal argument.

i. Chloride TiO₂ Is a Relevant Product Market

26. The qualitative and quantitative evidence make it clear that chloride TiO₂ is a relevant product market in which to assess this merger. (*See* CCF ¶¶ 27-133, below).

Response to Finding No. 26:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument.

Further, by citing exclusively to 106 other proposed findings to support its claim, the proposed

finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents' specific responses to the cited evidence can be found at CCFE ¶¶ 27-133, below.

27. North American customers and producers agree that sulfate TiO₂ is not a close substitute for chloride TiO₂. (*See* CCFE ¶¶ 31-45, below). North American customers demand chloride TiO₂ for the vast majority of their products and purchase significantly higher amounts of chloride TiO₂ as compared to sulfate TiO₂. (*See* CCFE ¶¶ 46-57, below).

Response to Finding No. 27:

Complaint Counsel's proposed finding of fact is not a fact, but improper argument. Further, by citing exclusively to 25 other proposed findings to support its claim, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents' specific responses to the cited evidence can be found at CCFE ¶¶ 31-45 and ¶¶ 46-57, below. Moreover, *none* of the cited evidence stands for the absolute and unqualified assertion that *all* "North American customers and producers" have reached uniform "agreement" on anything.

28. North American customers and suppliers agree that chloride TiO₂ has distinct attributes required for customers' products and that limit the ability for customers to switch between chloride and sulfate TiO₂. (*See* CCFE ¶¶ 58-92, below).

Response to Finding No. 28:

Complaint Counsel's proposed finding of fact is not a fact, but improper argument. Further, by citing exclusively to 34 other proposed findings to support its claim, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents' specific responses to the cited evidence can be found at CCFE ¶¶ 58-92, below. Moreover, *none* of the cited evidence stands for the absolute and unqualified assertion that *all* "North American customers and producers" have reached uniform "agreement" on anything.

29. Because chloride TiO₂ has distinct attributes, North American customers cannot readily switch from chloride TiO₂ to sulfate TiO₂ without significant testing and significant costs associating with switching between the products. (*See* CCFE ¶¶ 93-110, below).

Response to Finding No. 29:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument.

Further, by citing exclusively to 17 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCFE ¶¶ 93-110, below.

30. North American customers have not switched to sulfate TiO₂ even with chloride TiO₂ being consistently higher priced than sulfate TiO₂. (*See* CCFE ¶¶ 111-33, below).

Response to Finding No. 30:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument.

Further, by citing exclusively to 22 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCFE ¶¶ 111-33, below. Moreover, *none* of the cited evidence supports the apparently absolute and unqualified assertion that *no* “North American” customer has *ever* “switched” to sulfate-process TiO₂ when chloride-process TiO₂ was consistently higher priced.

- (a) Chloride TiO₂ and sulfate TiO₂ are not close substitutes for North American customers

31. North American market participants broadly agree that sulfate TiO₂ is not a close substitute for chloride TiO₂. (*See* CCFE ¶¶ 32-45, below). There are several reasons for this: (1) North American customers demand chloride TiO₂ over sulfate TiO₂ for most of their products; (2) chloride TiO₂ offers a range of performance characteristics that sulfate TiO₂ lacks; and (3) North American customers do not switch to sulfate TiO₂ even when there is a significant and persistent price gap between chloride TiO₂ and sulfate TiO₂. (*See* CCFE ¶¶ 46-133, below).

Response to Finding No. 31:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. *None* of the cited evidence stands for the broad and unqualified proposition that *all* “North American market participants” uniformly “broadly agree” on *anything*, much less on the absolute claim that “sulfate TiO₂ is not a close substitute for chloride TiO₂.” Further, by citing exclusively to 100 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record.

Respondents’ specific responses to the cited evidence can be found at CCFB ¶¶ 32-45 and ¶¶ 46-133, below.

32. Tronox and Cristal’s own documents support the distinctions between chloride TiO₂ and sulfate TiO₂, demonstrating they are not close substitutes, and describe the limited threat posed by sulfate TiO₂. (PX1427 at 003 (Jean-Jacques email to Casey) [REDACTED] (in camera); PX9015 at 011 (Q1 2013 Tronox earnings call) (“[E]ssentially there is not active, producing chloride pigment manufacturing facility in China today, certainly not in any scale. So we don’t compete in the traditional Chinese sulfate product anyway. We are selling to customers that have demand for our higher-quality chloride product, and that cannot be met by Chinese manufacturers at this point, because they don’t have any.”); PX2229 at 005 (Cristal email with attachment) (“Even the best performing Sulfate rutile requires 1.8X more pigment to equal the performance of Tiona 595 [a chloride TiO₂ grade]” in film thickness for latex paint.)).

Response to Finding No. 32:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. Moreover, *none* of the documents cited by Complaint Counsel support the broad and unqualified—and ambiguous—claim that chloride- and sulfate-process TiO₂ are not “close substitutes” or that sulfate-process TiO₂ poses a “limited threat.” In fact, PX2229 directly *refutes* Complaint Counsel’s assertion because it discusses Valpar currently using as much as 20% sulfate-produced TiO₂ in its formulas as *a substitute* for chloride-produced TiO₂. (PX2229-0002). The slide also shows that Valspar considered using 100% sulfate-process TiO₂

as a replacement for chloride-process TiO₂, but ultimately opted not to because it was a project involving “cheaper sulfates” that did not meet unspecified requirements regarding “film thickness.” (PX2229-001). Notably, PX2229 concerns Cristal’s product development in 2013—over five years ago—and does not speak to high-quality sulfate-process TiO₂. Complaint Counsel’s citation to PX 1427 is misleading. PX1427 is an email from Norma Jean-Jacques from 2014—over four years ago—and apparently reflects only one viewpoint regarding the comparison of chloride-process TiO₂ to “Chinese technology” at the time. It was well-established at trial that Chinese manufacturers have improved their TiO₂ significantly since that time (Turgeon, Tr. 2661). [REDACTED]

[REDACTED]. (PX1427). (Indeed, it is worth noting that Ms. Jean-Jacques’ email expressly states that “Chinese wants chloride technology and will eventually get it through JVs or foreign investment.”) PX9015 is an investor call that occurred in 2013—more than five years ago—about 2012 financial results. (PX9015). Again, it was well-established at trial that Chinese manufacturers have improved their TiO₂ significantly since that time (Turgeon, Tr. 2661). Finally, *none* of the documents cited in the proposed funding were presented by Complaint Counsel at trial, and thus the incomplete and selective excerpts cited by Complaint Counsel have been deprived of necessary context and have not been subject to cross examination before the Court.

33. North American customers agree that chloride TiO₂ is not a substitute for sulfate TiO₂ because [REDACTED] (Vanderpool, Tr. 192-94 [REDACTED]) (*in camera*); Malichky, Tr. 274-77, 295-96 (partially *in camera*); Young,

Tr. 642-44, 664-65, 670 (partially *in camera*); Christian, Tr. 781-82; PX7035 (Christian, Dep. at 119-20) (*in camera*); PX7044 (Vanderpool, Dep. at 87-91, 99-100) (*in camera*); see CCF ¶¶ 34-39, below).

Response to Finding No. 33:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. *None* of the cited evidence stands for the broad and unqualified claim that there is universal “agreement” among “North American customers” about *anything*, much less whether chloride-process and sulfate-process TiO₂ are “substitutes.” Indeed, Complaint Counsel’s cited testimony reflects only the views of a few hand-picked customers who reflect only a small fraction of total TiO₂ customers.

34. True Value described [REDACTED] and [REDACTED] (Vanderpool, Tr. 193-94 [REDACTED] (*in camera*)).

Response to Finding No. 34:

Complaint Counsel’s proposed finding is misleading and incomplete. True Value testified that [REDACTED]

35. PPG, a coatings manufacturer, [REDACTED]
[REDACTED]
(Malichky, Tr. 274, 295-96 (partially *in camera*); PX8000 at 004 (¶19) (Malichky Decl.)
[REDACTED]) (*in camera*); PX8000
at 003 (¶15) (Malichky Decl.)
[REDACTED] (partially *in camera*)).

Response to Finding No. 35:

Complaint Counsel’s proposed finding is not supported by the cited evidence. Nowhere on page 274 does Mr. Malichky say that PPG “cannot” use sulfate-process and chloride-process TiO₂ interchangeably in its coatings products in the United States and Canada; all Mr. Malichky says on page 274 is that sulfate process TiO₂ is “still white but more on the yellow side”; he does not speak to the United States and Canada. (Malichky, Tr. 274). Further, Mr. Malichky’s testimony on page 296 refutes the claim by Complaint Counsel. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

36. For Sherwin-Williams, the largest paint producer in North America, [REDACTED]
[REDACTED] in its products sold in North America.
(Young, Tr. 670 (*in camera*)).

Response to Finding No. 36:

Complaint Counsel’s proposed finding is misleading and incomplete. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

37. In North America, Sherwin-Williams [REDACTED] (PX8003 at 003 (¶¶ 12-13) (Young Decl.) (partially *in camera*)). Sulfate TiO2 [REDACTED] (PX8003 at 003 (¶12) (Young Decl.) (partially *in camera*)).

Response to Finding No. 37:

Complaint Counsel’s proposed finding is inaccurate, incomplete, and directly refuted by the trial testimony of Sherwin-Williams. At trial, Mr. Young specifically testified that

[REDACTED]

Thus, under cross-examination, Mr. Young directly contradicted the absolute statement offered in his declaration (PX8003-003 ¶¶ 12-13).

38. Specifically, [REDACTED] (PX7020 (Young, Dep. at 125-26) (*in camera*)).

Response to Finding No. 38:

Complaint Counsel’s proposed finding is inaccurate, misleading, and incomplete. Under cross-examination, Mr. Young acknowledged that Sherwin Williams [REDACTED]

[REDACTED]

39. Masco, maker of Behr paint, needs high quality chloride TiO₂ to achieve one-coat hide, a feature of its paint line. (Pschaidt, Tr. 967; *see also* Christian, Tr. 776-77). [REDACTED] (PX8006 at 001, 004 (¶¶ 5, 20) (Pschaidt Decl.) (*in camera*)). Masco also needs to [REDACTED] (PX8006 at 002 (¶ 8) (Pschaidt Decl.) (*in camera*)).

Response to Finding No. 39:

Complaint Counsel’s proposed finding is inaccurate and misleading. Mr. Pschaidt, a representative of Masco, did *not* testify at trial that [REDACTED]

[REDACTED] In fact, in response to a question from the Court, Mr. Pschaidt testified that TiO₂ is not necessary *at all* for coating with hiding power—customers wishing to hide with one coat of paint could also use a primer, which is reliant on a “resin,” rather than TiO₂, for the “stain-blocking properties.” (Pschaidt, Tr. 968-69). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

40. TiO₂ producers also agree that sulfate TiO₂ and chloride TiO₂ are not interchangeable in North America. (Christian, Tr. 781-82; PX7052 (O’Sullivan, Dep. at 117-18) (*in camera*); PX8002 at 002 (¶17) (Christian Decl.) (*in camera*); PX8005 at 002 (¶8) (Maiter Decl.); *see* CCF ¶¶ 41-45, below).

Response to Finding No. 40:

Complaint Counsel’s proposed finding is inaccurate and misleading. *None* of the cited testimony supports the broad and unqualified assertion that there is universal “agreement” among *all* “TiO₂ producers” regarding the interchangeability of chloride-process and sulfate-process TiO₂ in North America. Complaint Counsel cites only two producers, who do not speak for the entire industry. Indeed, the cited testimony from Mr. O’Sullivan [REDACTED]

[REDACTED] Mr. Christian did *not* testify that sulfate TiO₂ and chloride TiO₂ could not be interchangeable. All Mr. Christian said was that, “*all things being equal, customers around the world prefer chloride to sulfate, but there are different tolerances, if you will, in each region of the world.*” (Christian, Tr. 781-82 (emphases added)).

41. Kronos, a TiO₂ producer that sells both chloride TiO₂ and sulfate TiO₂ stated that North American customers have the lowest tolerance for sulfate TiO₂ of any region in the world. (Christian, Tr. 781-82; PX8002 at 002 (¶7) (Christian, Decl.) (*in camera*)).
[REDACTED]
(Christian, Tr. 813-14 (*in camera*); Christian, Tr. 778-79, 897 (North American customers, therefore, have an “overwhelming preference” for chloride TiO₂ because it is needed to achieve the necessary product quality.).

Response to Finding No. 41:

Complaint Counsel’s proposed finding is inaccurate and misleading, again, because Mr. Christian did *not* testify that sulfate TiO₂ and chloride TiO₂ are not interchangeable. All Mr. Christian said was that, “*all things being equal, customers around the world prefer chloride to sulfate, but there are different tolerances, if you will, in each region of the world.*” (Christian, Tr. 781-82 (emphases added)).

42. According to Kronos, North America uses [REDACTED] (PX7035 (Christian, Dep. at 219) (*in camera*)). [REDACTED]

[REDACTED] (PX7035 (Christian, Dep. at 244-45) (*in camera*)).

Response to Finding No. 42:

Complaint Counsel’s proposed finding is inaccurate and misleading. The quoted testimony from Mr. Christian relates to *building* a new sulfate-process TiO2 plant in North America, and does not directly address sulfate *purchases* or *use* in North America generally. (Christian, Dep. Tr. 219). Furthermore, the second citation concerns [REDACTED]

[REDACTED]

[REDACTED] (Christian, Dep. 244-45).

43. Chemours views that in North America, [REDACTED] which are 100% chloride TiO2. (PX8004 at 002-03 ¶ 9) (O’Sullivan Decl.) [REDACTED] (*in camera*)).

Response to Finding No. 43:

Complaint Counsel’s proposed finding is misleading. Although Mr. O’Sullivan gave *deposition* testimony as a corporate representative on behalf of Chemours, nowhere in Mr. O’Sullivan’s *declaration* does he state that he speaks on behalf of “Chemours” or purports to represent the views of “Chemours.” Further, to the extent the proposed finding relies on the declaration of Mr. O’Sullivan, it must be noted that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

44. [REDACTED] (PX7052 (O’Sullivan, Dep. at 145-47) (*in camera*)).

Response to Finding No. 44:

Complaint Counsel’s proposed finding is misleading. To the extent the proposed finding suggests that “North American” customers “generally have different requirements” as it relates to chloride-process *versus sulfate-process* TiO₂, this is not supported by the cited testimony.

The cited testimony from Mr. O’Sullivan [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

- 45. North American customers have [REDACTED] than many other regions. (PX8004 at 002 (¶ 7) (O’Sullivan Decl.) [REDACTED] (in camera)).

Response to Finding No. 45:

Complaint Counsel’s proposed finding is inaccurate and misleading. *None* of the cited testimony supports the broad and unqualified claim that *all* “North American” customers uniformly have anything, much less the vague and ambiguous [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].

(1) North American customers demand chloride TiO₂ over sulfate TiO₂ for most of their products

46. TiO₂ producers and customers all recognize that significantly more chloride TiO₂ is purchased in North America as compared to sulfate TiO₂. (PX9012 at 008 (Q4 2014 Tronox earnings call) (Tronox recognizes that chloride TiO₂ dominates the North American market, making up “95% or 98% or some very, very high number.”); PX1322 at 003 (Tronox presentation) (*in camera*); PX7000 (Snider, Dep. at 82-83) [REDACTED] (*in camera*)). The disproportionate amount of chloride TiO₂ purchased in North America is due to customer demand. (PX8002 at 004 (¶ 17) (Christian Decl.) (*in camera*) [REDACTED]); PX7003 (DeCastro, IHT at 21) (RPM notes that [REDACTED] (*in camera*)). Using data from customers and producers, Dr. Hill’s analysis indicates that [REDACTED] (PX5000 at 047 (¶101) (Hill Initial Report) (*in camera*)).

Response to Finding No. 46:

Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper argument. None of the cited evidence stands for the broad and unqualified assertion that TiO₂ producers and customers “*all*” recognize anything, much less what “significantly” means. Furthermore, by citing Dr. Hill’s analysis for the proposition that [REDACTED], the proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents. (Tr. 3792-3793 (Judge Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”).

47. End use customers in the United States and Canada demand [REDACTED] (Malichky, Tr. 294-95 (*in camera*); PX8005 at 002 (¶ 8) (Maiter Decl.)). This causes direct customers to purchase chloride TiO₂ to ensure that they have the high quality products with the necessary attributes that their customers want. (Vanderpool, Tr. 183, 185 (“I can tell you that [in all our lines] chloride [TiO₂] is what we use primarily, 90, 95 percent.”); PX7044 (Vanderpool, Dep. at 87-91, 99-100) (*in camera*); Young, Tr. 643, 657 (Sherwin-Williams “use[s] predominantly chloride TiO₂ in North America” – accounting for [REDACTED]) (partially *in camera*); Pschaidt, Tr. 985 [REDACTED] (*in camera*); PX7035 (Christian, Dep. at 120) (*in camera*)).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In addition to being contradicted by the evidence, the proposed finding is based on the testimony of only three hand-picked customers representing a small fraction of total TiO₂ customers.

49. Customers in North America would not substitute sulfate TiO₂ in place of chloride TiO₂ in the majority of their products. (Arrowood, Tr. 1093-94; PX8006 at 001-02, 004 (¶¶ 5, 8, 20) (Pschaidt Decl.) (*in camera*); PX7044 (Vanderpool, Dep. at 87-91, 99-100) (*in camera*)).

Response to Finding No. 49:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. *None* of the cited evidence stands for the broad and unqualified assertion that *all* “customers in North America” “would not substitute” sulfate-process TiO₂ for chloride-process TiO₂. Complaint Counsel cites only the testimony of three hand-picked customers representing a small fraction of the TiO₂ industry, none of whom purport to—or even could—speak for the entire industry.

Furthermore, for the cited testimony from Mr. Pschaidt’s declaration, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

50. For instance, “the only way that Deceuninck [North America] would even consider sulfate TiO₂ would be if chloride TiO₂ was unavailable.” (Arrowood, Tr. 1093). In other words, certain customers like Deceuninck North America would consider sulfate TiO₂ only as a last resort, to avoid shutting down their factories, when chloride TiO₂ becomes totally unavailable to them. (Arrowood, Tr. 1093-94; PX7049 (Zamec, Dep. at 49-50)

[REDACTED] (*in camera*); PX7000 (Snider, Dep. at 129-30) (*in camera*)).

Response to Finding No. 50:

Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper argument. The proposed finding is also not supported by the cited testimony. For instance, the cited testimony from Mr. Snider says *nothing* about customers considering sulfate-process TiO₂ “only as a last resort” or when chloride-process TiO₂ is “totally unavailable”; it speaks only to a Cristal email discussing competition between Chemours, Kronos, Tronox, and Cristal for RPM and Behr business, and only briefly mentions that neither Chemours nor Tronox “offer sulfate titanium dioxide.” (Snider, Dep. Tr. 129-30). At any rate, Complaint Counsel cites only two hand-picked customers representing a small fraction of the TiO₂ industry.

51. Similarly, for North American coatings companies like Sherwin-Williams, [REDACTED] (PX8003 at 003 (¶ 12) (Young Decl.) (partially *in camera*); PX7020 (Young, Dep. at 133-134) (*in camera*); Young, Tr. 642-43 (testifying that sulfate TiO₂ is unsuitable for Sherwin-Williams’ products in North America because it does not result in consistent brightness of color or consistent whites, and that it has been “unwilling to compromise the quality of [its] goods” by using sulfate TiO₂)). Sherwin-Williams further explained that in other regions of the world, where quality standards are different than in North America, sulfate TiO₂ has been suitable for use in its products. (Young, Tr. 642-43).

Response to Finding No. 51:

Complaint Counsel’s proposed finding is directly refuted by the evidence. The evidence shows that Sherwin Williams [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Furthermore, as Mr. Young’s declaration makes clear, [REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]

52. As Mr. Young testified, Sherwin-Williams has found that [REDACTED] (Young, Tr. 665-66 (*in camera*)). Sherwin-Williams [REDACTED] (PX8003 at 003 ¶¶ 12-14) (Young Decl.) (partially *in camera*); Young, Tr. 658-59 (*in camera*)).

Response to Finding No. 52:

Complaint Counsel’s proposed finding is inaccurate, misleading, and directly refuted by the evidence. The evidence shows that Sherwin Williams [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Moreover, at trial, Mr. Young expressly refuted the claim that [REDACTED]

[REDACTED]. Mr. Young specifically

testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

53. For Masco, [REDACTED] (PX8006 at 001-02, 004 (¶¶ 5, 8, 20) (Pschaidt Decl.) (*in camera*)).

[REDACTED] (Pschaidt, Tr. 978 (*in camera*)).

Response to Finding No. 53:

Complaint Counsel’s proposed finding is misleading and incomplete. At trial, Mr. Pschaidt, a representative of Masco, testified that [REDACTED]

54.

[REDACTED]
[REDACTED]
(PX8006 at 002 (¶8) (Pschaidt Decl.) (*in camera*); PX7027 (Pschaidt, Dep. at 112-13) (partially *in camera*); Pschaidt, Tr. 983-84 (*in camera*)).

Response to Finding No. 54:

Respondents have no specific response.

55.

[REDACTED]
[REDACTED] anderpool, Tr. 192-93, 203-04 (*in camera*); Malichky, Tr. 298-99, 302-03 (*in camera*); Young, Tr. 658-59).

Response to Finding No. 55:

Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper argument. None of the cited evidence stands for the broad and unqualified claim that *all* customers “can only use sulfate TiO₂ in limited, low-end applications”—without, of course, specifying what “limited” and “low-end applications” means. Complaint Counsel cites only three hand-picked customers who represent only a small fraction of the TiO₂ industry and cannot speak for the entire industry.

56.

True Value can [REDACTED] (Vanderpool, Tr. 192, 203-04 (*in camera*)). [REDACTED]
[REDACTED] (Vanderpool, Tr. 192-93 (*in camera*)).

Response to Finding No. 56:

Complaint Counsel’s proposed finding is misleading. In the cited testimony, Mr. Vanderpool does not say that [REDACTED]

[REDACTED]

[REDACTED] Furthermore, the proposed finding ignores

evidence in the record that sulfate-process TiO2 can also be “comparable” to chloride-process TiO2 with respect to relative tint strength versus relative hiding power. (Engle, Tr. 2463-65;

[REDACTED] In fact, [REDACTED]
[REDACTED]

57. PPG can [REDACTED] (Malichky, Tr. 298-99, 302 (*in camera*); PX8000 at 003-04 ¶16) (Malichky Decl.) (*in camera*). [REDACTED] (Malichky, Tr. 302-03 (*in camera*)). [REDACTED] (Malichky, Tr. 298 (*in camera*)).

Response to Finding No. 57:

As Complaint Counsel’s proposed finding acknowledges, as much as [REDACTED]
[REDACTED]
[REDACTED] (Malichky, Tr. 298).

- (2) North American customers and producers agree that chloride TiO2 has superior performance characteristics and other advantages that sulfate TiO2 lacks

58. Producers and customers agree that chloride TiO2 is higher quality and has performance characteristics that sulfate TiO2 does not have, limiting the substitutability between the two products for North American customers. (*See* CCF ¶¶ 59-66, below). These characteristics include opacity, brightness, durability, scrubability, and tone that require North American TiO2 customers to use chloride TiO2 in high-quality applications. (*See* CCF ¶¶ 67-92, below).

Response to Finding No. 58:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. None of the evidence cited stands for the broad and unqualified claim that *all* producers and customers “agree” that chloride TiO2 is “higher quality” and has “performance characteristics that sulfate TiO2 does not have.” Further, by citing exclusively to 32 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to

cite specific references to the evidentiary record. Respondents' specific responses to the cited evidence can be found at CCFR ¶¶ 59-66 and ¶¶ 67-92, below.

59. Tronox's own documents state that chloride TiO₂ is higher quality, offers a wide range of advantages over sulfate TiO₂ in North America and that Tronox does not believe substitution between them in North America is likely. A 2015 Tronox presentation lists three reasons

[REDACTED]

(PX1322 at 002 (Tronox Investor Presentation)

[REDACTED]

(*in camera*);

PX1346 at 013 (Tronox presentation) (*in camera*); PX1427 at 003 (Jean-Jacques email to Casey) (*in camera*); Van Niekerk, Tr. 3996).

Response to Finding No. 59:

The proposed finding is inaccurate, misleading, and contradicted by the very evidence cited by Complaint Counsel in support of its claim. In fact, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Furthermore, the proposed finding relies exclusively on documents that were never presented by Complaint Counsel at trial, and thus exclusively on evidence that Complaint Counsel did not have to subject to cross-examination before the Court.

60. [REDACTED] (Christian, Tr. 960; PX8004 at 002-03 (¶ 9) (O'Sullivan Decl.) (*in camera*)).

Response to Finding No. 60:

Complaint Counsel’s proposed finding of fact is not a fact, but instead improper argument. Furthermore, the proposed finding is not supported by the cited evidence, and is directly refuted by other evidence. The testimony from Mr. Christian does not stand for the broad and unqualified assertion that [REDACTED]

[REDACTED] First of all, Mr. Christian’s testimony was limited to the quality of *Kronos*’ chloride grades in comparison to *Kronos*’ sulfate grades. (Christian, Tr. 960). Second, Mr. Christian stated that this testimony is “[b]ased upon feedback from the market,” without specifying what that “feedback” was or what proportion of “the market” offered this feedback. (Christian, Tr. 960). The proposed finding also ignores substantial evidence from Mr. Christian himself that [REDACTED]

[REDACTED]

Likewise, the testimony from Mr. O’Sullivan [REDACTED]

[REDACTED]

61. Specifically, Kronos notes that [REDACTED] (PX8002 at 004 (¶¶ 17-18) (Christian Decl.) (*in camera*)). Kronos also notes that [REDACTED] (PX3038 at 022 (*in camera*)).

Response to Finding No. 61:

Complaint Counsel’s proposed finding is misleading. Under cross-examination at trial, Mr. Christian admitted that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

62. Customers view chloride TiO₂ as being higher quality than sulfate TiO₂, and necessary for many of their applications. (Arrowood, Tr. 1065; PX7016 (DeCastro, Dep. at 96-97) [REDACTED] (*in camera*); PX7044 (Vanderpool, Dep. at 87-91) (*in camera*)).

Response to Finding No. 62:

Complaint Counsel’s proposed finding of fact is not a fact, but instead improper argument. None of the cited evidence stands for the broad and unqualified proposition that *all* “customers” uniformly “view chloride TiO₂ as being higher quality than sulfate TiO₂” or that chloride-process TiO₂ is “necessary for many of their applications.” Complaint Counsel’s proposed finding is just an inaccurate and misleading summary of the testimony of three customers who represent a small fraction of the TiO₂ industry.

63. For example, [REDACTED] (PX8003 at 003 (¶12) (Young Decl.) (partially *in camera*)).

Response to Finding No. 63:

Complaint Counsel’s proposed finding is inaccurate, incomplete, and directly refuted by the trial testimony of Sherwin-Williams. At trial, Mr. Young specifically testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Thus, under cross-examination, Mr. Young directly contradicted the absolute statement offered in his declaration (PX8003-003 ¶¶ 12-13).

64. Masco explained that [REDACTED] (PX8006 at 001 (¶5) (Pschaidt Decl.) (*in camera*)).

Response to Finding No. 64:

Complaint Counsel’s proposed finding is inaccurate and misleading. Mr. Pschaidt, a representative of Masco, did *not* testify at trial that [REDACTED]

[REDACTED] In fact, in response to a question from the Court, Mr. Pschaidt testified that TiO₂ is not necessary *at all* for coating with hiding power—customers wishing to hide with one coat of paint could also use a primer, which is reliant on a “resin,” rather than TiO₂, for the “stain-blocking properties.” (Pschaidt, Tr. 968-69). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

65. North American customers require the use of chloride TiO₂ because of its superior attributes including brightness, durability, opacity and scrubbability. (*See* CCF ¶¶ 67-92, below).

Response to Finding No. 65:

Complaint Counsel’s proposed finding of fact is not a fact, but instead improper argument. *None* of the cited evidence supports the broad and unqualified assertion that *all* “North American customers” uniformly “require” the use of chloride-process TiO₂ (apparently for *all* applications). Further, by citing exclusively to 25 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCFE ¶¶ 67-92, below.

66. For example, chloride TiO₂ is {**necessary for exterior coatings applications.**} (PX7003 (DeCastro, IHT at 21) (RPM reports that [REDACTED] *in camera*); PX8000 at 003-04 (¶¶ 15, 19) (Malichky Decl.) (partially *in camera*); PX7025 (Malichky, Dep. at 122-23) (PPG [REDACTED] *in camera*); Young, Tr. 666 (Sherwin-Williams explained that [REDACTED] *in camera*); PX8005 at 002 (¶7) (Maiter Decl.)).

Response to Finding No. 66:

Complaint Counsel’s proposed finding is not supported by the cited evidence. None of the cited evidence stands for the broad and absolute claim that chloride-process TiO₂ is

[REDACTED] All Mr. DeCastro *actually* said is that chloride-process TiO₂ is [REDACTED]

Moreover, the cited evidence only reflects the views of a few hand-picked customers representing a fraction of the entire TiO₂ industry. Furthermore, the proposed finding ignores evidence presented at trial that [REDACTED]

Brightness

67. Chloride TiO₂ is brighter in appearance, which is required by North American customers. (Vanderpool, Tr. 182-83 (chloride TiO₂ is “purer” than sulfate TiO₂, which is “dirtier” and has a yellow tint); Young, Tr. 643; Christian, Tr. 778-80, 897 (“overwhelming preference” for chloride TiO₂ in North America); PX8002 at 004 (¶17) (Christian Decl.) (*in camera*); PX7027 (Pschaidt, Dep. at 54-55) (*in camera*)).

Response to Finding No. 67:

Complaint Counsel’s proposed finding is not supported by the evidence cited. *None* of the cited evidence stands for the broad and unqualified claim that chloride-process TiO₂ is uniformly “brighter in appearance” than sulfate-process TiO₂, or that this unspecified level of brightness is uniformly “required” by *all* “North American customers.” Complaint Counsel cites testimony representing the views of a few hand-picked customers who are a small fraction of the entire TiO₂ industry. The proposed finding also cites testimony from witnesses with neither expertise in TiO₂ production nor in formulating products. Mr. Vanderpool is the divisional vice president of paint at True Value and has been with the company for only three years.

(Vanderpool, Tr. 153-54). He in turn oversees seven managers that run True Value’s paint business, who manage sales, purchasing, research, manufacturing and accounting. (Vanderpool, Tr. 155-57). Prior to working at True Value, Mr. Vanderpool worked primarily in the finance and credit department at Benjamin Moore. (Vanderpool, 158-59). Mr. Pschaidt is a vice president of procurement at a paint company, responsible generally for procuring raw materials, and he did not testify that he has special knowledge about TiO₂ (Pschaidt, Tr. 963-64).

Complaint Counsel also cites two documents never presented at trial (PX8002 and PX7027), and thus its proposed finding is based on evidence never subject to cross-examination before the Court.

68. This brighter appearance is due to chloride TiO₂’s bluer undertone compared to sulfate TiO₂’s yellow undertone. (Vanderpool, Tr. 182-83; Malichky, Tr. 274-75; Young, Tr. 665 (*in camera*); Pschaidt, Tr. 978 (*in camera*); PX7049 (Zamec, Dep. at 131-32) (*in camera*); PX1322 at 003 (Tronox presentation) (*in camera*)). Customers also describe

[REDACTED] (PX7003 (DeCastro, IHT at 21) (*in camera*)).

Response to Finding No. 68:

Complaint Counsel's proposed finding is not supported by the evidence cited. *None* of the cited evidence stands for the broad and unqualified claim that chloride-process TiO₂ has a "brighter appearance" as a result of a "bluer undertone," or that "customers" as a whole "describe the appearance of chloride TiO₂ as a whiter pigment." Complaint Counsel cites testimony consisting of the views of only a few hand-picked customers representing a small fraction of the entire TiO₂ industry. The proposed finding also cites testimony from witnesses with neither expertise in TiO₂ production nor in formulating products. Mr. Vanderpool is the divisional vice president of paint at True Value and has been with the company for only three years. (Vanderpool, Tr. 153-54). He in turn oversees seven managers that run True Value's paint business, who manage sales, purchasing, research, manufacturing and accounting. (Vanderpool, Tr. 155-57). Prior to working at True Value, Mr. Vanderpool worked primarily in the finance and credit department at Benjamin Moore. (Vanderpool, 158-59). Mr. Malichky testified that he is not a chemist and only knows enough about chemistry that he "can survive in most conversations." (Malichky, Tr. 275). Mr. Pschaidt is a vice president of procurement at a paint company, responsible generally for procuring raw materials, and he did not testify that he has special knowledge about TiO₂ (Pschaidt, Tr. 963-64). Complaint Counsel also cites two documents never presented at trial (PX8002 and PX7027), and thus its proposed finding is based on evidence never subject to cross-examination before the Court.

69. Brighter colors and brilliant whites are achievable only through chloride TiO₂. (PX7052 (O'Sullivan, Dep. at 160-61) (*in camera*); PX9121 at 006 (Chemours 2017 Form 10-K)). As Mr. O'Sullivan of Chemours testified, [REDACTED] (PX7052 (O'Sullivan, Dep. at 160-61) (*in camera*)).

Response to Finding No. 69:

Complaint Counsel’s proposed finding is misleading. None of the cited testimony stands for the categorical and ambiguous claim that “brighter colors” and “brilliant whites” are achievable “only” through chloride TiO₂. The proposed finding is based on an SEC filing by *Chemours* in which Chemours touts the specific properties of TiO₂ pigment produced using *Chemours*’ “proprietary chloride technology.” (PX91921 at 006 (Chemours 2017 Form 10-K)). These statements by Chemours regarding the benefits of its own technology hardly stand for the broad and unqualified proposition that “[b]righter colors and brilliant whites are achievable *only* through chloride TiO₂.” Furthermore, Mr. O’Sullivan’s deposition testimony [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

70. For North American customers, sulfate TiO₂ [REDACTED] (in camera); Pschaidt, Tr. 978 [REDACTED] (in camera); PX8003 at 003 (¶ 12) (Young Decl.) (partially in camera); PX7040 (Santoro, Dep. at 26-27) (in camera)).

Response to Finding No. 70:

Complaint Counsel’s proposed finding is not supported by the evidence cited. None of the evidence stands for the broad and unqualified claim that sulfate-process TiO₂ is “unsuitable” for *all* “North American customers.” The proposed finding is based solely on the views of three hand-picked customers who represent only a small fraction of the entire TiO₂ industry. Furthermore, at trial, Mr. Young acknowledged under cross-examination that {**Sherwin**

71. Sherwin-Williams determined [REDACTED] (PX8003 at 003 (¶ 12) (Young Decl.) (partially *in camera*)).

Response to Finding No. 71:

Complaint Counsel’s proposed finding reflects the views of a single hand-picked customer who does not purport to—and could not—represent the views of the entire TiO2 industry.

72. Masco “pride[s] [itself] [on] hav[ing] the ultra pure white feature with [its] Behr brand. This delivers some crisp colors, especially in the white pigmented paints, but also the majority of the paint that is tinted at the store level . . .” (Pschaidt, Tr. 971). Thus, the ultra pure white feature is “[e]xtremely important” to Behr paints. (Pschaidt, Tr. 972). The ultra pure white feature is created by “the TiO2 that [Masco] use[s], and in order to achieve that [Masco] need[s] to use TiO2 produced based on the chloride process.” (Pschaidt, Tr. 973; Pschaidt, Tr. 977 [REDACTED] (in camera); PX8006 at 002, 004 (¶¶ 8, 20) (Pschaidt, Decl.) (in camera)).

Response to Finding No. 72:

Complaint Counsel’s proposed finding reflects only the views of a single hand-picked customer who does not purport to—and could not—represent the entire TiO2 industry.

73. Tronox’s own ordinary course documents, dating as far back as 2012, recognize that [REDACTED] (PX1322 at 002 (Tronox presentation) (in camera); PX1346 at 013 (Tronox Investor Presentation) (“Chloride technology yields consistently whiter, brighter pigment grades preferred for many of the largest end-use applications (e.g. paints and plastics) as compared to the sulfate process.”); PX1324 at 001 (Romano email to Casey) [REDACTED] (in camera)).

[REDACTED]

[REDACTED] Furthermore, the actual testimony from Mr. Maiter—conspicuously absent from the proposed finding—does not support Complaint Counsel’s assertion. All Mr. Maiter says is that

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Moreover, two of the witnesses quoted—Mr. O’Sullivan and Mr. Maiter—were not called by Complaint Counsel to testify at trial, and thus were not subject to cross-examination before the Court. The proposed finding also relies on documents that were not presented by Complaint Counsel at trial (PX8002, PX8004, PX8005), and thus not subject to cross-examination before the Court.

Durability

75. In addition to brightness, chloride TiO₂ is more durable than sulfate TiO₂, which is a requirement for North American customers (Christian, Tr. 777; Vanderpool, Tr. 193, 195 (*in camera*); PX8005 at 002 (¶ 7) (Maiter Decl.)). The chemistry of the sulfate TiO₂ is the reason it is less durable than chloride TiO₂. (Malichky, Tr. 274-75 (“The other main difference is in the durability, so sulfate carries iron with the product, and that decreases the durability in our final application.”); Young, Tr. 666-67 [REDACTED] [REDACTED] (*in camera*); PX8003 at 003 (¶12) (Young Decl.) (“[T]he chemistry of sulfate TiO₂ may result in . . . less durability than chloride TiO₂.”)).

Response to Finding No. 75:

Complaint Counsel’s proposed finding is not supported by the evidence cited. Indeed, *none* of the cited documents stand for the broad and unqualified claim that chloride-process TiO₂ is uniformly “more durable” than sulfate-process TiO₂, or that chloride-process TiO₂ is a

“requirement” for *all* “North American customers.” Mr. Young’s declaration only states that sulfate-process TiO2 “*may* result in . . . less durability.” (PX8003-003 (¶ 12) (Young Decl.) (emphasis added)). And even cursory review of the quoted language above makes clear that

[REDACTED]

[REDACTED] The testimony from Mr. Malichky regarding “chemistry” should be disregarded because Mr. Malichky acknowledged that he is not a chemist and only knows enough about chemistry that he “can survive in most conversations.” (Malichky, Tr. 275). The proposed finding also ignores evidence that durability is “95 percent” a product of “surface treating,” rather than manufacturing process. (Engle, Tr. 2477).

76. Customers that need durability cannot substitute chloride TiO2 for sulfate TiO2. (CCFF ¶¶ 77-80, below).

Response to Finding No. 76:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. None of the cited testimony stands for the broad and unqualified claim that *all* customers that need “durability” categorically “cannot substitute” chloride-process TiO2 for sulfate-process TiO2. Further, by exclusively citing three other proposed findings, the proposed finding also violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCFF ¶¶ 77-80, below. Moreover, the proposed finding ignores evidence that sulfate-process grades can [REDACTED]

77. For PPG, [REDACTED]
[REDACTED]
[REDACTED] *in camera*); PX8000 at 003-04 (¶¶ 15, 19) (Malichky Decl.) (*in camera*)).

Response to Finding No. 77:

Complaint Counsel’s proposed finding is incomplete and contradicted by the evidence.

Mr. Malichky’s claim that [REDACTED]
[REDACTED]
[REDACTED]

78. In laboratory testing, [REDACTED]
[REDACTED] (Vanderpool, Tr. 195 (*in camera*)).

Response to Finding No. 78:

Complaint Counsel’s proposed finding is misleading because it takes the record out out context. In the very same testimony, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

79. RPM, a coatings manufacturer of the Rust-Oleum brand, [REDACTED]
[REDACTED] (PX7003 (DeCastro, IHT at 21) (*in camera*)).

Response to Finding No. 79:

Complaint Counsel’s proposed finding is misleading and not supported by the cited evidence. [REDACTED]
[REDACTED]

[REDACTED]

80. Mississippi Polymers also agrees that [REDACTED] (PX7049 (Zamec, Dep. at 131-32) (*in camera*)).

Response to Finding No. 80:

Complaint Counsel's proposed finding is misleading and incomplete. [REDACTED]

[REDACTED]

81. Other TiO₂ producers agree that chloride TiO₂ has better durability than sulfate TiO₂. (See CCF ¶¶ 82-84, below).

Response to Finding No. 81:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. Furthermore, by exclusively citing three other findings, the proposed finding violates the ALJ's Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCFB ¶¶ 82-84, below.

82. Kronos, a TiO₂ producer that sells both chloride TiO₂ and sulfate TiO₂, testified that [REDACTED] (Christian, Tr. 777; PX8002 at 004 (¶ 17) (Christian Decl.) (*in camera*)).

Response to Finding No. 82:

Complaint Counsel’s proposed finding is incomplete and misleading. At trial, Mr. Christian’s testimony is not as absolute as characterized in the proposed finding: Mr. Christian testified that [REDACTED]

[REDACTED] (Christian, Tr. 777). Mr. Christian also admitted under cross-examination at trial that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

83. Venator, another TiO₂ producer that sells both chloride and sulfate TiO₂, recognizes that chloride TiO₂ has superior durability to sulfate TiO₂. (PX8005 at 002 (¶ 7) (Maiter Decl.)).

Response to Finding No. 83:

Complaint Counsel’s proposed finding is misleading and misstates the record. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

84. Chemours explained that [REDACTED] (PX7052 (O’Sullivan, Dep. at 161) (*in camera*)).

Response to Finding No. 84:

Complaint Counsel’s proposed finding is inaccurate and misleading. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (O’Sullian Dep. 161). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] the testimony of Tronox’s witness, Mr. Engle, who stated that durability is primarily a function of surface treatment, rather than manufacturing process. (Engle, Tr. 2477 (noting that for durability of TiO2 pigment, “95 percent of that technology is in surface treating,” rather than chloride vs. sulfate process)).

Other attributes of chloride TiO2

85. Customers and TiO₂ producers agree that chloride TiO₂ also has other properties that are superior to sulfate TiO₂, such as opacity, coverage, scrubbability, and tint strength. (*See* CCFF ¶¶ 86-92, below).

Response to Finding No. 85:

Complaint Counsel’s proposed finding is not a fact, but improper argument. None of the cited testimony supports the broad and unqualified assertion that *all* “customers” and *all* “TiO₂ producers” uniformly “agree” that chloride TiO₂ has other properties that are “superior” to sulfate TiO₂. Furthermore, by citing exclusively to six other proposed finding, Complaint Counsel’s proposed finding also violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCFF ¶¶ 86-92, below.

86. Sherwin-Williams recognizes that “the chemistry of sulfate TIO₂ may result in less coverage” than chloride TiO₂, making it less desirable for paint. (PX8003 at 003 (¶12) (Young Decl.)).

Response to Finding No. 86:

Complaint Counsel’s proposed finding stands only for the proposition that sulfate-process TiO₂ *may* result in “less coverage” than chloride-process TiO₂. (PX8003-003 (¶ 12) (Young Decl.)). In other words, it *may not*.

87. True Value explained that [REDACTED] (Vanderpool, Tr. 195 (*in camera*)).

Response to Finding No. 87:

Mr. Vanderpool’s testimony [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Vanderpool, Tr. 195).

88. PPG explained that [REDACTED] (Malichky, Tr. 296-97 (*in camera*); PX7025 (Malichky, Dep. at 117-18) (noting that [REDACTED] (*in camera*); PX8000 at 004 (¶19) (Malichky Decl.) (*in camera*)).

Response to Finding No. 88:

Complaint Counsel’s proposed finding is misleading and incomplete. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX7025 (Malichky, Dep. 124)). Further, the finding ignores other evidence in the record that [REDACTED]

[REDACTED]; Engle, Tr. 2463-65).

89. Sherwin-Williams notes that [REDACTED] [REDACTED] (PX8003 at 003 (¶ 12) (Young Decl.) (*in camera*)). Sherwin-Williams also explained that sulfate TiO₂ is inferior to chloride TiO₂ in terms of particle size distribution. (Young, Tr. 643).

Response to Finding No. 89:

Complaint Counsel’s proposed finding is incomplete and misleading. Although Mr. Young’s declaration states that [REDACTED]

[REDACTED]

[REDACTED] (PX8003 at 003 (¶ 12) (Young Decl.) (*in camera*)). As to particle size distribution, Mr. Young did not testify that sulfate-process TiO₂ is “inferior” to chloride-process TiO₂; all Mr. Young stated was that [REDACTED]

[REDACTED]

90. Mississippi Polymers states that [REDACTED] [REDACTED] (PX8001 at 002 (¶ 13) (Zamec Decl.) (*in camera*)).

Response to Finding No. 90:

Complaint Counsel’s proposed finding is incomplete and ignores other evidence in the record that undermines and contradicts its proposed finding. Specifically, Complaint Counsel ignores substantial evidence that plastics manufacturers can and do use sulfate-process TiO₂. Major plastics producer Westlake testified that it uses sulfate-process TiO₂ to create PVC siding. PX7034, Septien Dep., 45:4-47:8 (testifying about PX4029, Westlake’s CID response) (“Q: Do some plants have sulfate grades qualified then? ... A: Yes. Q: Which plants have sulfate grades qualified, if you know? A: Three plants.”). Other plastics manufacturers stated in their CID responses to the FTC that they also use sulfate-process TiO₂. [REDACTED]

[REDACTED], [REDACTED]

[REDACTED]. Moreover, Mr.

Engle, a representative of Tronox, testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

91. RPM finds that [REDACTED]
[REDACTED] (PX7016 (DeCastro, Dep. at 97) (*in camera*)).

Response to Finding No. 91:

Complaint Counsel’s proposed finding is based on testimony for which Mr. DeCastro has no foundation or personal knowledge. As Mr. DeCastro testified, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

94. TiO₂ producers are aware of the difficulties that customers face in attempting to switch from using chloride TiO₂ to sulfate TiO₂. (PX1000 at 002, 005 (2016 Tronox strategy document) [REDACTED] (*in camera*); Christian, Tr. 777 (“Q: Yes. So a customer -- in your experience, what would a customer need to do to reformulate a product from using chloride to sulfate? A: I don’t have a lot of examples of that happening. That would be pretty rare, but it would entail a significant amount of work, a lot of trials, a complete reformulation of their product and grade”)).

Response to Finding No. 94:

Complaint Counsel’s proposed finding is inaccurate, misleading, and not supported by the cited evidence. Indeed, PX1000 is *completely silent* on switching costs from chloride to sulfate TiO₂. As PX1000 at 002 states in full: [REDACTED]
[REDACTED]
[REDACTED] (PX1000-002). Thus, the reference to [REDACTED]
[REDACTED] says *nothing* about chloride and sulfate. The same is true for PX1000-005; it discusses [REDACTED] but is completely silent on chloride and sulfate. (PX1000-005). Furthermore, the cited testimony from Mr. Christian regarding switching costs is ambiguous because Mr. Christian was asked about one-coat coverage in the prior question, so it is unclear whether Mr. Christian is answering about reformulating for *one-coat coverage*, or reformulating for *any* product. (Christian, Tr. 776-77). At any rate, *none* of the cited testimony stands for the broad and unqualified claim that *all* TiO₂ producers are uniformly “aware” of “difficulties” faced by customers in switching from chloride to sulfate grades.

95. It costs customers [REDACTED]
[REDACTED]
[REDACTED] (*in camera*); Christian, Tr. 777-78; Young, Tr. 652-54 (“Q: How long does it take for Sherwin Williams to qualify a grade of TiO₂? A: It can vary, but typically it can be as much as three years.”); Pschaidt, Tr. 989-90 (*in camera*)).

Response to Finding No. 95:

Complaint Counsel’s proposed finding is misleading. Notably, both Mr. Young and Mr. Pschaidt’s testimony refers to the costs involved in reformulating from *any* grade to *any* other grade, whether it be chloride-or sulfate-process—it does *not* solely relate to the costs involved in switching from chloride- to sulfate-process, as suggested by Complaint Counsel. (Young, Tr. 652-54 (discussing qualifying “a grade of TiO₂” without specifying chloride or sulfate); Pschaidt, Tr. 989-90 (discussing only the “qualification process at Masco,” without specifying chloride or sulfate)).

96. As PPG explained, [REDACTED] (PX8000 at 004 (¶ 19) (Malichky Decl.) (*in camera*); Malichky, Tr. 301 (*in camera*)).

Response to Finding No. 96:

Complaint Counsel’s proposed finding is misleading and ambiguous. Although Mr. Malichky states that [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] (PX8000 at 004 (¶ 19) (Malichky Decl.) (*in camera*)). Likewise, Mr. Malichky’s testimony at trial [REDACTED] [REDACTED] [REDACTED] (Malichky, Tr. 301). Indeed, the evidence in the record indicates that customers undertake “the same” effort to reformulate from one chloride grade to another chloride grade of TiO₂ as they would need to undertake to reformulate from a chloride grade to a sulfate grade. (Mouland, Tr. 1225).

97. Reformulation involves [REDACTED]
[REDACTED]
(Malichky, Tr. 301 (*in camera*); Christian, Tr. 777-78).

Response to Finding No. 97:

Complaint Counsel’s proposed finding is misleading and ambiguous. As noted before,
Mr. Malichky’s testimony [REDACTED]

[REDACTED]
(Malichky, Tr. 301). Likewise, while Mr. Christian’s testimony was in response to a question involving “reformulat[ing] a product from using chloride to sulfate,” nothing in Mr. Christian’s testimony specifies that the costs involved are *exclusive* to switching from chloride to sulfate. (Christian, Tr. 777-78).

98. [REDACTED] than substituting a chloride TiO₂ with another chloride TiO₂. (PX7044 (Vanderpool, Dep. at 128) (*in camera*); PX8002 at 004-05 (¶ 20) (Christian Decl.) (*in camera*)).

Response to Finding No. 98:

Complaint Counsel’s proposed finding is misleading and based on testimony for which
Mr. Vanderpool has no personal knowledge or foundation. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] Furthermore, the testimony from Mr. Christian does not support the claim
advanced by Complaint Counsel. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX8002 at

004-05 (¶ 20) (Christian Decl).

99. Reformulation from chloride TiO₂ to sulfate TiO₂ also [REDACTED] (Malichky, Tr. 301-02 (*in camera*); PX8002 at 004-05 (¶20) (Christian, Decl.) [REDACTED] (*in camera*)).

Response to Finding No. 99:

Complaint Counsel’s proposed finding is inaccurate and not supported by the cited evidence. [REDACTED]

[REDACTED]

[REDACTED] Furthermore, the cited testimony is based on the views of two hand-picked witnesses by Complaint Counsel, whose testimony cannot reflect the entire TiO₂ industry.

100. Reformulation can take [REDACTED] (Young, Tr. 660-61 (It took Sherwin-Williams [REDACTED] (*in camera*); PX8003 at 004 (¶¶ 17-20) (Young Decl.) (partially *in camera*); Vanderpool, Tr. 186; PX8001 at 002 (¶ 10) (Zamec Decl.) (*in camera*); PX8006 at 002 (¶11) (Pschaidt Decl.) (*in camera*)).

Response to Finding No. 100:

Respondents have no specific response.

101. Reformulation can also take [REDACTED] For example, Kronos estimates that [REDACTED] to qualify a new TiO₂ grade. (PX7035 (Christian, Dep. at 215-16) (*in camera*)).

Response to Finding No. 101:

Complaint Counsel’s proposed finding is based on testimony for which Mr. Christian has no personal knowledge or foundation. As Mr. Christian admitted in his deposition, [REDACTED]

industrial coating application. (PX8003 at 004 (¶19) (Young Decl.) (“Some industrial coatings, for instance, need to be tested in salt water for two years.”)).

Response to Finding No. 103:

Complaint Counsel’s proposed finding is misleading, again, to the extent it suggests that the costs associated with switching would be incurred solely in switching from chloride to sulfate TiO₂. *See* Reply to Proposed Finding of Fact Nos. 95, 102. Mr. Young’s testimony does *not* solely relate to switching from chloride to sulfate TiO₂. (PX8003-004 (¶ 19)).

104. Plastics manufacturers, such as Deceuninck North America (DNA), explain that it takes three to six months to qualify a chloride TiO₂ supplier. (Arrowood, Tr. 1067). However, for DNA to switch to a sulfate TiO₂ grade, “it would require extensive testing” – “a lot of time, a lot of money, a lot of effort” and could take two years or longer. (Arrowood, Tr. 1088). Compared to qualifying a chloride TiO₂ grade, it could take four times longer to qualify a sulfate TiO₂ grade. (Arrowood, Tr. 1067, 1088).

Response to Finding No. 104:

Complaint Counsel’s proposed finding is based on testimony for which Mr. Arrowood does not have personal knowledge or foundation. As Mr. Arrowood admitted at trial, his responsibility is “procurement” and “dealing with suppliers.” (Arrowood, Tr. 1067-68). Mr. Arrowood’s responsibility is *not* testing or qualification; that responsibility belongs to Mr. Paul Adams, another DNA employee. (Arrowood, Tr. 1058). As Mr. Arrowood acknowledged: “Paul is our chemist that is over our materials lab, so *he is responsible for testing any new material from any supplier and going through their qualification process.*” (Arrowood, Tr. 1068 (emphasis added)).

105. Another reason North American customers cannot readily substitute sulfate TiO₂ for chloride TiO₂ is point-of-sale tinting and color matching. (*See* CCF ¶¶ 106-10, below). Point-of-sale tinting, which is common in North America, is where a customer picks a color at the retailer or store and the can of paint is customized to the customer’s request. (Young, Tr. 643-44 (Tinting is “a process by which colorant is usually injected into a can of paint, its put on a shaker and it achieves the color that a customer desires, so it’s basically customizing the product”); PX7020 (Young, Dep. at 48); Pschaidt, Tr. 971-72 (explaining tint system for Masco’s Behr paints and noting that the majority of paints Masco sells are tinted in-store)).

Response to Finding No. 105:

Complaint Counsel’s proposed finding of fact is not a fact, but instead improper argument. None of the cited evidence stands for the broad and unqualified assertion that *all* “North American customers” categorically “cannot readily substitute” sulfate-process for chloride-process TiO₂. It reflects only the views of two hand-picked customers who do not reflect the entire TiO₂ industry. Indeed, the proposed finding ignores evidence that chloride-process TiO₂ is not necessary for in-store tinting. (Stern, Tr. 3845).

106. Internationally, coloring is typically predetermined at manufacturing, so instead of customized paint there are “packaged colors that are standard offerings [] so colors are predetermined, and you can buy it off the shelf.” (Young, Tr. 644-45; PX7020 (Young, Dep. at 48, 134) (“Typically in Europe colors are premade in the manufacturing environment so you have the ability to overcome variation in color by adjusting in the plant. In the North America[n] market, all the paint companies tint at point of sale” “It’s a lot of prepackaged colors in South America.”); Malichky, Tr. 302-03 [REDACTED] (in camera)).

Response to Finding No. 106:

Complaint Counsel’s proposed finding is incomplete and misleading to the extent it suggests that in-store tinting is unique to North America; Respondents presented testimony that in-store tinting is also available in Europe, India, and Australia. (Romano, Tr. 2242-43).

107. Sherwin-Williams can use sulfate TiO₂ for its paints in Europe but not in North America, because unlike Europe, in North America paint is tinted at the point of sale. This requires chloride TiO₂ in order to get the color consistency and bright white that customers expect. (PX7020 (Young, Dep. at 47-49)).

Response to Finding No. 107:

Again, Complaint Counsel’s proposed finding is incomplete and misleading to the extent it suggests that in-store tinting is somehow unique to North America; Respondents presented testimony that in-store tinting is also available in Europe, India, and Australia. (Romano, Tr. 2242-43).

108. A key consequence of point-of-sale tinting is that customers require consistency in TiO₂ used in the system, which demands chloride TiO₂ because sulfate cannot provide the same consistent results as chloride TiO₂. (PX1322 at 003 (Tronox presentation) [REDACTED] (in camera); PX7020 (Young, Dep. at 47-49) (Point-of-sale tinting requires chloride TiO₂ in order “to achieve the color palette reliably that the customers expect, it has to be a bright white, a clean white product”); Young, Tr. 643-47; PX7025 (Malichky, Dep. at 117-18) [REDACTED] (in camera)).

Response to Finding No. 108:

Complaint Counsel’s proposed finding is misleading and not directly supported by the cited evidence. Although PX1322 states that [REDACTED] [REDACTED], it does *not* state that sulfate-process TiO₂ “cannot” provide the same consistent results as chloride-process TiO₂. (PX1322-003).

109. Customers testified that [REDACTED] making it less likely that they will be willing to switch to a different TiO₂ product. (Malichky, Tr. 296-97 [REDACTED] (in camera); Vanderpool, Tr. 196 [REDACTED] (in camera)).

Response to Finding No. 109:

Complaint Counsel’s proposed finding is incomplete and misleading because it ignores testimony from Mr. Malichky that [REDACTED] [REDACTED] (Malichky, Tr. 296-97). Notably, the proposed finding is based exclusively on testimony from two hand-picked customers representing only a small fraction of the TiO₂ industry.

110. [REDACTED] (Malichky, Tr. 296-97 (in camera); PX7025 (Malichky, Dep. at 124) (in camera)). It is also a challenge for applications such as [REDACTED] (Malichky, Tr. 297 (in camera)).

Response to Finding No. 110:

Complaint Counsel’s proposed finding is not supported by the cited evidence. Mr. Malichky does not purport to—nor could he—speak on behalf of all “large coatings companies.” Indeed, the proposed finding is based exclusively on testimony from a single hand-picked customer representing only a small fraction of the TiO₂ industry.

- (c) North American customers overwhelmingly purchase chloride TiO₂ even when it becomes significantly more expensive than sulfate TiO₂

111. For the last several years, chloride TiO₂ has consistently been more expensive than sulfate TiO₂, yet North American customers have continued to purchase chloride TiO₂ notwithstanding the significant price premium for chloride TiO₂ over sulfate TiO₂. (*See* CCF ¶¶ 112-33, below).

Response to Finding No. 111:

Complaint Counsel’s proposed finding of fact is not a fact, but improper argument. Furthermore, by citing exclusively to 21 other findings, the proposed finding violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCF ¶¶ 112-33, below.

112. Between 2012 and 2017, chloride TiO₂ had a higher price than sulfate TiO₂ in North America. (Young, Tr. 647-48). During this time, the price in North America for chloride TiO₂ has been as much as 40% higher than for sulfate TiO₂. (Young, Tr. 647-48).

Response to Finding No. 112:

Complaint Counsel’s proposed finding is misleading and incomplete. Mr. Young did *not* testify that between 2012 and 2017, chloride TiO₂ always had a “higher price” than sulfate TiO₂ in North America. (Young, Tr. 647-48). Instead, Mr. Young testified that “[i]n general, during that time, chloride has been higher priced. It’s had a pretty wide range, however, over the last six years.” (Young, Tr. 647). Moreover, the proposed finding does not stand for the broad and categorical claim that chloride-process TiO₂ categorically had a “higher price” than sulfate-

process TiO₂ for every customer in North America, because Mr. Young's testimony necessarily related only to the pricing information that was available to him firsthand, not necessarily all the pricing information for every customer in the TiO₂ industry.

In fact, the evidence presented at trial casts doubt on Mr. Young's testimony that there was *ever* a 40% difference in chloride- and sulfate-process TiO₂ prices in North America. (See, e.g., RX0170-30 and 31, Figure 13 and 14 [REDACTED])

[REDACTED] Similar to what Dr. Shehadeh's expert report shows, Mr. Christian of Kronos testified that [REDACTED]

[REDACTED] This confirms that Mr. Young's single perspective of TiO₂ prices does not reflect the full and accurate picture of TiO₂ pricing.

113. Cristal's own executives and documents admit that [REDACTED] (PX7043 (Gigou, Dep. at 23) [REDACTED] *in camera*); PX2366 at 003 (Cristal spreadsheet for Q4 2017) [REDACTED] *in camera*); PX2369 at 004 (Cristal spreadsheet for Q1 2018) [REDACTED] (*in camera*)).

Response to Finding No. 113:

Complaint Counsel's proposed finding is misleading, not supported by the cited evidence, and ignores contradictory evidence. The cited testimony from Mr. Gigou [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Moreover,

the proposed finding relies exclusively on testimony and documents that Complaint Counsel did not present at trial, and thus were not subject to cross-examination before the Court.

114. Tronox’s sales executive admits that the sales teams are instructed to [REDACTED] (PX1431 at 001 (Duvekot email) [REDACTED] (*in camera*); Duvekot, Tr. 1295-98 (*in camera*); PX7026 (Duvekot, Dep. at 64-65) [REDACTED] (*in camera*)).

Response to Finding No. 114:

Complaint Counsel’s proposed finding is misleading and not supported by the cited evidence. Nowhere in Mr. Duvekot’s email or testimony does he acknowledge or state that Tronox’s sales teams “are instructed to [REDACTED] [REDACTED] (PX1431; Duvekot, Dep. Tr. 1295-98). Mr. Duvekot’s testimony about [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Furthermore, by referring to [REDACTED], Complaint Counsel’s proposed finding *concedes* that there are sulfate-process grades that are [REDACTED] with Tronox’s chloride grades, which directly undermines Complaint Counsel’s claim that the two are

in separate product markets. Finally, Complaint Counsel fails to note that Mr. Duvekot only handles sales in Europe, the Middle East, and Africa, regions that fall completely outside of Complaint Counsel’s proffered geographic market consisting solely of “North America” (defined by Complaint Counsel as solely the United States and Canada). (Duvekot, Tr. 1290-91).

115. [REDACTED] (PX7026 (Duvekot, Dep. at 64-65)) [REDACTED] (in camera)).

Response to Finding No. 115:

Complaint Counsel’s proposed finding is misleading and mischaracterizes the witness’s testimony. Mr. Duvekot that never states that [REDACTED]; in fact, what Mr. Duvekot says is [REDACTED] [REDACTED] (PX7026 (Duvekot Dep. 64-65)). Furthermore, although Mr. Duvekot is a Tronox executive, he did not testify as a corporate representative, and therefore it is inaccurate and misleading to broadly attribute Mr. Duvekot’s testimony to “Tronox” in this instance.

116. [REDACTED] (Vanderpool, Tr. 197-98) [REDACTED] (in camera); PX7044 (Vanderpool, Dep. at 109-10) (in camera); PX7026 (Duvekot, Dep. at 67-68) (in camera); Duvekot Tr. 1296-98 (in camera); see also Young, Tr. 670 [REDACTED] (in camera)).

Response to Finding No. 116:

Complaint Counsel's proposed finding is contradicted by the evidence. Indeed, Complaint Counsel's *own expert*, Dr. Hill, acknowledged that [REDACTED]

[REDACTED]

[REDACTED] Mr. Romano, from Tronox, also testified that Tronox has reduced its chloride TiO₂ prices to compete with competitive sulfate TiO₂ grades. (Romano, Tr. 2240-42). Furthermore, the proposed finding is based on the testimony of two hand-picked customers representing only a small fraction of the TiO₂ industry.

117. Analyzing data from customers and producers, Dr. Hill determined that [REDACTED] (Hill, Tr. 1683-85; PX5000 at 046-47 (¶¶ 100-02 & Figs. 17-18) (Hill Initial Report) (*in camera*)). [REDACTED] (Hill, Tr. 1683-85; PX5000 at 046-47 (¶100 & Fig. 17) (Hill Initial Report) [REDACTED] (PX5000 at 046 (¶102 & Fig. 18) (Hill Initial Report) (*in camera*); Hill, Tr. 1684-85).

Response to Finding No. 117:

Complaint Counsel’s proposed finding is inaccurate and misleading. First, Dr. Hill acknowledged at trial that the data file used to create his Figure 17 from his initial report had “missing data,” and thus cannot be relied upon. (Hill, Tr. 1951). Moreover, as explained by Dr. Shehadeh, Dr. Hill’s purported “chloride price premium” is inaccurate in Figure 17 because Dr. Hill fails to include “the price of sulfate-produced TiO₂ in his regression, he ignores in his elasticity estimation that the willingness of customers to switch between sulfate and chloride-produced TiO₂ depends on the prices of both at the times customers are making their decisions. As a result, he overstates the variation in prices and thereby understates the elasticity.” (RX0170 at 29 (¶ 39) (Shehadeh expert report)). For example, by considering sulfate-produced TiO₂ prices, you can see that when chloride-produced TiO₂ was nearly \$4,000 per MT (Respondents’ Findings ¶ 361), sulfate-produced TiO₂ was also almost \$4,000 per MT. (*See, e.g.*, RX0170-30 and 31, figure 13 and 14 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

118. Based on quantitative and qualitative evidence, Dr. Hill concluded that [REDACTED] [REDACTED] (PX5000 at 046 (¶100) (Hill Initial Report) (*in camera*); Hill, Tr. 1683-85).

Response to Finding No. 118:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Dr. Hill’s conclusion about the “price premium of chloride TiO₂” is also inaccurate and

contradicted by the evidence, because, in fact, it completely fails to include “the price of sulfate-produced TiO₂ in his regression.” (RX0170.0029 (Shehadeh expert report)). As a result, Dr. Hill “overstates the variation in prices and thereby understates the elasticity.” (RX0170.0029).

Additionally, Dr. Shehadeh testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Shehadeh, Tr. 3462-63). In Dr. Shehadeh’s Figure 86, he decomposes that black line that Dr. Hill depicted in his Figure 17, and visually shows a “significant comovement in prices” between chloride and sulfate rutile titanium dioxide, which in fact confirms that chloride- and sulfate-process rutile TiO₂ “are in the same relevant market.” (Shehadeh, Tr. 3463-65).

119. Tronox’s own statements affirm Dr. Hill’s analysis as Tronox noted to investors that North American customers purchase chloride TiO₂ regardless of price. (Hill, Tr. 1688-89; PX9012 at 008 (Q4 2014 Tronox earnings call) (“In various markets, the[]customers have responded to what happened on pricing a year ago in[]different ways. For example in the North American market, it was 95% or 98%, or some[]very, very high number chloride[.] [I]t remains, essentially the same[]number market share for chloride. That was true when prices were over[]\$4,000 a ton, it is true now [when chloride prices are lower].”); PX9119 at 009 (Tronox investor call transcript) (stating that major North American TiO₂ customers’ “ability to substitute sulfate for chloride . . . is limited by their need to maintain the quality levels of their own products.”)).

Response to Finding No. 119:

Complaint Counsel’s proposed finding is false and misleading. Dr. Hill proposes that despite chloride-produced TiO₂ increasing to “\$4,000 a ton,” North American TiO₂ customers continued to purchase chloride TiO₂ instead of substituting to sulfate TiO₂. As Dr. Shehadeh explained, this is incorrect because it ignores *relative price differences*. “If when looking at prices one looks at just price levels as opposed to relative prices, one is going to reach the wrong

conclusion about substitution.” (Shehadeh, Tr. 3293). This is precisely what Dr. Hill did. (Shehadeh, Tr. 3293).

In fact, when one looks at relative price differences, it shows that when chloride-produced TiO₂ was nearly \$4,000 per MT (Respondents’ Finding ¶ 361), sulfate-produced TiO₂ was also almost \$4,000 per MT. (See, e.g., RX0170-30 and 31, Figure 13 and 14 [REDACTED]

[REDACTED]

[REDACTED] (Shehadeh, Tr. 3295). As Dr. Shehadeh testified: “If when looking at prices one looks at just price levels as opposed to relative prices, one is going to reach the wrong conclusion about substitution.” (Shehadeh, Tr. 3293).

120. Further, Tronox’s prepared statement to investors noted that [REDACTED] (PX1399 at 004-05 (Sept. 2013 “Fireside chat” Q&A with Tronox CEO) [REDACTED] (in camera)).

Response to Finding No. 120:

Complaint Counsel’s proposed finding is inaccurate and misleading because, again, it ignores evidence that chloride-process and sulfate-process TiO₂ did not have significant relative price differences. (See, e.g., RX0170-30 and 31, Figure 13 and 14 [REDACTED]

[REDACTED]

[REDACTED] Shehadeh, Tr. 3294-95). The proposed finding also relies on incomplete and selective quotes from PX1399, which was not presented at trial and not

subject to cross examination before this Court, apparently as a substitute for the failure of Dr. Hill to present rigorous economic analysis on this issue.

Moreover, Complaint Counsel's citation to PX1399 is misleading. PX1399 is a single document from 2013—over five years ago—and apparently reflects only Tronox's viewpoint regarding the [REDACTED]. In another Tronox ordinary-course document from 2013—the same time period as PX1399—Tronox lost business to sulfate grades at coatings customer [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] RX0315 at 002 (in camera).

121. Cristal's sales executive for North America admits that [REDACTED] [REDACTED] (PX7037 (Pickett, Dep. at 123-24) (*in camera*)).

Response to Finding No. 121:

Complaint Counsel's proposed finding is inaccurate, misleading, and based on testimony for which Mr. Pickett has limited personal knowledge or foundation. *None* of the cited testimony supports the implicit assertion that North American customers have not switched from chloride TiO₂ to sulfate TiO₂. Complaint Counsel cites only the views of a Cristal employee, who does not speak for the entire industry. Moreover, Mr. Picket's view of the TiO₂ industry is not dispositive and should not be given much deference because { [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] (PX7037 (Pickett Dep. at 123-24 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX7037 (Pickett

Dep. at 8-9)).

122. Kronos, a TiO2 competitor, also observed that [REDACTED]
[REDACTED]
[REDACTED] (Christian, Tr. 819-20, 22 (Kronos [REDACTED]
[REDACTED] during the shortages) (*in camera*);
PX7035 (Christian, Dep. at 138, 160-61) (*in camera*)). Kronos does not [REDACTED]
[REDACTED] (*in camera*)).

Response to Finding No. 122:

Complaint Counsel’s proposed finding is inaccurate and misleading because it is
contradicted by Mr. Christian’s trial testimony. At trial, Mr. Christian admitted that [REDACTED]

[REDACTED] (Christian, Tr. 924, 927-28 (quoting PX3010)).

123. Customers have not switched to sulfate TiO₂ even with chloride TiO₂ being consistently higher priced than sulfate TiO₂. (See CCFF ¶¶ 124-31, below).

Response to Finding No. 123:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument and should be discarded in determining any issue or fact in dispute. Further, by citing exclusively to 7 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Further, none of the cited evidence stands for the broad and unqualified proposition that “customers have not switched to sulfate TiO₂ even with chloride TiO₂ being consistently higher priced than sulfate TiO₂,” much less on the absolute claim that “sulfate TiO₂ is not a close substitute for chloride TiO₂.”

124. As True Value’s Mr. Vanderpool testified: [REDACTED]

[REDACTED] Vanderpool, Tr. 197 (*in camera*)).

Response to Finding No. 124:

Complaint Counsel’s proposed finding reflects only the views of a single hand-picked customer whose company represents only a small fraction of the entire TiO₂ industry.

125. In fact, Mr. Vanderpool of True Value is unaware of any instance, regardless of price, in which True Value switched from using a grade of chloride TiO₂ to a grade of sulfate TiO₂. (Vanderpool, Tr. 187).

Response to Finding No. 125:

Complaint Counsel’s proposed finding reflects only the recollection of a single hand-picked customer whose company represents only a small fraction of the entire TiO₂ industry.

126. Sherwin-Williams [REDACTED] (Young, Tr. 668-70 (*in camera*); PX8003 (Young Decl. ¶¶ 12-13) (partially *in camera*)).

Response to Finding No. 126:

Complaint Counsel’s proposed finding is misleading and contradicted by the evidence.

The evidence shows that Sherwin Williams [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Furthermore, Complaint Counsel’s cited testimony reflects only the views of a single hand-picked customer whose company represents only a small fraction of the entire TiO₂ industry.

127. Even when sulfate TiO₂ was [REDACTED] chloride TiO₂, Sherwin Williams [REDACTED] (Young, Tr. 669-70 (*in camera*); PX7020 (Young, Dep. at 131) (*in camera*); PX8003 at 003 (¶¶ 12-13) (Young Decl.) (partially *in camera*)).

Response to Finding No. 127:

Complaint Counsel’s proposed finding of fact is misleading and contradicted by other evidence in the record. As previously discussed, the actual pricing data for sulfate-produced and chloride-process TiO₂ casts doubt on Mr. Young’s recollection of a [REDACTED]

[REDACTED] (*See, e.g.*, RX0170-30 and 31, Figure 13 and 14 [REDACTED])
[REDACTED]

[REDACTED] Furthermore, the evidence shows that Sherwin Williams **{currently buys sulfate product.** [REDACTED]

[REDACTED]
[REDACTED]

[REDACTED] Furthermore, Complaint Counsel’s cited

testimony reflects only the views of a single hand-picked customer whose company represents only a small fraction of the entire TiO2 industry.

128. Sherwin-Williams continually purchased higher priced chloride TiO2 “[i]n order to consistently meet our customers’ requirements for quality and performance.” (Young, Tr. 648). [REDACTED] (Young, Tr. 669-70 (*in camera*)).

Response to Finding No. 128:

Complaint Counsel’s proposed finding cites exclusively to testimony from a single hand-picked customer whose views reflect only a small fraction of the entire TiO2 industry.

129. PPG [REDACTED] PX7025 (Malichky Dep. at 117-19) (*in camera*)).

Response to Finding No. 129:

Complaint Counsel’s proposed finding is misleading. [REDACTED] [REDACTED] (PX7025 (Malichky Dep. at 117-19) (*in camera*)). Moreover, as Complaint Counsel’s proposed finding acknowledges, as much as [REDACTED] [REDACTED] (Malichky, Tr. 298). Further, Complaint Counsel’s cited testimony reflects only the views of a single hand-picked customer who represents only a small fraction of the entire TiO2 industry

130. Masco [REDACTED] (Pschaidt, Tr. 979-80) [REDACTED] (*in camera*)). Masco was [REDACTED] (Pschaidt, Tr. 979, 981 (*in camera*); PX8006 at 001 (¶ 6) (Pschaidt Decl.) (*in camera*)).

Response to Finding No. 130:

Complaint Counsel’s proposed finding is inaccurate and misleading because it ignores evidence in the record. For example, Masco [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 940-

43). Additionally, Masco has [REDACTED]

[REDACTED]

[REDACTED] (Pschaidt, Tr. 1008). Furthermore, Masco has [REDACTED]

[REDACTED]

[REDACTED] (Pschaidt, Tr. 1009). Indeed, when Masco [REDACTED]

[REDACTED]

[REDACTED] (Pschaidt, Tr. 1011-12).

131. Deceuninck North America testified that it did not consider shifting its TiO₂ purchases from chloride TiO₂ to sulfate TiO₂ when the price of chloride TiO₂ was very high. (Arrowood, Tr. 1088).

Response to Finding No. 131:

Complaint Counsel’s proposed finding is misleading. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

132. [REDACTED]
if the price of chloride TiO₂ went up compared to sulfate TiO₂. (Young, Tr. 669 (*in camera*); Vanderpool, Tr. 197, 203-04 (True Value has [REDACTED] [REDACTED] (*in camera*); Arrowood, Tr. 1093; PX8006 at 002 (¶ 6) (Pschaidt Decl.) (*in camera*)).

Response to Finding No. 132:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. None of the cited evidence stands for the broad and unqualified claim that *no* “North American customer” has “plans” to use more sulfate-process TiO₂. Complaint Counsel’s cited testimony reflects only the views of three hand-picked customers who reflect only a small fraction of total TiO₂ customers.

Further, Complaint Counsel’s proposed finding ignores evidence in the record that contradicts this proposed finding. For example, Masco [REDACTED]
[REDACTED]
[REDACTED] (Christian, Tr. 940-43). Additionally, Masco has approved [REDACTED]
[REDACTED]
[REDACTED] (Pschaidt, Tr. 1008). Furthermore, Masco has [REDACTED]
[REDACTED]
[REDACTED] (Pschaidt, Tr. 1009). Indeed, when Masco [REDACTED]
[REDACTED]
[REDACTED] (Pschaidt, Tr. 1011-12).

133. Deceuninck North America explained that Tronox has issued five price increases in the past two years, each one being about three to five percent. (Arrowood, Tr. 1092-93). In response to these price increases, Deceuninck North America has not changed its supplier of chloride TiO₂ from Tronox nor has it considered switching to purchasing any sulfate TiO₂. (Arrowood, Tr. 1093 (“Just -- on the sulfate TiO₂, just to be, you know, very

candid, the only way that Deceuninck would even consider sulfate TiO₂ would be if chloride TiO₂ was unavailable.”)).

Response to Finding No. 133:

Complaint Counsel’s proposed finding is based exclusively on the testimony of a single hand-picked customer whose company represents only a small fraction of the TiO₂ industry, and who cannot speak for the entire industry.

- ii. Sales to Customers in the United States and Canada (“North America”) Is a Relevant Geographic Market

134. The Horizontal Merger Guidelines provide a framework for defining the relevant geographic market. (PX9085 at 016 (Horizontal Merger Guidelines, § 4.2)). For purposes of calculating market shares and analyzing competitive effects for chloride TiO₂, the appropriate way to analyze the relevant geographic market is based on the location of customers. (PX9085 at 017 (Horizontal Merger Guidelines, § 4.2.2)).

Response to Finding No. 134:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument.

135. Defining the geographic market by customer location is appropriate because (1) TiO₂ producers are able to price discriminate by region; and (2) the ability to arbitrage is limited. (PX9085 at 017 (Horizontal Merger Guidelines, § 4.2.2)).

Response to Finding No. 135:

Complaint Counsel’s proposed finding is not a fact but instead is improper legal argument.

136. Arbitrage occurs when customers take advantage of price differences across markets by buying a product—here, chloride TiO₂—in a low-priced region and being responsible for arranging transportation, duties, shipping and logistics costs etc. to move the product themselves to the high-priced location where the chloride TiO₂ will be used. (PX9085 at 009-10, 017 (Horizontal Merger Guidelines, §§ 3 & 4.2.2); Hill, Tr. 1714-15; Duvekot, Tr. 1303-05 (*in camera*)).

Response to Finding No. 136:

Complaint Counsel’s proposed finding is incomplete. The proposed finding correctly describes one type of arbitrage where the customer arranges for the shipping. However, the

proper definition of arbitrage is broader than the example in the proposed finding. Arbitrage means any time “a customer seek[s] supply outside of the candidate market.” (Shehadeh, Tr. 3260). This includes when customers purchase product from another region and request that the seller handle the shipping. (Shehadeh, Tr. 3260).

137. The Merger Guidelines state, “The scope of geographic markets often depends on transportation costs,” as well as other factors such as tariffs, reputation, and service availability, among others. (PX9085 at 016 (Horizontal Merger Guidelines, § 4.2)).

Response to Finding No. 137:

Respondents have no specific response.

138. Chloride TiO₂ is delivered to customer locations, and is [REDACTED]
[REDACTED]
[REDACTED] (See CCF 99 165-71, below).

Response to Finding No. 138:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence. To the extent Complaint Counsel’s proposed finding relates to any contested facts, Complaint Counsel proposed finding improperly relies on expert testimony to support a purported fact. (Judge Chappell, Tr. 3792-3793 (Judge Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”). Furthermore, by citing exclusively to 6 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents’ specific response can be found in response to CCF 99 165-71, below.

139. After reviewing qualitative and quantitative information and conducting economic analysis consistent with the Horizontal Merger Guidelines, Dr. Hill concluded that the geographic market based on locations of customers is the right framework because chloride TiO₂ producers are engaging in geographic price discrimination. (Hill, Tr. 1714). Dr. Hill’s conclusion is based on the fact that producers know the location of their

customers, thus can price discriminate, and that for customers, arbitrage is not a commercially feasible means of avoiding a price increase. (Hill, Tr. 1714-15).

Response to Finding No. 139:

Complaint Counsel's proposed finding of fact is not fact, but rather improper legal argument. To the extent Complaint Counsel's proposed finding relates to any contested facts, Complaint Counsel proposed finding improperly relies on expert testimony to support a purported fact. (Judge Chappell, Tr. 3792-3793 (explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute"))).

140. Customers and suppliers consistently testified that the cost of transportation and duties, which typically [REDACTED] as well as the extra logistical burdens for the customer, render arbitrage [REDACTED] for North American chloride TiO₂ customers. (See CCFF ¶¶ 259-300, below).

Response to Finding No. 140:

Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific responses can be found in response to CCFF ¶¶ 259-300, below. Complaint Counsel's summary is also misleading because it ignores that both actual arbitrage and the threat of arbitrage are sufficient competitive forces to keep regional pricing within a narrow band. (Romano, Tr. 2271-73) [REDACTED]

[REDACTED]

[REDACTED]

141. Dr. Hill concluded, after reviewing documents, testimony, and performing an economic analysis, that North America is a relevant geographic market in which to assess the effects of the proposed acquisition. (Hill, Tr. 1713; see CCFF ¶¶ 160-64, below). This geographic market includes all sales of chloride TiO₂ in North America, regardless of country of origin or supplier and, by definition, includes the {3%} of North America TiO₂ sales that consist of chloride TiO₂ imported from abroad. (Hill, Tr. 1725-26; PX7056 (Hill, Dep. at 240) (*in camera*); PX5000 at 032 (¶ 78) (Hill Initial Report) (*in camera*)). Moreover, rutile TiO₂ imports comprise about {15%} of the North American rutile TiO₂ consumption. (PX5000 at 032 (¶ 78 n.130) (Hill Initial Report) (*in camera*)).

Response to Finding No. 141:

Complaint Counsel's proposed finding of fact is not a fact, but instead is improper legal argument to the extent it asserts a "relevant geographic market in which to assess the effects of the proposed acquisition." To the extent Complaint Counsel's proposed finding relates to any contested facts, Complaint Counsel proposed finding improperly relies on expert testimony to support a purported fact. (Judge Chappell, Tr. 3792-3793 (Judge Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute")).

142. Based on an economic analysis consistent with the Horizontal Merger Guidelines, including the Hypothetical Monopolist Test and analysis of the qualitative information in the record from suppliers and customers, Dr. Hill concluded that a SSNIP by a hypothetical monopolist controlling all sales of chloride TiO₂ to North American customers would not be defeated by those customers turning outside of North America to purchase chloride TiO₂. (Hill, Tr. 1713-15, 1725-26, 1734; PX5000 at 060, 066-067 (¶¶ 136, 149-51) (Hill Initial Report) (*in camera*)).

Response to Finding No. 142:

Complaint Counsel's proposed finding is unfounded. Dr. Hill's Hypothetical Monopolist Test is unreliable. Dr. Hill used a Critical Loss Analysis to implement his Hypothetical Monopolist Test. (Hill, Tr. 1907). But the data that underpinned that analysis was the 2016 TZMI Cost Study — data that Dr. Hill himself claimed was unreliable. (Hill, Tr. 2016).

Dr. Hill did no quantitative analysis of whether customers could defeat a SSNIP by turning outside of North America to purchase chloride TiO₂. According to Dr. Hill's analysis a 10% SSNIP would be unprofitable if 15.4% or more of current purchases of chloride-process TiO₂ "were to engage in arbitrage, to switch to sulfate TiO₂, or to stop buying TiO₂ altogether." (Hill, Tr. 1908). As part of his critical loss analysis, Dr. Hill simply assumed that no arbitrage would occur even though there is evidence that arbitrage occurs in the real world. On the other hand, Dr. Shehadeh actually conducted a quantitative analysis of the predicted loss from a

SSNIP—including losses caused by arbitrage—and the predicted loss was much higher than 15.4 percent. (Shehadeh, Tr. 3277-80)

143. Consistent with Dr. Hill’s economic analysis, testimony and documents from Tronox and Cristal, competitors and customers confirm that North America is the relevant geographic market for the sales of chloride TiO₂. (See CCFE ¶¶ 165-98, 226-31, below).

Response to Finding No. 143:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents’ specific response can be found in response to CCFE ¶¶ 165-98, 226-31, below.

144. Due to differences in pricing and other demand characteristics that are described below between Mexico compared to the United States and Canada, North America is appropriately defined here to only include sales of chloride TiO₂ to customers in the United States and Canada. (Hill, Tr. 1713; see, e.g., PX2088 at 002 (Cristal email) [REDACTED] (in camera); CCFE ¶¶ 145-47, below).

Response to Finding No. 144:

Complaint Counsel’s proposed finding of fact is not a fact, but rather improper legal argument. Complaint Counsel also misrepresents PX2088 which actually shows Cristal charging a large customer the *same* price for TiO₂ delivered in Mexico and the United States even though that price was much higher than the average price for TiO₂ in Latin America. (PX2088 (Cristal email) [REDACTED])

[REDACTED] Complaint Counsel also relies on PX2088 which was not presented at trial and thus was not subject to cross examination before the Court. To the extent that Complaint Counsel relies on proposed facts ¶¶ 145-47, Respondents’ specific response can be found in response to CCFE ¶¶ 145-47, below.

145. Mexico is not included in the North American market for this matter because demand in Mexico is different from demand in the United States and Canada. (Hill, Tr. 1713 (“Market definition is about demand substitution, so it’s appropriate to group together

consumers who have similar demand. My review of the evidence caused me to conclude that demand in the U.S. and Canada is similar and that Mexico is a different region. It has different demand.”); PX5000 at 024-25 (¶¶ 56-58) (Hill Initial Report) (*in camera*)).

Response to Finding No. 145:

Complaint Counsel’s proposed finding is not a fact but rather improper legal argument. To the extent the proposed finding purports to be a fact, Complaint Counsel proposed finding improperly relies on expert testimony to support a fact in dispute. (Judge Chappell, Tr. 3792-3793 (Judge Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)). Complaint Counsel’s proposed finding is also entitled to little if any weight because Dr. Hill’s purported “review of the evidence” is not supported by citations to any evidence demonstrating that demand in Mexico is materially different from demand in the United States and Canada.

146. For example, seasonality of demand for architectural paints, for which TiO₂ is a main ingredient, varies by geographic region. (PX7025 (Malichky, Dep. at 257-58) [REDACTED] (*in camera*)). In fact, seasonal demand for TiO₂ varies by geographic region [REDACTED] (PX7050 (Mei, Dep. at 137-38) (*in camera*)).

Response to Finding No. 146:

Complaint Counsel’s proposed finding that seasonality of demand for architectural paints varies by region is not relevant because Complaint Counsel cites no evidence that links variability in sales of architectural paint to variability in industry-wide demand for TiO₂.

Complaint Counsel’s proposed finding is incomplete because it ignores testimony that [REDACTED]

[REDACTED] (PX7025 (Malichky, Dep. at 257-58)).

Complaint Counsel's citation to Ms. Mei in support of its proposed finding is also misleading for at least two reasons. First, nowhere in the deposition did Complaint Counsel ever explain that the FTC was using a special definition of "North America" that excluded Mexico. Thus, there is no evidence that Ms. Mei was excluding Mexico when she testified that [REDACTED] [REDACTED] (PX7050 (Mei, Dep. at 137)). Second, Ms. Mei clarified that she was going "just based on [her] memory" and that those trends are "based on our customer base." (PX7050 (Mei, Dep. at 137-38)). She was very clear about the limits of that testimony: "I cannot speak on industry terms." (PX7050 (Mei, Dep. at 137-138)). Complaint Counsel proposed finding relies on PX7050 which was not presented at trial and thus was not subject to cross examination before the Court even though Ms. Mei testified live.

147. Moreover, TiO₂ producers, [REDACTED] (PX1327 at 005, 025 (Tronox LATAM 2015-2017 Strategy)) [REDACTED] (*in camera*); [REDACTED] (in camera); PX7000 (Snider, IHT at 24) [REDACTED] (*in camera*); PX8004 at 002 (¶ 7) (O'Sullivan Decl.) (*in camera*); PX8005 at 002 (¶ 8) (Maiter Decl.).

Response to Finding No. 147:

Complaint Counsel's proposed finding is false. Tronox defines North America as the United States, Canada, and Mexico which is described in numerous documents as the NAFTA region. (Mouland, Tr. 1248; PX1164). Complaint Counsel also relies on evidence that was never presented at trial, including PX 1327, and deposition transcripts from individuals who did not testify at trial and thus were not subject to cross examination before the Court, including Mr. Snider (PX7000 (Snider, IHT at 24); PX8004(O'Sullivan Decl.); PX8005, Maiter Decl.).

(a) Suppliers price-discriminate based on customer location by region

148. North American chloride TiO₂ producers—Tronox, Cristal, Chemours, Kronos, and Venator—{ [REDACTED]

██████████. (PX8002 at 003 (¶ 13) (Christian Decl.) (*in camera*); PX8004 at 002 (¶ 7) (O’Sullivan Decl.) (*in camera*)).

Response to Finding No. 148:

The cited evidence does not support the proposed finding. Paragraph 13 of PX8002 does not discuss pricing and does not support a finding that Kronos or any other producer sets prices on a delivered basis. (PX8002-003 (Christian Decl. at ¶ 13)). Paragraph 7 of PX8004 does not discuss pricing and does not support a finding that Chemours or any other producer sets prices on a delivered basis. (PX8004-002 (O’Sullivan Decl. at ¶ 7)). In support of this proposed finding, Complaint Counsel relies on declarations instead of live testimony subject to cross examination before this Court. Even though Mr. Christian testified live, Complaint Counsel does not cite to any in-court testimony in support of this proposed finding.

149. As a result, chloride TiO₂ producers set different prices to customers in North America compared to other regions. (*See* CCF ¶¶ 172-98, below).

Response to Finding No. 149:

Complaint Counsel’s proposed finding is not a fact, but improper argument and an inaccurate summary of the evidence. Respondents’ specific response can be found in response to CCF ¶¶ 172-98, below.

150. Company executives from Tronox and Cristal repeatedly confirmed, in testimony in investigational hearings, depositions, and at trial, the ██████████ (*See* CCF ¶¶ 151-59, below).

Response to Finding No. 150:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents’ specific response can be found in response to CCF ¶¶ 151-59, below.

151. For example, as Tronox’s Mr. Mouland, vice president of sales, testified, ██████████ (Mouland, Tr. 1172 (*in camera*)). ██████████ (Mouland, Tr. 1255 (*in camera*); *see also* Mouland, Tr. 1281 ██████████

[REDACTED] (*in camera*). In a 2015 email, Mr. Mouland wrote: [REDACTED] (PX1345 at 004 (Mouland email to Duvekot) (*in camera*)).

Response to Finding No. 151:

Complaint Counsels proposed finding misstates the record. Mr. Mouland testified that

[REDACTED]
[REDACTED] (Mouland, Tr. 1194). [REDACTED]
[REDACTED] (Mouland Tr. 1194). [REDACTED]
[REDACTED]
[REDACTED] Mouland Tr. 1193-94). [REDACTED]
[REDACTED] (Romano, Tr. 2151-52). [REDACTED]
[REDACTED]
[REDACTED] (Romano, Tr. 2155-56). Complaint Counsel also relies on PX1345 which was not presented at trial and thus was not subject to cross examination before the Court.

152. Likewise, as Tronox’s Mr. Duvekot, another vice president of sales, testified, [REDACTED]
[REDACTED] (Duvekot, Tr. 1298-99 (*in camera*); PX1454 at 001 (Duvekot email to Mouland) (*in camera*); PX1451 at 001 (Duvekot email to Bradley) [REDACTED]
[REDACTED] (*in camera*)).

Response to Finding No. 152:

Complaint Counsel’s proposed finding misstates the record. Mr. Duvekot did not testify that individual regions are priced separately, what he actually said was that [REDACTED]
[REDACTED]
[REDACTED] (Duvekot, Tr. 1298-99 (emphasis added)).

He also clarified that Tronox has [REDACTED] [REDACTED] (Duvekot, Tr. 1298-99).

Complaint Counsel also relies on PX1454 which was not presented at trial and thus was not subject to cross examination before the Court. PX1451 which is an email chain that included Mr. Duvekot and Mr. Mouland, but Complaint Counsel never questioned Mr. Duvekot or Mr. Mouland about PX 1451.

153. This means that [REDACTED] (Duvekot, Tr. 1302 [REDACTED] (*in camera*)).

Response to Finding No. 153:

Complaint Counsel’s proposed finding is incomplete. The document being discussed in the cited testimony actually shows that the potential for regional arbitrage places a competitive constraint on what Tronox charges customers in different areas of the world. (PX1085 [REDACTED] [REDACTED]; (Duvekot, Tr. 1302-03, (discussing the same)).

154. According to Mr. Romano, Tronox’s Chief Commercial Officer, [REDACTED] (PX7001 (Romano, IHT at 123-24) [REDACTED] (*in camera*); Romano, Tr. 2151-52 (*in camera*)).

Response to Finding No. 154:

Complaint Counsel’s proposed finding is incomplete. Mr. Romano is “responsible for global pricing” and testified that [REDACTED] [REDACTED] (Romano, Tr. 2151-52). Mr. Romano testified that [REDACTED] [REDACTED] (Romano, Tr. 2155-56; PX7001 (Romano, IHT at 124). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2155-56). Notably, Complaint Counsel cites to an example of this phenomenon in its Proposed Finding of Fact Nos. 207 and 244 which describes Tronox repositioning its business to take advantage of higher relative prices in North America.

(RX0250 [REDACTED])

[REDACTED]

155. Likewise, as Mr. Gigou, Cristal’s vice president of sales, testified, [REDACTED] [REDACTED]. (PX7043 (Gigou, Dep. at 14-15) (*in camera*); PX7037 (Pickett, Dep. at 46) [REDACTED] [REDACTED] (*in camera*)).

Response to Finding No. 155:

The cited testimony from Mr. Gigou [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Further, Complaint Counsel purports to summarize testimony from witnesses who did not testify at trial and thus were not subject to cross examination before the Court.

156. At Cristal, [REDACTED] [REDACTED] (PX7000 (Snider, IHT at 24, 30-31) (*in camera*)).

Response to Finding No. 156:

Again, the cited testimony from Mr. Snider, who works for Mr. Gigou at Cristal, [REDACTED]

[REDACTED]

Response to Finding No. 158:

Complaint Counsel's proposed finding relies on an incomplete excerpt from a deposition that took place over six years ago. This deposition transcript was never presented at trial, even though Mr. Stoll testified live before this Court. Complaint Counsel's proposed finding is also misleading because Mr. Stoll was discussing price increase announcements—not actual price increases. He clarified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX2245-057-058).

159.

[REDACTED] (PX2245 at 083 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Mark Stoll) (*in camera*)).

Response to Finding No. 159:

Complaint Counsel's proposed finding relies on an incomplete excerpt from a deposition that took place over six years ago and questions that asked about conditions spanning back to 2001. (PX2245-080 - 082 (asking questions about market conditions in 2001 and 2004)). This deposition transcript was never presented at trial, even though Mr. Stoll testified live before this Court. Complaint Counsel's proposed finding is also misleading because it uses selective quotes and inappropriate brackets to change the meaning of the testimony. The full question and answer shows that Mr. Stoll testified that [REDACTED]

[REDACTED] (PX2245-082-83). Complaint Counsel's proposed finding is also misleading because Mr. Stoll was discussing price increase announcements—not actual price increases. He clarified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

(PX2245-058 - 059).

160. Finally, based on the documents and quantitative data, Dr. Hill concluded, “the appropriate framework is to define the geographic market around the location of the consumers because the qualitative evidence and the quantitative evidence show that the price discrimination -- geographic price discrimination exists in this industry. That means different prices are charged in different regions.” (Hill, Tr. 1712-13).

Response to Finding No. 160:

Complaint Counsel’s proposed finding about the appropriate framework to define a geographic market is not a fact, but improper legal argument. To the extent that the proposed finding purports to be a fact, Complaint Counsel’s proposed finding improperly relies on expert testimony to support a disputed fact. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

161. Dr. Hill further explained that under the Horizontal Merger Guidelines, “two things must be correct for it to be possible to engage in geographic price discrimination.” (Hill, Tr. 1714). First, producers must know the location of their customers and second, arbitrage—which Dr. Hill described as “customers buying in a low-priced region and moving [the product] to a high-price region by themselves”—must not be economically feasible to defeat geographic price discrimination. (Hill, Tr. 1714-15; *see* CCFF ¶¶ 259-300, below).

Response to Finding No. 161:

Complaint Counsel’s proposed finding about the appropriate framework to define a geographic market is not a fact, but improper legal argument. Complaint Counsel’s proposed finding purports to summarize the Horizontal Merger Guidelines but Complaint Counsel fails to actually cite to the Guidelines themselves. To the extent the proposed finding purports to establish facts in dispute, Complaint Counsel’s proposed finding improperly relies on expert testimony to support a factual issue in dispute. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)). Complaint

Counsel's proposed fact also ignores evidence that arbitrage and the potential for arbitrage places a competitive restraint on the different prices producers can charge. (PX1085 [REDACTED]; (Duvekot, Tr. 1302-03).

Complaint Counsel's proposed finding includes an incorrect definition of arbitrage that is inconsistent with the Horizontal Merger Guidelines. (Shehadeh, Tr. 3259-60 (explaining that Dr. Hill's definition of arbitrage is wrong and too narrow)). Respondents respond to specific proposed findings at Respondents' Response to Findings Nos. ¶¶ 259-300, below.

162. Dr. Hill concluded, based on his economic analysis of Tronox and Cristal data and documents, including emails with customers, that [REDACTED] (Hill, Tr. 1714-15, 1717-18 (partially *in camera*)).

Response to Finding No. 162:

Complaint Counsel's proposed finding references Tronox and Cristal data and documents, but the proposed finding cites no such documents. Complaint Counsel's proposed finding references emails with customers, but the proposed finding cites to no such documents. Complaint Counsel's proposed finding improperly relies on expert testimony to support a factual issue in dispute. (Tr. 3792-3793 (J. Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute"))).

163. Dr. Hill also performed an economic quantitative analysis called a hedonic regression which controls for different factors that determine price, and again concluded that [REDACTED] (Hill, Tr. 1723-24 (*in camera*)).

Response to Finding No. 163:

Complaint Counsel's proposed finding does not cite any supporting documents or even cite to an expert report. The proposed finding is also vague insofar as it claims that there were "persistent price differences" without defining a period of time, and "even for particular chloride TiO₂ grades for particular customers" without identifying a single customer or grade. To the

extent the proposed finding purports to be a fact, Complaint Counsel's proposed finding improperly relies on expert testimony to support a factual issue in dispute. (Tr. 3792-3793 (J. Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute"))).

164. Thus, following Section 4.2.2 of the Horizontal Merger Guidelines, Dr. Hill defined the relevant geographic market around the location of customers in North America. (Hill, Tr. 1713-14).

Response to Finding No. 164:

Complaint Counsel's proposed finding about the appropriate framework to define a geographic market is not a fact, but improper legal argument. To the extent the proposed finding purports to be a fact, Complaint Counsel's proposed finding improperly relies on expert testimony to support a factual issue in dispute. (Tr. 3792-3793 (J. Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute"))).

- (1) North American customers receive delivery of chloride TiO₂ at their locations in North America, with delivered pricing

165. North American customers obtain nearly all of the TiO₂ they consume [REDACTED] [REDACTED] Pschaidt, Tr. 980 (*in camera*); Malichky, Tr. 304-05 (*in camera*); PX8003 at 002-03 (¶¶ 9-10) (Young Decl.) (*in camera*); PX7034 (Septien, Dep. at 68-69) (*in camera*); PX7040 (Santoro, Dep. at 12) (*in camera*)).

Response to Finding No. 165:

Complaint Counsel's proposed finding is incomplete and imprecise. Much of the TiO₂ consumed in North America is not delivered by the supplier directly to customer locations. Dr. Shehadeh estimated that TiO₂ from China accounted for about 10% of all TiO₂ consumed in North America in 2016. (RX0170.0086 (Ramsey Report)). Complaint Counsel's expert, Dr. Hill estimated that over 50,000 metric tons of TiO₂ was imported from China into North America in 2016. (PX5000-035, Fig. 13 (Hill Report)). [REDACTED]

[REDACTED]

[REDACTED]. (Pschaidt, Tr. 986, 1001 ([REDACTED]

[REDACTED]). Other customers handle shipping from China themselves; [REDACTED]

[REDACTED]

[REDACTED] (Malichky, Tr. 316).

[REDACTED]

[REDACTED]. (Malichky, Tr. 304-05 (cited testimony does not describe delivered pricing); PX8003-002-03 (¶¶ 9-10) (Young Decl.) (cited paragraphs do not describe delivered pricing); PX7034 (Septien, Dep. at 68-69) (cited testimony does not described delivered pricing)). [REDACTED]

[REDACTED]. (Duvekot, Tr. 1306-07).

Complaint Counsel relies on documents and testimony which were not presented at trial and thus was not subject to cross examination before the Court, including PX8003 (Young Decl.), PX7034 (Septien, Dep), and PX7040 (Santoro, Dep). Mr. Young testified live before the Court, but Complaint Counsel does not cite to any of that testimony to support the proposed finding.

166. For example, [REDACTED] (Malichky, Tr. 304-05 (*in camera*); PX7025 (Malichky, Dep. at 69-70, 208-09) (*in camera*)).

Response to Finding No. 166:

Complaint Counsel's proposed finding is incomplete because not all TiO₂ purchased by PPG for use in North America is delivered to PPG's locations. [REDACTED]

[REDACTED]

[REDACTED] (Malichky, Tr. 316).

167. Likewise, [REDACTED] (Pschaidt, Tr. 980 (*in camera*)).

Response to Finding No. 167:

Respondents have no specific response.

168. [REDACTED] (PX7016 (DeCastro, Dep. at 87-88) (*in camera*)).

Response to Finding No. 168:

Complaint Counsel's proposed finding is incomplete because it ignores [REDACTED]
[REDACTED]
[REDACTED] (PX7016 (DeCastro, Dep at 64-65)). [REDACTED]
[REDACTED] (PX4000-05 - 06 (RPM's CID Response)). [REDACTED]
[REDACTED] (PX4000-05 - 06 (RPM's CID Response)). Complaint Counsel's proposed finding relies on testimony from a witness who did not testify at trial and thus was not subject to cross examination before the Court.

169. [REDACTED] (PX7040 (Santoro, Dep. at 12) (*in camera*)).

Response to Finding No. 169:

Complaint Counsel's proposed finding relies on testimony from a witness who did not testify at trial and thus was not subject to cross examination before the Court. The quoted testimony is ambiguous about who pays for delivery. (PX7040 (Santoro, Dep. at 12)). [REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
170. According BASF, a multinational coatings manufacturer, [REDACTED] (PX7031 (Shah, Dep. at 35) [REDACTED] (*in camera*)).

Response to Finding No. 170:

Complaint Counsel’s proposed finding relies on testimony from a witness who did not testify at trial and thus was not subject to cross examination before the Court.

171. TiO2 suppliers also confirmed that nearly all of the TiO2 they sell to customers in North America is delivered to the customers’ locations and sold on a delivered pricing basis. (PX7015 (Maiter, Dep. at 176)).

Response to Finding No. 171:

Complaint Counsel’s proposed finding use of the phrase “nearly all” overstates the quoted testimony. (PX7015 (Maiter, Dep. at 176) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Complaint Counsel’s proposed finding relies on testimony from a witness who did not testify at trial and thus was not subject to cross examination before the Court.

- (2) Customers negotiate and purchase chloride TiO2 separately for each geographic region and pay different prices in each region

172. When purchasing chloride TiO2, customers with manufacturing facilities in multiple regions testified that [REDACTED] (See CCFF ¶¶ 173-98, below).

Response to Finding No. 172:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents’ specific response can be found in response to Complaint Counsels’ Findings of Fact Nos. ¶¶ 173-98.

173. [REDACTED] (PX8003 at 006 (¶¶ 27-28) (Young Decl.) (*in camera*); see CCFB ¶¶ 192, 198, below).

Response to Finding No. 173:

Complaint Counsel’s proposed finding relies on documents that were never presented at trial and thus were not subject to cross examination before this Court. Mr. Young testified live, but Complaint Counsel does not cite to any in-court testimony to support its proposed finding. To the extent Complaint Counsel relies on other proposed findings, Respondents’ specific response can be found in response to ¶¶ 192 and 198 below.

174. As customers testified, [REDACTED] (Young, Tr. 672 (*in camera*); PX8003 at 006 (¶ 28) (Young Decl.) (*in camera*)).

Response to Finding No. 174:

Complaint Counsel’s proposed finding is ambiguous and thus potentially misleading. Mr. Young testified that [REDACTED] (Young, Tr. 672-673 [REDACTED])

[REDACTED]

175. For example, [REDACTED] (Malichky, Tr. 311-12 (*in camera*)).

Response to Finding No. 175:

Complaint Counsel’s proposed finding is ambiguous and potentially misleading. There is

[REDACTED] (Romano, Tr. 2151-52).

For PPG specifically, documents presented at trial show that the potential for PPG to arbitrage between regions places a competitive constraint on what Tronox can charge (PX1085 [REDACTED]

[REDACTED]

[REDACTED] Duvekot, Tr. 1302-03 (discussing the same)).

Complaint Counsel also relies on testimony that has no foundation, specifically the testimony: [REDACTED]

(Malichky, Tr. 3112). The cited testimony comes from an employee of a TiO₂ customer — not manufacturer, so he has no basis to testify about how TiO₂ manufacturers set their prices. The purported finding is also incomplete because prices vary for numerous reasons other than “region.” (Duvekot, Tr. 1301 [REDACTED]

[REDACTED]

[REDACTED]

176. Similarly, [REDACTED] (PX7033 (Post, Dep. at 153-54) (*in camera*)).

Response to Finding No. 176:

Complaint Counsel’s proposed finding relies on testimony from a witness that did not testify at trial and thus was not subject to cross examination before this Court.

177. The TiO₂ pricing in one region [REDACTED] (PX1456 at 001 (Duvekot email to Tan and Moulard) [REDACTED] (*in camera*); PX1451 at 001 (Duvekot email to Bradley) (*in camera*)).

Response to Finding No. 177:

Complaint Counsel’s proposed finding is false and is contradicted by other testimony in the record. Mr. Arrowood from Deceuninck North America testified that he monitors TiO₂ prices in Europe and that he “absolutely” tries to leverage that in negotiations for titanium dioxide in North America. (Arrowood, Tr. 1118-19). Mr. Arrowood testified that he successfully leverages lower from prices in Europe to get an adjustment to his price for TiO₂ in North America. (Arrowood, Tr. 1119). [REDACTED]

[REDACTED]. (Young, Tr. 673.) Mr. Christian of Kronos testified that [REDACTED]

[REDACTED] (Christian, Tr.

930). Mr. Christian testified that [REDACTED] (Christian, Tr. 932). [REDACTED]

[REDACTED] (Romano, Tr. 2272-74). Documents used at trial also show

[REDACTED] (PX1085). Complaint Counsel also relies on PX1451 which was an email chain that included Mr. Duvekot and Mr. Mouland. Both Mr. Duvekot and Mr. Mouland testified live, but Complaint Counsel never questioned either about PX1451.

178. Sherwin-Williams has [REDACTED] (Young, Tr. 673 (*in camera*); PX7020 (Young, Dep. at 70-71) (*in camera*)).

Response to Finding No. 178:

Complaint Counsel’s proposed finding is ambiguous and misleading. [REDACTED]

[REDACTED] (Young, Tr. 673 (“Q. Since you have been head of procurement . . .”). Mr. Young has “been responsible for

overseeing procurement since 2012.” (PX8003-001, ¶ 2 (Young Decl.)). Complaint Counsel’s proposed finding is incomplete. Mr. Young’s testimony described [REDACTED]

[REDACTED]

[REDACTED] (Young, Tr.

674 [REDACTED]

[REDACTED]

[REDACTED]

179. [REDACTED] (*in camera*)).

Response to Finding No. 179:

Complaint Counsel’s proposed finding is not supported by the cited evidence. None of the cited testimony stands for an industry-wide proposition; the proposed finding only cites to a single hand-picked customer, who does not represent the entire TiO2 industry, describing a single point in time.

180. Regional TiO2 prices may [REDACTED] (Malichky, Tr. 313 (*in camera*)).

Response to Finding No. 180:

Complaint Counsel’s proposed finding vaguely describes global trends in TiO2 pricing without citing to any actual data. Instead of providing quantitative facts from the record, Complaint Counsel relies solely on a single customer’s imprecise testimony for this proposed finding. The cited witness has been purchasing TiO2 for a single customer for less than five years. (Malichky, Tr. 267-68). His testimony was contradicted by other fact witnesses who testified that global prices generally trend up and down together. For example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Mr. Romano, who has been selling TiO₂ for 30 years to numerous customers, testified that “[t]here is a bandwidth globally that pricing follows.” (Romano, Tr. 2139, 2236). [REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2155-56). Both parties’ economic experts looked at evidence that compiled data from multiple producers and multiple customers and found that global prices trend together. For example, Dr. Hill compiled sales data from Tronox and Cristal from different regions in one of his expert report. (PX5004-035, Fig.13). Dr. Hill admitted that chart [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Hill, Tr. 2045 (testifying about PX5004-035, Fig.13)). In fact, Dr. Hill explained that prices within North America and outside North America were so highly correlated that he could not “separately identify the effect of each” using his regression tools. (Hill, Tr. 1788). Respondents’ expert Dr. Shehadeh also conducted a statistical analysis of prices over time and across geographies to analyze the long-term relationship between prices for TiO₂ in different regions. (Shehadeh, Tr. 3231-33). Controlling for other factors such as price of feedstocks, Dr. Shehadeh found that prices are interrelated and global. (Shehadeh, Tr. 3233; RX0170.0109-114 (Shehadeh Report) (results of statistical analysis on various data sources)).

181. [REDACTED] (PX7040 (Santoro, Dep. at 193) (*in camera*)).

Response to Finding No. 181:

Complaint Counsel’s proposed finding relies on testimony from a witness that did not testify at trial and thus was not subject to cross examination before this Court. There is also no cited evidence that Ampacet ever tried to use TiO2 prices from other geographic regions when negotiating TiO2 prices for delivery to North America.

182. [REDACTED] (PX7040 (Santoro, Dep. at 87-88) (*in camera*)).

Response to Finding No. 182:

Complaint Counsel’s proposed finding is misleading because it paraphrases instead of using direct quotes. First, there is no discussion of pricing “which remains regional” in the cited pages. (PX7040 (Santoro, Dep. at 87-88)). Second, Mr. Santoro did not testify that [REDACTED]

[REDACTED]

[REDACTED] (PX7040 (Santoro, Dep. at 87-88)).

That distinction is important because Mr. Santoro also testified about how [REDACTED]

[REDACTED]

[REDACTED] (PX7040 (Santoro, Dep at 100)). For example, in the fourth quarter of 2017,

[REDACTED]

[REDACTED] (PX7040 (Santoro, Dep. at 100) (testifying about RX0006-04)). Complaint Counsel’s proposed finding relies on testimony from a witness that did not testify at trial and thus was not subject to cross examination before this Court.

183. [REDACTED] (PX7040 (Santoro, Dep. at 43-44) (*in camera*)).

Response to Finding No. 183:

Complaint Counsel’s proposed finding is misleading because it paraphrases instead of using direct quotes. The testimony cited by Complaint Counsel relates to negotiations with a single supplier, [REDACTED]. The cited testimony does not discuss whether price terms for the procured TiO₂ vary by geographic regions. (PX7040 (Santoro, Dep. at 43-44)). Complaint Counsel’s proposed finding relies on testimony from a witness that did not testify at trial and thus was not subject to cross examination before this Court.

184. Deceuninck NV, Deceuninck North America (DNA)’s parent company, is a multinational corporation, headquartered in Belgium, with operations in the Europe. (Arrowood, Tr. 1053). According to DNA’s Mr. Arrowood, the formulas for the company’s products vary by region due to weather differences, customer demand differences, and differences in the number of TiO₂ suppliers. (PX7030 (Arrowood, Dep. at 64-65)). For example, as compared to its European operations, in North America, DNA uses larger quantities of TiO₂ in its vinyl products, very pure grades, and a different UV stabilizer. (PX7030 (Arrowood, Dep. at 65-66)).

Response to Finding No. 184:

Complaint Counsel’s proposed finding is misleading. Mr. Arrowood never testified that “the formulas for the company’s products vary by region due to . . . differences in the number of TiO₂ suppliers.” (PX7030 (Arrowood, Dep. at 64-65)). Perhaps Complaint Counsel’s proposed finding refers to Mr. Arrowood explaining that his colleagues in Europe use Chemours. (PX7030 (Arrowood, Dep. at 64-65) (“In Europe they use other suppliers, like Chemours . . . I don’t really have any experience with them.”)). But Chemours is a TiO₂ supplier both in Europe and the United States, and nothing in the cited testimony discusses the “number of TiO₂ suppliers.” Furthermore, Mr. Arrowood testified that “it’s very important for us here in the U.S. that we use a very pure TiO₂ or rutile” but he never compared the purity of TiO₂ used by Deceuninck NA

with the purity of TiO₂ used by any of its European sister companies. (PX7030 (Arrowood, Dep. at 64-65)). Complaint Counsel’s proposed finding relies in part on testimony from a deposition transcript instead of live testimony subject to cross examination before this Court. Even though the FTC called Mr. Arrowood to testify live, Complaint Counsel does not cite to in-court testimony to support much the proposed finding.

185. For PPG, the markets for its products that use TiO₂ differ by region. (PX7025 (Malichky, Dep. at 62)). For example, the automotive coatings market in China is different from that in Europe or Brazil. (PX7025 (Malichky, Dep. at 63)). Local differences in each region matter to PPG because the production lines are set up differently, the humidity and other coating parameters are different, and it uses local raw materials for its products. (PX7025 (Malichky, Dep. at 63)).

Response to Finding No. 185:

Complaint Counsel’s proposed finding overstates the cited testimony. While Complaint Counsel’s proposed finding is that “[l]ocal differences in each region matter to PPG because . . . it uses local raw materials for its products” the actual quote limits that only “in some cases.” (PX7025 (Malichky, Dep. at 63) (“So there is (sic) local differences. . . . Even local raw materials in some cases.”)). Complaint Counsel’s proposed finding relies on testimony from a deposition transcript instead of live testimony subject to cross examination before this Court. Even though the FTC called Dr. Malichky to testify live, Complaint Counsel does not cite to in-court testimony to support the proposed finding.

186. [REDACTED] (PX7026 (Duvekot, Dep. at 87-89) (*in camera*); PX8003 at 006 (¶ 28) (Young Decl.) (*in camera*)).

Response to Finding No. 186:

Complaint Counsel’s proposed finding relies on testimony from a deposition transcript and a declaration instead of live testimony subject to cross examination before this Court. Even

though the FTC called both Mr. Duvekot and Mr. Young to testify live, Complaint Counsel does not cite to in-court testimony to support the proposed finding.

187. According to Cristal's Mr. Stoll, [REDACTED] (PX2245 (Stoll, Dep. at 82-84) (*in camera*)).

Response to Finding No. 187:

Complaint Counsel's proposed finding is an inaccurate paraphrase of the actual testimony. Mr. Stoll never testified that multi-national customers were aware that the TiO₂ market "does not operate on a global level." The actual transcript discusses whether those customers have ever requested a global price: [REDACTED]
[REDACTED]
[REDACTED] (PX2245 (Stoll, Dep. at 82-84)). Complaint Counsel's proposed finding relies on testimony from a deposition transcript that was conducted in 2012 for a separate case. Even though the FTC called Mr. Stoll to testify live, Complaint Counsel does not cite to any in-court testimony subject to cross examination before this Court to support the proposed finding.

188. Sherwin-Williams, for example, has manufacturing in North and South America, Europe and Asia, but [REDACTED]
[REDACTED] (PX8003 at 006 (¶ 28) (Young Decl.) (partially *in camera*)).

Response to Finding No. 188:

Complaint Counsel's proposed finding relies on testimony from a declaration instead of live testimony subject to cross examination before this Court. Even though the FTC called Mr. Young to testify live, Complaint Counsel does not cite to in-court testimony to support the proposed finding.

189. PPG has teams in different regions, with someone in each region performing the negotiations for TiO₂ price and supply in that region. (Malichky, Tr. 270-71).

Response to Finding No. 189:

Complaint Counsel’s proposed finding is misleading. There is a single person at PPG whose “job is . . . to negotiate the prices for the purchase of titanium dioxide” and that person is Paul Malichky. (Malichky, Tr. 623). He is “responsible for pricing around the world.” (Malichky, Tr. 623). PPG has “people in the different regions that do some of the day-to-day negotiation, but ultimately it’s [Paul Malichky’s] responsibility.” (Malichky, Tr. 623).

190. Likewise, [REDACTED] (PX7033 (Post, Dep. at 11-12) (*in camera*)).

Response to Finding No. 190:

Complaint Counsel’s proposed finding is misleading because there is a single person at AkzoNobel who is ultimately responsible for negotiating with TiO₂ suppliers. Mr. Post is the Global Spend Area Director at AkzoNobel and his responsibilities include {“**all of the titanium dioxide spend within AkzoNobel.**”} (PX7033 (Post, Dep. at 8)). That means he is [REDACTED] [REDACTED] (PX7033 (Post, Dep. at 8)).

Mr. Post [REDACTED] [REDACTED] (PX7033 (Post, Dep. at 8)). Complaint Counsel’s proposed finding relies on testimony from a deposition instead of live testimony subject to cross examination before this Court.

191. According to Mr. Post of AkzoNobel, [REDACTED] [REDACTED] (PX7033 (Post, Dep. at 154) (*in camera*)). [REDACTED] (PX7033 (Post, Dep. at 177)) [REDACTED]

[REDACTED] (in camera)).

Response to Finding No. 191:

Complaint Counsel’s proposed finding is undermined by the cited testimony. Supply and demand are global: TiO2 supply constraints in Europe can impact supply in North America. For example, Mr. Post testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX7033 (Post, Dep. at 177)). Complaint Counsel’s proposed finding relies on testimony from a deposition instead of live testimony subject to cross examination before this Court.

192. [REDACTED] because prices are because of so } (Young, Tr. 671-72 (in camera)). (Young, Tr. 672-73 (in camera)).

Response to Finding No. 192:

Complaint Counsel’s proposed finding is potentially misleading because it added the word “chloride TiO2” which was not part of the original transcript. [REDACTED]

[REDACTED] (Young, Tr. 671-72).

193. [REDACTED] (PX7025 (Malichky, Dep. at 77, 81) (in camera); PX7043 (Gigou, Dep. at 83) (in camera); Young, Tr. 670-71 (in camera); Christian, Tr. 786-87; see CCF ¶¶ 194-98, below).

Response to Finding No. 193:

Complaint Counsel's proposed finding is potentially misleading because many customers testified that they already source TiO₂ from outside the United States. For example, [REDACTED]

[REDACTED]

[REDACTED]

(PX4113-004 (PPG's Response to CID)). True Value sources a significant amount of their TiO₂ from outside North America. [REDACTED]

[REDACTED] (PX4197-002 (True Value Response to CID)). Complaint Counsel's proposed finding relies on testimony that was not presented at trial and thus was not subject to cross examination in this Court.

194. For example, Deceuninck North America (DNA), a plastics manufacturer, has sourced all the TiO₂ that it purchased in the United States from Tronox's Hamilton, Mississippi plant. (PX7030 (Arrowood, Dep. at 109)). The TiO₂ is shipped by truck in supersacks to DNA's Ohio plant. (PX7030 (Arrowood, Dep. at 105)).

Response to Finding No. 194:

Complaint Counsel's proposed finding is potentially misleading because it is not limited by date. Complaint Counsel's proposed finding relies on testimony from a deposition instead of live testimony subject to cross examination before this Court. Even though Complaint Counsel called Mr. Arrowood to testify, the proposed finding does not cite to any in-court testimony.

195. According to Mr. Arrowood of DNA, the important factors to consider when buying TiO₂ are, in addition to price, a short lead-time for delivery, product quality, delivery reliability, and product performance characteristics (e.g., weatherability). (PX7030 (Arrowood, Dep. at 47, 148-52)).

Response to Finding No. 195:

Complaint Counsel's proposed finding relies on testimony from a deposition instead of live testimony subject to cross examination before this Court. Even though Complaint Counsel called Mr. Arrowood to testify, the proposed finding does not cite to any in-court testimony.

196. DNA has not considered purchasing TiO₂ from locations outside of North America because of the “problems that [one] can run into with transportation, with product taking an extremely long lead time to get to [DNA’s] factory and just all the difficulties that you can face with transportation.” (Arrowood, Tr. 1084).

Response to Finding No. 196:

Complaint Counsel’s proposed finding is false. Complaint Counsel’s proposed finding is that “DNA has not considered purchasing TiO₂ from locations outside of North America.” That is contradicted by the sworn testimony of Mr. Arrowood at his deposition: “Q. Do you recall at any point Deceuninck considering shipping TiO₂ from Europe to Ohio? A. We have in the past. Not recently, not in the last 12 months say, but we have looked at that, at the feasibility of doing that.” (PX7030 (Arrowood, Dep at 68). One reason that DNA ultimately decided not to purchase TiO₂ from Europe was that just the threat of arbitrage was enough to negotiate lower prices from their suppliers in North America. (Arrowood, Tr. 1118-19).

197.

[REDACTED]

(Malichky, Tr. 310 (*in camera*)).

Response to Finding No. 197:

Respondents have no specific response.

198. As Mr. Young of Sherwin-Williams testified,

[REDACTED]

(Young, Tr. 670-71 (*in camera*)).

Response to Finding No. 198:

Respondents have no specific response.

- (3) Tronox and Cristal’s ordinary course documents and their executives’ testimony confirm the regional nature of chloride TiO₂ pricing and purchasing

199. Testimony and ordinary course documents from Tronox and Cristal confirm the market reality of regional pricing and purchasing of chloride TiO₂. (See CCFF ¶¶ 200-25, below).

Response to Finding No. 199:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents’ specific responses can be found in the responses to ¶¶ 200-25.

200. As Tronox’s Mr. Mouland admitted, [REDACTED]
[REDACTED] (Mouland, Tr. 1173 (*in camera*)).

Response to Finding No. 200:

Complaint Counsel’s proposed finding is misleading because it attempts to qualitatively describe data which is already in evidence. For example, Complaint Counsel’s expert, Dr. Hill, already analyzed the differences that PPG historically paid between regions and that analysis shows [REDACTED]

[REDACTED] (PX5004-037, Fig. 14).

201. In March 2017, [REDACTED]
[REDACTED] (PX1682 at 001 (Mouland email to Larson) (*in camera*)).

Response to Finding No. 201:

Complaint Counsel’s proposed finding is incomplete and omits material information. At the time of the email, Dunn Edwards had recently acquired a competitor, Nippon Paint. The cited email explains that [REDACTED]

[REDACTED]

[REDACTED] (PX1682-001 (Larson email to Wang)). [REDACTED]

[REDACTED]

[REDACTED] (PX1682 at 001).

202. In July 2016, Tronox’s Mr. Mouland informed [REDACTED]
[REDACTED] (Mouland, Tr. 1177-78 *(in camera)*; see also
RX0281 at 001 (Mouland email) *(in camera)*).

Response to Finding No. 202:

Complaint Counsel’s proposed finding undermines its prior claim that customers do not use prices from other regions to negotiate. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (RX0281.0001 (Mouland email)). These exact negotiationg tactics repeat across the industry. Mr. Christian of Kronos testified that [REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 930). Mr. Christian testified that [REDACTED]

[REDACTED] (Christian, Tr. 932 *(in camera)*). .

203. In a September 2011 email, Mr. Mouland wrote to Mr. Duvekot: [REDACTED]
[REDACTED] (PX1085 at 001
(Mouland email to Duvekot) (explaining [REDACTED]
[REDACTED] *(in camera)*).

Response to Finding No. 203:

Complaint Counsel’s proposed finding undermines its prior claim that customers do not use prices from other regions to negotiate. In PX1085, [REDACTED]

[REDACTED]

[REDACTED] (PX1085). Complaint Counsel’s proposed fact is also incomplete because it ignores that the document shows that the threat of arbitrage constrains the ability of producers to charge different amounts in different regions. That document shows [REDACTED]

[REDACTED]

[REDACTED] (PX1085).

204. [REDACTED] (PX1021 at 002 (Romano email to Turgeon) *in camera*); *see also* PX9006 at 006 (Tronox Q2 2015 Earnings Call) (Tronox then-CEO noting that it did “not see that exports from China or from Europe are playing a material role in the competitive balance, particularly in the North American market.”); *see also* PX2315 at 004 (Cristal presentation) [REDACTED] (*in camera*)).

Response to Finding No. 204:

Complaint Counsel’s proposed finding is misleading and incomplete. [REDACTED]

[REDACTED]

(PX1021-002). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX1021-002).

Second, qualitative descriptions about imports into North America on an earnings call do not support the claimed findings. Third, PX2315-004 [REDACTED]

[REDACTED]

[REDACTED] (PX2315-004).

[REDACTED]

[REDACTED] (PX-2315-004). Complaint Counsel relies on

PX2315 which was not presented at trial and thus not subject to cross examination before the Court.

205. Likewise, [REDACTED]
[REDACTED] (PX2041 at 010 (Snider email with attachment) (*in camera*)).

Response to Finding No. 205:

Complaint Counsel's proposed finding relies on PX2041 which was not presented at trial and thus not subject to cross examination before the Court.

206. [REDACTED]
[REDACTED] compared to its competitors. (PX2356 at 009 (Gunther email to Gigou with attachment) (*in camera*)).

Response to Finding No. 206:

Complaint Counsel's finding is potentially misleading because [REDACTED]
[REDACTED] (Hill, Tr. 2045-46).

Complaint Counsel's proposed finding relies on PX2356 which was not presented at trial and thus not subject to cross examination before the Court.

207. Within the same September 2017 presentation, [REDACTED]
[REDACTED] and next to it, the slide specifies,
[REDACTED] (PX2356 at 011 (Gunther email to Gigou with attachment) (*in camera*); PX2356 at 015-16 [REDACTED] (*in camera*)).

Response to Finding No. 207:

Complaint Counsel's proposed finding undermines its own expert Dr. Hill's testimony at trial. A cornerstone of Dr. Hill's analysis was that TiO₂ producers do not change exporting behavior based on North American price. (Hill, Tr. 1775-76) But here, Cristal's ordinary course

documents show that [REDACTED]

[REDACTED] (PX2356 at 011 (Gunther email to Gigou with attachment) (*in camera*)). Tronox ordinary course documents show Tronox doing the same. (RX0250 (*in camera*)) [REDACTED]

Complaint Counsel's proposed finding relies on PX2356 which was not presented at trial and thus not subject to cross examination before the Court.

208. [REDACTED] (PX1006 at 010 (Tronox's Nov. 2016 TiO₂ Review) (*in camera*)).

Response to Finding No. 208:

Complaint Counsel's proposed finding relies on PX1006 which was not presented at trial even though both Mr. Romano and Mr. Mouland testified live.

209. TiO₂ suppliers [REDACTED] (PX2252 at 051-52 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Jerry Bassett) (*in camera*); PX7043 (Gigou, Dep. at 84-86) (*in camera*); see also Mei, Tr. 3177 (*in camera*)) [REDACTED] PX7026 (Duvekot, Dep. at 80-81, 84-85) (acknowledging that [REDACTED]) (*in camera*)).

Response to Finding No. 209:

Complaint Counsel's proposed finding that TiO₂ producers "do not like to move product from region to region" is vague and misleading. TiO₂ suppliers move substantial amounts of TiO₂ around the globe. For example, about 25 percent of production from Tronox's Hamilton plant is exported outside the United States, about 93 percent of the production from Tronox's

Botlek plant is exported outside the Netherlands and about 20 percent is exported out of Europe, and more than 90 percent of production from Tronox's Kwinana plant is exported out of Australia. (Mei, Tr. 3161). Complaint Counsel's proposed finding relies on deposition testimony from Mr. Gigou and testimony from Mr. Basset from a deposition that occurred in 2012 for a separate case. Complaint Counsel did not call Mr. Bassett or Mr. Gigou to testify in this matter and thus their testimony was not subject to cross examination before this Court. Complaint Counsel also relies on Mr. Duvekot's deposition transcript f even though Mr. Duvekot testified live in this trial.

210. As Mr. Snider, Cristal's marketing director acknowledged, [REDACTED] (PX7000 (Snider, IHT at 34-35 (*in camera*))).

Response to Finding No. 210:

Complaint Counsel's proposed finding is lacking foundation. The answer that forms the basis for the proposed finding begins with [REDACTED] (PX7000 (Snider, IHT at 34-35)). What this testimony actually shows is that changes to the average price in North America tend to lag behind the rest of the world and thus why average prices in North America fall more slowly than the rest of the world when global prices are falling and increase more slowly than the rest of the world when prices are rising. Complaint Counsel's proposed finding relies on testimony from a witness who was not called at trial and thus not subject to cross examination before the Court.

211. The majority of TiO₂ sold out of Tronox's chloride TiO₂ manufacturing facilities is sold into the same region where each plant is located. (Quinn, Tr. 2418). Specifically, a significant majority of the sales coming out of Tronox's Hamilton, Mississippi plant serves the North American region. (Quinn, Tr. 2418).

Response to Finding No. 211:

Complaint Counsel's proposed finding is misleading insofar as it relies on subjective, qualitative descriptions instead of actual data. For example, about 25 percent of production from Tronox's Hamilton plant is exported outside the United States, about 93 percent of the production from Tronox's Botlek plant is exported outside the Netherlands and about 20 percent is exported out of Europe, and more than 90 percent of production of Tronox's Kwinana plant is exported out of Australia. (Mei, Tr. 3161).

212. Reflecting the market reality, [REDACTED] (PX1006 at 010 (Tronox Nov. 2016 TiO₂ Review) (*in camera*); PX1021 at 002 (Romano email to Turgeon) [REDACTED] (*in camera*); PX2025 at 008 (Cristal presentation) (*in camera*); PX2041 at 010 (Snider email with attachment) [REDACTED] (*in camera*); PX7037 (Pickett, Dep. at 46) (*in camera*); PX7043 (Gigou, Dep. at 14-15) [REDACTED] (*in camera*); PX2366 at 003 and PX2367 at 004 (Cristal spreadsheets) [REDACTED] (*in camera*)).

Response to Finding No. 212:

Complaint Counsel's proposed finding is misleading. While Tronox does have sales teams that cover specific regions and countries, Mr. Romano of Tronox testified that he is [REDACTED] (Romano, Tr. 2152). Complaint Counsel cites to PX1006, but that document was never used at trial and does not support the proposed finding that Tronox organizes its TiO₂ business to make sales and pricing decisions on a regional basis. The page cited by Complaint Counsel shows average prices in different regions, but Complaint Counsel ignores the previous page which shows average global prices. (PX1006-009 - 010 (Tronox Nov. 2016 TiO₂ Review); *see also* Mouland, Tr. 1193-94 [REDACTED]”). Complaint Counsel's

citation to PX1021 is misleading and incomplete because it actually shows that Tronox has centralized pricing authority that monitors global trends: [REDACTED]

[REDACTED]

[REDACTED] Complaint Counsel's proposed finding also cites to no testimony that was subject to cross examination in this Court.

213. The regional nature of pricing for chloride TiO₂ is [REDACTED] (See CCF ¶¶ 214-23, below).

Response to Finding No. 213:

Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific responses can be found in response to ¶¶ 214-23, below.

214. For example, [REDACTED] (Mouland, Tr. 1172 (*in camera*)).

Response to Finding No. 214:

Complaint Counsel's proposed finding is incomplete because the differences between those prices is constrained by global competition and the threat of regional arbitrage. [REDACTED] (Romano, Tr. 2151-52)..

[REDACTED]

[REDACTED] (Romano, Tr. 2155-56).

215. Similarly, Mr. Romano explained during an investigational hearing, [REDACTED] (PX7001 (Romano, IHT at 145-46) (*in camera*); see also Romano, Tr. 2152 [REDACTED] (*in camera*)).

Response to Finding No. 215:

Complaint Counsel’s proposed finding is incomplete because the differences between those prices is constrained by global competition and the threat of regional arbitrage. [REDACTED]

[REDACTED] (Romano, Tr. 2151-52).

[REDACTED]

[REDACTED]

[REDACTED] Romano, Tr. 2155-56).

216. Thus, Tronox’s oft-repeated view on this issue is captured in an email from Mr. Mouland:

[REDACTED]

[REDACTED] (PX1456 at 001 (Mouland email to Tan) (*in camera*)).

Response to Finding No. 216:

Complaint Counsel’s proposed finding is misleading. The phrase is not “oft-repeated” or Complaint Counsel would be able to cite to more than a single email. The author of the email, Mr. Mouland clarified that the quoted excerpt is not a general statement but refers to a specific negotiation with a single customer. Specifically, Complaint Counsel asked Mr. Mouland: {“Q.

[REDACTED]

[REDACTED] (Mouland, Tr. 1189). Complaint

Counsel followed up with [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Mouland, Tr. 1191).

217. In 2014, Mr. Mouland of Tronox observed that [REDACTED]

[REDACTED] and noted that he had reiterated [REDACTED]

[REDACTED] PX1301 at 001-02 (Mouland email to Duvekot and Romano) (*in camera*)).

Response to Finding No. 217:

Complaint Counsel's proposed finding is incomplete because it fails to mention that [REDACTED]

[REDACTED] which reflects the global nature of the market. (PX1301-001).

Complaint Counsel's proposed finding relies on a document that was never used at trial and thus never subject to cross examination before the Court.

218. A regular course business presentation from Cristal suggests that [REDACTED] [REDACTED] PX2116 at 013, 134 (Cristal August 2016 email with marketing and sales presentation attached) (*in camera*)).

Response to Finding No. 218:

Complaint Counsel's proposed finding relies on a document that was never used at trial, no foundation was ever laid at trial as to the methodology or validity of the analysis, and the author was never subject to cross examination before the Court. The proposed finding is also incomplete and potentially misleading because it fails to note that the presentation warns readers that the [REDACTED]

[REDACTED] (PX2116-135 [REDACTED])

[REDACTED] There is no evidence that the underlying model is valid, or even if it was valid, whether the relative price drivers are the same today.

219. [REDACTED] (PX2245 at 083 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Mark Stoll) (*in camera*)).

Response to Finding No. 219:

Complaint Counsel's proposed finding relies on testimony from a deposition transcript that was conducted in 2012 for a separate case. Even though the FTC called Mr. Stoll to testify live, Complaint Counsel does not cite to any in-court testimony subject to cross examination before this Court to support the proposed finding.

220. According to Tronox, [REDACTED] (PX1739 at 001 (Tronox March 2016 email) [REDACTED] (*in camera*)).

Response to Finding No. 220:

Complaint Counsel’s proposed findings are false. Tronox executive Mr. Romano testified that TiO2 prices in different parts of the world are “interdependent.” (Romano, Tr. 2237). Complaint Counsel’s proposed finding is also incomplete because it cites to a document but no testimony. In PX1739, [REDACTED]

[REDACTED]
[REDACTED] PX1739-002 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Mouland. Tr. 1281 (*in camera*)).

221. Similarly, in a 2015 internal email discussing negotiation strategies with one of its customers, Mr. Mouland of Tronox wrote that [REDACTED] (PX1319 at 001 (Tronox October 2015 email from Mouland to Bradley) (*in camera*)).

Response to Finding No. 221:

Complaint Counsel’s proposed finding is potentially misleading because of its use of an ellipsis. The full quote states: [REDACTED]

[REDACTED] (PX1319-001 (Tronox October 2015 email from Mouland to Bradley)). The excluded text suggests that Mexico is properly considered part of North America.

222. Tronox informs its customers that [REDACTED] (PX1449 at 001 (February 2012 Tronox email) (*in camera*)).

Response to Finding No. 222:

Complaint Counsel's proposed finding relies on a document that was not used at trial and thus was not subject to cross-examination in this Court.

223. As of March 2018, Tronox's practice of [REDACTED] has continued. (PX7026 (Duvekot, Dep. at 87-88) (*in camera*)).

Response to Finding No. 223:

Complaint Counsel's proposed finding is vague. The cited deposition testimony is that Tronox does not have a single-price arrangement with any of its customers. (PX7026 (Duvekot, Dep. at 87-88)). Complaint Counsel's finding relies on deposition testimony from Mr. Duvekot. Even though Complaint Counsel called Mr. Duvekot at trial, this proposed finding does not cite to any trial testimony that was subject to cross-examination before this Court.

224. [REDACTED] (PX7043 (Gigou, Dep. at 83) (*in camera*)).

Response to Finding No. 224:

Complaint Counsel's proposed finding relies on testimony from a deposition for a witness who was not called at trial and thus was never subject to cross examination before this Court.

225. In the price-fixing litigation, Cristal's former global accounts manager testified that [REDACTED] (PX2252 at 040 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Jerry Bassett) [REDACTED] (*in camera*)).

Response to Finding No. 225:

Complaint Counsel’s proposed finding is false and the proposed finding was contradicted by a substantial body of evidence and live testimony at trial. For example, Tronox executive Mr. Romano testified that TiO₂ prices in different parts of the world “are interdependent.” (Romano, Tr. 2237). Mr. Young of Sherwin Williams testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Mr. Romano, who has been selling TiO₂ for 30 years to numerous customers, testified that “[t]here is a bandwidth globally that pricing follows.” (Romano, Tr. 2139, 2236). [REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2155-56). Both parties’ economic experts looked at evidence that compiled data from multiple producers and multiple customers and found that global prices trend together. For example, Dr. Hill compiled sales data from Tronox and Cristal from different regions in one of his expert report. (PX5004-036, Fig.13) Dr.

Hill admitted that chart [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2045 (testifying about PX5004-036, Fig.13)). In fact, Dr. Hill explained that prices within North America and outside North America were so highly correlated that one could not “separately identify the effect of each” using his regression tools. (Hill, Tr.

1788). Respondents' expert Dr. Shehadeh also conducted a statistical analysis of prices over time and across geographies to determine whether or not there was a long-term relationship between prices for TiO₂ in different regions. (Shehadeh, Tr. 3231-33). Controlling for other factors such as price of feedstocks, Dr. Shehadeh found that prices are interrelated and global. (Shehadeh, Tr. 3231; RX0170.0109-114 (results of statistical analysis on various data sources)).

Complaint Counsel's proposed finding relies on testimony from a deposition transcript that was conducted in 2012 for a separate case. Mr. Bassett was not called to testify in this matter and thus was not subject to cross examination before this Court.

- (4) Testimony from other chloride TiO₂ producers also confirms the regional nature of chloride TiO₂ pricing and purchasing

226. Other TiO₂ producers also employ regional pricing based on regional competitive conditions. (See CCF ¶¶ 227-31, below).

Response to Finding No. 226:

Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific responses can be found in response ¶¶ 227-31, below.

227. For example, [REDACTED] (PX8002 at 004 (¶ 15) (Christian Decl.) (*in camera*)); [REDACTED]; Christian, Tr. 931 [REDACTED] (*in camera*)).

Response to Finding No. 227:

Respondents have no specific response.

228. For Kronos, [REDACTED] (PX3038 at 34 [REDACTED]) (*in camera*)).

Response to Finding No. 228:

Respondents have no specific response.

229. Venator assesses its TiO2 business on both a global and regional basis. (PX8005 at 004 (¶ 23) (Maiter Decl.) (“At any given time, the competitive dynamics in each region may vary, so we also analyze demand and supply conditions, pricing, and financial performance by region on a monthly and quarterly basis.”)). [REDACTED] (PX7015 (Maiter, Dep. at 135) (*in camera*)).

Response to Finding No. 229:

Complaint Counsel’s proposed finding relies on testimony from a witness who was not called to testify at trial and thus was not subject to cross examination before this Court.

230. Mr. O’Sullivan of Chemours stated that [REDACTED] (PX8004 at 002 (¶ 7) (O’Sullivan Decl.) (*in camera*)). Chemours further explains that [REDACTED] . (PX8004 at 002 (¶ 7) (O’Sullivan Decl.) (*in camera*)).

Response to Finding No. 230:

Complaint Counsel’s proposed finding is misleading. The cited declaration [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Complaint Counsel’s proposed finding relies on a declaration from a witness who was not called to testify at trial and thus was not subject to cross examination before this Court.

231. Like other TiO2 producers, Chemours organizes its chloride TiO2 businesses [REDACTED] (PX8004 at 002 (¶ 7) (O’Sullivan Decl.) (*in camera*)).

Response to Finding No. 231:

Complaint Counsel's proposed finding relies on a declaration from a witness who was not called to testify at trial and thus was not subject to cross examination before this Court.

(5) Between 2012 and 2016, North America sustained higher prices for chloride TiO₂ compared to the rest of the world

232. Although regional prices vary relative to one another, at least between 2012 and 2016, TiO₂ prices in North America remained significantly higher than those elsewhere in the world. (See CCFE ¶¶ 233-58, below).

Response to Finding No. 232:

Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific response can be found in response to ¶¶ 233-58, below.

233. North American TiO₂ prices are traditionally higher than other regions because of supply and demand conditions. (PX8003 at 006 (¶ 27) (Young Decl.)).

Response to Finding No. 233:

Complaint Counsel's proposed finding is not true. Prices for TiO₂ in North America are occasionally higher and occasionally lower than prices in othe regions. (PX5004-037, Fig. 14 (showing European prices higher than North American prices for a customer from 2010 through 2012, part of 2013, and 2017)). To the extent the proposed finding relies on testimony from Mr. Young, his experience is quite limited: [REDACTED]

234. [REDACTED]
[REDACTED] (Young, Tr. 673-74 (*in camera*)).

Response to Finding No. 234:

Complaint Counsel's proposed finding is not true. Prices for TiO₂ in North America are occasionally higher and occasionally lower than prices in othe regions. (PX5004-037, Fig. 14

(showing European prices higher than North American prices for a customer from 2010 through 2012, part of 2013, and 2017)). To the extent the proposed finding relies on testimony from Mr. Young, his experience is quite limited: [REDACTED]

235. Similarly, in an email to a Tronox TiO₂ sales manager, [REDACTED] (RX0504 at 0001 (Doherty email) (*in camera*)).

Response to Finding No. 235:

Complaint Counsel's proposed finding is misleading because it does not include a date. Since the TiO₂ market is very cyclical (Stoll, Tr. 2073), it is important to disclose the date for any statements about relative prices, since they are constantly changing. This document also undermines Complaint Counsel's proposed finding that customers never use prices from different regions in negotiations. As Mr. Arrowood testified, at trial this negotiating tactic worked. (Arrowood, Tr. 1119; RX0402 [REDACTED])

236. Dr. Hill determined in his analysis, based on invoice data from Tronox and Cristal, that North American TiO₂ customers consistently paid [REDACTED] for products made at Respondents' North American factories. (Hill, Tr. 1722-24 (partially *in camera*); PX5000 at 063-64 (¶ 144 & Fig. 24) (Hill Initial Report) (*in camera*); Shehadeh, Tr. 3633 [REDACTED] (*in camera*)).

Response to Finding No. 236:

Complaint Counsel's proposed finding is false. None of the cited testimony makes the claim that customers in North America "consistently" paid "*at least 10% and often more*" for TiO₂. That statement is also contradicted by evidence presented at trial. For example, Dr. Hill's own data shows that for significant periods of time the prices a customer paid in Europe were

higher than North America. PX5004-037, Fig. 14) (showing European prices higher than North American prices for a customer from 2010 through 2012, part of 2013, and 2017).

237. Based on his economic analysis of Tronox and Cristal data, Dr. Hill concluded that there are [REDACTED]. (Hill, Tr. 1723 (*in camera*); PX5004 at 035-36 (¶ 83 & Fig.13) (Hill Rebuttal Report to Shehadeh (*in camera*)).

Response to Finding No. 237:

Complaint Counsel’s proposed finding is misleading and is contradicted by evidence presented at trial. For example, Dr. Hill’s own data shows that for significant periods of time the prices a customer paid in Europe were higher than North America. (PX5004-037, Fig. 14) (showing European prices higher than North American prices for a customer from 2010 through 2012, part of 2013, and 2017). Complaint Counsel’s proposed finding is not a fact, but rather an expert opinion. To the extent Complaint Counsel proposes this as a fact, it improperly relies on expert testimony to support a factual issue in dispute. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

238. In addition to the descriptive analysis, Dr. Hill also performed a quantitative economic analysis—a “hedonic regression”—with customer-grade level data and concluded that even for a particular customer for a particular grade, the price in North America has been higher than the price in other regions. (Hill, Tr. 1723-24; PX5004 at 073 (¶¶ 173-74, 176) (Hill Rebuttal Report to Shehadeh (*in camera*)).

Response to Finding No. 238:

Complaint Counsel’s proposed finding is misleading. Dr. Hill’s own data shows that for significant periods of time the prices a customer paid in Europe were higher than North America. PX5004-037, Fig. 14) (showing European prices higher than North American prices for a customer from 2010 through 2012, part of 2013, and 2017). To the extent Complaint Counsel’s proposed finding purports to be a fact, it improperly relies on expert testimony to support a

factual issue in dispute. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

239. Other evidence also shows that North American producers charged higher prices in North America compared to other regions of the world between 2012 and 2016. (See CCFF ¶¶ 240-58, below).

Response to Finding No. 239:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents’ specific response can be found in response to ¶¶ 240-58, below.

240. Mr. Romano of Tronox acknowledged that [REDACTED]
[REDACTED]
(Romano, Tr. 2177 (*in camera*); PX1349 at 009 (*in camera*)).

Response to Finding No. 240:

Respondents have no specific response.

241. [REDACTED]
[REDACTED] (Romano, Tr. 2179-80 (*in camera*); PX1111 at 002 (*in camera*)).

Response to Finding No. 241:

Respondents have no specific response.

242. [REDACTED]
[REDACTED] (Romano, Tr. 2181 (*in camera*); PX1620 at 025 (*in camera*)).

Response to Finding No. 242:

Respondents have no specific response.

243. According to a June 2016 document from Tronox, [REDACTED]
[REDACTED] Romano, Tr. 2185-86 (*in camera*); PX1008 at 011 (*in camera*)).

Response to Finding No. 243:

Respondents have no specific response.

244. In a May 2016 email [REDACTED] Mr. Romano wrote to Ms. Staton, CFO for Tronox's TiO2 business, [REDACTED] (RX0250 at 0001 (Romano email to Staton and Turgeon) (*in camera*)). According to the data included in the same email chain, [REDACTED] (RX0250 at 0002 (Tronox email) (*in camera*)).

Response to Finding No. 244:

Complaint Counsel has no specific response, except to note that this proposed finding cites to a document that shows TiO2 producers repatriate exports when prices are higher in North America as compared to other potential markets.

245. [REDACTED] (PX7052 (O'Sullivan, Dep. at 145-47) (*in camera*); see also PX8004 at 002 (¶ 7) (O'Sullivan Decl.) (*in camera*)). [REDACTED] (PX7052 (O'Sullivan, Dep. at 145-47) (*in camera*)).

Response to Finding No. 245:

Complaint Counsel's proposed finding is misleading and incomplete. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (PX7052 (O'Sullivan, Dep. at 79-80)).

246. As Mr. Maiter of Venator testified, [REDACTED] (PX7015 (Maiter, Dep. at 180-81) (*in camera*)).

Response to Finding No. 246:

Complaint Counsel's proposed finding is potentially misleading because it relies on quantitative description rather than data. Dr. Hill's own data shows that for at least some customers, prices in Europe were higher than North America at the end of 2016. (PX5004-037, Fig. 14).

247. Between 2011 and 2016, the price PPG was charged for chloride TiO₂ in the United States was higher, on average, than in other parts of the world. (PX8000 at 002 (¶ 7) (Malichky Decl.)).

Response to Finding No. 247:

Complaint Counsel's proposed finding is vague and misleading. The proposed finding is vague when it uses the word "on average." Complaint Counsel cites to qualitative testimony instead of actual data. [REDACTED]

[REDACTED] (PX5004-037, Fig. 14) Even though Dr. Malichky testified live at trial, Complaint Counsel's proposed finding relies on deposition testimony that was not subject to cross examination before this Court.

248. In Tronox's [REDACTED] Mr. Mouland reported to Mr. Romano: [REDACTED] (PX1105 at 003 (Tronox email with attachment) (*in camera*)).

Response to Finding No. 248:

Complaint Counsel's proposed response relies on a document that was never presented at trial and thus never subject to cross-examination in this Court. Respondents note that this is another example of customers using prices from other regions in negotiations.

249. In March 2013, "[m]arkets in North America are still under pressure to decline since they are so much higher than the other regions of the world, however, [Cristal] [is] trying to hold on to the current price levels." (PX2030 at 003 (Stoll email to Nahas)).

Response to Finding No. 249:

Complaint Counsel's proposed response relies on a document that was never presented at trial and thus never subject to cross-examination in this Court. Respondents note that this is another example of customers using prices from other regions in negotiations.

250. A Tronox presentation emailed in December 2013 notes that [REDACTED] (PX1349 at 009 (Tronox presentation) [REDACTED] (in camera)).

Response to Finding No. 250:

Respondents note that this is another example of customers using prices from other regions in negotiations.

251. In a January 2015 email, Tronox's Mr. Duvekot noted that [REDACTED] (PX1317 at 001 (Duvekot email to Romano) (in camera)).

Response to Finding No. 251:

Respondents have no specific response.

252. In a 2015 earnings call, Tronox reported that TiO₂ prices in North America were higher than the TiO₂ prices in the European, Asian and Latin American markets. (PX9008 at 008 (Tronox Q4 2015 Earnings Call) (Tronox then-CEO stating "[A]re there different prices in the regional markets in which we do business? The answer to that question is yes.")).

Response to Finding No. 252:

Respondents have no specific response.

253. A Tronox June 2016 presentation shows that [REDACTED] (PX1008 at 011 (Tronox TiO₂ Variance Analysis) (in camera)).

Response to Finding No. 253:

Respondents have no specific response.

254. A March 2015 Cristal report acknowledges that [REDACTED] (PX2050 at 005 (Cristal email with report attached) (*in camera*)).

Response to Finding No. 254:

Complaint Counsel's proposed response relies on a document that was never presented at trial and thus never subject to cross-examination in this Court.

255. A September 2016 Cristal email refers to [REDACTED] (PX2027 at 001 (Cristal email) (*in camera*)).

Response to Finding No. 255:

Complaint Counsel's proposed response relies on a document that was never presented at trial and thus never subject to cross-examination in this Court.

256. Another September 2016 Cristal email [REDACTED] (PX2039 at 001 (Cristal email) (*in camera*)).

Response to Finding No. 256:

Complaint Counsel's proposed response relies on a document that was never presented at trial and thus never subject to cross-examination in this Court.

257. In a 2016 earnings call, Tronox reports that TiO₂ prices in Europe and Asia were lower than prices in North America. (PX9001 at 007 (Tronox Q3 2016 Earnings Call) (“[O]ur view is that prices in Europe and in Asia were lower than prices in the United States and in other North American -- the other North American markets.”)).

Response to Finding No. 257:

Respondents have no specific response.

258. After more than five years of higher North American prices, [REDACTED] (PX5004 at 039 (¶ 90 & Fig. 17) (Hill Rebuttal Report to Shehadeh) (European prices spiked {42%} because of a fire at a TiO₂ plant in Pori, Finland in early 2017, which caused a severe shortage.) (*in camera*); see also PX1437 at 019 (Tronox presentation) [REDACTED]).

[REDACTED] (*in camera*).

[REDACTED] (PX1437 at 019 (Tronox 2017 Presentation) (*in camera*); PX7015 (Maiter, Dep. at 164, 217); Hill, Tr. 1820-1822 (*in camera*); PX5004 at 039 (¶¶ 89-90 & Fig. 17) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 258:

Complaint Counsel’s proposed finding is misleading because it ignores the fact that when global prices are increasing, North American prices are generally lower than other regions. First, Complaint Counsel’s proposed finding has no support for its specific claim that “European prices spiked [REDACTED] because of a fire at a TiO₂ plant in Pori, Finland in early 2017.” Ample evidence at trial supports the finding that prices in Europe were affected by the Pori fire, but no expert or witness has claimed that the Pori fire alone resulted in a price increase of {42%}. (PX5004-039, ¶ 90 & Fig. 17 (Hill Rebuttal Report to Shehadeh)). Second, it is false to claim that prices in China were rising higher than within North America around 2017 “coincided with . . . an environmental crackdown in China.” None of the cited fact evidence supports such a claim; PX1437 does not discuss timing of environmental crackdown in China and the cited portion of PX7015 do not discuss China at all. To the extent that Complaint Counsel cites to Dr. Hill’s testimony and report, Complaint Counsel’s proposed finding improperly relies on expert testimony to support a fact in dispute. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)). The environmental regulations had their largest impact in 2015, but despite the environmental crackdown net Chinese TiO₂ pigment capacity has steadily increased since then. (RX1643.0045 (TZMI TiO₂ Pigment Supply/Demand, Feb. 2018)). Complaint Counsel relies on documents and testimony that were not presented at trial and thus not subject to cross examination before this Court, including PX1437 and PX7015.

(b) Arbitrage by customers is inadequate to defeat a price increase in North America

259. Within the framework of section 4.2.2, the Horizontal Merger Guidelines focus on whether customers can engage in arbitrage by buying a product in a low-priced region and the customer being responsible for arranging transportation, duties, costs etc. to move the product itself to another region. (PX9085 at 017-18 (Horizontal Merger Guidelines, § 4.2.2); Hill, Tr. 1714-15, 1720; Duvekot, Tr. 1303-05 [REDACTED] (in camera)).

Response to Finding No. 259:

Complaint Counsel's proposed finding is incomplete because it ignores that even the threat of arbitrage can create a competitive constraint. If a customer can threaten arbitrage and negotiate a lower price, there is no need to actually engage in the practice. For example, one reason that DNA decided not to purchase TiO₂ from Europe and transport it to the United States was that just the threat of arbitrage has been enough to negotiate lower prices from their suppliers in North America. (Arrowood, Tr. 1118-19).

260. Customers universally testified that they do not engage in arbitrage of chloride TiO₂ in North America. (See CCF ¶¶ 272-77, below).

Response to Finding No. 260:

Complaint Counsel's proposed finding is false and contradicted by testimony from numerous suppliers and customers. Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific response can be found in response to ¶¶ 272-77, below.

261. North American customers testified that the cost of transportation and duties as well as the logistical burdens render arbitrage not commercially viable and thus, customers in North America would not likely defeat a 5-10% price increase by a hypothetical monopolist through arbitrage. (See CCF ¶¶ 283-89, 295-99, below).

Response to Finding No. 261:

Complaint Counsel's proposed finding is false. Testimony at trial has shown that the threat of arbitrage creates sufficient competitive pressure on sellers to keep any regional price differences within a narrow band. Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific response can be found in response to ¶¶ 283-89, 295-99 below.

262. Chloride TiO₂ is [REDACTED] (PX8005 at 004 (¶ 20) (Maiter Decl.) (*in camera*)).

Response to Finding No. 262:

Complaint Counsel's proposed finding is misleading because it makes a general statement about the industry and duties by citing to a single producer (Venator) discussing shipping from a single location (Europe). (PX8005-004, ¶ 20 (Maiter Decl.) (discussing the

[REDACTED] In any event, shipping costs and duties are not barriers to defeating a price increase because significant volumes of TiO₂ already is shipped into and out of North America. (Shehadeh, Tr. 3280-81).

263. As Tronox's Mr. Duvekot acknowledges, [REDACTED] (Duvekot, Tr. 1302-03 (*in camera*); PX1085 at 001 (*in camera*)).

Response to Finding No. 263:

Complaint Counsel's proposed finding is misleading and incomplete. The cited document shows a customer using regional price differences in negotiation and as a result,

[REDACTED] (PX1085).

264. Based on documents, testimony and economic analysis, Dr. Hill concluded that [REDACTED] (Hill, Tr. 1721-22 (partially *in camera*)). Based on a

quantitative analysis using the invoice data, Dr. Hill also concluded that [REDACTED]

[REDACTED] (Hill, Tr. 1722-23 (partially *in camera*)).

Response to Finding No. 264:

Complaint Counsel’s proposed finding makes an incorrect prediction about the future because it ignores the primary reason customers have not engaged in arbitrage: just the threat of arbitrage is enough to negotiate a better price. For example, PX1085 shows a customer using regional price differences in negotiation and as a result, [REDACTED]

[REDACTED] (PX1085). Mr. Arrowood testified that one reason that DNA decided not to purchase TiO₂ from Europe and transport it to the United States was that just the threat of arbitrage has been enough to negotiate lower prices from their suppliers in North America. (Arrowood, Tr. 1118-19, RX0402). To the extent that Complaint Counsel cites to Dr. Hill’s testimony and report, Complaint Counsel’s proposed finding improperly relies on expert testimony to support a fact in dispute. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

265. There also are major logistical challenges for the import of TiO₂ from overseas, not the least of which is the fact that [REDACTED] of the chloride TiO₂ sold in North America is in slurry form. (PX5000 at 017 (¶ 39) (Hill Initial Report) (*in camera*); see CCF ¶¶ 313-22, below). Other logistical challenges include storage issues, shipping lead times (and potential delays), and provision of local technical service. (PX7054 (O’Malley Noe, Dep. at 65 [REDACTED] (*in camera*)).

Response to Finding No. 265:

Complaint Counsel’s proposed finding is incomplete and ignores facts in the record. Slurry is only used in coatings and paper (not in any other TiO₂ end-uses like plastics). (Christian, Tr. 783). Many titanium dioxide customers already make their own slurry.

(Vanderpool, Tr. 237-38 [REDACTED])

[REDACTED] Young, Tr. 705 [REDACTED]

Malichky, Tr. 526 [REDACTED]

[REDACTED] Engle, Tr. 2452 (explaining that there is no “technical reason why you would be unable to make slurry out of TiO₂ made from the sulfate process”). The cited logistical challenges have not stopped Chinese imports from rapidly expanding over the past few years. (PX5000-0035, Fig. 13).

266. Consistent with the testimony, documents, and economic analysis, the persistent regional pricing gap shows that [REDACTED] (See CCFE ¶¶ 232-58, above; Hill, Tr. 1720-1725 (partially *in camera*); PX5000 at 063-064 (¶ 144 & Fig. 24) (Hill Initial Report) (*in camera*)). There is also no evidence that North American customers purchase chloride TiO₂ indirectly from or through other customers to exploit regional price differences. (Shehadeh, Tr. 3567).

Response to Finding No. 266:

To the extent that Complaint Counsel relies on expert testimony, Complaint Counsel’s proposed finding improperly relies on expert testimony to support a fact in dispute. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”).

(1) Arbitrage is expensive and impractical

267. For all of the reasons explained in this section, customers would not be able to defeat a small, but significant North American chloride TiO₂ price increase through arbitrage. (See CCFE ¶¶ 272-77, 283-89 below).

Response to Finding No. 267:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents’ specific response can be found in response to ¶¶ 272-77, 283-89, below.

268. Tronox admits that [REDACTED] (PX0003 at 038 (Tronox September 2017 Narrative Responses) (*in camera*)).

Response to Finding No. 268:

Complaint Counsel’s proposed finding does not quote the cited document and is thus misleading. The actual document states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX0003-038 (Tronox September 2017

Narrative Responses)).

269. In September 2011, Tronox’s Mr. Duvekot noted that [REDACTED] (Duvekot, Tr. 1302-03 (*in camera*)). [REDACTED] (PX1085 at 001 (Duvekot email to Mouland) (*in camera*)).

Response to Finding No. 269:

Complaint Counsel’s proposed finding is not a fact but inappropriate legal argument. PX1085 shows that the potential for arbitrage between regions places a competitive constraint on what Tronox can charge in different parts of the world. (PX1085 [REDACTED]

[REDACTED]

[REDACTED]; Duvekot, Tr. 1302-03 (discussing the same)).

270. [REDACTED] (Duvekot, Tr. 1302-05 (*in camera*)).

Response to Finding No. 270:

Respondents have no specific response, except to note that the costs associated with arbitrage place an effective competitive restraint on what TiO₂ producers can in different countries. For example, PX1085 shows that the potential for arbitrage between regions places a competitive constraint on what Tronox can charge in different parts in the world.

(PX1085{[REDACTED]
[REDACTED] Duvekot, Tr. 1302-03 (discussing the same).

271. [REDACTED] } (Duvekot, Tr. 1307 (*in camera*)).
[REDACTED] (Duvekot, Tr. 1304-05 (*in camera*)).

Response to Finding No. 271:

Respondants have no specific response.

272. TiO₂ customers find that [REDACTED]
[REDACTED] (PX7016 (DeCastro, Dep. at 87-88) (*in camera*)).

Response to Finding No. 272:

Complaint Counsel’s proposed finding is misleading because many customers testified that already source TiO₂ from outside the United States. For example, [REDACTED]

[REDACTED]
[REDACTED] (PX4113-004
(PPG’s Response to CID). True Value sources a significant amount of their TiO₂ from outside North America. (PX4197-002 (True Value Response to CID) [REDACTED]
[REDACTED]

[REDACTED] Complaint Counsel's proposed finding relies on testimony that was not presented at trial and thus was not subject to cross examination in this Court.

273. Likewise, according to PPG, [REDACTED]
[REDACTED]
(Malichky, Tr. 310-11 (*in camera*)).

Response to Finding No. 273:

Respondents have no specific response except to note that PPG sources a significant amount of their TiO₂ from outside North America. For example, [REDACTED]

[REDACTED]

[REDACTED] (PX4113-004 (PPG's Response to CID)).

274. As True Value testified, it is important [REDACTED]
[REDACTED] (Vanderpool, Tr. 199 (*in camera*)).

Response to Finding No. 274:

Respondents have no specific response except to note that True Value sources a significant amount of their TiO₂ from outside North America. (PX4197-002 (True Value Response to CID) [REDACTED]

[REDACTED]

275. [REDACTED]
[REDACTED] (Vanderpool, 199-200 (*in camera*)).

Response to Finding No. 275:

Complaint Counsel's proposed finding is misleading because True Value already imports TiO₂ from outside the United States. True Value sources a significant amount of their TiO₂ from outside North America. (PX4197-002 (True Value Response to CID) [REDACTED]

[REDACTED]

276. Deceuninck North America (DNA) does not even consider purchasing TiO₂ from outside of North America because of the problems that can occur with transportation and long lead times. (Arrowood, Tr. 1084).

Response to Finding No. 276:

Complaint Counsel's proposed finding is false. Complaint Counsel's proposed finding is that "DNA has not considered purchasing TiO₂ from locations outside of North America" but Mr. Arrowood's deposition testimony directly contradicts that proposed finding. (PX7030 (Arrowood, Dep at 68) ("Q. Do you recall at any point Deceuninck considering shipping TiO₂ from Europe to Ohio? A. We have in the past. Not recently, not in the last 12 months say, but we have looked at that, at the feasibility of doing that.")). One reason that DNA decided not to purchase TiO₂ from Europe was that just the threat of arbitrage has been enough to negotiate lower prices from their suppliers in North America. (Arrowood, Tr. 1119, RX0402).

277. [REDACTED]
[REDACTED] (Young, Tr. 674, 735 (*in camera*)).

Response to Finding No. 277:

Complaint Counsel's proposed finding is misleading. [REDACTED]
[REDACTED]
[REDACTED] (Young, Tr. 704). Complaint Counsel's proposed finding of fact ignore the fact that regional differences in price for Sherwin Williams were very similar in part of the competitive pressures from the threat of arbitrage. For example, PX1085 shows that the potential for arbitrage between regions places a competitive constraint on what Tronox can charge. (PX1085 [REDACTED])

[REDACTED] Duvekot, Tr. 1302-03 (discussing the same)).

278. [REDACTED] (PX2253 at 037 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Michael Card) (*in camera*)).

Response to Finding No. 278:

Complaint Counsel’s proposed finding is vague and misleading. Costs associated with shipping titanium dioxide into and out of the United States is “roughly a hundred dollars per ton” give or take \$20 up or down. (Mei, Tr. 3158). This is only about 3% of total cost. (Mei, Tr. 3158). The document cited by Complaint Counsel actually [REDACTED]

[REDACTED] (PX2253-037 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Michael Card)). Complaint Counsel’s proposed finding relies on testimony from a deposition transcript that was conducted in 2012 for a separate case. The FTC did not call Mr. Card to testify in this matter and thus his testimony was not subject to cross examination before this Court.

279. As Cristal’s then-sales manager, Mr. Bassett, explained during a deposition taken for one of the price fixing litigations, [REDACTED] (PX2252 at 051-52 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Jerry Bassett) (*in camera*)).

Response to Finding No. 279:

Complaint Counsel’s proposed finding relies on testimony from a deposition transcript that was conducted in 2012 for a separate case. The FTC did not call Mr. Bassett to testify in this matter and thus his testimony was not subject to cross examination before this Court.

280. [REDACTED] (PX1372 at 020
 (Tronox May 2014 email with strategic plan presentation attached) [REDACTED]
 [REDACTED] (*in camera*)).

Response to Finding No. 280:

Complaint Counsel's proposed finding is potentially misleading because it is not always most efficient for Tronox to supply North American customers from its plant in Hamilton, Mississippi. For example, it costs less for Tronox to ship TiO₂ from Kwinana Austria to Los Angeles than from Hamilton Mississippi to Los Angeles. (Mei, Tr. 3159-60). Complaint Counsel's proposed finding relies on a document that was never used at trial, and thus was not subject to cross examination before the Court.

281. For example, [REDACTED]
 [REDACTED] (PX8005 at 004 (¶ 20) (Maiter Decl.) (*in camera*)).

Response to Finding No. 281:

Complaint Counsel relies on a declaration that was not presented at trial and thus was not subject to cross-examination before the Court. The cited declaration only relates to costs associated with moving product from Europe to North America and does not relate to costs from anywhere else in the world.

282. For Kronos, [REDACTED]
 [REDACTED] (PX8002 at 003 (¶ 14) (Christian Decl.) (*in camera*)).

Response to Finding No. 282:

Complaint Counsel's proposed finding is misleading because it ignores that Kronos actually does import both chloride and sulfate TiO₂ from Europe into the United States. Kronos
 [REDACTED] (PX8002- 003
 (¶ 14) (Christian Decl.)). [REDACTED]

Response to Finding No. 285:

This proposed finding is baseless speculation by Mr. Malichky, unsupported by any documents or other testimony.

286. [REDACTED] (PX7002 (Mouland, IHT at 69, 103-04) [REDACTED] (*in camera*); PX1000 at 005 (Tronox 2016 presentation) [REDACTED] (*in camera*); PX5000 at 066 (¶ 148) (Hill Initial Report) (*in camera*)).

Response to Finding No. 286:

Complaint Counsel’s proposed finding relies on testimony and documents that were not presented at trial, and thus was not subject to cross examination before this Court even though both Mr. Mouland and Dr. Hill testified live. Mr. Engle, from Tronox, testified at length on direct about PX1000 at trial, but not about the specific phrase cited here. On cross examination, Complaint Counsel never questioned Mr. Engle about the quoted phrase from PX1000.

287. [REDACTED] (PX7033 (Post, Dep. at 162) (*in camera*)).

Response to Finding No. 287:

Complaint Counsel’s proposed finding is misleading because it relies on an inaccurate summary instead of quotations. For example, the transcript states that [REDACTED]
[REDACTED]
[REDACTED] (PX7033 (Post, Dep. at 162)). The proposed finding is also misleading because it relates to the industry at large while the cited deposition testimony describes experience from a single customer. Complaint Counsel’s proposed finding relies on testimony that was not prested at trial, and thus Mr. Post was not subject to cross examination before this Court.

Response to Finding No. 289:

Complaint Counsel’s proposed finding is overly broad because the testimony relates to duties paid by a single customer from China into North America. The cited testimony does not discuss duties paid from any other source or paid by any other customer. Complaint Counsel’s proposed finding relies on testimony that was not presented at trial, and thus Mr. Post was not subject to cross examination before this Court.

290. Based on his review of the record, Dr. Hill has concluded that the transportation of TiO₂ is costly due to transportation costs and import duties. (Hill, Tr. 1876-77).

Response to Finding No. 290:

Complaint Counsel’s proposed finding about the appropriate framework to define a geographic market is not a fact, but improper legal argument. The proposed finding is also imprecise and vague.

- (2) North American customers do not engage in meaningful arbitrage today and cannot arbitrage in sufficient quantities to defeat a small but significant price increase

291. The qualitative and quantitative evidence, including customer testimony, make it clear that [REDACTED] (PX7016 (DeCastro, Dep. at 51-52) (*in camera*)).

Response to Finding No. 291:

Complaint Counsel’s proposed finding is inaccurate and misleading. First, Complaint Counsel’s “fact” is supported by only one example— Mr. Steven DeCastro from Rust Oleum (“RPM”) — who notably did not testify at trial and was not subject to cross-examination before this Court. In his deposition, [REDACTED]

[REDACTED] (PX7016, DeCastro, Dep. at 51). Additionally,

Complaint Counsel overlooks the evidence that other North American TiO₂ customers have been

able to successfully engage in arbitrage. (Respondents' Findings ¶¶ 326-29). For example,

[REDACTED]

[REDACTED] (Respondents' Findings ¶ 327). [REDACTED]

[REDACTED] (Respondents' Findings ¶

327). In fact, [REDACTED]

[REDACTED] (Respondents' Findings ¶ 327). [REDACTED]

[REDACTED]

[REDACTED] (Respondents' Findings ¶ 327). Another example is Sherwin Williams.

(Respondents' Findings ¶ 328). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Young, Tr. 704)

292. In fact, Tronox acknowledged that [REDACTED] (Duvekot, Tr. 1303 (in camera)).

Response to Finding No. 292:

Complaint Counsel's proposed finding is misleading and inaccurate. First, Complaint Counsel takes Mr. Duvekot's testimony out of context. At trial, while he did admit that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] and was not testifying

as a general matter. (Duvekot, Tr. 1302-03). Furthermore, Mr. Duvekot's boss, Mr. Romano,

has expressly stated at trial that PPG has engaged in arbitrage in the past. (Romano, Tr. 2273;

Respondents' Finding ¶ 326). [REDACTED]

[REDACTED] (Malichky, Tr. 378-79; 387; Respondents' Finding ¶ 327).

293. In 2012, a Cristal sales executive testified that [REDACTED] [REDACTED] (PX2252 at 042 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Jerry Bassett) (*in camera*)).

Response to Finding No. 293:

Complaint Counsel's proposed finding relies on an incomplete excerpt from a deposition that took place over six years ago. This deposition transcript was never presented at trial and the deponent, Mr. Jerry Bassett, was not subject to cross examination before this Court. Complaint Counsel's finding is also misleading because [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX2252-005 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Jerry Bassett)). [REDACTED]

[REDACTED]

[REDACTED] (PX2252-042 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Jerry Bassett)).

294. [REDACTED] (Malichky, Tr. 314 (*in camera*)).

Response to Finding No. 294:

Complaint Counsel's proposed finding is incomplete and misleading. The cited testimony from a single hand-picked customer does not stand for the broad and categorical assertion regarding the entire TiO₂ industry for which it is offered. Furthermore, although TiO₂ suppliers may instruct TiO₂ customers to use TiO₂ in the region it was delivered, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Malichky, Tr. 378-79; 387).

295. [REDACTED] (Malichky, Tr. 315-16 (*in camera*); PX7025 (Malichky, Dep. at 96-98) (*in camera*)).

Response to Finding No. 295:

Complaint Counsel’s proposed finding is belied by contradictory testimony offered by Mr. Malichky. Mr. Malichky admitted that [REDACTED]

[REDACTED] (Malichky, Tr. 378-79; 387;

Respondents’ Finding ¶ 327).

296. [REDACTED] (Malichky, Tr. 317-319 (*in camera*)).

Response to Finding No. 296:

Complaint Counsel’s proposed finding is false because [REDACTED]

[REDACTED] (Malichky, Tr. 378-79; 387). Complaint

Counsel’s proposed finding is also incomplete and misleading because it is inconsistent with the evidence presented at trial. According to Mr. Malichky, [REDACTED]

[REDACTED] (Malichky, Tr. 409). PPG has a [REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2273-74). PPG [REDACTED]

[REDACTED]

[REDACTED] (Malichky, Tr. 409).

[REDACTED]
(Malichky Tr. 466). [REDACTED]

[REDACTED] (Malichky, Tr. 468-69). In 2016, [REDACTED]
[REDACTED]

[REDACTED] (Malichky, Tr. 491). In 2017, Tronox [REDACTED]
[REDACTED] Further, [REDACTED]

[REDACTED]
[REDACTED] (Romano, Tr. 2274). [REDACTED]

[REDACTED] (Malichky, Tr. 510-11).

297. Likewise, [REDACTED]
[REDACTED] (Young, Tr. 674 (*in camera*); PX7020 (Young, Dep. at 169) (*in camera*)).

Response to Finding No. 297:

Complaint Counsel’s proposed finding is incomplete and misleading. It ignores testimony by Mr. Young that Sherwin Williams [REDACTED]
[REDACTED] Young, Tr. 674 (). Furthermore, consistent with Mr. Young’s testimony at trial, although customers will engage in arbitrage when opportunities exist, in practice there are few opportunities for arbitrage because prices “all follow the same sort of trend globally.” (Stern, Tr. 3719; Malichky, Tr. 388-89 [REDACTED]

[REDACTED] As a result, “[y]ou won’t find one region seriously out of whack with another region. That would open up arbitrage opportunities.” (Stern, Tr. 3719).

298. When TiO2 prices in North America were higher than those in Europe, Deceuninck North America (DNA) looked into possibly moving TiO2 from one of Deceuninck's European plants to DNA's Monroe, Ohio plants, but decided not to do that because "the cost, transportation cost, is very expensive to get the titanium dioxide from Europe to the U.S., the economics didn't make sense for us to do that. . . ." (Arrowood, Tr. 1089-90).

Response to Finding No. 298:

Complaint Counsel purports to extrapolate this testimony to suggest that DNA has not, in the past, moved TiO2 from one region to another due to prohibitive transportation-related costs. Although in the 2011-2012 timeframe, DNA decided in that particular instance not to move TiO2 from one of its European plants to its Monroe, Ohio plants, Mr. Arrowood's testimony should be considered only as it relates to that particular instance in that particular timeframe and not as a general matter. (Arrowood, Tr. 1089-90).

299. In the last 30 years, DNA has never turned to European or Chinese TiO2 suppliers when North American TiO2 prices have increased. (Arrowood, Tr. 1095-97).

Response to Finding No. 299:

Complaint Counsel's proposed finding is directly refuted by the evidence. Mr. Arrowood testified at trial that [REDACTED]

300. After considering documents, testimony and engaging in an economic analysis, Dr. Hill concluded that [REDACTED] (Hill, Tr. 1724-25 (*in camera*)).

Response to Finding No. 300:

Complaint Counsel’s proposed finding is refuted by the evidence presented at trial, which shows that TiO₂ is traded internationally in significant quantities because TiO₂ has no expiration date, a virtually infinite shelf life, and no safety issues involved with transporting TiO₂. (Mei, Tr. 3157-58). TiO₂ is easily transported by truck, rail, or sea. (Mei, Tr. 3154-57). There are “no special requirement in terms of handling or transportation” of TiO₂. (Mei, Tr. 3156). TiO₂ is also relatively inexpensive to ship across the globe. TiO₂ costs about 3% of the total price to move it into and out of the United States. (Mei, Tr. 3158). Indeed, shipping TiO₂ internationally is so economical that total shipping costs, including tariffs and taxes, can be lower for TiO₂ shipped internationally than TiO₂ shipped domestically. (Mei, Tr. 3159-60). For instance, it costs less to ship TiO₂ from Australia to Los Angeles than it does to ship it from Hamilton, Mississippi to Los Angeles. (Mei, Tr. 3159). Moreover, Complaint Counsel’s proposed finding references “documents” and “testimony,” but the proposed finding cites no such documents or testimony. Further, Complaint Counsel’s proposed finding improperly relies on expert testimony to support factual issues in dispute. (Tr. 3792-3793 (Judge Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

- (c) North American customers have distinct product demands and requirements

301. Market participants testified that TiO₂ customers in North America have distinct demand characteristics that separate the North American TiO₂ demand from those in other regions. (See CCF ¶¶ 302-22, below). North American consumers of TiO₂ value

quality of TiO₂ much more than customers in other geographic regions, and thus overwhelmingly use chloride TiO₂ in North America. (See CCFE ¶¶ 31-92, above). This makes it significantly more difficult to arbitrage because the TiO₂ produced in other regions, much of which is sulfate TiO₂, is unlikely to meet the stringent requirements that North American customers require. (See CCFE ¶¶ 302-12, below).

Response to Finding No. 301:

Complaint Counsel’s proposed finding is not a fact, but improper argument. None of the cited testimony stands for the broad and unqualified proposition that *all* “TiO₂ customers in North America” have “distinct” demand characteristics that “separate the North American TiO₂ demand from those in other regions.” Furthermore, by exclusively citing 71 other findings, the proposed finding violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. Respondents’ specific responses can be found in response to ¶¶ 302-22, below; ¶¶ 31-92, above; and ¶¶302-12, below.

302. North American TiO₂ customers are more developed and have a higher degree of technical and customer service requirements. (Christian, Tr. 786-87).

Response to Finding No. 302:

Complaint Counsel’s proposed finding of fact is not a fact, but an opinion of Mr. Christian. The cited testimony, from one representative of a single TiO₂ producer, does not support the broad and categorical—and ambiguous—claim that “North American” TiO₂ customers are *all* “more developed” and “have a higher degree of technical and customer service requirements.” Complaint Counsel’s proposed finding also ignores the fact that the North American TiO₂ customers Mr. Christian is referring to include large multinational customers, who thus operate both inside and outside North America. (Christian, Tr. 878-79) (testifying that

303. Mr. Christian of Kronos testified that quality of TiO₂ is more important to North American TiO₂ customers than to TiO₂ customers in other locations. (Christian, Tr. 779-80 (“The more developed economies and parts of the world I think it’s going to matter more towards, because we have a saying that TiO₂ is a quality of life product, and as

your quality of life as a society improves on a per capita basis, you tend to consume more TiO₂, but you also have higher standards for products”).

Response to Finding No. 303:

Complaint Counsel’s proposed finding misstates the record. The cited testimony of Mr. Christian does not support the proposed finding. At trial, Mr. Christian provided the cited testimony in response to a question concerning the color of TiO₂ and not the “quality” of TiO₂. *See* (Christian, Tr. 779-80) (“Q. Um-hum. Earlier you mentioned some different attributes of chloride versus sulfate product. One of them is — that you mentioned was *color*. Does the difference in color matter to North American customers? A. Sure. . . . The more developed economies and parts of the world I think it’s going to matter more towards, because we have a saying that TiO₂ is a quality of life product, and as your quality of life as a society improves on a per capita basis, you tend to consume more TiO₂, but you also have higher standards for products”) (Emphasis added).

304. [REDACTED] (PX7035 (Christian, Dep. at 184-85) (*in camera*)).

Response to Finding No. 304:

The cited evidence does not support the proposed finding. None of the cited testimony, from a single hand-picked customer, stands for the categorical claim that *all* “North American” TiO₂ customers uniformly “value reputation of their products higher than TiO₂ users in other regions.” Moreover, in the cited excerpt of his deposition testimony, [REDACTED] [REDACTED] (PX7035 (Christian, Dep. at 184-85)). Moreover, as part of his response, Mr. Christian clarified that his response was [REDACTED] (PX7035 (Christian, Dep. at 184-85)).

305. Because of the quality, technical, customer service and reputation requirements, [REDACTED] [REDACTED] (PX8003 at 003 (¶12) (Young Decl.) (*in camera*); PX8000 at 003 (¶ 15) (Malichky Decl.) (*in camera*); PX8006 at 002 (¶ 8) (Pschaidt Decl.) (*in camera*); PX7044 (Vanderpool, Dep. at 87-91, 99-100) (*in camera*); see CCF ¶¶ 31-92, above).

Response to Finding No. 305:

Complaint Counsel’s proposed finding is not a fact, but improper argument. None of the cited evidence supports the broad and unqualified claim that *all* “North American” customers “cannot use sulfate TiO₂” in the “majority” of products they make, and “need” to use chloride TiO₂. Complaint Counsel also relies on evidence that was never presented at trial, even though Mr. Young (PX8003-001, ¶12 (Young Decl.)); Mr. Malichky (PX8000-003, ¶ 15 (Malichky Decl.)); Mr. Pschaidt (PX8006-002, ¶ 8 (Pschaidt Decl.)); and Mr. Vanderpool (PX7044 (Vanderpool, Dep. at 87-91, 99-100)) all testified at trial. Respondents’ specific response can be found in response to ¶¶ 31-92, above.

306. As Sherwin-Williams explained, sulfate TiO₂ is not suitable for paint formulations in North America, [REDACTED] [REDACTED] (Young, Tr. 642-44, 664-65 (partially *in camera*)).

Response to Finding No. 306:

Complaint Counsel’s proposed finding is incomplete and misleading. Mr. Young admitted that he was “vaguely” familiar with the processes for manufacturing TiO₂ and was not “an expert” in the matter. (Young, Tr. 642). Moreover, at trial, Mr. Young’s testimony was specific to his knowledge of Sherwin-Williams’ formulations and should not be taken as fact or extrapolated industry-wide. (Young, Tr. 642-44, 664-65).

307. Based on the qualitative and quantitative evidence, Dr. Hill concluded that “in North America, chloride titanium dioxide accounts for on the order of 90 percent of rutile titanium dioxide sales, and in other regions around the world, the proportion of sulfate is typically significantly higher.” (Hill, Tr. 1677).

Response to Finding No. 307:

Complaint Counsel’s proposed finding of fact is not fact, but rather improper argument. Complaint Counsel’s proposed finding also improperly relies on expert testimony to support a purported fact. (Judge Chappell, Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

308. North American TiO2 customers consume [REDACTED] (PX8004 at 002 (¶ 7) (O’Sullivan Decl.) (*in camera*)).

Response to Finding No. 308:

Complaint Counsel purports to summarize testimony from a single hand-picked witness regarding the entire TiO2 industry and the practices and preferences of *all* TiO2 customers across multiple continents. Further, Mr. O’Sullivan was not called by Complaint Counsel to testify at trial and thus was not subject to cross examination before the Court.

309. [REDACTED] (PX7020 (Young, Dep. at 136) (*in camera*)).

Response to Finding No. 309:

Complaint Counsel’s proposed finding is misleading because Mr. Young’s cited testimony was in response to a question concerning “slurry TiO2” and not TiO2 generally.

(PX7020 (Young, Dep. at 136)) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] Further, Complaint Counsel relies on evidence that was never presented at trial, even though Mr. Young testified live.

310.

[REDACTED]

(Young, Tr. 676-77 (*in camera*)). Mr. Young further explained that [REDACTED]

[REDACTED] (Young, Tr. 677 (*in camera*)).

Response to Finding No. 310:

Complaint Counsel purports to summarize testimony from a single hand-picked witness regarding the entire TiO₂ industry and the practices and preferences of *all* TiO₂ customers across multiple continents.

311. Quality standards are different for South America versus North America in part because labor is cheaper in South America so repainting frequently is not a problem. In contrast, in North America, many paint products have multi-year warranties. Also, North America is a tint market. (PX7020 (Young, Dep. at 133-34) (“In addition, as I mentioned earlier, North America is a tint market, so the color standards of the product in the can have to be very, very tightly monitored and with low tolerances so that when we do inject the colorant, we get the color we anticipate at the end.”)).

Response to Finding No. 311:

Complaint Counsel does not cite to any evidence to support its proposed finding that quality standards are different between South and North America. In support of its proposition that North America is a tint market, Complaint Counsel relies on documents that were never presented at trial and thus were not subject to cross examination before this Court. Mr. Young testified live, but Complaint Counsel does not cite to any in-court testimony to support its proposed finding. Further, Complaint Counsel’s proposed finding relies on the testimony of one customer to support a general fact about the TiO₂ industry and should not be treated as dispositive.

312. According to Sherwin-Williams’s Mr. Young, prices are traditionally higher in North America because consumers there want higher quality paints and that requires using chloride TiO₂. (PX7020 (Young, Dep. at 141)).

Response to Finding No. 312:

Complaint Counsel's proposed finding relies on a document that was never presented at trial and thus was not subject to cross examination before this Court. Mr. Young testified live, but Complaint Counsel does not cite to any in-court testimony to support its proposed finding.

313. In addition to requiring chloride TiO₂, North America TiO₂ demand is unique in that many coatings customers demand chloride TiO₂ in slurry form, as opposed to dry TiO₂, which makes arbitrage even more difficult, if not impossible, for these customers. (See CCF ¶¶ 314-22, below). [REDACTED] (PX7027 (Pschaidt, Dep. at 115) (*in camera*)).

Response to Finding No. 313:

Complaint Counsel's proposed finding relies on the testimony of one customer and should not be treated as dispositive regarding "North American TiO₂ demand" generally. Complaint Counsel's proposed finding relies on a document that was never presented at trial and thus was not subject to cross examination before this Court. Mr. Pschaidt testified live, but Complaint Counsel does not cite to any in-court testimony to support its proposed finding. To the extent Complaint Counsel relies on other proposed findings, Respondents' Response to Findings ¶¶ 314-22, below.

314. [REDACTED] (PX8004 at 002 (¶ 7) (O'Sullivan Decl.) (*in camera*)). [REDACTED]

Response to Finding No. 314:

Complaint Counsel purports to summarize testimony from a witness who did not testify at trial and thus was not subject to cross examination before the Court. By the same token, Complaint Counsel's proposed finding relies on documents that were never presented at trial and thus were not subject to cross examination before this Court.

315. In North America, **{there are four slurry producers—Chemours, Tronox, Cristal, and Kronos.}** (PX7035 (Christian, Dep. at 202-03) (*in camera*)). North American

coatings customers rely on slurry TiO₂ {because it lowers costs.} (Young, Tr. 648-50; Malichky, Tr. 294 (*in camera*); PX8006 at 002 (¶ 9) (Pschaidt Decl.) (*in camera*)).

Response to Finding No. 315:

Complaint Counsel’s proposed finding relies on testimony from only a subset of TiO₂ customers and should not be treated as dispositive of the practices and views of “North American coatings customers” generally..

316.

[REDACTED] (PX7035 (Christian, Dep. at 185))
[REDACTED] (*in camera*)).

Response to Finding No. 316:

Complaint Counsel’s proposed finding relies on documents that were never presented at trial and thus were not subject to cross examination before this Court. Mr. Christian testified live, but Complaint Counsel does not cite to any in-court testimony to support its proposed finding.

317.

[REDACTED]
(PX8002 at 003 (¶ 13) (Christian Decl.) (*in camera*)).

Response to Finding No. 317:

Complaint Counsel’s proposed finding relies on documents that were never presented at trial and thus were not subject to cross examination before this Court. Mr. Christian testified live, but Complaint Counsel does not cite to any in-court testimony to support its proposed finding.

318.

[REDACTED] (PX8004 at 002 (¶ 7) (O’Sullivan Decl.) (*in camera*)).

Response to Finding No. 318:

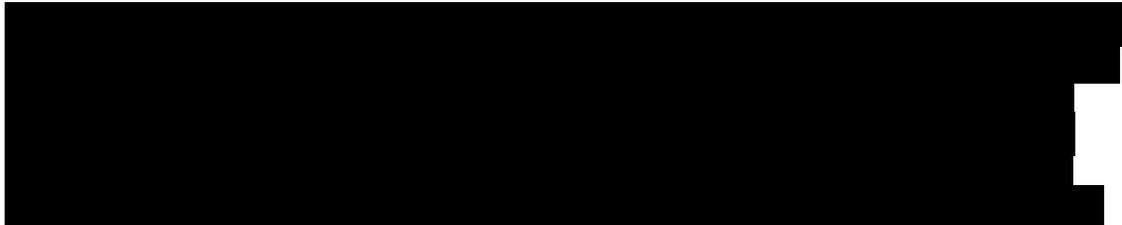
Complaint Counsel purports to summarize testimony from a witness who did not testify at trial and thus was not subject to cross examination before the Court. By the same token, Complaint Counsel's proposed finding relies on documents that were never presented at trial and thus were not subject to cross examination before this Court.

319. About {70%} of the TiO₂ that Sherman-Williams purchases is in slurry form. Using TiO₂ in slurry form allows Sherman-Williams to efficiently handle bulk deliveries of universal grades, and slurry TiO₂ can be pumped directly into storage tanks Sherman-Williams has on-site. (PX8003 at 002 (¶ 9) (Young Decl.) (partially *in camera*)).

Response to Finding No. 319:

Complaint Counsel's proposed finding relies on documents that were never presented at trial and thus were not subject to cross examination before this Court. Mr. Young testified live, but Complaint Counsel does not cite to any in-court testimony to support its proposed finding.

320.


(PX8000 at 004 (¶ 17) (Malichky Decl.) (*in camera*)).

Response to Finding No. 320:

Complaint Counsel's proposed finding is misleading to the extent it suggests anything about industry-wide, costs or practices based solely on testimony from a single hand-picked customer. The cited witness has been purchasing TiO₂ for less than five years. (Malichky, Tr. 267-68) (explaining that he has been "director of raw material sourcing" for "[a]lmost five years" and prior to that he worked "in the environmental, health, and safety group."). Moreover, the fact that making slurry in-house would be cost-prohibitive is false and contradicted by evidence.



[REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED] Engle,
 Tr. 2452 (explaining that there is no “technical reason why you would be unable to make slurry
 out of TiO2 made from the slurry process”).

321. [REDACTED] } (Malichky, Tr. 305, 310 *(in camera)*;
 Young, Tr. 670-71 *(in camera)*).
 [REDACTED] (Malichky, Tr. 305 *(in camera)*; *see also* PX7041
 (Veazey, Dep. at 53-54)
 [REDACTED] *(in camera)*).
 [REDACTED] (Malichky, Tr. 305-06 *(in camera)*; Young, Tr. 682-83 *(in camera)*).
 [REDACTED] (Malichky, Tr. 305-06
 [REDACTED] *(in camera)*;
 Young, Tr. 682-83
 [REDACTED]
(in camera)).

Response to Finding No. 321:

Complaint Counsel’s proposed finding is inaccurate and misleading. [REDACTED]

[REDACTED]
 [REDACTED]
 [REDACTED] (Malichky, Tr. 412-13). Furthermore, another
 multinational TiO2 customer, [REDACTED]
 [REDACTED] Additionally, [REDACTED]
 [REDACTED] *See* (Malichky, Tr. 413); *see also* (Engle, Tr.
 2452) (stating that slurry involves using a large blender and mixing in TiO2 and water).

Complaint Counsel ignores [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

322. As Tronox acknowledges, [REDACTED] (PX1322 at 003 (Tronox presentation) (*in camera*)).

Response to Finding No. 322:

Complaint Counsel's proposed finding of fact is based on an incomplete and ambiguous excerpt of a document that was not presented at trial and thus was not subject to cross examination before this Court.

iii. The Market for the Sale of Chloride TiO₂ to North American Customers Passes the Hypothetical Monopolist Test

323. The qualitative evidence discussed above is consistent with the quantitative evidence, demonstrating that the sale of chloride TiO₂ in North America is the relevant market. (*See* CCFF ¶¶ 324-29, below). The hypothetical monopolist test indicates that demand for chloride TiO₂ is strong in North America and customers are unlikely to switch to sulfate TiO₂ in significant amounts, in the face of a SSNIP. (*See* CCFF ¶¶ 327-29, below; Hill, Tr. at 1698-99). Therefore, the sale of chloride TiO₂ to North American customers is a relevant market. (*See* CCFF ¶ 329, below).

Response to Finding No. 323:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument. Complaint Counsel's proposed finding cites to no specific evidence from the record. Thus, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. To the extent Complaint Counsel relies on other proposed findings, Respondents specific responses can be found in response to ¶¶ 324-29, below; ¶¶ 327-29, below; and ¶ 329, below.

324. Under the Horizontal Merger Guidelines, the hypothetical monopolist test is used as a framework to determine whether a relevant market is properly defined. (PX9085 at 011-

12 (Horizontal Merger Guidelines, § 4.1.1)). In applying the test, the analysis focuses on whether it would be profit maximizing for a hypothetical monopolist of all sales in a specific region to increase price by at least a SSNIP, commonly five percent. (PX9085 at 013 (Horizontal Merger Guidelines, § 4.1.2)). If the hypothetical monopolist can successfully impose a SSNIP in the proposed market, the relevant market is defined correctly. (PX9085 at 013 (Horizontal Merger Guidelines, § 4.1.2)).

Response to Finding No. 324:

Complaint Counsel's proposed finding is not a fact, but improper legal argument.

325. Critical loss analysis is a standard tool used to implement the hypothetical monopolist test to determine whether a candidate market constitutes a relevant antitrust market. (PX9085 at 014-15 (Horizontal Merger Guidelines, § 4.1.3) (discussing using critical loss analysis to implement the hypothetical monopolist test.); Hill, Tr. at 1691). A critical loss analysis determines whether it would be profitable for the hypothetical monopolist to increase the price by at least a SSNIP. (PX9085 at 014-15 (Horizontal Merger Guidelines, § 4.1.3); PX5000 at 050 (¶ 107) (Hill Initial Report) (*in camera*)).

Response to Finding No. 325:

Complaint Counsel's proposed finding is not a fact, but improper legal argument.

326. A critical loss analysis compares two quantities: (1) a critical loss, which is the percentage of sales a hypothetical monopolist would have to lose to keep its profit unchanged if it increased its price by a SSNIP; and (2) a predicted loss, which is the percentage of sales that the hypothetical monopolist would likely lose if it increased its price by the same amount used in the critical loss analysis. (PX9085 at 014-15 (Horizontal Merger Guidelines, § 4.1.3); PX5000 at 049 (¶ 106) (Hill Initial Report) (*in camera*)).

Response to Finding No. 326:

Respondents have no specific response.

327. Dr. Hill implemented the hypothetical monopolist test in four different ways, including using Respondents' own documents and conclusions, to test whether chloride TiO₂ sold to North American customers is a relevant antitrust market. (Hill, Tr. at 1690). Dr. Hill conducted three separate critical loss analyses to test the robustness of the results. (PX5000 at 050-56 (¶¶ 108-22 & Figs. 20-22) (Hill Initial Report) (*in camera*); Hill, Tr. at 1696-98). Each critical loss analysis used a different estimate of the predicted loss: (1) Dr. Hill's estimate for price elasticity of demand; (2) Respondents' estimated relationship between price and net imports; and (3) Tronox's estimate of maximum North American sulfate demand. (PX5000 at 050-56 (¶¶ 108-22 & Figs. 20-22) (Hill Initial Report) (*in camera*); Hill, Tr. at 1691-92). Each of these analyses demonstrated that chloride TiO₂ sales to North American customers passes the hypothetical monopolist test. (PX5000 at 050-56 (¶¶ 108-22 & Figs. 20-22) (Hill Initial Report) (*in camera*)).

Response to Finding No. 327:

Complaint Counsel’s proposed finding is unfounded. Dr. Hill’s hypothetical monopolist test is unreliable. Dr. Hill used a Critical Loss Analysis to implement his Hypothetical Monopolist Test. (Hill, Tr. 1907). But the data that underpinned that analysis was the 2016 TZMI Cost Study—data that Dr. Hill himself claimed was unreliable. (Hill, Tr. 2016). Dr. Hill did no quantitative analysis of whether customers could defeat a SSNIP by turning outside of North America to purchase chloride TiO₂. According to Dr. Hill’s analysis, a 10% SSNIP would be unprofitable if 15.4 percent or more of current purchases of chloride-process TiO₂ “were to engage in arbitrage, to switch to sulfate TiO₂, or to stop buying TiO₂ altogether.” (Hill, Tr. 1908). As part of his critical loss analysis, Dr. Hill just assumed that no arbitrage would occur. On the other hand, Dr. Shehadeh did actually conduct a quantitative analysis of the predicted loss from a SSNIP—including losses caused by arbitrage—and the predicted loss was much higher than 15.4 percent. (Shehadeh, Tr. 3277-80).

328. The fourth method that Dr. Hill used to implement the hypothetical monopolist test was based on the price elasticity of demand for chloride TiO₂ in North America. (PX5000 at 056-58 (¶¶ 123-29 & Fig. 23) (Hill Initial Report) (*in camera*); Hill, Tr. at 1692-96). Dr. Hill found that the price elasticity of demand for chloride TiO₂ after a 5% SSNIP is still inelastic, and therefore chloride TiO₂ in North America passes the hypothetical monopolist test based on the price elasticity of demand. (PX5000 at 056-58 (¶¶ 123-29 & Fig. 23) (Hill Initial Report) (*in camera*); Hill, Tr. at 1692-96).

Response to Finding No. 328:

Complaint Counsel’s proposed finding is unfounded and subject to a number of analytical flaws that render Dr. Hill’s conclusion inaccurate and unreliable. Dr. Shehadeh concluded that Dr. Hill’s conclusion is “fundamentally mistaken because his implementation of the hypothetical monopolist test is flawed in a manner that causes him to understate substitution, thereby artificially creating a chloride-only product market.” (RX0170 at 28 (¶ 35)). As Dr. Shehadeh explained, Dr. Hill’s mistakes cause him to understate elasticity of demand: “First, to generate

his monthly data on the quantity of chloride-produced TiO₂ consumed in North America, Dr. Hill starts with annual production data and divides by 12. His data construction imposes that there is no month-to-month variation in a large component of the data he uses within each year to measure the quantity of chloride-produced TiO₂. Therefore, his data mistakenly omits and, thus, understates significant month-to-month actual variation in the quantity of TiO₂. By understating the month-to-month change in quantity, Dr. Hill understates his elasticity of demand.” (RX0170 at 28 (¶ 37)). Second, “Dr. Hill’s analysis also understates the elasticity because it overstates the variation in the price of chloride-produced TiO₂. Dr. Hill ignores the price for sulfate-produced rutile TiO₂ by excluding it from his regression. In essence, Dr. Hill bases his calculation on the notion that a customer purchasing chloride-produced TiO₂ in North America, faced with a proposed price increase, would not even consider the price of sulfate-produced TiO₂ when making the economic decision of whether to accept that price increase.” RX0170 at 28 (¶ 38)).

329. The hypothetical monopolist test, implemented in four different ways as described above, indicated that demand for chloride TiO₂ is strong and that North American customers will not substitute to sulfate TiO₂ in significant amounts in the face of a SSNIP. (Hill, Tr. at 1698; PX5000 at 050-58 (¶¶ 108-29 & Figs. 20-23) (Hill Initial Report) (*in camera*)). Therefore, chloride TiO₂ sold to North American customers is a relevant market. (Hill, Tr. at 1696-98; PX5000 at 050-58 (¶¶ 108-29 & Figs. 20-23) (Hill Initial Report) (*in camera*)).

Response to Finding No. 329:

Complaint Counsel’s proposed finding is unfounded. As Tronox’s expert, Dr. Ramsey Shehadeh, demonstrated, Dr. Hill’s model gives the hypothetical monopolist control over supply both inside and outside the proposed relevant market. (Shehadeh, Tr. 3205-06). Based on this assumption, Dr. Hill concludes that North American customers will not be able to respond to the hypothetical monopolist’s SSNIP by seeking supply from plants outside the proposed geographic market or by accessing any of the significant volume of TiO₂ currently produced in North America that is currently exported from North America. (Shehadeh, Tr. 3205-06). With this

flawed assumption, Dr. Hill draws his market too narrowly from the outset, which is why his model results conflict with real-world evidence about TiO₂ markets. (Shehadeh, Tr. 3206).

B. Alternatively, the Sale of Rutile TiO₂ to Customers in North America Is Also a Relevant Market

i. For North American Customers, There Are No Substitutes for TiO₂

330. It is uncontested that North American TiO₂ customers cannot substitute another product to replace their use of TiO₂. (See CCFF ¶¶ 331-32, below).

Response to Finding No. 330:

Complaint Counsel's proposed finding is not a fact, but improper argument. Complaint Counsel's proposed finding ignores evidence in the record that contradict it. For example,

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Respondents' specific

response can be found in response to ¶¶ 331-32, below.

331. In fact, Tronox and Cristal have conceded that the appropriate product market is not broader than rutile TiO₂. (Respondents' Pre-Trial Brief at 24; RX0170 at 0142 (Shehadeh Report) (¶ 246) (*in camera*)).

Response to Finding No. 331:

Complaint Counsel's proposed finding is false. Respondents have never conceded that the appropriate product market is not broader than rutile TiO₂. Dr. Shehadeh concluded that "[t]he relevant product market may be broader and also include anatase TiO₂ manufactured with the sulfate process. Some data support this conclusion. However, I was unable to identify sufficient and sufficiently robust data to evaluate this question thoroughly. My analysis of this question is ongoing." (RX0170.0142 (Shehadeh Expert Report); PX7058 (Shehadeh, Dep. at 129-30)).

332. TiO₂ is a critical input for many products and Tronox and North American customers agree that **{there are no substitutes for TiO₂.}** (PX8006 at 001 (¶5) (Pschaidt Decl.) (*in camera*); PX7049 (Zamec, Dep. at 102-03) (*in camera*); PX8000 at 001 (¶ 4) (Malichky Decl.); PX1073 at 117 (2012 Bain Presentation to the Tronox Board) (*in camera*); PX7002 (Mouland, IHT at 38-40) (*in camera*); PX8002 at 001 (¶4) (Christian Decl.) (*in camera*); PX8005 at 001 (¶4) (Maiter Decl.); PX3011 at 012, 019 (Kronos Investor Presentation); PX9104 at 042 (Tronox 10-K) (stating “it is our belief that there is no effective mineral substitute for TiO₂.”); Pschaidt, Tr. 978-79 (*in camera*); Vanderpool, Tr. 174; Malichky, Tr. 273-74; PX8003 at 002 (¶6) (Young Decl.) (*in camera*); PX7034 (Septien, Dep. at 17) (*in camera*); PX7014 (Quinn, Dep. at 119-20) (*in camera*); PX1000 at 006 (2016 Tronox Strategy Document) (*in camera*); Arrowood, Tr. 1062 (“Without [TiO₂], essentially, our factory would be shut down.”)).

Response to Finding No. 332:

Complaint Counsel’s proposed finding of fact is not supported by the cited evidence.

Nowhere does the evidence cited stand for the broad and unqualified assertion that “Tronox and North American customers” uniformly or categorically “agree” on anything, much less that there are “no substitutes for TiO₂.” Indeed, as described above, Complaint Counsel’s proposed finding is misleading to the extent that it suggests that it [REDACTED]

[REDACTED]. (Christian, Tr. 840). For example, [REDACTED]

[REDACTED] (Malichky, Tr. 401). Other customers [REDACTED]

[REDACTED] (Christian, Tr. 840).

- ii. Anatase TiO₂ Is Not a Substitute for Rutile TiO₂ and Should Be Excluded

333. Commercially produced TiO₂ comes in two crystalline forms: rutile and anatase. (PX9023 at 103 (TZMI TiO₂ Pigment Annual Review: A Review of 2014); PX9020 at 013 (Chemical Economics Handbook)).

Response to Finding No. 333:

Respondents have no specific response.

334. Respondents admit that anatase TiO₂ should not be included in the relevant antitrust product market. (Respondents' Pre-Trial Brief at 24 (asserting a rutile only TiO₂ market)).

Response to Finding No. 334:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

335. Respondents admit that "anatase TiO₂ is not at issue here." (Respondents' Pre-Trial Brief at 4, fn.1).

Response to Finding No. 335:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

336. Respondents admit that anatase, with its different crystalline structure, and hence different properties, is used in different applications than rutile. (Respondent's Pretrial Brief at 4, fn.1). In a White Paper submitted to the FTC Bureau of Competition, Respondents explained:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (*in camera*)). Respondents admit that only "about ten percent of the world's TiO₂ production is anatase" and that Tronox produces none. (Respondent's Pretrial Brief at 4, fn.1).

Response to Finding No. 336:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

337. Anatase and rutile TiO₂ exhibit significantly different properties as shown in the following chart:

PROPERTY	Anatase TiO ₂	Rutile TiO ₂
Refractive Index	2.5	2.7
Specific Gravity	3.9	4.2
Hardness (Mohs Scale)	5.5	6.5
Colour	Yellow/White	Blue/White
Relative Hiding Power	78%	100%
Ultra-violet light Absorption	Partial	Complete
Chalking	Free	Retarded

(PX1323 at 005 (TZMI Congress Presentation), *see also*, PX9020 at 013 (Chemical Economics Handbook); PX9023 at 103 (TZMI TiO₂ Pigment Annual Review: A Review of 2014); PX0012 at 005 (Response to Fifth Request for Information) [REDACTED]
[REDACTED]
[REDACTED] (*in camera*);
Christian, Tr. at 782 (Anatase TiO₂ has a different type of crystal.)).

Response to Finding No. 337:

Respondents have no specific response.

338. The differences in the properties between the rutile and anatase crystals means they tend to be suitable for significantly different applications, and are not substitutes. (PX9022 at 119-20 (Venator SEC Filing); PX9020 at 014, 051 (Chemical Economics Handbook); PX1289 at 021 (TZMI presentation) (distinguishing between anatase for specialty products and rutile for coatings); PX7002 (Mouland, IHT at 44-45) [REDACTED]
[REDACTED] (*in camera*); PX7000 (Snider, IHT at 80) (*in camera*); PX8004 at 001 (¶ 3) (O'Sullivan Decl.) (*in camera*)). For example, rutile TiO₂, a more durable compound, is used in inks, paints, and plastic products, while anatase, a softer form of the pigment, is used in paper, ceramics, rubber, fibers (*e.g.*, textiles), pharmaceuticals, cosmetics, sunscreen and food products. (PX7035 (Christian, Dep. at 246) (*in camera*); RX0069 at 013 [REDACTED]
[REDACTED] (*in camera*); PX7000 (Snider, IHT at 80-82) (*in camera*); PX8004 at 001 (¶ 3) (O'Sullivan Decl.) (*in camera*); PX9020 at 013-14, 005 (Chemical Economic Handbook)).

Response to Finding No. 338:

Respondents have no specific response.

339. Rutile TiO₂ is used in products exposed to outdoor conditions and products requiring a harder, more durable crystal. (PX9022 at 120 (Venator SEC Filing); PX9020 at 013 (Chemical Economics Handbook); PX9022 at 120 (rutile preferred for architectural and industrial coatings, plastics (e.g., PVC and masterbatch), and printing inks)).

Response to Finding No. 339:

Respondents have no specific response.

340. With its lower abrasiveness, anatase TiO₂ is used in specialty products such as cosmetics, rubber, paper, pharmaceuticals, and fibers (*i.e.*, textiles). (PX7002 (Mouland, IHT at 44-45) (*in camera*); PX9022 at 120 (Venator SEC Filing)). For example, Kronos's sulfate plant produces a high-purity anatase TiO₂ used in cosmetic and personal care products (*e.g.*, skin cream, lipstick, eye shadow and toothpaste), and food products (*e.g.*, candy and confectionaries, and in pet foods). The anatase TiO₂ pigment provides uniformity of color and appearance in these products. (PX1243 at 008 (Kronos, 2014 SEC 10-K Filing)). Additionally, anatase TiO₂ is used in some coatings products for which quality is less important. (PX9020 at 014 (Chemical Economics Handbook) (*e.g.*, cheap emulsion paints, tiles, and enamels)).

Response to Finding No. 340:

Respondents have no specific response.

341. A TZMI report describes rutile-only applications as: i) “decorative top-coat applications” because anatase grades “do not provide the bright colours desired . . .” and ii) “[d]urable protective coatings – most require rutile , which has excellent UV resistance and withstands harsh weather conditions better.” Anatase-only applications include “uncoated free sheet paper,” and “specialty products (food, pharmaceuticals, cosmetics, fibres, photocatalysts, etc.)” (PX1289 at 021 (TZMI presentation)).

Response to Finding No. 341:

Respondents have no specific response.

342. By volume, the largest commercial applications for TiO₂ are architectural coatings, industrial coatings, and plastics (*i.e.*, 86% of TiO₂ world consumption). (PX9020 at 009 (Chemical Economics Handbook); PX0001 at 011 (Tronox-Cristal Joint Presentation to the FTC) [REDACTED] (*in camera*); PX1323 at 008 (TZMI Congress Presentation)). Because these applications primarily use rutile TiO₂, anatase TiO₂ only accounts for 10% of global TiO₂ production. (PX9020 at 014 (Chemical Economics Handbook); PX9023 at 024 (TZMI TiO₂ Pigment Annual Review:

A Review of 2014); PX7016 (DeCastro, Dep. at 96) (Coatings customer only buys rutile TiO₂ -- no anatase TiO₂)).

Response to Finding No. 342:

Respondents have no specific response.

343. Due to its performance differences, regular anatase TiO₂ [REDACTED] (PX7043 (Gigou, Dep. at 23) (*in camera*); see also PX2366 and PX2367 (Cristal spreadsheets) [REDACTED] (*in camera*)). [REDACTED] (PX8005 at 001-002 (¶ 6) (Maiter Decl.) (*in camera*)).

Response to Finding No. 343:

Respondents have no specific response.

344. Due to performance differences, paint and coatings customers are not likely to switch to anatase TiO₂ from rutile TiO₂ in response to a SSNIP. (PX7020 (Young, Dep. at 155) [REDACTED] (*in camera*); PX7031 (Shah, Dep. at 16) (BASF, a coatings manufacturer, does not buy anatase TiO₂ in North America.)).

Response to Finding No. 344:

Respondents have no specific response.

345. [REDACTED] (PX7035 (Christian, Dep. at 116-17) (*in camera*); PX7002 (Mouland, IHT at 44) [REDACTED] (*in camera*)).

Response to Finding No. 345:

Respondents have no specific response.

- iii. The Market for the Sale of Rutile TiO₂ to North American Customers Passes the Hypothetical Monopolist Test

346. After reviewing qualitative and quantitative information and conducting economic analysis consistent with the Horizontal Merger Guidelines, Dr. Hill concluded that rutile TiO₂ is also a relevant product. (PX5000 at 129-30 (¶¶ 284-90) (Hill Initial Report) (*in camera*)). Dr. Hill conducted the hypothetical monopolist test and concluded that sales of rutile TiO₂ to customers in North America passed the hypothetical monopolist test. (Hill, Tr. 1754; PX5000 at 131 (¶¶ 291-92 & Fig. 41) (Hill Initial Report) (*in camera*)).

Response to Finding No. 346:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument.

347. The hypothetical monopolist test asks whether a hypothetical monopolist could profitably implement a small but significant non-transitory price increase (SSNIP) to customers in North America, or whether North American customers would switch to another product or stop purchasing TiO₂ at amounts sufficient to render the SSNIP unprofitable. (PX9085 at 011-14 (Horizontal Merger Guidelines, §§ 4.1.1, 4.1.2)).

Response to Finding No. 347:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument.

348. Dr. Hill noted that the record is replete with evidence that customers have no practical substitutes for rutile TiO₂. (PX5000 at 129-30 (¶¶ 285-88) (Hill Initial Report) (*in camera*)).

Response to Finding No. 348:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument.

Moreover, Complaint Counsel's proposed finding cites to no evidence that customers have no practical substitutes for rutile TiO₂.

349. Dr. Hill explained that the price elasticity of demand for a product measures how demand responds to changes in price, and noted that inelastic demand is a sign that a product does not have close substitutes. (PX5000 at 130 (¶ 289) (Hill Initial Report) (*in camera*)).

Response to Finding No. 349:

Respondents have no specific response.

350. Dr. Hill explained that demand for a product is inelastic if a one percent change in its price changes its demand by less than one percent. He estimated the price elasticity of demand for rutile TiO₂ to be [REDACTED] (PX5000 at 130-31 (¶¶ 289-91, n.533) (Hill Initial Report) (*in camera*)).

Response to Finding No. 350:

Respondents have no specific response.

351. Dr. Hill applied critical loss analysis, using his price elasticity of demand estimate, to a putative North American rutile TiO₂ market and found that a hypothetical ten percent price increase yielded a predicted loss of [REDACTED]

██████████ (PX5000 at 131-32 (¶¶ 291-292 & Fig. 41) (Hill Initial Report) (*in camera*)).

Response to Finding No. 351:

Complaint Counsel’s proposed finding is unreliable because, Dr. Hill admitted that he would not rely on his own critical loss calculation. (Shehadeh, Tr. 3295-96). To calculate the margin on lost sales, Dr. Hill summed up the costs for all chloride plants in North America “then calculate[] a weighted average of the marginal cost.” (Hill, Tr. 1910). The basis for Dr. Hill’s calculations on margin of lost sales was based on plant-level cost data from the 2016 TZMI Cost Study. (Hill, Tr. 1909-11; PX5000-050, n. 214; PX5000-145, ¶ 326). But when Dr. Hill was questioned at his deposition, he admitted that cost data from the 2016 TZMI Cost Study “is not something I’m willing to rely upon for estimating internal cost.” (PX7056 (Hill, Dep. at 180); Hill, Tr. 2012). At trial he confirmed that he was not willing to rely on “the TZMI data used in [his] capacity closure model to estimate internal costs” for Chemours, Kronos, and Venator because he does not have “any direct knowledge about how accurate it is.” (Hill, Tr. 2012-13).

352. Dr. Hill concludes that the “sale of rutile titanium dioxide in North America therefore passes the hypothetical monopolist test and is a relevant product.” (Hill, Tr. 1754; PX5000 at 131 (¶ 292) (Hill Initial Report) (*in camera*)).

Response to Finding No. 352:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument.

C. Dr. Shehadeh’s Analysis of Market Definition Is at Odds with the Facts and Established Market Definition Principles

- i. The Quantitative Tools for Analyzing the “Comovement” of Data Series Are Unreliable for Defining Antitrust Markets

353. In defining both his relevant product and geographic market, Dr. Shehadeh analyzes the “comovement” of different price series. (Shehadeh, Tr. 3229-43, 3284, 3286-3290).

Response to Finding No. 353:

Respondents have no specific response.

354. The statistical approaches that Dr. Shehadeh uses to analyze comovement, however, are unreliable for purposes of antitrust market definition. (Hill, Tr. at 1706-10; PX5004 at 022 (Section 2.D) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 354:

Complaint Counsel’s proposed finding is inaccurate. The statistical methods that Dr. Shehadeh uses to analyze the comovement of prices are reliable for purposes of antitrust market definition. These methods “have been used by economists, published in academic journals, including publications by economists at the Federal Trade Commission using generally accepted economic methods.” (Shehadeh, Tr. 3229-30). Dr. Shehadeh supported the use of his statistical methods by referencing RX1065, a published article written by two FTC economists: A.E. Rodriguez and Mark D. Williams. (Shehadeh, Tr. 3234-25). In that article, Rodriguez and Williams wrote, “[w]hile it may not be unreasonable to rely exclusively on price correlations to define markets, one can further buttress one’s empirics by testing whether sets of prices are cointegrated. If one finds that two price series are co-integrated, then a long-run equilibrium relationship between these prices can be found.” (RX1065.0007). The authors of this paper also found a relevant antitrust product and geographic market. (RX1065.0005). They applied the very same statistical methods employed by Dr. Shehadeh in his analysis.

355. Correlation analysis is prone to false positives that stem from common demand or supply factors. (Hill, Tr. at 1706-08; PX5004 at 023 (¶ 48) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 355:

Complaint Counsel’s proposed finding is inaccurate. Dr. Shehadeh’s correlation analysis controlled for those common demand or supply factors. (Shehadeh, Tr. 3288-89 (“I found across that analysis that the correlations were statistically and economically significant, that the partial correlations—let me just say the partial correlations are the correlations *controlling for*

potentially common costs . . .) (emphasis added)). Thus, Dr. Shehadeh’s correlation analysis is reliable for purposes of defining a relevant antitrust market.

356. Dr. Shehadeh’s partial correlation analysis only controls for factors that might influence costs and seasonality; it does not address common demand shocks. (RX0170 at 0109 (¶ 200) (Shehadeh Report) (*in camera*)).

Response to Finding No. 356:

Complaint Counsel’s proposed finding is inaccurate. Dr. Shehadeh’s correlation analysis is reliable for those common demand or supply factors. (Shehadeh, Tr. 3288-89 (“I found across that analysis that the correlations were statistically and economically significant, that the partial correlations—let me just say the partial correlations are the correlations *controlling for* *potentially common costs . . .*)(emphasis added)). Thus, Dr. Shehadeh’s correlation analysis is reliable for purposes of defining a relevant antitrust market.

357. Dr. Shehadeh’s cointegration analysis relies on a statistical test that research has shown requires orders of magnitude more observations than Dr. Shehadeh uses. (Hill, Tr. at 1709-1710; PX5004 at 023-24 (¶¶ 52-53) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 357:

Complaint Counsel’s proposed finding is inaccurate. First, at trial, Dr. Shehadeh explained that his cointegration analysis “in a commodity market, this is a broadly applied technique, including in the publication [by Rodriguez and Williams] . . . a publication by FTC economists, and in a recent textbook it was referred to as among the most broadly applied techniques.” (Shehadeh, Tr. 3233-24). Furthermore, Complaint Counsel’s proposed finding does not point to any evidence, despite referencing “research.” Although Dr. Shehadeh admitted that the number of observations were less than a hundred, he was able to substantiate the robustness of his conclusions from his cointegration analysis by using pairwise combinations. He explained, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX7058 (Shehadeh, Dep. 257-58)).

358. Dr. Shehadeh mistakenly justifies his use of cointegration analysis by citing to a paper that was published before the subsequent research showing the method’s flaws. (Shehadeh, Tr. 3234-38).

Response to Finding No. 358:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument and. Complaint Counsel’s proposed finding is ambiguous and misleading. At trial, Dr. Shehadeh justified the use of his cointegration analysis by citing to a published paper by two economists from the FTC. (Shehadeh, Tr. 3234). Moreover, as explained by Dr. Shehadeh at trial, in addition to performing his cointegration analysis, he also took the extra step to confirm his results by “conduct[ing] analysis in [his] report to rule out the alternative explanations to these by using the methods . . . accounting for other potentially confounding factors, as a way to inform that analysis.” (Shehadeh, Tr. 3242). Specifically, Dr. Shehadeh’s analysis included “looking at correlations not just in price levels, but also, for example, looking at correlations after controlling for the effects of costs on price and other potential factors.” (Shehadeh, Tr. 3243).

359. For example, if one performs the same cointegration analysis used by Dr. Shehadeh, it would show that propane and crude oil are in the same market, but that is clearly erroneous. (PX5004 at 024-25 (¶ 55) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 359:

Complaint Counsel’s proposed finding is ambiguous and misleading. Crude oil is an input to propane meaning that it is distinguishable from this case (chloride-processed versus sulfate-processed TiO₂) because, as described by Dr. Shehadeh, his cointegration analysis takes into account “common costs,” such as from common inputs. (Shehadeh, Tr. 3231, 3289).

Complaint Counsel also relies on testimony that was never presented at trial thus was not subjected to cross examination before this Court.

ii. Dr. Shehadeh Misapplies the Hypothetical Monopolist Test in Defining the Relevant Geographic Market

360. Dr. Shehadeh criticizes Dr. Hill's implementation of the hypothetical monopolist test, saying that he wrongly includes potential supply in defining the hypothetical monopolist. (Shehadeh, Tr. 3257-83). Dr. Shehadeh, however, is in error as his view contradicts the demand-centric approach laid out in the Horizontal Merger Guidelines; "Market definition focuses solely on demand substitution factors, i.e., on customers' ability and willingness to substitute away from one product to another in response to a price increase or a corresponding non-price change such as a reduction in product quality or service." (PX9085 at 007 (Horizontal Merger Guidelines, § 4)). Dr. Shehadeh also departs from the Horizontal Merger Guidelines' approach indicating that the hypothetical monopolist is "the only present and future seller of the relevant product(s) to customers in the region" and that "the terms of sale for products sold to all customers outside the region are held constant" in performing the market definition test. (PX9085 at 017-18 (Horizontal Merger Guidelines, § 4.2.2.); PX5004 at 034 (¶¶ 78-79) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 360:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

Complaint Counsel's proposed finding misstates Dr. Shehadeh's critique of Dr. Hill, which is focused on *demand side factors*: "Dr. Hill's definition of the market was too narrow and that that arose because of the constraints that Dr. Hill imposed on the ability of *customers* to turn to alternative sources of supply in response to a SSNIP, a small but significant nontransitory increase in price, and, in particular, by constraining the ability of *customers* to turn to alternative sources of supply outside of North America." (Shehadeh, Tr. 3205 (emphases added)).

Complaint Counsel's proposed finding is also unfounded. First, Complaint Counsel's proposed finding that Dr. Shehadeh's opinions "contradicts" the Horizontal Merger Guidelines is false.

Dr. Shehadeh's implementation of the hypothetical monopolist test is consistent with the Horizontal Merger Guidelines. (Shehadeh, Tr. 3247-49). Looking to Section 4.1.3

(Implementing the Hypothetical Monopolist Test) of the Horizontal Merger Guidelines, Dr.

Shehadeh’s implementation of the hypothetical monopolist test falls squarely within the types of “reasonably available and reliable evidence” delineated in that section. (PX9085-014). For example, Dr. Shehadeh explained at trial that the fabric of economic evidence that he took into account include “how customers have shifted purchases in the past, and . . . the conduct of industry participants, notably the sellers’ business decisions or business documents, and then industry participants’ behavior . . .” (Shehadeh, Tr. 3247-49).

361. Rather than holding supply factors constant, Dr. Shehadeh argues that product sold outside the candidate market might be reallocated back to the candidate market in response to a SSNIP via either imports or a change in exports. (Shehadeh, Tr. 3258-85).

Response to Finding No. 361:

Complaint Counsel’s proposed finding is false. [REDACTED]

[REDACTED]

[REDACTED]

(PX7058 (Shehadeh, Dep. at 36)).

362. Dr. Shehadeh’s consideration of changes to imports or exports as a form of arbitrage is inconsistent with all of the characterizations of arbitrage in the Horizontal Merger Guidelines. Whereas the Guidelines’ examples only involve actions taken by consumers, Dr. Shehadeh’s focus on exports and imports involves changes to the supply side of the market. (PX9085 at 010, 017-18 (Horizontal Merger Guidelines, §§ 4, 4.2.2.)).

Response to Finding No. 362:

Complaint Counsel’s proposed finding is false. Dr. Shehadeh’s consideration of changes to imports or exports as a form of arbitrage is consistent with the Horizontal Merger Guidelines. Section 4.2.2 says, “A region forms a relevant geographic market if this price increase would not be defeated by substitution away from the relevant product or by arbitrage, e.g., customers in the region travelling outside it to purchase the relevant product.” (PX9085-017-18 (Horizontal Merger Guidelines, § 4.2.2.)). As Dr. Shehadeh explained at trial, Complaint Counsel through its economic expert “turned that ‘e.g.’ into an ‘i.e.’, so turns it from an example into a definition;

and secondly, [Dr. Hill] defines the word 'travelling' in its most literal sense, and rather than seeking supply outside of the candidate market and that being a source of substitution, he requires that the customer travel to China, take delivery in China, and bring that product back to North America." (Shehadeh, Tr. 3260). When viewed in this light, Dr. Shehadeh's understanding of arbitrage is consistent with the Horizontal Merger Guidelines. Additionally, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].” PX7058 (Shehadeh, Dep. at 36).

363. Dr. Shehadeh claims that Dr. Hill's approach could result in Sandusky, Ohio being a relevant geographic market; however, Dr. Shehadeh overlooks one critical difference: unlike the customers of chloride TiO₂ in North America at issue here, a customer in Sandusky could likely engage in arbitrage by purchasing the product in Cleveland and delivering it to its plant in Sandusky. (Hill, Tr. 1732-33; PX5004 at 035 (¶¶ 81-82) (*in camera*)).

Response to Finding No. 363:

Complaint Counsel's proposed finding is inaccurate and inconsistent with real world evidence. Contrary to Complaint Counsel's proposed finding, customers of chloride TiO₂ in North America can and do engage in arbitrage by purchasing product internationally. Moreover, Complaint Counsel's proposed finding is inconsistent with the real world evidence that customers do engage in arbitrage. Customers of TiO₂ "have the capability to" move TiO₂ "all over the world." (Romano, Tr. 2237). Customers have the ability to engage in arbitrage of TiO₂, so if price reaches levels "where it's significantly higher for a significant period of time, customers will move product around." (Romano, Tr. 2237-38). This is arbitrage. (Romano, Tr. 2237). For the most part, "those are global customers." (Romano, Tr. 2237-38). PPG31 and Deceunick, among others, have done so. (Romano, Tr. 2273). "[W]hen prices get too far out of whack, they will tell us about it and they'll do it." (Romano, Tr. 2273).

iii. Dr. Shehadeh Wrongly Criticizes Dr. Hill's Use of the North American Producer Price Index to Measure the TiO₂ Price

364. Dr. Shehadeh criticizes Dr. Hill's analyses of imports into North America for using a "Producer Price Index" to account for the price in North America. (Shehadeh, Tr. 3268-72). Dr. Shehadeh argues that using this measure causes Dr. Hill to underestimate the responsiveness of imports to changes in the North American price. (Shehadeh, Tr. 3268-70).

Response to Finding No. 364:

Respondents have no specific response.

365. Dr. Shehadeh's view is incorrect as Dr. Hill showed that he obtained a highly similar estimate of import responsiveness to that which he originally reported when he used Dr. Shehadeh's preferred measure of price. (PX5004 at 016 (¶ 34) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 365:

Dr. Hill's criticism of Dr. Shehadeh's regressions investigating the responsiveness of imports does nothing to mitigate the fatal flaws that Dr. Shehadeh identified in Dr. Hill's econometric analysis of imports. In ¶ 219 of his report, Dr. Shehadeh identified the central flaw in Dr. Hill's import regressions: Dr. Hill has failed to include the price of TiO₂ in the rest of the world as a variable that partially explains the magnitude of imports into North America. (RX0170.0125-.0126).

366. Dr. Hill showed that Dr. Shehadeh's divergent estimates for import elasticity stem from his selection of a narrow time period and faulty econometric specification. (PX5004 at 014-20 (Section 2.B.1) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 366:

Dr. Hill's claim that Dr. Shehadeh's import regressions were improperly specified is rooted in his claim that Dr. Shehadeh's regressions suffer from "multicollinearity." (Shehadeh, Tr. 3301). As Dr. Shehadeh explained, this criticism is unavailing, because "multicollinearity . . . just means comovement in those two variables," i.e., co-movement of TiO₂ prices. (Shehadeh, Tr. 3302).

367. Similarly, Dr. Hill also showed that he obtained estimates of the chloride TiO₂ demand elasticity that were similar to—if not smaller than—his original estimates when he used Dr. Shehadeh’s preferred measures of the domestic chloride price. (PX5004 at 012-13 (¶¶ 19-20) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 367:

Respondents have no specific response.

368. Dr. Hill’s analysis indicates that Dr. Shehadeh’s much larger estimates of the chloride elasticity stem from his faulty choice of dependent variable, which confounded missing data with a change in price. (PX5004 at 010-13 (Section 2.A.1) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 368:

Respondents have no specific response.

- iv. Dr. Shehadeh Errs in Criticizing Dr. Hill’s Decision Not to Include the Sulfate TiO₂ Price in His Chloride TiO₂ Demand Regressions

369. Dr. Shehadeh criticizes Dr. Hill’s import analyses for not separately including a measure of the sulfate price. (Shehadeh, Tr. 3300-01). Dr. Shehadeh suggests that omitting the sulfate price causes Dr. Hill to underestimate the sensitivity of North American consumers to changes in the chloride price. (Shehadeh, Tr. 3300-01).

Response to Finding No. 369:

Complaint Counsel’s proposed finding misstates Dr. Shehadeh’s criticism of Dr. Hill’s import analysis. Dr. Shehadeh criticizes Dr. Hill’s geographic regressions because “he included this price index but didn’t include prices for the alternatives available to customers and sellers. . . .” (Shehadeh, Tr. 3300). The problem is that Dr. Hill’s regression “doesn’t include relative prices. This regression only includes the chloride rutile titanium dioxide price, and so it’s exactly the issue we were just talking about a minute ago, where, if the price goes up to 4,000, this regression is saying, well, the price went up to 4,000, but people didn’t substitute. But that’s not the right economic question. The question is, if the price of chloride went up and the price of sulfate didn’t go up, what happens. And this regression can’t answer that question given that he leaves that information out of the regression. He leaves out the price of the substitute.”

(Shehadeh, Tr. 3300). He further explains that “So because in that example we just talked about the price goes up to 4,000, it says, demand is not very elastic, but that’s because it ignores this relative change, and so it’s going to lead this regression analysis to understate the elasticity of demand. And that’s the predicted loss side of the calculation in the critical loss analysis, so understanding the predicted loss will lead one to inappropriately define the market too narrowly, and that’s the result of this analysis.” (Shehadeh, Tr. 3201)..

370. Dr. Hill shows that this criticism is mistaken as Dr. Hill obtains estimates similar to – if not smaller than – his original calculations when he employs Dr. Shehadeh’s preferred specifications but corrects the quantity demanded data series. (PX5004 at 012-13 (¶¶ 19-20) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 370:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument.

371. Consistent with these results, Dr. Hill showed visually that chloride TiO₂’s share of rutile sales was largely unrelated to its price premium relative to sulfate TiO₂ and cited the views of many market participants as indicating that sulfate TiO₂ was not a realistic substitute to chloride TiO₂ for the vast majority of applications. (PX5000 at 041-49 (Sections 4.A.1 and 4.A.2) (Hill Initial Report) (*in camera*)).

Response to Finding No. 371:

Complaint Counsel’s proposed finding is false and misleading. Dr. Hill’s Figure 17, which purportedly “showed visually that chloride TiO’s share of rutile sales was largely unrelated to its price premium relative to sulfate TiO₂,” is wrong because it does not include “the price of sulfate-produced TiO₂ in his regression.” (RX0170.0029 (Shehadeh expert report)). “By not including the price of sulfate-produced TiO₂ in his regression, he ignores in his elasticity estimation that the willingness of customers to switch between sulfate and chloride-produced TiO₂ depends on the prices of both at the times customers are making their decisions. As a result, he overstates the variation in prices and thereby understates the elasticity.” (RX0170.0029 (Shehadeh expert report)). Complaint Counsel’s proposed finding cites no

evidence that sulfate TiO₂ was not a realistic substitute to chloride TiO₂ for the vast majority of applications.

v. Dr. Shehadeh Wrongly Characterizes the Extent of the Evidence Indicating Price Gaps Across Regions

372. Dr. Shehadeh states that he shows that there are not price gaps between North America and the rest of the world by looking just at [REDACTED] (Shehadeh, Tr. 3453-54 (*in camera*)).

Response to Finding No. 372:

Complaint Counsel’s proposed finding is incomplete and misleading. In addition to the evidence cited in Complaint Counsel’s proposed finding, Dr. Shehadeh observed these price gaps between North America and the rest of world by [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

373. Dr. Shehadeh’s conclusions are incorrect. As Dr. Hill shows in his Rebuttal Report and its backup materials, analyses that control for customer and grade nevertheless show that the average price in North America was higher for a substantial period of time. (PX5004 at 073 (Appendix E) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 373:

Complaint Counsel’s proposed finding cites to no evidence that the average price in North America was higher for a “substantial period of time” —and is nonetheless ambiguous as to “substantial period of time.” In fact, as Dr. Shehadeh explained at trial, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

IV. MARKET STRUCTURE

A. The North American Chloride TiO₂ Market Is Already Highly Concentrated

374. The market for sales of chloride TiO₂ in North America is highly concentrated, and would become significantly more concentrated as a result of the Acquisition. (See CCFE ¶¶ 375-81, below).

Response to Finding No. 374:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument. Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. By relying exclusively on a range of 6 separate proposed findings, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents' specific responses can be found in response to ¶¶ 375-81, below.

i. There Are Five Major Producers in the Relevant Market

375. The North American chloride TiO₂ market is [REDACTED] (Vanderpool, Tr. 185; Malichky, Tr. 313-14 (*in camera*); Christian, Tr. 817-18 (*in camera*); PX1230 at 019 (Tronox presentation) [REDACTED] (*in camera*)). These five producers account for over {99%} of chloride TiO₂ sales in North America. (PX5000 at 010, 067-68 (¶¶ 13, 152 & Fig. 25) (Hill Initial Report) (*in camera*)).

Response to Finding No. 375:

Complaint Counsel's proposed finding is not a fact, but rather is improper legal argument. While Respondents acknowledge that Tronox, Cristal, Chemours, Kronos, and Venator make up the five major producers of TiO₂, Complaint Counsel's proposed finding is not a fact, but rather improper argument. Moreover, Complaint Counsel's proposed finding that the TiO₂ industry is an "oligopoly" is false, misleading, and unsupported by the cited evidence. Complaint Counsel mischaracterizes the cited evidence because *none* of the cited witnesses—Mr. Malichky, Mr. Vanderpool, Mr. Christian—characterized the TiO₂ industry as an

“oligopoly” during trial. Additionally, Complaint Counsel’s proposed finding is inaccurate and misleading because it fails to include Lomon Billions as a major producer. Today, Lomon Billions “is the number one producer in China,” “the number four producer in the world,” and “is bigger than Tronox.” (Turgeon, Tr. 2660).

376. Tronox, Cristal, Chemours, Kronos, and Venator account for {100%} of North America TiO₂ production capacity. (PX5000 at 025-26 (¶ 59 & Fig. 9) (Hill Initial Report) (*in camera*)). All North American TiO₂ production is chloride TiO₂ with the exception of a small Kronos-owned sulfate TiO₂ plant in Canada. (PX5000 at 025-26 (¶ 59 & Fig. 9) (Hill Initial Report) (*in camera*)).

Response to Finding No. 376:

Complaint Counsel’s proposed finding improperly relies on expert testimony to support a purported fact in violation of Judge Chappell’s instructions and thus should be disregarded.

(Judge Chappell, Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”). Complaint Counsel does not cite to any evidence from the record to support its proposed finding.

377. Chemours, a DuPont spin-off, is currently the largest TiO₂ producer in North America and globally. (PX9020 at 011 (Chemical Economics Handbook); PX9040 at 008 (Tronox investor presentation)). [REDACTED] (PX8004 at 001-02 (¶¶ 1, 6) (O’Sullivan Decl.) (*in camera*)). [REDACTED] (PX8004 at 002 (¶ 5) (O’Sullivan Decl.) (*in camera*)).

Response to Finding No. 377:

Respondents have no specific response.

378. The two other major North American TiO₂ companies—Kronos and Venator— jointly own a 50-50 joint venture that operates a chloride TiO₂ plant in Lake Charles, Louisiana, with each company entitled to half of the facility’s output. (PX8002 at 002 (¶ 7) (Christian Decl.) (*in camera*); PX8005 at 002 (¶ 10) (Maiter Decl.); Christian, Tr. 751-53). Outside of the United States, Kronos and Venator produce both chloride TiO₂ (rutile) and sulfate TiO₂ (rutile and anatase). (PX8002 at 002 (¶¶ 7-8) (Christian Decl.) (*in camera*); Christian, Tr. 751-52, 782; PX8005 at 002 (¶ 11) (Maiter Decl.)).

Response to Finding No. 378:

Respondents have no specific response.

379. In addition to its one-half ownership of the Louisiana facility, Kronos has a TiO₂ plant in Quebec, Canada and four plants in Europe. (PX8002 at 002 (¶¶ 7-8) (Christian Decl.) (*in camera*); Christian, Tr. 751-52). Kronos' Quebec facility consists of two plants—a chloride TiO₂ plant and a small sulfate TiO₂ plant. (Christian, Tr. 752). Kronos' sulfate plant in Quebec produces almost exclusively anatase TiO₂ for food, pharmaceutical, and other niche applications. (Christian, Tr. 782). Kronos' overall TiO₂ production capacity is 75% chloride TiO₂ and 25% sulfate TiO₂. (PX8002 at 002 (¶ 6) (Christian Decl.) (*in camera*); Christian, Tr. 749).

Response to Finding No. 379:

Respondents have no specific response.

380. In addition to its one-half ownership of the Louisiana facility, Venator, a Huntsman spin-off, operates six TiO₂ plants in Europe and one plant in Asia. (PX8005 at 001-02 (¶¶ 1, 9) (Maiter Decl.)). Other than the Louisiana facility, only one of Venator's plants makes chloride TiO₂. (PX8005 at 002 (¶ 11) (Maiter Decl.)).

Response to Finding No. 380:

Respondents have no specific response.

381. While Venator is one of the largest TiO₂ companies in the world by capacity, its presence in North America is the smallest among the five major North American producers. (PX7015 (Maiter, Dep. at 60); PX8003 at 006 (¶ 26) (Young Decl.) (*in camera*); PX9040 at 008 (Tronox investor presentation)). Unlike the other four major North American producers, Venator does not have any TiO₂ slurry capacity in North America. (PX7015 (Maiter, Dep. at 53-54, 60); Young, Tr. 660 (*in camera*); Pschaidt, Tr. 996 (*in camera*); Malichky, Tr. 609 (*in camera*)).

Response to Finding No. 381:

Respondents have no specific response.

- ii. Other Producers Have Minimal Chloride TiO₂ Sales to North American Customers and Are Not Rapid Entrants

382. Outside of the five major producers, other producers have de minimis sales of chloride TiO₂ in North America; those sales are included in the relevant market and account for a combined market share of less than {1%}. (PX5000 at 067-68 (¶ 152 & Fig. 25) (Hill Report) (*in camera*)). Other than the five major producers, chloride TiO₂ production is limited to a few Chinese producers, Ishihara in Japan, and KMML, a small producer in India. (PX1532 at 020 (TZMI Cost Study)). These other producers account for only

{8}% of worldwide chloride TiO₂ capacity. (PX5000 at 020-21 (¶ 49 & Fig. 3) (Hill Report) (*in camera*); PX1532 at 051 (TZMI Cost Study)).

Response to Finding No. 382:

Complaint Counsel's proposed finding improperly relies on expert testimony to support a purported fact in violation of Judge Chappell's instructions and thus should be disregarded. (Judge Chappell, Tr. 3792-93 (J. Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute")). Complaint Counsel's proposed finding is also inaccurate and inconsistent with the evidence presented at trial. From 2008 to 2017, production capacity for TiO₂ in China has grown exponentially, essentially tripling over the nine-year period. (Stern, Tr. 3813-14; RX0171.0042, Fig. 9). In total, Chinese production of TiO₂ went from about 800,000 tons ten years ago to roughly 3 million tons today. (Engle, Tr. 2486-87). Over the last ten years, "China has added about two million tons of capacity." (Romano, Tr. 2221-22). Indeed, even over the past three years, "Chinese imports are considerably higher today than they were back in 2015 in all regions of the world." (Arndt, Tr. 1411-12). The increasing Chinese production capacity has had an effect on the global TiO₂ market. (Stern, Tr. 3814). Ten years ago, China exported roughly 400,000 tons of TiO₂ per year and today exports about 1 million tons per year. (Engle, Tr. 2486-87). The Chinese TiO₂ companies that are "big player[s]" in the global TiO₂ market are Lomon Billions, Bluestar, Xinli, and CNNC (Turgeon, Tr. 2660-61). These producers "export a lot of material, and their quality is as good as [Tronox's] today." (Turgeon, Tr. 2660-61). This change occurred within the last five or six years. (Turgeon, Tr. 2662). At that time, "none of them had good quality product . . . but as they've been refining their process, investing tremendous amount of money in R&D and combining their strength," they have "improve[d] the quality" and "improve[d] the process." (Turgeon, Tr. 2662). Moreover, Complaint Counsel ignores the fact that Lomon Billions

currently produces chloride TiO₂. “Consistent with its expansion plans, in February 2018, Lomon Billions announced that it would invest approximately \$285 million to construct two new TiO₂ manufacturing lines at its existing chloride production site in Jiaozuo, Henan Province, China, providing an additional chloride pigment capacity of around 200,000 tpa.” (RX0171.0040). “Commercial production is expected during 2019.” (RX0171.0040). Complaint Counsel’s proposed finding also is ambiguous as to the word “de minimis.”

Furthermore, part of Complaint Counsel’s proposed finding (discussing market shares of TiO₂ producers) improperly relies on expert testimony to support a purported fact. (Judge Chappell, Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

383. The Horizontal Merger Guidelines consider firms that do not sell into the relevant market but who “would very likely provide rapid supply responses with direct competitive impact in the event of a SSNIP” to be market participants because they are “rapid entrants.” (PX9085 at 018-19 (Horizontal Merger Guidelines, § 5.1)). In that case, the Horizontal Merger Guidelines may consider calculating shares for those firms not based on actual sales in the relevant market, but based on capacities or reserves, but “only if a measure of their competitive significance properly comparable to that of current producers is available,” and even then, “when market shares are measured based on firms’ readily available capacities, the Agencies do not include capacity that is committed or so profitably employed outside the relevant market, or so high-cost, that it would not likely be used to respond to a SSNIP in the relevant market.” (PX9085 at 018-19 (Horizontal Merger Guidelines, § 5.2)).

Response to Finding No. 383:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument.

384. The Chinese chloride TiO₂ producers, Ishihara, and KMML do not meet this “rapid entrants” standard under the Horizontal Merger Guidelines because they could not “easily and rapidly” begin selling a meaningful amount of chloride TiO₂ to customers in North America, they are not “very likely [to] provide rapid supply responses with direct competitive impact in the event of a SSNIP,” and they do not have “readily available” capacity to supply significant volumes of chloride TiO₂ to North America. (PX9085 at 018-19 (Horizontal Merger Guidelines, § 5.1); *see* CCFE ¶¶ 385-89, below).

Response to Finding No. 384:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel’s proposed finding is also inaccurate and contradicted by evidence in the record. For example, Dr. Shehadeh testified that the TiO₂ from Chinese and producers from other parts of the world are considered “on the water,” which means “significant amount of titanium dioxide moving around the globe, on these containerships that Ms. Mei described, so containerized titanium dioxide, and the destination can be change to meet demand.” (Shehadeh, Tr. 3224-25). Dr. Shehadeh further explained, “it helps us put that flexibility or variability we saw of imports into North America in context, which is it’s not as if those imports have increased and now have absorbed all the potential that’s out there for that substitution by North American customers to alternative sources of supply. We saw in that chart both changes in the origin countries to which customers from North America have turned, as well as—and reflected here—the ability of those origins to supply additional demand for North American customers.” (Shehadeh, Tr. 3225).

385. Although a few Chinese manufacturers have chloride TiO₂ production capacity, chloride TiO₂ from Chinese producers does not have a meaningful competitive presence in North America. (See CCF ¶¶ 747-807, below; PX7037 (Pickett, Dep. at 57-59) [REDACTED])

[REDACTED] (*in camera*); PX7052 (O’Sullivan, Dep. at 174)

[REDACTED] (*in camera*)).

Response to Finding No. 385:

Complaint Counsel’s proposed finding is contradicted by evidence in the record. Chinese TiO₂ producers, especially Lomon Billions, have significantly expanded their chloride capability in China, and targeting North America for increased exports. (Engle, Tr. 2498-99). Since 2012, China has made “great strides” in the commercialization of chloride-process TiO₂ technology. (Arndt, Tr. at 1407). Even large multinational North American TiO₂ customers have taken

notice. For example, [REDACTED]
[REDACTED] (Pschaidt, Tr. 1007). [REDACTED]
[REDACTED] (Malichky, Tr. 409). [REDACTED]
[REDACTED]
(Romano, Tr. 2273-74). [REDACTED]
[REDACTED]. (Mouland, Tr. 1240-41).

Moreover, several Tronox executives have admitted that they were mistaken and underestimated the growth of the Chinese TiO₂ producers. For example, Mr. Romano testified that “[w]hat’s changed in the last ten years or fifteen years is the evolution of the Chinese. The Chinese initially started out with low-quality TiO₂, which kind of I think put sulfate into a category of lower quality incorrectly. The Chinese over that last ten to fifteen years and more importantly in the last five have become an extremely competitive and they make very good grades, and in some instances those grades are better than ours.” (Romano, Tr. 2238-39).

Since 2012, China has made “great strides” in the commercialization of chloride process TiO₂ technology. (Arndt, Tr. at 1407). For instance, Tronox’s senior business development manager and grade specialist, Mr. Jeff Engle, stated in his deposition that some Lomon Billions’ chloride products Tronox had tested were better than Tronox’s chloride products. See PX7013 (Engle, Dep. at 219-222). [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] (Malichky, Tr. 416). Lomon Billions’ current chloride plant is running at a capacity of 70,000 tons per year. (Romano, Tr. 2244). Lomon Billions will expand production at its chloride plant by 300,000 tons per year at the end

of 2019. (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility of 300,000 tons of chloride process TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244). Complaint Counsel's proposed finding relies on evidence that was never presented at trial and thus not subject to cross examination before this Court. By the same token, Complaint Counsel's proposed finding relies on the testimony of witnesses who did not testify at trial and thus were not subject to cross examination before this Court. As to Complaint Counsel's other proposed finding, Respondents specific response can be found in response to ¶¶ 747-807, below.

386. For the reasons described in CCFF Section VI, below, Chinese producers of chloride TiO₂ are not rapid entrants or poised to expand their sales of chloride TiO₂ in North America. Chinese chloride TiO₂ producers have faced numerous problems, including: (1) being plagued by low production rates; (2) increasing manufacturing costs due to environmental regulations and higher feedstock prices; (3) limited available capacity due to growing demand for chloride TiO₂ in China and throughout Asia; and (4) the quality of the chloride TiO₂ they produce has been unacceptable to customers in North America for anything but small volume, low-end applications. (See CCFF ¶¶ 748-807). These firms therefore could not "easily and rapidly" sell significant volumes of chloride TiO₂ into North America, they do not "clearly possess the necessary assets to supply into the relevant market," and they do not have "readily available" capacity to supply North America. (PX9085 at 019 (Horizontal Merger Guidelines, § 5.1)).

Response to Finding No. 386:

Complaint Counsel's proposed finding is conclusory and does not cite to any evidence from the record. Further, Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific responses can be found in response to ¶¶ 748-807, below.

387. Ishihara has a single small-scale chloride TiO₂ plant in Japan and sells about **{2,200 tons}** of chloride TiO₂ annually in North America, most of which are specialized premium grades. (PX3049 (Ishihara table) (*in camera*); PX3050 (Ishihara table) (*in camera*); PX3051 (Ishihara table) (*in camera*); PX7028 (Duenwald, Dep. at 51, 122) [REDACTED] (*in camera*)). [REDACTED]

[REDACTED] (PX1012 at 065 (Tronox TiO₂ Strategic Plan 2017)) [REDACTED] (*in camera*); PX1532 at 083 (TZMI Cost Study)). Ishihara therefore does not “clearly possess the necessary assets to supply into the relevant market,” nor do they have “efficient” or “readily available” capacity to supply North America. (PX9085 at 019 (Horizontal Merger Guidelines, § 5.1)).

Response to Finding No. 387:

Complaint Counsel’s proposed finding relies exclusively on documents and testimony that were never presented at trial and were not subject to cross examination before this Court. Additionally, Complaint Counsel’s proposed finding is incomplete because it fails to include certain relevant facts about Ishihara. For example, Ishihara has its own North American distribution hub called Ishihara Corporation United States of America (“ICUSA”), which is owned by the Ishihara parent company and has been in existence for at least 33 years. PX7028 (Duenwald, Dep. at 10). Ishihara’s biggest plant, the Yokkaichi plant, produces 140,000 tons of TiO₂, which can readily serve the North American market. PX7028 (Duenwald, Dep. at 23). Complaint Counsel’s proposed finding also relies on PX3049, PX3050, and PX3051, which all should be taken in light of the fact that these documents include only *some and not all* of ICUSA’s sales of TiO₂. *See, e.g.*, PX7028 (Duenwald, Dep. at 36) [REDACTED]

388. KMML is a small producer of chloride TiO₂ in India that is reported to have an annual capacity of 40,000 tonnes. (PX1532 at 151 (TZMI Cost Study)). According to TZMI, KMML is one the world’s highest cost producers of chloride TiO₂. (PX1532 at 083 (TZMI Cost Study)). Tronox reports that India is one of the [REDACTED], which limits the availability of KMML’s small-scale production for export. (PX1012 at 065 (Tronox TiO₂ Strategic Plan 2017) (*in camera*)). As a small, high cost producer of TiO₂, in a region with fast growing demand, KMML therefore is not a “rapid entrant” into the North American market for TiO₂. (PX9085 at 019 (Horizontal Merger Guidelines, § 5.1)).

Response to Finding No. 388:

Complaint Counsel’s proposed finding exclusively relies on documents that were never presented at trial and were not subject to cross examination before this Court.

389. With manufacturing facilities located outside of North America, the Chinese chloride TiO₂ producers, Ishihara, and KMML would incur duties and additional shipping costs relative to the five major producers who produce TiO₂ in North America. (PX7028 (Duenwald, Dep. at 89-90) [REDACTED])

[REDACTED] (in camera); see also PX7035 (Christian, Dep. at 77-78) [REDACTED]

[REDACTED] (in camera)).

In addition to the reasons set forth above (see CCF ¶¶ 386-88), this further demonstrates that the other chloride TiO₂ producers will not “very likely provide rapid supply responses with direct competitive impact in the event of a SSNIP.” (PX9085 at 018 (Horizontal Merger Guidelines, § 5.1)).

Response to Finding No. 389:

Complaint Counsel’s proposed finding is misleading. First, Complaint Counsel ignores the fact that tariffs are only incurred for some countries and does not account for every instance of shipping TiO₂ into the United States. Additionally, Complaint Counsel’s excerpt of Mr. Christian’s deposition testimony is incomplete. At his deposition, Mr. Christian clarified that

[REDACTED]

[REDACTED]

[REDACTED] PX7035 (Christian, Dep. at 77)). Clearly, the evidence cited by Complaint Counsel fails to address the possibility that [REDACTED]

[REDACTED]

[REDACTED] Complaint Counsel’s proposed finding also improperly relies on documents that were never presented at trial and were not subject to cross examination before

this Court. Finally, parts of Complaint Counsel’s proposed finding are not fact but rather improper legal argument.

B. The Merger Significantly Increases Concentration in an Already Concentrated Market and Is Presumptively Anticompetitive

390. The federal antitrust agencies, consistent with the Horizontal Merger Guidelines and the courts, measure concentration using the Herfindahl-Hirschman Index (“HHI”). (PX9085 at 021 (Horizontal Merger Guidelines, § 5.3)). The HHI is calculated by totaling the squares of the market shares of each firm in the relevant market. (PX9085 at 022 (Horizontal Merger Guidelines, § 5.3)). Under the Merger Guidelines, a merger is presumed likely to create or enhance market power—and is presumptively illegal—when the post-merger HHI exceeds 2,500 and the merger increases the HHI by more than 200 points. (PX9085 at 022 (Horizontal Merger Guidelines, § 5.3)).

Response to Finding No. 390:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel also stretches the meaning of “presumed likely to create or enhance market power” to mean “presumptively illegal,” which is false and inconsistent with the language of the Merger Guidelines. (PX9085 at 022 (Horizontal Merger Guidelines, § 5.3)).

391. Post-acquisition, the combined firm would have a market share of {38%} of sales of chloride TiO₂ in North America. (PX5000 at 067-68 (¶ 152 & Fig. 25) (Hill Initial Report) (*in camera*)). The Proposed Acquisition would leave the merged firm and Chemours in control of {73}% of North American chloride TiO₂ sales and over {80}% of North American chloride TiO₂ capacity. (PX5000 at 067-68 (¶ 152 & Fig. 25) (Hill Initial Report) (*in camera*); PX5000 at 25-26 (¶ 59 & Fig. 9) (Hill Initial Report) (listing capacity of North American TiO₂ plants) (*in camera*)).

Response to Finding No. 391:

Complaint Counsel’s proposed finding is unfounded. Dr. Hill’s calculation of the post-merger market shares referenced in Complaint Counsel’s proposed finding are flawed for several reasons. First, Dr. Hill’s market share calculations for his proposed North American chloride titanium dioxide market “are not based on production capacity of chloride TiO₂ in North America.” (Hill, Tr. 1920). Second, Dr. Hill’s market share calculations for his proposed North American chloride titanium dioxide market “do not consider global TiO₂ capacity available to

serve North America.” (Hill, Tr. 1920). Third, Dr. Hill calculates HHI for his proposed North American rutile titanium dioxide market using market share “based on volume in metric tons of rutile TiO₂ sold to customers in the United States and Canada in 2016.” (Hill, Tr. 1921). Fourth, Dr. Hill agrees that “chloride titanium dioxide is a homogenous product,” (Hill, Tr. 1922), and that “in markets for relatively homogeneous goods where a supplier’s ability to compete depends predominantly on its costs and its capacity, and not on other factors such as experience or reputation in the relevant market, a supplier with efficient idle capacity, or readily available “swing” capacity currently used in adjacent markets that can easily and profitably be shifted to serve the relevant market, may be a rapid entrant.” (PX9085-019; Hill, Tr. 1922-23). Because Dr. Hill’s calculations of his post-merger market shares does not account for this “swing capacity,” they should be disregarded.

392. The only other producers with meaningful post-acquisition market shares would be Kronos with [REDACTED] and Venator with [REDACTED]. (PX5000 at 067-68 (¶ 152 & Fig. 25) (Hill Initial Report) (*in camera*)). Other producers would have a combined market share of less than [REDACTED]. (PX5000 at 067-68 (¶ 152 & Fig. 25) (Hill Initial Report) (*in camera*)).

Response to Finding No. 392:

Complaint Counsel’s proposed finding is unfounded. As described in Respondents’ Response to Finding ¶ 391, Dr. Hill’s calculation of the post-merger market shares referenced in Complaint Counsel’s proposed finding are flawed and should be disregarded.

393. The Proposed Acquisition would increase the HHI by over 700 points, to over 3000. (PX5000 at 067-68 (¶¶ 152-53 & Fig. 25) (Hill Initial Report) (*in camera*)). The Proposed Acquisition is presumptively illegal and is likely to enhance market power in the North American chloride TiO₂ market under the Horizontal Merger Guidelines because the HHI increases by more than 200 points and the post-acquisition HHI exceeds 2,500. (PX9085 at 022 (Horizontal Merger Guidelines, § 5.3); PX5000 at 068 (¶ 153) (Hill Initial Report) (*in camera*)).

[REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED] (Pschaidt, Tr. 1007). Moreover, since 2012, China has made “great strides” in the commercialization of chloride process TiO₂ technology. (Arndt, Tr. at 1407). As of 2017, Lomon Billions had [REDACTED]

[REDACTED] Christian, Tr. 828). Recently, [REDACTED]

[REDACTED] (Malichky, Tr. 416). Lomon Billions’ current chloride plant is running at a capacity of 70,000 tons per year. (Romano, Tr. 2244).

Lomon Billions will expand production at its chloride plant by 300,000 tons per year at the end of 2019. (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility of 300,000 tons of chloride process TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244).

396. Outside of the five major producers, the other TiO₂ producers do not have a meaningful competitive presence in the market for rutile TiO₂ sales in North America; their sales, which are included in the relevant market, amount to a combined share of only {7.5%}. (PX5000 at 133 (Fig. 42) (Hill Initial Report) (*in camera*); PX3034 at 001 (Venator email) (“The Chinese producers account for less than 6% of North American and European share. The major impact on price competition is from the four other major TiO₂ producers.”); PX9006 at 006 (Tronox Q2 2015 Earnings Call) (“We do not see that exports from China or from Europe are playing a material role in the competitive balance, particularly in the North American market.”); PX7015 (Maiter, Dep. at 204) (“We do not go head-to-head with [Chinese] producers in those two markets, in Europe and North America.”); Christian, Tr. 810-11 [REDACTED]

[REDACTED] (*in camera*); PX7052 (O’Sullivan, Dep. at 174)

[REDACTED] (*in camera*)).

Response to Finding No. 396:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument.

Complaint Counsel also improperly relies on evidence that was never presented at trial and was not subject to cross examination before this Court.

397. Post-acquisition, the combined firm would have a market share of █████ in a market for all rutile TiO₂ sales in North America, and the combined firm and Chemours would control █████ of the market. (PX5000 at 133 (¶ 294 & Fig. 42) (Hill Report) (*in camera*)). The Proposed Acquisition would increase the HHI by more than 550 and result in a highly concentrated market with an HHI of 2,528. (PX5000 at 133 (¶ 295 & Fig. 42) (Hill Report)). Therefore, the Proposed Acquisition is presumptively anticompetitive even in a market of all rutile TiO₂ sales in North America. (Hill, Tr. 1756; PX9085 at 022 (Horizontal Merger Guidelines, § 5.3)).

Response to Finding No. 397:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument.

Complaint Counsel’s proposed finding also ignores Dr. Hill’s own testimony that his market share calculations for his proposed North American chloride TiO₂ market “don’t consider global TiO₂ capacity available to serve North America.” (Hill, Tr. 1920). The same is true for Dr. Hill’s markets share calculation for his proposed North American rutile TiO₂ market: they “don’t consider global capacity available to serve North American customers.” (Hill, Tr. 1921). If market shares are calculated based on global rutile capacities, Dr. Hill believes that the total HHI “would be lower” than the HHIs he calculated for his proposed North American markets. (Hill, Tr. 1946). Indeed, in a global market for rutile TiO₂, Cristal’s market share would be only 12.3 percent and Tronox’s market share would be only 7.8 percent—for a combined market share of 20.1 percent for the merged firm. (Hill, Tr. 1942).

V. ANTICOMPETITIVE EFFECTS**A. The Merger Would Make the Relevant Market More Vulnerable to Coordinated Interaction**

398. “[T]he Merger Guidelines consider coordination to be when the actions taken by a firm are only profitable because of the accommodating actions of its rivals.” (Hill, Tr. 1798; PX9085 at 027 (Horizontal Merger Guidelines, § 7)). Coordination can take different forms. Coordination can be “an explicit agreement that [firms] will not compete for one another’s customers and, hence, be able to charge higher prices.” (Hill, Tr. 1798-99). Coordination can also be tacit, in which firms learn over time that they should not steal each other’s customers but there is no explicit agreement between them. (Hill, Tr. 1799; PX5000 at 091 (¶¶ 210-11) (Hill Initial Report) (*in camera*); PX9085 at 027 (Horizontal Merger Guidelines, § 7)). Situations can also arise in which “a firm realizes one of its rivals has become less aggressive and so itself charges a higher price.” (Hill, Tr. 1799; PX9085 at 027-28 (Horizontal Merger Guidelines, § 7)).

Response to Finding No. 398:

Complaint Counsel’s proposed finding is not a fact but instead is improper legal argument.

399. Applying the Horizontal Merger Guidelines, Dr. Hill concluded that the merger is likely to increase the probability of coordinated interaction in the market for the sale of chloride TiO₂ in North America. (Hill, Tr. 1799, 1818; PX5000 at 069 (¶¶ 157-58) (Hill Initial Report) (*in camera*)).

Response to Finding No. 399:

Complaint Counsel’s proposed finding is misleading and incomplete. Dr. Hill himself admitted that he is “not predicting through [his] modeling a specific form of coordination that [he] believe[s] will take place” in the real world. (Hill, Tr. 1992). Dr. Hill further acknowledged that, although his coordinated capacity closure model predicts an “incentive” to coordinate between Tronox and Chemours, this does not mean that’s what would actually “occur in the real world.” (Shehadeh, Tr. 3424-25, 3437). Dr. Hill’s coordinated capacity closure model “does not actually predict coordination of the type that Dr. Hill proposes.” (Shehadeh, Tr. 3412-13). This is because “Chemours in fact does not have the incentive in his model to coordinate.” (Shehadeh, Tr. 3412-13). “Rather, it has the incentive, according to his model, of . . . free riding and not participating in coordination.” (Shehadeh, Tr. 3413).

400. As Dr. Hill testified, the Horizontal Merger Guidelines set out three steps in determining whether a merger will increase the likelihood of coordinated effects. (PX9085 at 028

(Horizontal Merger Guidelines, § 7.1)). The first step is to determine whether the market post-merger will be highly concentrated and the merger will significantly change that concentration. The second step is to examine whether the market today is susceptible to coordinated interaction. The final step is to find out whether the merger would increase the susceptibility of the market to coordinated behavior. (Hill, Tr. 1799-1800; PX5000 at 091-92 (¶ 213) (Hill Initial Report) (*in camera*); PX9085 at 028 (Horizontal Merger Guidelines, § 7.1)).

Response to Finding No. 400:

Complaint Counsel’s proposed finding of fact is not fact, but instead is improper legal argument.

401. In determining whether a market is susceptible to coordination, several factors are considered such as: (1) mutual awareness among firms of their shared interest, (2) the number of firms in the market is small, (3) the products in the market are homogenous, (4) firms can and do monitor one another’s behavior, (5) the price elasticity of demand is low, and (6) there is a past history of actual or attempted coordination among firms. (Hill, Tr. 1800-01; PX5000 at 092 (¶ 215) (Hill Initial Report) (*in camera*)). Dr. Hill examined each of these factors and found that the chloride TiO₂ market in North America is already vulnerable to coordination. (Hill, Tr. 1801; PX5000 at 92 (¶ 215) (Hill Initial Report) (*in camera*); PX9085 at 028-30 (Horizontal Merger Guidelines, § 7.2)).

Response to Finding No. 401:

Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper legal argument. Moreover, none of the cited sources actually presents evidence that the TiO₂ industry in North America “is already vulnerable to coordination.” Rather, the cited language consists solely of Dr. Hill’s recitation of the above factors, without providing actual *evidence* to support those factors. Indeed, the proposed finding ignores substantial evidence presented at trial showing that, contrary to the theory advanced by Complaint Counsel, the TiO₂ industry is, in fact, “fiercely competitive.” (Christian, Tr. 887; Mouland, Tr. 1206; Arndt, Tr. 1422). Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper legal argument. Further, the evidence presented at trial showed that the market is “fiercely competitive.” (Christian, Tr. 887; Mouland, Tr. 1206; Arndt, Tr. 1422).

402. Dr. Hill concluded that there are three significant ways in which the merger will make the North American market for chloride TiO₂ more susceptible to coordination. First, it will reduce the complexity of coordination among the firms in the market. Second, it will increase transparency. Third, it will replace a firm, Cristal, that in the past had aggressively competed with a firm, Tronox, that does not compete as aggressively. (Hill, Tr. 1809-10; PX5000 at 106 (¶247) (Hill Initial Report) [REDACTED] (in camera)).

Response to Finding No. 402:

Complaint Counsel’s proposed finding is misleading and inaccurate. Ironically, the proposed finding asserts that Cristal competes “aggressively” in the TiO₂ industry, when Complaint Counsel’s theory of competitive effects is ostensibly premised on the *lack* of aggressive competition in the TiO₂ industry. Furthermore, Dr. Hill’s conclusions regarding competitive effects are the result of a flawed model that predicts behavior inconsistent with the real world. Dr. Hill’s coordinated capacity closure model “predicts behavior that is inconsistent for Tronox and Chemours relative to what we observe in the real world.” (Shehadeh, Tr. 3412-13). Dr. Hill himself admitted that he is “not predicting through [his] modeling a specific form of coordination that [he] believe[s] will take place” in the real world. (Hill, Tr. 1992). Dr. Hill further acknowledged that although his coordinated capacity closure model predicts an “incentive” to coordinate between Tronox and Chemours, this does not mean that’s what would actually “occur in the real world.” (Shehadeh, Tr. 3424-25, 3437).

i. The North American Chloride TiO₂ Market Is Already Vulnerable to Coordination

(a) The number of firms in the relevant market is small

403. The North American market for chloride TiO₂ is highly concentrated and the merger will significantly increase that concentration. (Hill, Tr. 1800). As Dr. Hill concluded in his expert report, “[c]oordination is more likely to occur when the number of firms who must be involved for it to be effective is smaller. Coordination of any kind involves communication, and the larger the number of involved firms, the greater the possibility

for misunderstandings. Thus, the smaller is the number of firms, the easier it typically is to coordinate.” (PX5000 at 096 (¶ 219) (Hill Initial Report) (*in camera*)).

Response to Finding No. 403:

Complaint Counsel’s proposed finding of fact is not a fact, but rather is improper legal argument. The proposed finding about market concentration is *premised* on Complaint Counsel’s preferred market—a gerrymandered “North America”-only market consisting solely of chloride-process TiO₂. (Hill, Tr. 1927). Even though Dr. Hill acknowledged that this is a “worldwide merger,” (Hill, Tr. 1903; Hill, Tr. 1782), he did not use or rely on any calculation of market shares or concentration for a worldwide market. (Hill, Tr. 1946). Of course, under the proper geographic and product market, “the combined share of the postmerger Tronox and concentration overall would be too low to be consistent with either unilateral or coordinated competitive effects.” (Shehadeh, Tr. 3325).

404. There are five major producers of chloride TiO₂ in North America: Tronox, Cristal, Chemours, Kronos, and Venator, which together account for over 99% of chloride TiO₂ sales in North America. (Hill, Tr. 1804). The acquisition of Cristal by Tronox will reduce the number of major producers of chloride TiO₂ in North America from five to four. Post-merger two firms would control 73% to 75% of the North American chloride TiO₂ market. (Hill, Tr. 1804; *see* CCFF, *supra*, section IV. Market Structure).

Response to Finding No. 404:

By citing exclusively to Dr. Hill, Complaint Counsel’s proposed finding improperly relies on expert testimony to support a disputed fact that should be established by fact witnesses or documents. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

(b) North American chloride TiO₂ producers recognize their mutual interdependence

405. Based on his review of the record, Dr. Hill observed that producers in the relevant market exhibit mutual interdependence: “Reviewing information from the parties and from third parties, I concluded that firms in this industry are well aware that their actions affect one another, that they are mutually interdependent.” (Hill, Tr. 1801; PX9085 at 027

(Horizontal Merger Guidelines, § 7) (“Coordinated interaction involves conduct by multiple firms that is profitable for each of them only as a result of the accommodating reactions of the others. These reactions can blunt a firm’s incentive to offer customers better deals by undercutting the extent to which such a move would win business away from rivals.”); PX5000 at 092-96 (¶¶ 216-18) (Hill Initial Report) (*in camera*)).

Response to Finding No. 405:

Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper legal argument. Notably, Dr. Hill’s analysis of post-merger competitive effects reflects only his model’s academic predictions of theoretical “incentives,” rather than what he believes would actually happen in the real world. (Hill, Tr. 1760, 2053). Further, the proposed fact is contrary to the evidence and the facts. Trial testimony showed fierce competition in the TiO₂ market. (Christian, Tr. 887; Mouland, Tr. 1206; Arndt, Tr. 1422).

406. Tronox and Cristal’s internal planning documents illustrate the high level of recognized mutual interdependence that Dr. Hill observed. (*See* CCF ¶¶ 407-09, below).

Response to Finding No. 406:

Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper legal argument; it is an inaccurate summary of the evidence; further, it is not supported by any specific evidence. Respondents’ specific response can be found in response to ¶¶ 407-09, below.

407. For example, Tronox’s five-year TiO₂ strategy plan update from August 2016 states:

[REDACTED] (PX1004 at 015 (Tronox TiO₂ Strategy and 5-Year Plan Update, Aug. 2016) (*in camera*); PX1036 at 017 (Tronox TiO₂ Strategy and 5-Year Plan Update, Aug. 2016) [REDACTED] (*in camera*)).

Response to Finding No. 407:

The evidence cited does not support Complaint Counsel’s proposed fact (“Tronox and Cristal’s internal planning documents illustrate the high level of recognized mutual

interdependence that Dr. Hill observed.”) Complaint Counsel’s Finding ¶ 406. Rather than displaying mutual interdependence, these documents instead demonstrate that the TiO₂ industry is a “notoriously cyclical business.” (Stern, Tr. 3735). As Mr. Stern testified, “the balance between supply and demand is one of the key reasons why the chemical industry in general and the TiO₂ business in particular exhibit cyclical behavior.” (Stern, Tr. 3736). The same factors influence prices across the globe, so in that sense prices for TiO₂ are “interdependent” of one another in different parts of the world. (Romano, Tr. 2237). Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1004 and PX1036, documents that were not presented at trial. The documents were therefore never subject to cross examination before the Court.

408. In an internal email summarizing a call among Tronox executives, Mr. Engle, a Tronox vice president, discussed [REDACTED] (PX1024 at 001 (Engle email to Staton and Smith) (*in camera*)).

Response to Finding No. 408:

Complaint Counsel’s proposed finding is nothing more than an incomplete excerpt of a Tronox email, offered without explanation or context. This document was never presented at trial and thus never explained by a witness or subject to cross-examination before the Court. Further, the email was sent in 2013 — not only has Tronox completed expansion projects since then, including a debottlenecking at Hamilton that was completed in 2014, but also a span of five years has passed since this statement was made; as such, stripped of its context and without any accompanying testimony to explain it, the cherry-picked quote by itself has limited probative value or weight.

409. Similarly, a Cristal sales and marketing presentation from August 2016 states:

[REDACTED] (PX2116 at 061 (Cristal Sales and Marketing Program, Aug. 2016) (*in camera*)).

Response to Finding No. 409:

Complaint Counsel's proposed finding is nothing more than an incomplete excerpt of a Cristal email, offered without explanation or context. This document was never presented at trial and thus never explained by a witness or subject to cross-examination before the Court. Stripped of its context and without any accompanying testimony to explain it, the cherry-picked quote by itself has limited probative value or weight.

410. The parties' TiO₂ competitors also recognize the mutual interdependence of TiO₂ producers, noting the need for industry "discipline" and the negative price effects that follow aggressive competition for business in their earnings calls and industry conference remarks. (PX9075 at 004 (Huntsman [Venator] Q2 2016 Earnings Call) ("We continue to be disciplined with our sales volumes in an effort to maximize the effective capture of the announced TiO₂ price increase."); PX9075 at 014 (Huntsman [Venator] Q2 2016 Earnings Call) ("I see greater pricing discipline taking place in TiO₂."); PX9025 at 003 (Chemours at Goldman Sachs Basic Materials Conference Transcript) ("Now, reflecting on the dynamics of the past, we at Chemours conclude that our own response to market dynamics was a contributor to the volatility that we experienced in our business performance. And we've decided to take a more meaningful approach to the TiO₂ market.")).

Response to Finding No. 410:

Complaint Counsel's proposed finding of fact is not a fact, but instead is improper legal argument. None of the documents cited stand for the broad and unqualified claim that other TiO₂ competitors uniformly "recognize" anything. The proposed finding is nothing more than incomplete excerpts of two documents (PX9075 and PX9025), offered without explanation or context. The documents were never presented at trial and thus never explained by a witness or subject to cross-examination before the Court. Stripped of their context and without any accompanying testimony to explain them, the cherry-picked quotes by themselves have limited probative value or weight.

411. Finally, in reviewing information from the parties and from third parties, Dr. Hill concluded that: “firms in this industry are well aware that their actions affect one another, that they are mutually interdependent.” (Hill, Tr. 1801, 1833 (partially *in camera*)).

Response to Finding No. 411:

Complaint Counsel’s proposed finding of fact is not a fact, but instead is improper legal argument, and it is an inaccurate summary of the cited evidence. Complaint Counsel does not cite to a single document to support this proposed fact.

- (1) North American chloride TiO₂ producers’ price increase efforts are highly interdependent

412. Tronox has developed its TiO₂ pricing strategy around this mutual interdependence. (See CCF ¶¶ 413-19, below.) In a 2016 Board of Directors presentation discussing the Tronox price increase implementation process, Mr. Romano, Tronox’s Chief Commercial Officer, explained how [REDACTED] (PX1021 at 002 (Romano email to Turgeon) (*in camera*); PX7001 (Romano, IHT at 143) [REDACTED] (*in camera*)).

Response to Finding No. 412:

Complaint Counsel’s proposed finding makes an improper legal argument. The finding is misleading and incomplete. Mr. Romano testified that, [REDACTED]

[REDACTED] (Romano, Tr. 2157) [REDACTED]

[REDACTED]

413. The presentation by Mr. Romano described [REDACTED] (PX1021 at 002 (Romano email to Turgeon) (*in camera*)). Mr. Romano also described [REDACTED] (PX1021 at 002 (Romano email to Turgeon) (*in camera*)).

Response to Finding No. 415:

Complaint Counsel’s proposed finding is misleading and misrepresents the testimony given, and fails to supports their proposed fact that “Tronox has developed its TiO₂ pricing strategy around this mutual interdependence.” (Complaint Counsels’ Finding ¶ 411). In fact, the evidentiary record shows that the TiO₂ industry is a “very competitive industry.” (Quinn, Tr. 2318-19; Christian, Tr. 887; Turgeon, Tr. 2610; Arndt, Tr. 1422).

416. Mr. Romano and other Tronox and Cristal executives testified extensively that [REDACTED] (PX7001 (Romano, IHT at 214) [REDACTED] (in camera); PX7001 (Romano, IHT at 223) [REDACTED] (in camera); Romano, Tr. 2156-57 (in camera); PX7002 (Mouland, IHT at 77) [REDACTED] (in camera); PX7026 (Duvekot, Dep. at 52) [REDACTED] (in camera); PX7043 (Gigou, Dep. at 31-33) [REDACTED] (in camera)).

Response to Finding No. 416:

Complaint Counsel’s proposed finding is misleading and misrepresents the testimony given, and fails to supports the FTC’s proposed finding that this is an interdependent industry. (Complaint Counsel’s Finding ¶ 411). Further, Complaint Counsel is relying on deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

417. When Chemours announced a price increase of \$150 per metric ton on December 17, 2015, [REDACTED] (PX1046 at 002 (Casey email to Romano and Grebey) (in camera)).

[REDACTED] (PX1047 at 001 (Casey email to Tronox Board members) (*in camera*)).

Response to Finding No. 419:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1047, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. . These quotations are additionally misleading because they ignore the market conditions at the time the statements were made, and the market conditions were particularly notable. The statements that Complaint Counsel cites from PX1047 were made on the heels of the 2015 market downturn, when prices were at their trough and Tronox had reported financial losses during all four quarters of 2015. (Stern, Tr. 3746; Arndt, Tr. 1401-02).

420. From Cristal's perspective, the December 2015 price increase announcements were [REDACTED] (PX2055 at 022 (Cristal presentation) (*in camera*)). [REDACTED] (PX2216 at 001 (Nahas email to VanValkenburgh) (*in camera*)).

Response to Finding No. 420:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX2055 and PX2216, documents that were not presented at trial. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

421. On the same day Tronox announced its price increase in December 2015, a Cristal executive anticipated in an internal email that other TiO₂ producers would follow Tronox's increase: "Tronox follows the trend. Tronox also[] announces global increase of US\$150/tonne for all TiO₂ grades, effective Jan. 1, 2016, or as contracts allow. Expectedly, other TiO₂ manufacturer's [sic] may follow the trend. We would be keen to observe market acceptance of these price increase announcements in Q1 2016. It's an initiative to taste [sic] the market readiness to accept this announced price increase."

(PX2035 at 002 (Cristal email)). Shortly after, another Cristal executive confirmed that Huntsman [Venator] also announced its price increase. (PX2035 at 001 (Cristal email)).

Response to Finding No. 421:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2035, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. The statements that Complaint Counsel cites from PX2035 were made on the heels of the 2015 market downturn, when prices were at their trough and Tronox had reported financial losses during all four quarters of 2015. (Stern, Tr. 3746; Arndt, Tr. 1401-02).

422. Numerous other Tronox and Cristal internal documents demonstrate this interdependent pricing of TiO₂. (See CCF ¶¶ 423-26, below). For example, a Tronox weekly regional sales report for Americas from May 2016 reports that [REDACTED] [REDACTED] (PX1163 at 001 (Tronox Americas weekly report) (*in camera*); PX7002 (Mouland, IHT at 74-75) (*in camera*)).

Response to Finding No. 422:

Complaint Counsel’s proposed finding is incomplete; improper legal argument; and an inaccurate summary of the evidence. Mr. Mouland explained that [REDACTED]

[REDACTED]

[REDACTED] (Mouland, Tr. 1274). [REDACTED]

[REDACTED]

[REDACTED] (Mouland, Tr. 1274).

To the extent Complaint Counsel’s proposed fact relies on findings ¶¶ 423-26 for support, Respondents’ specific responses can be found below.

423. In a 2017 email, Mr. Mouland, a Tronox sales vice president, requested [REDACTED] [REDACTED] (PX1093 (Mouland email to Romano) (*in camera*); PX1201 (Mouland email to Romano) [REDACTED]

[REDACTED]
 (in camera); Mouland, Tr. 1156-58 (in camera); see also PX1212 at 003 (January 2017 Price Approval Request regarding a plastics customer, [REDACTED]

[REDACTED] (in camera)).

Response to Finding No. 423:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1093 and PX1212, documents that were not presented at trial even though Mr. Mouland testified before the Court.. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

424. In an email to Cristal’s Chairman, Cristal’s sales vice president at the time observed that: “In current market conditions of excessive inventory we cannot raise price and gain market share at the same time unless all suppliers support the price movement. If we see other such public price announcement information for other suppliers in the coming days, we will then assess whether or not we want to also make a price announcement and if market dynamics can support such an initiative.” (PX2087 at 002 (Stoll email to Al-Shair)).

Response to Finding No. 424:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2055, which was not presented at trial even though Mr. Stoll testified before the Court. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

425. In October 2016, following a publically announced price increase by a competitor, Mr. Gigou, Cristal’s sales vice president, wrote of the announced price increase to other Cristal senior executives: [REDACTED]

[REDACTED] to which Mr. Gunther, Cristal’s head of TiO2 business, responded [REDACTED] (PX2007 at 001 (Gigou email to Gunther) (in camera)).

Response to Finding No. 425:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2007, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

426. Further, the major North American chloride TiO₂ producers over the years have increased TiO₂ prices typically in close proximity to each other in time. (PX1204 (December 2016 Tronox Excel spreadsheets [REDACTED] (*in camera*); Pschaidt, Tr. 975 (“Usually the TiO₂ manufacturers announce price increases very close to each other, so it normally is announced within a short period of time of each other.”); Malichky, Tr. 328, 332 [REDACTED] (*in camera*); PX8003 at 006 (¶ 29) (Young Decl.); PX8001 at 003 (¶ 17) (Zamac Decl.) (*in camera*); see also PX7025 (Malichky, Dep. at 80) [REDACTED] (*in camera*)).

Response to Finding No. 426:

Complaint Counsel’s proposed finding is vague, misleading, and unsupported by the evidence cited. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Pschaidt, 1000-01; Romano, Tr. 2159). [REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2159).

- (2) North American chloride TiO₂ producers’ production decisions are highly interdependent

427. Tronox and Cristal documents indicate that companies make TiO₂ production decisions for the purpose of supporting higher TiO₂ prices. (See CCF ¶¶ 428-32, below). For example, in early 2016, [REDACTED] Mr. Duvekot of Tronox explained that

[REDACTED]
[REDACTED] Mr. Duvekot further explained that [REDACTED]
[REDACTED] (PX1435 at 001 (Duvekot email)
(*in camera*); Duvekot, Tr. 1333-35 (*in camera*)).

Response to Finding No. 427:

Complaint Counsel’s proposed fact is misleading and incomplete; it is also inaccurate and mischaracterizes the evidence. Mr. Duvekot testified that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Duvekot, Tr. 1337-38). The statements that Complaint Counsel cites from PX1435 were made on the heels of the 2015 market downturn, when prices were at their trough and Tronox had reported financial losses during all four quarters of 2015. (Stern, Tr. 3746; Arndt, Tr. 1401-02).

428. In fact, what Mr. Duvekot explained is what, in early 2015, Tronox’s Mr. Casey had projected would happen: “It is our view that an upward move in pigment selling prices will be predicated on a reduction of supply in the pigment market relative to demand and/or upward move in feedstock selling prices and we expect to see both.” (PX9007 at 005 (Tronox Q1 2015 Earnings Call); Arndt, Tr. 1363-64).

Response to Finding No. 428:

The cited evidence does not support Complaint Counsel’s proposed finding, and the proposed finding is inaccurate. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] as

Complaint Counsel suggests. Further, the evidence shows that the prices hit their trough, or

lowest point, in 2015, and price increases did not occur until Q1 2016. ([REDACTED] ; Arndt, Tr. 1364; Stern, Tr., 3745-46).

429. A few months later, in Tronox's 2015 third quarter earnings call, Mr. Casey disclosed that Tronox had idled a portion of its TiO₂ production, emphasizing the impact of this decision on pricing, and emphasizing how Tronox observed other TiO₂ producers "acting in the same way": "And the question is, when will [the prices] turn? We're addressing that by managing our production so that inventories get reduced to normal or below normal levels. And when that happens, prices will rise. We -- from what we see with Chemours and Huntsman and presumably others as well, they're doing the same thing. We see them acting in the same way." (PX9005 at 010 (Tronox Q3 2015 Earnings Call)).

Response to Finding No. 429:

Complaint Counsel's proposed fact is misleading and ignores record evidence to the contrary. Mr. Brennen Arndt, Vice President of Investor Relations, addressed this document on the stand and noted that he disagrees with Mr. Casey's statement that suggests that prices will necessarily rise when "inventories get reduced to normal levels," because "there are times when prices rise *and numerous times when prices don't rise* after a balancing of supply and demand." (Arndt, Tr. 1378(citing 2014 as an example) (emphasis added)). Indeed, even at times when producers reduce output due to cyclical market conditions, prices can (and do) continue to fall. (Stern, Tr. 3770 (testifying that both Tronox and Cristal experienced declining prices from 2012 through 2016)).

430. In 2015, shortly after Mr. Casey had publically stated that Tronox had idled part of its Hamilton plant, [REDACTED] [REDACTED] (PX2055 at 024 (Cristal presentation) (*in camera*)). And Tronox cheered these developments as "Good news!!" with Tronox's then-CEO Mr. Casey remarking "[i]t's good that [Chemours] can follow the leader!" (PX1325 (Casey email to the Tronox senior executive team)).

Response to Finding No. 430:

Complaint Counsel's proposed finding is misleading, because it fails to acknowledge the near-simultaneous expansion of Chemours' Altamira facility to 350,000 tons per annum.

(Christian, Tr. 876-77). Taken together with the closure of its Edge Moor plant, Kronos categorized this as a “net neutral to the industry.” (Christian, Tr. 876-77). Further, Complaint Counsel’s proposed finding relies on PX2055 and PX1325, which were not presented at trial and thus were not subject to cross examination before the Court.

431. Cristal also has observed there to be discipline in TiO₂ producers’ decisions to reduce TiO₂ capacity. In a September 2011 email, Cristal’s Mr. Stoll wrote: “The pricing momentum began when significant major capacity was taken off line in 2008 and 2009 during the Financial Crisis. More than 300,000mt came off-line in this period, including Le Havre and Hawkins Point. . . . The markets went from a very over-supplied situation for many years to a more balanced to tight scenario where growth then started to exceed supply. This discipline of taking supply off-line and allowing inventories to fall as demand improved lead [sic] to pricing discipline and pricing power over the following quarters. . . . However, over the next several months we are going to really see if the industry can maintain market discipline as global demand stalls going into a seasonally low period.” (PX2083 at 001 (Stoll email to Najjar)).

Response to Finding No. 431:

Complaint Counsel’s evidence is inconsistent with its theories, as Complaint Counsel alleges sulfate TiO₂ is irrelevant, (Complaint Counsels’ Findings ¶¶ 27-30), but at the same time cites to [REDACTED]

[REDACTED] (PX7006 (Stoll, Dep. Tr. 162)). Additionally, Complaint Counsel’s proposed finding relies on PX2083, which was not presented at trial and thus was not subject to cross examination before the Court.

432. Cristal’s emphasis on adjusting TiO₂ production to limit competition is long-standing. As described in a strategic plan review for 2006, the company’s strategy at that time was to match production to sales, and part of this was to “[c]urtail production in a down market (don’t use price to push volume).” (PX2024 at 013 (Lyondell, Cristal’s predecessor, Inorganics 2006 LRP Review); PX6005 at 020 (Lyondell 2007 LRP Plans) [REDACTED] (*in camera*)).

Response to Finding No. 432:

Complaint Counsel’s proposed finding cites to evidence with limited relevance—the documents are over twelve years old, and were written by Cristal’s predecessor company,

Lyondell. Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2024 and PX6005, documents that were not presented at trial. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

- (c) The mutually recognized interdependence among North American TiO₂ producers is reflected in their efforts to maintain “discipline” and avoid triggering competitive responses

433. Tronox and Cristal documents repeatedly demonstrate mutually accommodating conduct by chloride TiO₂ producers with the intention to support market discipline. (See CCF ¶¶ 434-41, below). As Mr. Casey has publicly described: “As you saw, we have not gained market share by trying to reduce price. We don’t think that’s the appropriate strategy going forward” (PX9010 at 005 (Tronox Q2 2014 Earnings Call)).

Response to Finding No. 433:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence; it also presents improper legal argument. Respondents’ specific responses can be found in response to ¶¶ 434-41, below. Further, Complaint Counsel’s proposed finding relies on PX9010, which was not presented at trial and thus was not subject to cross examination before the Court.

434. For example, when Mr. Casey asked Mr. Romano in 2011 to explain 

 (PX1090 at 001 (Romano email to Casey) (*in camera*)).

Response to Finding No. 434:

Complaint Counsel’s proposed fact is misleading and incomplete; it is also inaccurate and mischaracterizes the documents. Complaint Counsel’s proposed finding relies on incomplete

and selective quotes from PX1090, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

435. In a similar July 2012 email, Mr. Romano wrote to Mr. Casey, then-CEO of Tronox and Mr. Greenwell, then-CFO that: [REDACTED]
[REDACTED] (PX1015 at 001 (Romano email to Casey and Greenwell) (*in camera*); Romano, Tr. 2161-63 (*in camera*)).

Response to Finding No. 435:

Complaint Counsel’s proposed fact is misleading and incomplete because it fails to account for Mr. Romano’s testimony about the same document, which provides important context. Mr. Romano testified that, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] (Romano, Tr. 2277-78). [REDACTED]
[REDACTED] (Romano, Tr. 2277-78).

436. In that same email to Mr. Casey and Mr. Greenwell, Mr. Romano explained [REDACTED]
[REDACTED] (PX1015 at 001 (Romano email to Casey and Greenwell) (*in camera*); Romano, Tr. 2163-64 (*in camera*)).

Response to Finding No. 436:

Complaint Counsel’s proposed fact is misleading and incomplete because it fails to account for Mr. Romano’s testimony about the same document, which provides important context. Mr. Romano testified that, [REDACTED]

[REDACTED]

[REDACTED]
 [REDACTED] (Romano, Tr. 2277-78) [REDACTED]
 [REDACTED]

437. Not only did Mr. Romano make this point to Mr. Casey several times in 2011 and 2012, but so did Mr. Wayne Hinman, a member of the Tronox Board of Directors: [REDACTED]

[REDACTED]
 (PX1075 at 001 (Hinman email to Casey) (*in camera*)).

Response to Finding No. 437:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1075, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

438. Similar to the observation by Mr. Romano, an October 2011 presentation by Cristal’s Mr. Stoll to Cristal’s Steering Body illustrates that Cristal’s view at that time on reducing price was in line with Tronox’s: “The [REDACTED] would be to attempt to lower prices to take market share as markets weaken. [REDACTED] (PX2242 at 017 (Cristal Steering Body Meeting Commercial Update) (emphasis in original); Stoll, Tr. 2086; PX7009 (Stoll, Dep. at 146-47) (*in camera*)).

Response to Finding No. 438:

The evidence relied upon by Complaint Counsel is misleading and ignores relevant testimony about the document that provides important context. Mr. Stoll makes clear that customers were simply not interested in purchasing product at the time of this email, *even if that product were offered at a lower price*; further, they would delay those purchases even longer once they saw the prices dropping, “because once price starts going down, they know the longer they wait, it’s going to go down even more.” (Stoll, Tr. 2084-85).

439. A couple months later, in December 2011, Mr. Stoll informed Mr. Nahas, Cristal’s then-President, that [REDACTED]
 [REDACTED]

[REDACTED] (PX6000 at 003 (Stoll email to Nahas) (*in camera*)).

Response to Finding No. 439:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX6000, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

440.

[REDACTED] (PX2247 at 155-56
(Valspar v. Millennium Inorganic Chemicals et al. multidistrict price fixing litigation, Deposition Transcript of Mark Stoll) (in camera)).

Response to Finding No. 440:

Complaint Counsel's proposed finding relies on an incomplete excerpt from a deposition that took place over three years ago. As such, he proposed finding fails to account for the context Mr. Stoll provided in that deposition. Mr. Stoll explained at the beginning of his answer the market conditions that led to Cristal's response, testifying that they [REDACTED]

[REDACTED] (PX2247-155 - 56)

Finally, the evidence relied upon by Complaint Counsel was never presented at live trial, and thus not subject to cross examination by Respondents, even though Mr. Stoll testified before this Court.

441. Similarly, Mr. Stoll was asked during the Maryland price fixing litigation about an internal 2007 memo from Cristal's John Hall, which had the following guidance relating to TiO2 price: [REDACTED] (PX6023 at 002 (Hall email to Stoll and others) (*in camera*)).

[REDACTED] (PX2245 at 048 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Mark Stoll) (*in camera*)).

Response to Finding No. 441:

Complaint Counsel's proposed finding relies on is an incomplete excerpt from a deposition that took place over six years ago, and relates to questions about a 2007 email. (PX2245-048 (asking questions about PX6023, an email sent in 2007)). This deposition transcript was never presented at trial, even though Mr. Stoll testified live before this Court. Complaint Counsel's proposed finding is also misleading because it uses selective quotes to exclude part of Mr. Stoll's testimony, where he further explains his position. He continued, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX2245 at 049).

442. In addition, examples of individual pricing decisions, as detailed below, reflect the efforts on the part of both Tronox and Cristal to maintain pricing in the period of large-scale price increases that began around 2010. (*See* CCFF ¶¶ 443-47, below; *see also* PX2083 at 001 (Stoll email to Najjar) (*in camera*)).

Response to Finding No. 442:

Complaint Counsel's proposed finding is not a fact, but an inaccurate summary of the evidence. Respondents' specific response can be found in response to ¶¶ 443-47, below. Further, Complaint Counsel relies on PX2083, which was never presented in trial and thus not subject to cross examination before this Court.

443. In a July 2011 email, responding to a sales manager's request for a price to quote for a prospective customer [REDACTED] Mr. Mouland provided guidance on [REDACTED] [REDACTED] (PX1291 at 001 (Mouland email to Larson) (*in camera*)).

Response to Finding No. 443:

Complaint Counsel's proposed finding mischaracterizes the cited evidence, and attributes the statement to the wrong Tronox employee. In fact, it was [REDACTED] [REDACTED] (PX1291-001). [REDACTED] [REDACTED] PX7002 (Mouland, IHT at 008)).

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1291, which was not presented at trial, even though Mr. Mouland testified before this Court. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

444. In an August 2011 email, a Tronox sales manager reported to Mr. Mouland on his discussions at [REDACTED] [REDACTED] [REDACTED] (PX1292 at 001-02 (Email exchange between Mouland and Larson) (*in camera*)).

Response to Finding No. 444:

Complaint Counsel's proposed finding mischaracterizes the cited evidence. Further, Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1292, which was not presented at trial even though Mr. Mouland testified before this Court. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

445. In May 2011, Cristal had a potential business opportunity at [REDACTED] [REDACTED] [REDACTED]

Response to Finding No. 447:

Complaint Counsel’s proposed finding mischaracterizes the cited evidence. Further, Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1096, which was not presented at trial even though Mr. Mouland testified before this Court. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

448. Based on his review of the period from 2010 to 2012, Dr. Hill in fact concluded that [REDACTED] (PX5004 at 056-57 (¶¶ 147-49 & Fig. 24) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 448:

Dr. Hill’s conclusion [REDACTED]

[REDACTED] is unfounded. [REDACTED]

(Shehadeh, Tr. 3512). [REDACTED]

[REDACTED] (Shehadeh, Tr. 3512 (emphasis added)).

449. As demand waned in the period after 2012, {Tronox continued to make efforts to maintain pricing by pulling back on competing aggressively to maintain sales volumes.} (See CCF ¶¶ 450-59, below).

Response to Finding No. 449:

Complaint Counsel’s proposed finding is not a fact, but rather an inaccurate summary of the evidence. Respondents’ specific responses can be found in response to ¶¶ 450-59, below.

450. For example, in a 2014 presentation regarding Tronox’s sales and marketing strategy, {when a strategic option was considered to increase sales in North America, Tronox was concerned about the impact of the “[c]ompetitive response.”} (PX1016 at 062 (Tronox presentation) ({considering a strategy of making “Incremental Sales in High Priced Region” with identified risks of “Competitive response” and “High priced region starts to migrate down”}) (*in camera*)).

Response to Finding No. 450:

Complaint Counsel cites to PX1016, a document that was not raised at trial and thus not subject to cross examination before the Court. Further, the Complaint Counsel’s finding is incomplete. While the Tronox presentation considered [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX1016-62).

451. During the second half of 2014, Tronox had an opportunity to secure new business at

[REDACTED]

[REDACTED] (PX1086 at 002-03 (Romano email to Duvekot, Mouland, and Doherty) *(in camera)*).

[REDACTED] (PX1076 at 001 (Doherty email to Mouland) *(in camera)*).

Response to Finding No. 451:

Complaint Counsel’s proposed fact relies on PX1086 and PX1076, documents that were not presented at trial and thus not subject to cross examination before the Court. Further, Complaint Counsel’s citation to Mr. Romano’s statements in PX1086 is misleading, as Mr.

Romano [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX1086-001 - 02).

452. Similarly, Tronox’s Mr. Duvekot recommended for a sales and marketing presentation that Tronox focus on [REDACTED]

[REDACTED] (PX1360 at 001 (Duvekot email to Romano) *(in camera)*); PX7026 (Duvekot, Dep. at 111-12) [REDACTED]

[REDACTED]
[REDACTED] (in camera); see also PX1030 at 013 (Tronox presentation)
[REDACTED] in camera)).

Response to Finding No. 452:

The cited evidence fails to support Complaint Counsel’s proposed finding. Complaint Counsel suggests that this evidence supports ¶ 449, which states that [REDACTED]

[REDACTED]

[REDACTED] The cited statements, however, [REDACTED]

[REDACTED]

[REDACTED]

Compared further, Mr. Duvekot testified that [REDACTED]

[REDACTED]

[REDACTED]

453. When Mr. Duvekot was asked in his deposition [REDACTED]

[REDACTED]

[REDACTED] (PX7026 (Duvekot, Dep. at 101-02) (in camera)).

Response to Finding No. 453:

Complaint Counsel’s proposed finding is incomplete. Mr. Duvekot also explained in the same deposition that, at the time, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

(Duvekot, Dep. at 99-100). Even though Mr. Duvekot testified before this Court, Complaint

Counsel does not cite to any of that testimony in support of the proposed finding—instead it relies solely on deposition testimony that was not subject to cross-examination before this Court.

454. In April 2015, responding to an email [REDACTED] wrote: [REDACTED] (PX1453 at 001 (Duvekot email to Mouland) (*in camera*); PX7026 (Duvekot, Dep. at 119-21) (*in camera*); see also PX1429 at 001 (Duvekot email to Bruno) [REDACTED] (*in camera*)).

Response to Finding No. 454:

The cited evidence fails to support Complaint Counsel’s proposed finding. Complaint Counsel suggests that this evidence supports ¶ 449, which states that [REDACTED]

[REDACTED]

[REDACTED] The cited statements, however, [REDACTED]

[REDACTED]

[REDACTED]

455. In July 2015, Mr. Duvekot reiterated [REDACTED] (PX1432 at 001 (Duvekot email to Hofman) (*in camera*); PX7026 (Duvekot, Dep. at 125-27) (*in camera*); see also Duvekot, Tr. 1330 [REDACTED] (*in camera*)).

Response to Finding No. 455:

Respondents have no specific response.

456. In August 2015, Mr. Romano, Tronox’s Chief Commercial Officer, wrote while approving a price request from a sales manager: [REDACTED]

[REDACTED] (PX1133 at 001 (Romano email to Bradley) (*in camera*)).

Response to Finding No. 456:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1133, which was not presented at trial even though Mr. Romano testified before this Court. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

457. In a March 2016 email, Tronox's Mr. Mouland wrote to two salespeople: [REDACTED]
[REDACTED] (PX1305 at 001 (Mouland email) (*in camera*); PX7022 (Mouland, Dep. at 70-71) (*in camera*)).

Response to Finding No. 457:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1305, which was not presented to Mr. Mouland at trial, even though he testified live. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. Even though Mr. Duvekot testified at great length before this Court, Complaint Counsel does not cite to any of that testimony in support of the proposed finding—instead it relies solely on deposition testimony that was not subject to cross-examination before this Court.

458. In November 2016, one of its distributors in the United States asked Tronox about [REDACTED]
[REDACTED] (PX1077 at 001 (Mouland email) (*in camera*)).

Response to Finding No. 458:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1077, which was not presented at trial. The document was therefore never subject to cross

examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

459. Further, Tronox’s 2017 Strategic Plan, dated June 2016, captures the approach that Tronox has developed to [REDACTED] (PX1091 at 016 (Tronox TiO2 Strategic Plan 2017) (*in camera*); see also Romano, Tr. 2163 [REDACTED] (*in camera*); PX9010 at 005 (Tronox Q2 2014 Earnings Call) (“As you saw, we have not gained market share by trying to reduce price. We don’t think that’s the appropriate strategy going forward”)).

Response to Finding No. 459:

Complaint Counsel’s citation of Mr. Romano’s transcript is misleading. Mr. Romano was asked about a statement he made in an email, and he replied: [REDACTED]

[REDACTED] (Romano, Tr. 2163). On re-direct examination, Mr. Romano explained this statement, and testified that at the time he wrote this email, [REDACTED]

[REDACTED] (Romano, Tr. 2278). Further, Complaint Counsel cites PX9010, evidence that was never put forth at trial, and thus never subject to cross examination before this Court.

- (d) TiO2 producers are able to observe each other’s competitive actions; i.e., the relevant market is transparent

460. “A market typically is more vulnerable to coordinated conduct if each competitively important firm’s significant competitive initiatives can be promptly and confidently observed by that firm’s rivals.” (PX9085 at 029 (Horizontal Merger Guidelines, § 7.2)). The North American chloride TiO2 market exhibits the kind of competitive transparency that facilitates coordination by allowing “significant competitive initiatives” of rival firms to “be promptly and confidently observed by that firm’s rivals.” (PX9085 at 029 (Horizontal Merger Guidelines, § 7.2); PX5000 at 096 (¶ 221) (Hill Initial Report) (*in camera*); Hill, Tr. 1804-05).

Response to Finding No. 460:

Complaint Counsel's proposed finding is not fact, but instead improper legal argument.

461. TiO₂ producers routinely develop detailed information about competitive initiatives by other producers and anticipate competitive responses. They accomplish this through public price announcements, statements made in earnings calls, investor presentations, and industry conferences, and from customers. (See CCFE ¶¶ 462-92, below). After reviewing the evidence, Dr. Hill concluded that “[s]uch transparency” as seen in the North American chloride TiO₂ market “can result in coordination and higher prices.” (PX5000 at 099 (¶ 229) (Hill Initial Report) (*in camera*)).

Response to Finding No. 461:

The proposed finding is not a fact, but an incorrect summary of evidence. Respondents provide specific responses to ¶¶ 462-92, below.

- (1) TiO₂ producers gather competitive intelligence from each other's public disclosures

462. Earnings calls provide a means for TiO₂ producers to communicate with respect to pricing and other competitive initiatives. (See CCFE ¶¶ 463-74, below; Hill, Tr. 1805 (“[T]here are numerous examples in documents from producers in which they monitor one another's earnings calls and one another's 10-Ks, when available. So that's one source of information.”); Malichky, Tr. 329 [REDACTED] (*in camera*); PX7025 (Malichky, Dep. at 86) (“It's just -- it's something that's very unique to TiO₂.”)). As Tronox's Mr. Arndt, Vice President of Investor Relations, testified at trial, Tronox's public statements to investors, including earnings calls, are made on behalf of Tronox as a whole and that the company uses its best efforts to ensure that its statements to investors are accurate, complete, and not misleading. (Arndt, Tr. 1359).

Response to Finding No. 462:

Complaint Counsel's citation to Hill's testimony improperly relies on expert testimony to support a purported fact. (Judge Chappell, Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issues in dispute”)). Complaint Counsel's proposed finding that “Earnings calls provide a means for TiO₂ producers to communicate with respect to pricing and other competitive initiatives” is not a fact, but an

inaccurate summary of the evidence. Respondents' specific response can be found in response to ¶¶ 463-74, below.

463. As publicly-traded companies whose primary business line is TiO₂, the major TiO₂ producers in their earnings calls provide detailed information regarding their expectations for production, their inventory situations, and their plans and expectations for pricing, information, which makes the competitive environment more predictable, and serves to allow other producers the information to “promptly and confidently” assess competitive initiatives of these other producers. (PX9085 at 029 (Horizontal Merger Guidelines, § 7.2); Arndt, Tr. 1360-61 (When discussing its quarterly results, Tronox discusses changes in sales volume, margin information, and operation related information such as plant utilization rate and inventory levels); PX5000 at 096-97 (¶¶ 222-23) (Hill Initial Report) (companies often provide considerable detail during earnings calls regarding competitively sensitive topics, including both their pricing and production plans.) (*in camera*)). Based on his review of the evidence, Dr. Hill concluded that the public statements of other chloride TiO₂ suppliers show that they recognize that capacity and pricing decisions affect all of the firms in the industry. (PX5000 at 095 (¶ 218) (Hill Initial Report) (*in camera*)).

Response to Finding No. 463:

Complaint Counsel's proposed finding of fact is misleading, and is not supported by the cited facts. Mr. Arndt testified that, while Tronox discusses its operation-related information, such as plant utilization rate and inventory level, those discussions are “in relative terms, not specific terms.” This testimony does not support the “detailed information” Complaint Counsel cites in its proposed fact. Further, to the extent Complaint Counsel's proposed finding relies upon Dr. Hill's testimony to support factual propositions, those propositions should be established by fact witnesses or documents. (Judge Chappell, Order on Post Trial Briefs at 3).

464. Tronox and Cristal monitor and analyze public statements by rivals such as quarterly earnings updates, presentations at industry conferences, and ratings agency meetings. (PX7002 (Mouland, IHT at 33-34) [REDACTED] (*in camera*); PX1039 at 004 (Merturi email to Staton and Arndt) [REDACTED] (*in camera*); PX1052 at 001-02 (McGuire email to Tronox sales executives) (containing notes from November 2016 Chemours earnings call, citing to Chemours outlook of reduced inventories and stronger price environment); PX1053 at 001-03

(Arndt email to Tronox senior executives) (attaching August 2016 Chemours earnings call transcript projecting continuing price increases through 2016, and discussing Chemours inventory situation); Romano, Tr. 2142-44; PX1054 at 001-04 (Engle email to Romano, Duvekot, Mouland) (describing “tidbits” from Huntsman transcript relating to inventories and utilization); PX2051 at 001 (Stoll email to Nahas) (“It is interesting being here at the TZMI Conference this week in Hong Kong. There is much concern by all of the TiO₂ producers about the price collapse and how much lower pricing will go.”)).

Response to Finding No. 464:

Respondents have no specific response to the cited evidence, but to the extent that Complaint Counsel’s proposed finding suggests that this information means that the market is transparent, (TiO₂ producers are able to observe each other’s competitive actions; i.e., the relevant market is transparent).; the cited evidence does not support that assertion. (Complaint Counsel’s Finding ¶ 461). Instead, the evidence presented at trial showed that the market is “fiercely competitive.” (Christian, Tr. 887; Mouland, Tr. 1206; Arndt, Tr. 1422).

465. Tronox’s Mr. Engle, vice president of marketing, listens to competitor’s earnings calls to learn about their production plans and other announcements, and obtain competitive intelligence. (Engle, Tr. 2540-41; Engle, Tr. 2482 (“So the biggest source [of competitive intelligence] would be trade data and public filings or public announcements, investor presentations, things like that.”)). Following the calls, Mr. Engle creates write-ups that include information about price increases and circulates them to other Tronox executives. (PX1051 at 001-02 (Engle email to Romano, Duvekot, Mouland) (attaching a Huntsman investor call transcript discussing announced price increase for Europe where Huntsman emphasized how it was “prepared to walk away from volumes in some cases and so forth” and how the increase “will be the first of I think multiple initiatives.”); PX7001 (Romano, IHT at 182-86) (*in camera*)).

Response to Finding No. 465:

Complaint Counsel’s proposed finding relies on, in part, on incomplete and selective quotes from PX1051, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

466. In early 2016, in response to an analyst question about an announced TiO₂ price increase, Chemours CEO, Mark Vergnano, reiterated Chemours’ view that “we really need to drive this price increase” even though “if you are just purely looking at this as an operating rate

situation[,] you might come to a different conclusion.” (PX9048 at 008 (Chemours Q4 2015 Earnings Call)). Then, in a 2016 earnings call, Mr. Vergnano of Chemours projected price increases that would continue through 2016: “Yes, I think as you look at the rest of the year, you’ll see a cadence up in our price as you look at third quarter . . . [S]o we feel good about where we are on the price side, and I think you will see continued movement because of the execution of these price increases for the rest of the year.” (PX9056 at 009 (Chemours Q2 2016 Earnings Call)). Tronox’s Mr. Romano described the information from this earnings call to be a [REDACTED] (PX7001 (Romano, IHT at 194-96) (*in camera*)).

Response to Finding No. 466:

Complaint Counsel’s proposed finding relies on PX9048 and PX9056, documents that were not presented at trial and thus were not subject to cross examination before the court. Further, Complaint Counsel’s selective quoting and bracketing of Mr. Romano’s Investigational Hearing testimony is misleading. Mr. Romano testified more fully, with proper context, that [REDACTED] [REDACTED] [REDACTED] (PX7001 (Romano, IHT at 194)). His testimony, taken in its entirety, in fact states the *exact opposite* of the proposition for which Complaint Counsel cites it. (PX7001 (Romano, IHT at 194-95)).

467. Likewise, Huntsman (now Venator) provides information about their pricing approach for TiO₂. At a basic materials conference sponsored by Goldman Sachs, Huntsman’s Executive Vice President stated: “Well, there’s the April 1 effective price increase. It was roughly \$235 a ton, nominated. And we have communicated and signaled that we would expect the realization on that price would be on the upper end of what we’ve been realizing over the last 3 or 4 quarters. That is closer to 2/3, 70% realization.” (PX9060 at 003 (Huntsman Corp at Goldman Sachs Basic Materials Conference Transcript)). And from Huntsman’s Q2 2016 Earnings Call, Tronox’s head of investor relations, Mr. Arndt, highlighted the statement “We continue to be disciplined with our sales volumes in an effort to maximize the effective capture of the announced TiO₂ price increase” in his summary of the call, which he circulated to senior Tronox executives. (PX1055 at 001 (Arndt email to Tronox senior executives)).

Response to Finding No. 467:

Complaint Counsel's proposed finding citing to PX1055 is misleading, and mischaracterizes Mr. Arndt's email to executives by saying he "highlighted" the excerpted statement. In reality, Mr. Arndt included the entirety of a "Pigment and Additive Division" slide in his email, a total of 10 bullets, and in no way differentiated the statement Complaint Counsel characterizes as "highlighted" from the other ten bullets. (*Compare* PX1055-001 *with* PX1055-008). Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX9060 and PX1055, documents that were not presented at trial. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

468.

[REDACTED] (PX2059 at 002-10 (Cristal competitor earnings call analysis, Nov. 2016) (*in camera*); PX2060 at 002-13 (Cristal competitor earnings call analysis, Aug. 2016) (*in camera*); PX2061 at 001-16 (Cristal competitor earnings call analysis, Mar. 2017) (*in camera*); PX2062 at 001-15 (Cristal competitor earnings call analysis, May 2017) (*in camera*); PX2278 at 004-14 (Cristal competitor profitability analysis, Mar. 2013)).

Response to Finding No. 468:

Complaint Counsel's proposed fact relies entirely on documents which were not presented at trial. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

469. Cristal considers the investor calls of TiO₂ competitors meaningful enough that key executives listen to the calls, and the company distributes summaries of the calls. (PX2049 at 001-04 (Stoll email to Trabzuni) [REDACTED] (*in camera*); PX2268 at 001 (Cristal email relating to Tronox and Chemours 2016 earnings calls with "Key Messages" relating to projected pricing, low inventories, and motivation for price increases during 2017); PX2269 at 001 (Cristal email relating to competitor earnings results describing, among other things, lower capacity utilization rates); PX2361 at 002-04 (Verrett email to Cristal senior executives) (summarizing key comments from competitors' earnings calls

on price increase announcements and implementation, inventory levels, plant utilization rates, and expectations for future pricing)).

Response to Finding No. 469:

Complaint Counsel's proposed facts attempts to state the intent behind an action by Cristal's management, citing to no supporting testimony or statement ("Cristal considers the investor calls of TiO2 competitors meaningful enough that key executives listen to the calls, and the company distributes summaries of the calls."). This misconstrues the cited evidence. Complaint Counsel cites PX2049 for the proposition that "key executives listen to the calls," when the email instead suggests that [REDACTED] [REDACTED] (PX2049-003). Further, Complaint Counsel's proposed fact relies exclusively on documents that were not presented at trial, PX2049, PX2269, PX2269, and PX2361, and thus not subject to cross examination before the Court. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

470. Like other TiO2 producers, Tronox's public disclosures include competitive information such as margin information, sales information, plant utilization rate and inventory information. (Arndt, Tr. 1361, 1369-70).

Response to Finding No. 470:

Complaint Counsel's proposed finding is not fact, but instead improper legal argument. Complaint Counsel's citation of Mr. Arndt's testimony is also misleading, as Mr. Arndt clarified that items like plant utilization and inventory levels are described "in relative terms, not specific terms."

471. During its Q1 2015 earnings call, Tronox described its approach to TiO2 production decisions with an emphasis on the forward looking steps it was taking to support higher TiO2 pricing. Specifically, Mr. Casey, Tronox's then-Chairman and CEO projected the company's expectation of reduced supply of TiO2 that would lead to increased pricing: "It is our view that an upward move in pigment selling prices will be predicated on a reduction of supply in the pigment market relative to demand and/or upward move in

feedstock selling prices and we expect to see both.” (PX9007 at 005 (Tronox Q1 2015 Earnings Call)). Shortly after the Q1 2015 earnings call, Tronox publicly announced its decision to reduce production at two of its TiO₂ pigment plants, Hamilton and Kwinana. (PX9006 at 003 (Tronox Q2 2015 Earnings Call) (“Production has been suspended at one of our six processing lines in Hamilton and one of our four processing lines at Kwinana, both of which are pigment plants. Together, these processing line curtailments represent approximately 15% of total pigment production.”)).

Response to Finding No. 471:

Complaint Counsel ignores context for the evidence it cites in its proposed finding. In 2015, the market was in a downturn, the circumstances of which Brennen Arndt described as “the worst market conditions” in his six years in the industry - both Tronox and Cristal were suffering financial losses at the time. (Arndt, Tr. 1401-02; Romano, Tr. 2252). In 2015, the industry was “three years into a down cycle,” and Tronox had “close to a billion dollar[s] of inventory.” (Romano, Tr. 2252; Turgeon, Tr. 2637). Further, [REDACTED] [REDACTED] [REDACTED] (Young, Tr. 690; Arndt, Tr. 1364; Stern, Tr., 3745-46; Stern, Tr. 3770-71; PX5004-036, Figure 13 (Hill Rebuttal Report)).

472. In Tronox’s Q3 2015 earnings call, after reducing production at two TiO₂ pigment plants, Mr. Casey described how Tronox was addressing the question “when the prices turn” by “managing our production,” and added an observation about Tronox’s TiO₂ competitors: “And then the question is, when will they turn? We’re addressing that by managing our production, so that inventories get reduced to normal or below normal levels. And when that happens, prices will rise. We -- from what we see with Chemours and Huntsman and presumably the others as well, they’re doing the same thing. We see them acting in the same way.” (PX9005 at 010 (Tronox Q3 2015 Earnings Call); *see also* PX9005 at 002 (Tronox Q3 2015 Earnings Call) (“Industry supply and demand will return to balance. The obvious question is, when? And I can’t tell you that because I can’t speak for the industry as a whole. However, I can tell you that we are reducing our inventory, freeing up working capital, generating cash, and accelerating the return to supply-demand balance. From their public announcements, we believe others at both the feedstock and the pigment levels are doing the same thing. So, we’re optimistic about the return to a more normal market conditions in TiO₂.”)).

Response to Finding No. 472:

Complaint Counsel ignores context for the evidence it cites in its proposed finding. In 2015, the market was in a downturn, the circumstances of which Brennen Arndt described as “the worst market conditions” in his six years in the industry - both Tronox and Cristal were suffering financial losses at the time. (Arndt, Tr. 1401-02; Romano, Tr. 2252). In 2015, the industry was “three years into a down cycle,” and Tronox had “close to a billion dollar[s] of inventory.” (Romano, Tr. 2252; Turgeon, Tr. 2637). Further, any reduced production during 2015 did not increase prices, instead; pricing continued to drop throughout 2015 and did not recover until 2016. (Young, Tr. 690; Arndt, Tr. 1364; Stern, Tr., 3745-46; Stern, Tr. 3770-71; PX5004-036, Figure 1 (Hill Rebuttal Report)).

473. In its Q1 2016 earnings call, Mr. Casey followed up by emphasizing Tronox would seek to manage production at its Hamilton plant in a disciplined manner: “We believe that a very disciplined approach to production, to managing supply relative to demand, is what has facilitated the recovery in our markets, and we intend to continue to be disciplined about that. So, we don’t intend to bring back the full production instantaneously simply because we see the very first signs of price recovery.” (PX9003 at 010 (Tronox Q1 2016 Earnings Call)).

Response to Finding No. 473:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX9033, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

474. Further, in its Q1 2016 earnings call, Tronox also discussed actions taken by other producers to reduce TiO₂ output: “I can tell you that I thought last year Huntsman, I believe Cristal, Chemours, and we all lowered our plant utilization rates, and we all talked about declining inventories which we had set as a goal. That is that we wanted to reduce inventories. Clearly, the way that one reduces inventories is one reduces production and continues to maintain sales, which is what we all tried to do.” (PX9003 at 008 (Q1 2016 Tronox Earnings Call)).

Response to Finding No. 474:

Complaint Counsel mischaracterizes the evidence it cites in its proposed fact, failing to include context about the TiO₂ market conditions at the time of this call; the conditions were particularly notable. Throughout 2015 and into early 2016, the market was in a downturn, the circumstances of which Brennen Arndt described as “the worst market conditions” in his six years in the industry; 2015 was marked by four straight quarters of reported losses for Tronox (Arndt, Tr. 1401-02). In 2015, the industry was “three years into a down cycle,” and Tronox had “close to a billion dollar[s] of inventory.” (Romano, Tr. 2252; Turgeon, Tr. 2637) Industry expert Ken Stern concluded that, if Tronox had not reduced production during this time period [the trough period of late 2015, early 2016], they would have continued building unsold inventory, tying up working capital, and stated that “it’s entirely likely they would have found themselves right back in Chapter 11.” (Stern, Tr. 3747).

475. Dr. Shehadeh was asked in several different instances at trial whether he had even considered public disclosures of Tronox, and he admitted that he had not. (Shehadeh, Tr. 3584-85 (“Q. You didn’t rely on PX 9001 for your opinions in this case, did you, Dr. Shehadeh? A. I did not.” (quoting Tronox’s Mr. Casey in PX9001 at 009 [“So the question for us is, do we confront China-produced supply in the market as a competitive alternative to our supply? And as I’ve said, we don’t.”])); see also Shehadeh, Tr. 3540-41 (did not consider PX9007, Q1 2015 Tronox Earnings Call); Shehadeh, Tr. 3541-42 (did not consider PX9003 (Q1 2016 Tronox Earnings Call); Shehadeh, Tr. 3543-44 (did not consider PX9005, Q3 2015 Tronox Earnings Call); Shehadeh, Tr. 3562-63 (did not consider PX9008, Q4 2014 Tronox Earnings Call)).

Response to Finding No. 475:

Complaint Counsel’s proposed fact is improper and subject to little weight because Complaint Counsel failed to “connect it to anything” in testimony and in its proposed fact. (Judge Chappell, Tr. 3619, 3624).

(2) TiO₂ producers gather competitive pricing information

476. Tronox and Cristal sales representatives obtain [REDACTED] (Romano, Tr. 2154-55; see CCF ¶¶ 477-88,

below). [REDACTED]
[REDACTED]
[REDACTED] (PX2368 at 001-05 (Cristal North America Weekly Report) (*in camera*);
Mouland, Tr. 1145-46; PX7001 (Romano, IHT at 155-56) (*in camera*)). [REDACTED]
[REDACTED]
(Mouland, Tr. 1155-56 (*in camera*)).

Response to Finding No. 476:

Complaint Counsel’s proposed facts are misleading. While customers may provide information to producers, Brian Christian of Kronos testified that [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Christian, Tr. 928-29).

477. This competitive intelligence is obtained from [REDACTED]
[REDACTED] (PX2068 at 001 (Weeks email to Snider and Gigou) (*in camera*); PX2069 at 003 (Cristal Price Decision Form) (*in camera*); PX1050 at 001 (Mouland email to Romano) (describing pricing [REDACTED]) (*in camera*); PX2070 at 001-03 (Parks email to Clover) (*in camera*)).

Response to Finding No. 477:

Complaint Counsel’s proposed facts are misleading. While customers may provide information to producers, Brian Christian of Kronos testified that [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Christian, Tr. 928-29).

478. In many instances, [REDACTED]
[REDACTED] (PX1048 at 001-02 (Duvekot email to Romano))
[REDACTED] (*in camera*); Duvekot, Tr. 1311-13 (*in camera*);

PX1089 (Doherty email to Mouland) [REDACTED] (in camera); PX1088 at 001 (Mouland email to Romano) (information provided by [REDACTED] in camera); PX1211 at 001 (Mouland email to Doherty and Wills) (discussing three customers where [REDACTED] in camera); PX1741 at 001 (Mouland email to Romano) (Tronox's Mr. Mouland seeking a price approval for a customer while citing [REDACTED] in camera); PX1157 at 001 (Mouland email to Duvekot) (describing specific prices offered to a customer [REDACTED] in camera); PX1735 at 002 (Tronox Americas Weekly Report) (describing that [REDACTED] in camera)).

Response to Finding No. 478:

Complaint Counsel's proposed facts are misleading. While customers may provide information to producers, Brian Christian, who testified on behalf of TiO2 producer Kronos, testified that [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] (Christian, Tr. 928-29). Mr.

Romano testified, [REDACTED]
[REDACTED]
[REDACTED] (Romano, Tr. 2154).

479. Tronox's [REDACTED] describes how its sales representatives [REDACTED] (PX1021 at 002 (Romano email to Turgeon) in camera); PX7046 (Romano, Dep. at 89-90, 102) in camera)).

Response to Finding No. 479:

Complaint Counsel's proposed finding is incomplete, and fails to include relevant testimony from Mr. Romano on that very point. Mr. Romano testified, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2154).

480. As Tronox's Mr. Romano acknowledged, Tronox does a [REDACTED] [REDACTED] (PX7001 (Romano, IHT at 171) (*in camera*); PX7046 (Romano, Dep at 89-90) (*in camera*)). [REDACTED]

[REDACTED] (PX7046 (Romano, Dep. at 85-86) (*in camera*)).

Response to Finding No. 480:

Complaint Counsel's proposed finding citing to PX7046 at 85-86 is misleading and mischaracterizes testimony offered by Mr. Romano in his deposition, which does not support the proposed fact: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX7046 (Romano, Dep. at 85)). [REDACTED]

[REDACTED]

[REDACTED] (PX7046 (Romano, Dep. at 86)).

481. As Tronox's Mr. Mouland, a vice president of sales, explained, [REDACTED]

[REDACTED] (PX7002 (Mouland, IHT at 13-14); PX7002 (Mouland, IHT at 84) (discussing [REDACTED]

[REDACTED]) (*in camera*); PX7022 (Mouland, Dep. at 58)

[REDACTED] (*in camera*)).

Response to Finding No. 481:

Complaint Counsel’s proposed facts are misleading. While customers may provide information to producers, Brian Christian , who testified on behalf of TiO2 producer Kronos, testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 928-29). Mr.

Romano testified, [REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2154).

482. In one email exchange, a Tronox sales manager [REDACTED] (PX1434 at 001-02 (Bondt email) (instructing a sales agent to { [REDACTED] and urging the salesperson to [REDACTED] (emphasis in original) (*in camera*)).

Response to Finding No. 482:

Complaint Counsel's proposed facts attempts to state the “understanding” behind a statement made in an email, citing to no supporting testimony or statement from the author suggesting as much [REDACTED]. This misconstrues the cited evidence. Further, Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1434, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

483. Cristal’s contemporaneous business documents likewise demonstrate [REDACTED] (PX2065 at 001 (Florville email to Parks) [REDACTED]

[REDACTED]
[REDACTED] (*in camera*); PX2068 at 001 (Weeks email to Snider and Gigou)
[REDACTED] (*in camera*).

Response to Finding No. 483:

Complaint Counsel’s proposed facts are misleading. While customers may provide some information to producers, Brian Christian, who testified on behalf of TiO2 producer Kronos, testified that [REDACTED]

[REDACTED]
[REDACTED]

[REDACTED] (Christian, Tr. 928-29).. John Romano similarly noted that Tronox [REDACTED]

[REDACTED] (Romano, Tr. 2154).

484. As Cristal’s Mr. Stoll confirmed during an investigational hearing, [REDACTED]
[REDACTED] (PX7006 (Stoll, IHT at 188) (*in camera*)).

Response to Finding No. 484:

Complaint Counsel’s selective quoting and bracketing of Mr. Stoll’s testimony is misleading. [REDACTED]

[REDACTED]
(PX7006-013(emphasis added)).

485. For example, [REDACTED]
[REDACTED] (PX7037 (Pickett, Dep. at 93) (*in camera*); PX7043 (Gigou, Dep. at 75-77) (*in camera*)).

Response to Finding No. 485:

Complaint Counsel's proposed facts are misleading. While customers may provide some information to producers, Brian Christian, who testified on behalf of TiO₂ producer Kronos, testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 928-29). John

Romano similarly noted that Tronox [REDACTED]

[REDACTED] (Romano, Tr. 2154).

486. Further, Cristal's [REDACTED] that the major TiO₂ firms are able to collect. (PX2316 at 002-03 [REDACTED] *(in camera)*). [REDACTED] (PX7010 (Snider, Dep. at 61-62, 66) *(in camera)*); PX7009 (Stoll, Dep. at 164) [REDACTED] *(in camera)*).

Response to Finding No. 486:

Complaint Counsel's proposed fact relies in part on an incomplete excerpt of a deposition transcript from an individual [REDACTED]. Thus, Complaint Counsel's proposed finding of fact was never subject to cross or redirect examination from a knowledgeable witness before the Court.

487. Cristal's [REDACTED] (PX7010 (Snider, Dep. at 33-34) *(in camera)*). Much of the market intelligence [REDACTED] (PX7009 (Stoll, Dep. at 165) *(in camera)*).

Response to Finding No. 487:

Complaint Counsel's proposed fact relies in part on an incomplete excerpt of a deposition transcript from an individual who did not testify at trial [REDACTED] [REDACTED]). Thus, Complaint Counsel's proposed finding of fact was never subject to cross or redirect examination from a knowledgeable witness before the Court.

488. [REDACTED] Dr. Hill found that [REDACTED] (Hill, Tr. 1833-35 (*in camera*); PX5000 at 098-99 (¶ 228 & Fig 35) (Hill Initial Report) (*in camera*)).

Response to Finding No. 488:

Complaint Counsel's proposed fact is based on expert opinion regarding company documents that were never the subject of live testimony by Cristal witnesses. [REDACTED]

[REDACTED]

[REDACTED] Thus, Complaint Counsel's proposed finding of fact was never subject to cross or redirect examination from a knowledgeable witness before the Court. espondents have no specific response.

489. Other TiO₂ producers also describe obtaining competitive information from customers. For example, Kronos obtains competitive intelligence from customers and the information is a data point that Kronos considers when making business decisions. (Christian, Tr. 756-57). Chemours [REDACTED] (PX7052 (O'Sullivan, Dep. at 31-32) (*in camera*)).

Response to Finding No. 489:

Complaint Counsel's proposed facts are misleading. While customers may provide information to producers, Brian Christian, of Kronos, testified that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 928-29). John Romano similarly noted that Tronox [REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2154).

490. Finally, [REDACTED]
[REDACTED]
[REDACTED] (See CCF ¶¶ 491-92, below).

Response to Finding No. 490:

Complaint Counsel’s proposed fact is not fact, but an inaccurate summary of the evidence. Respondents’ specific response can be found in response to ¶¶ 491-92, below.

491. In April 2016, Tronox’s Mr. Grobler summarized what he had learned following an April 2016 conference call with [REDACTED]
[REDACTED] (PX1178 at 002 (Grobler email to Romano) *in camera*); PX7001 (Romano, IHT at 198) *in camera*)).

Response to Finding No. 491:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1178, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

492. Again, in June and August 2016, Mr. Grobler reported to Mr. Romano summarizing what Tronox learned from June/August 2016 teleconferences with [REDACTED]
[REDACTED] (PX1187 at 002 (Grobler email to Romano) *in camera*); PX1306 at 002 (Gerhard email to Romano) *in camera*); PX1307 at 001 (Gerhard email to Romano) *in camera*)).

Response to Finding No. 492:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1187, PX1306, and PX1307 documents that were not presented at trial even though Mr. Romano testified before this Court. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

- (e) Products in the North American chloride TiO₂ market are relatively homogenous

493. Tronox documents and testimony describe [REDACTED] (PX1004 at 015 (Tronox presentation) [REDACTED]) (*in camera*); PX0016 at 026 (Tronox White Paper) (*in camera*); PX7014 (Quinn, Dep. at 38) (*in camera*); PX7041 (Veazey, IHT at 46) (*in camera*); PX7036 (Keegel, Dep. at 110) (*in camera*) [REDACTED]

Response to Finding No. 493:

Respondents have no specific response.

494. [REDACTED] (PX7052 (O'Sullivan, Dep. at 31-32) (*in camera*)).
Moreover, [REDACTED]
[REDACTED] (PX7052 (O'Sullivan, Dep. at 29) (*in camera*)).

Response to Finding No. 494:

Complaint Counsel's proposed finding is incomplete and disregards documents that Complaint Counsel has itself cited. In a May 2017 earnings call, Chemours' President E. Bryan Snell stated: "Although some would suggest that TiO₂ is pure commodity regardless of grade, we know that not all TiO₂ is fungible." (PX9025-003).

495. [REDACTED] (*see* CCF ¶¶ 748-54, below), [REDACTED] (PX8000 at 002 (¶ 8) (Malichky Decl.) (*in camera*); Young, Tr. 659-60 (*in camera*); PX8003 at 001-02 (¶ 5) (Young Decl.) (*in camera*); PX7030 (Arrowood, Dep. at 8-9)). Therefore, [REDACTED]

[REDACTED] (Romano, Tr. 2155-56
(*in camera*)).

Response to Finding No. 495:

Complaint Counsel’s proposed finding is misleading, vague, and inaccurate. In fact,
[REDACTED] (Young, Tr.
718; Stern, Tr. 3745; Stoll, Tr. 2108), and [REDACTED]
[REDACTED]
[REDACTED] (Stern, Tr. 3841; Mouland, Tr. 1209; Duvekot, Tr. 1343; Turgeon, Tr. 2676;
Christian, Tr. 947-52). Complaint Counsel’s proposed finding is not a fact, but an inaccurate
summary of the evidence. Respondents’ specific responses can be found in response to ¶¶ 748-
54, below.

496. As Akzo Nobel’s Mr. Post testified, [REDACTED]
[REDACTED] (PX7033 (Post, Dep.
at 79) (*in camera*)). Mr. Post also observed that the [REDACTED]
[REDACTED] (PX7033 (Post, Dep. at 97) (*in camera*)).

Response to Finding No. 496:

Complaint Counsel’s proposed finding is incomplete and the cited evidence does not
support the proposed finding. While the finding accurately quote’s Mr. Post’s testimony from
his deposition, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (PX7033 (Post, Dep. at 79)). Complaint Counsel’s finding removes Mr.
Post’s answer from the appropriate context, [REDACTED]
[REDACTED] (PX7033 (Post, Dep. at 79)).

497. After reviewing the quantitative and qualitative evidence, Dr. Hill concluded that [REDACTED] (PX5000 at 096 (¶ 220) (Hill Initial Report) (*in camera*); Hill, Tr. 1803).

Response to Finding No. 497:

Complaint Counsel’s proposed finding improperly relies on expert testimony to support a factual issue in dispute. (Judge Chappell, Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”). Complaint Counsel’s proposed finding references quantitative and qualitative data, but the proposed finding cites no such data.

- (f) The price elasticity of demand for chloride TiO₂ in North America is low

498. Price elasticity of demand is how responsive demand is to changes in price. Inelastic demand makes a market more susceptible to coordination because if prices of all firms were to rise, few sales would be lost, which makes the reward or coordinating greater. (Hill, Tr. 1803-04).

Response to Finding No. 498:

Complaint Counsel’s proposed finding improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Judge Chappell, Order on Post-Trial Briefs at 3).

499. After conducting quantitative analysis, Dr. Hill concluded that the price elasticity of demand for chloride TiO₂ in North America is low. (Hill, Tr. 1803). As detailed in Appendix C.2 of his initial expert report, Dr. Hill calculated that demand for chloride TiO₂ in North America is highly inelastic. (Hill, Tr. 1803-04; PX5000 at 051-052, 099 (¶¶ 113, 230) (Hill Initial Report) (*in camera*)).

Response to Finding No. 499:

Complaint Counsel’s proposed finding is unfounded, as Dr. Hill relies upon a flawed quantitative model. Dr. Hill “understate(s) the elasticity of demand” for product market definition, which leads him to “inappropriately define the market too narrowly.” (Shehadeh, Tr. 3301).

- ii. The Merger Would Likely Enhance That Vulnerability and Facilitate Future Coordination

500. Following the Horizontal Merger Guidelines analysis, Dr. Hill concluded that a merger of Tronox and Cristal would increase the likelihood of coordination in the North American market for chloride TiO₂. The merger will reduce the complexity of coordination, increase transparency between industry players and remove a firm in Cristal with a stated plan to compete more vigorously. (PX5000 at 101 (¶ 235) (Hill Initial Report) (*in camera*); Hill, Tr. 1758-59, 1809-10).

Response to Finding No. 500:

Complaint Counsel’s proposed fact is not fact, but improper legal argument. Dr. Hill himself admitted that he is “not predicting through [his] modeling a specific form of coordination that [he] believe[s] will take place” in the real world. (Hill, Tr. 1992). Dr. Hill further acknowledged that although his coordinated capacity closure model predicts an “incentive” to coordinate between Tronox and Chemours, this does not mean that’s what would actually “occur in the real world.” (Shehadeh, Tr. 3424-25, 3437). Dr. Hill’s coordinated capacity closure model “does not actually predict coordination of the type that Dr. Hill proposes.” (Shehadeh, Tr. 3412-13). This is because “Chemours in fact does not have the incentive in his model to coordinate.” (Shehadeh, Tr. 3412-13). “Rather, it has the incentive, according to his model, of . . . free riding and not participating in coordination.” (Shehadeh, Tr. 3413).

- (a) Eliminating a firm makes coordination easier for the remaining firms in a market

501. Dr. Hill, following the Horizontal Merger Guidelines analysis, concluded that the merger would simplify coordination by eliminating a current competitor while also creating a new firm of a similar size to Chemours, the current market leader. (PX5000 at 101 (¶ 236) (Hill Initial Report) (*in camera*); Hill, Tr. 1809-11) (“Q. And what is your basis for the determination that the merger will reduce the complexity of coordination? A. So I think there are two essential bases. The first is it will reduce the number of firms from five to four, which reduces the complexity of particularly tacit but also potentially explicit coordination.”).

Response to Finding No. 501:

Complaint Counsel’s proposed fact is not fact, but improper legal argument. Further, Complaint Counsel’s proposed finding is unfounded. Dr. Hill himself admitted that he is “not predicting through [his] modeling a specific form of coordination that [he] believe[s] will take place” in the real world. (Hill, Tr. 1992). Dr. Hill further acknowledged that although his coordinated capacity closure model predicts an “incentive” to coordinate between Tronox and Chemours, this does not mean that’s what would actually “occur in the real world.” (Shehadeh, Tr. 3424-25, 3437). Dr. Hill’s coordinated capacity closure model “does not actually predict coordination of the type that Dr. Hill proposes.” (Shehadeh, Tr. 3412-13). This is because “Chemours in fact does not have the incentive in his model to coordinate.” (Shehadeh, Tr. 3412-13). “Rather, it has the incentive, according to his model, of . . . free riding and not participating in coordination.” (Shehadeh, Tr. 3413).

(b) The merger would eliminate the impact of competition from Cristal

502. The merger will not merely remove a competitor, but, in Cristal, a competitor intent on trying to grow its share of the North American chloride TiO₂ market with lower prices in recent years. (See CCFF ¶¶ 503-05, below).

Response to Finding No. 502:

Complaint Counsel’s proposed summary is not a fact, but an inaccurate summary of the evidence. Respondents’ specific response can be found in response to ¶¶ 503-05, below.

503. In November 2014, when Tronox’s Mr. Casey was describing how Tronox was not interested in reducing price to gain share, Cristal was taking a different approach. As Cristal’s Mark Stoll described in an email to his colleague Richard Gillette, Cristal at that time was “lowering price to try to get market share and move more tonnes.” (PX2037 at 002 (Stoll email to Gillette)).

Response to Finding No. 503:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. [REDACTED])

[REDACTED]

[REDACTED]

504. Cristal has been particularly focused on growing share [REDACTED] [REDACTED] (PX2025 at 007 (Cristal presentation) *in camera*); PX7000 (Snider, IHT at 87-88) *in camera*); PX2041 at 010 (Cristal 2016 Marketing Strategy) (emphasis for North America is [REDACTED] *in camera*); PX2040 at 003 (Cristal Presentation) (“big challenge and top priority is to increase the N. America market share”); PX7037 (Pickett, Dep. at 67-68) [REDACTED] *in camera*). In a separate presentation in June 2015, Cristal announced [REDACTED] (PX2046 at 013 (Cristal Presentation) *in camera*); PX2289 at 052 (Cristal presentation) (describing goal to [REDACTED] *in camera*)).

Response to Finding No. 504:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In September 2016, Mr. Gigou,

Cristal's vice president of sales, told the company's sales managers: [REDACTED]
[REDACTED] (PX2027-001 (Gigou email)). Cristal's Brian Pickett responded that [REDACTED] [REDACTED] (PX2219-001 (Pickett email)).

505. In September 2016, Mr. Gigou, Cristal's vice president of sales, told the company's sales managers: [REDACTED] (PX2027 at 001 (Gigou email) (*in camera*)). Cristal's Brian Pickett responded that [REDACTED] (PX2219 at 001 (Pickett email) (*in camera*)).

Response to Finding No. 505:

Complaint Counsel's proposed finding relies on PX2027 and PX2219, documents that were not presented at trial and thus not subject to cross examination before the Court.

506. Following the adoption of that strategy, Cristal has on numerous occasions aggressively pursued business in North America. (*See* CCFF ¶¶ 507-25, below).

Response to Finding No. 506:

Complaint Counsel's proposed fact is not fact, but an incorrect summary of the evidence below. Repondents specifically reply to ¶¶ 507-25, below.

507. In late 2016, Cristal approached [REDACTED] [REDACTED] (PX4120 at 002 (PPG Presentation) (*in camera*); PX7025 (Malichky, Dep. at 306) (testifying that [REDACTED] [REDACTED] (*in camera*)). Ultimately, Cristal [REDACTED] (PX7037 (Pickett, Dep. at 71) (*in camera*)).

Response to Finding No. 507:

Complaint Counsel's proposed fact is misleading, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2046).

508. Also, Sherwin Williams [REDACTED]
[REDACTED] (Young, Tr. 690-91 (*in camera*)).

Response to Finding No. 508:

Respondents have no specific response.

509. In March 2015 when Cristal obtained its first order from Benjamin Moore, Cristal's Mr. Gigou reported that "we have finally managed to break through at Benjamin Moore, one of the largest and most respectful [sic] coatings account in North America." To this news, Jamal Nahas, Cristal's then-President, responded: "This is great & will increase our market share in America as planned." (PX2233 at 001-02 (Gigou email to Van Valkenburgh)).

Response to Finding No. 509:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX2233, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

510. [REDACTED]
[REDACTED] (PX2275 at 009, 019 (Jaquet email attaching Ashtabula update))
[REDACTED]) (*in camera*)).

Response to Finding No. 510:

Complaint Counsel's proposed finding relies on PX2275, a document that was not presented at trial and thus not subject to cross examination before the Court. Further, Complaint Counsel's interpretation of the document, unsupported by any testimony, is speculative, and

misleadingly suggests that two slides are intertwined, citing to no testimony or documents in support of this contention.

511. Cristal’s commercial team anticipated that Cristal’s effort to recover market share would impact pricing. In an email from John Hall to Mark Stoll and others he wrote: “At the next Steering Body Meeting on May 21st we will debate and agree on a specific action plan – we believe the current plan is to run the assets hard, recover some share, accept that price will go down.” (PX2241 at 001 (Hall email to Cristal senior executives)).

Response to Finding No. 511:

Respondents have no specific response.

512. In an email to Mr. Nahas, Cristal’s then-President, Mr. Stoll noted that “I want to assure you we have moved to an offensive position. This will put more downward pressure on pricing in some regions in the coming weeks, but we will re-gain our market share and cash flow.” (PX2232 at 003 (Stoll email to Nahas)).

Response to Finding No. 512:

[REDACTED]
[REDACTED] Complaint Counsel’s
proposed finding is misleading in light of [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] (Hill, Tr. 2046-47).

513. Finally, in an email to his colleagues, Cristal’s Mr. Gigou wrote, “[i]t is clearly understood that we’ll have to go for volume and that is what we have already initiated. As per our recent discussion, we can’t go for price and volume” (PX2265 at 001 (Gigou email to Snider and VanValkenburgh)).

Response to Finding No. 513:

Complaint Counsel’s proposed finding relies on PX2265, a document which was not presented at trial and thus not subject to cross examination before the Court. Further, Complaint Counsel’s proposed finding is misleading in light of [REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2046-47).

514. Tronox documents reflect the impact that Cristal's effort had on its own pricing decisions. In an Americas Weekly Report written by Mr. Mouland to Mr. Duvekot in April 2014, Mr. Mouland writes that [REDACTED] (PX1308 at 002 (Tronox Americas Weekly Report) (*in camera*)).

Response to Finding No. 514:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1308, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

515. In late 2015, Tronox sales representative Mr. Doherty reported to Mr. Mouland that [REDACTED] (PX1146 at 001 (Doherty email to Mouland) (*in camera*)).

Response to Finding No. 515:

Respondents have no specific response.

516. Again in late 2015, Tronox was forced to reduce its price to [REDACTED] (PX1363 at 001 (Mouland email forwarding report) (*in camera*)).

Response to Finding No. 516:

Respondents have no specific response.

517. In October 2012, Tronox's Mr. Duvekot approved [REDACTED] (PX1368 at 001-02 (Duvekot email to Mouland) (*in camera*)).

Response to Finding No. 517:

Respondents have no specific response.

518. In February 2016, Cristal offered [REDACTED] (PX1037 at 001 (Mouland email) (*in camera*); PX7002 (Mouland, IHT at 185-86) (*in camera*)).

Response to Finding No. 518:

Complaint Counsel relies on PX1037, which was not presented at trial and thus not subject to cross examination before the Court. Further, Mr. Mouland explained in his IH testimony that [REDACTED]

[REDACTED] (Mouland, IHT at 184-85) (*in camera*). Mr. Mouland's email itself [REDACTED] (PX1037 at 001).{ [REDACTED] [REDACTED] (PX1037 at 001).

519. In December 2016, it was reported to Tronox that [REDACTED] (PX1300 at 001 (Mouland email to Newman) (*in camera*); see also Mouland, Tr. 1199 [REDACTED] (*in camera*)).

Response to Finding No. 519:

Complaint Counsel's proposed finding is misleading and incomplete. It is incomplete because [REDACTED]

[REDACTED]

Kronos testified that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Christian, Tr. 928-29). John Romano similarly noted that Tronox [REDACTED]
[REDACTED] (Romano, Tr. 2154).

522. In January 2015, Tronox’s Mr. Mouland wrote to others at Tronox that [REDACTED] (PX1310 at 001 (Mouland email) (*in camera*)).

Response to Finding No. 522:

Complaint Counsel’s proposed fact is misleading and incomplete. In the same email Complaint Counsel cites, Mr. Mouland wrote [REDACTED]
[REDACTED]
[REDACTED] (PX1310-001). [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (PX1310-001).

523. In a Tronox call report describing conversations and meetings with [REDACTED] in 2014, Terry Doherty wrote that [REDACTED]
[REDACTED] (PX1302 at 001 (Tronox call report) (*in camera*); Mouland, Tr. 1195-98 (*in camera*)).

Response to Finding No. 523:

Respondents have no specific response.

524. [REDACTED] For example, a Huntsman document from 2016, [REDACTED]
[REDACTED]

[REDACTED] (PX3028 at 008 (Huntsman Presentation) (*in camera*)).

Response to Finding No. 524:

Complaint Counsel’s proposed finding relies on PX3028, a document that was not presented at trial and thus not subject to cross examination before the Court.

525. [REDACTED] (PX8003 at 007 (¶ 34 (Young Decl.) (*in camera*); Young, Tr. 690-91 (*in camera*)).

Response to Finding No. 525:

Respondents have no specific response.

526. Dr. Hill concluded that [REDACTED] (PX5000 at 103-04 (¶ 242) (Hill Initial Report) (*in camera*)).

Response to Finding No. 526:

Complaint Counsel’s proposed finding improperly relies on expert testimony to support a factual issue in dispute (Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute.”)) Further, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2046).

527. Further, [REDACTED] including the documents and statements around its decision [REDACTED] (*in camera*); see more generally Tronox’s

continuing emphasis on [REDACTED]
[REDACTED] CCF 528-35, below).

Response to Finding No. 527:

Complaint Counsel's proposed finding is not a fact but is an incorrect summary of evidence. Respondents' provide specific responses to ¶¶ 528-35, below. In addition, Complaint Counsel's proposed finding is misleading because it [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2046).

528. An array of documents reflect that Tronox approach. In a 2013 email, Mr. Duvekot wrote: [REDACTED]
[REDACTED] (PX1430 at 001 (Duvekot email) *in camera*); Duvekot, Tr. 1326-27 *in camera*; PX7026 (Duvekot, Dep. at 109) *in camera*). In a 2015 email, Mr. Duvekot wrote to Mr. Mouland that [REDACTED]
[REDACTED] (PX1448 at 001 (Duvekot email to Mouland) *in camera*)).

Response to Finding No. 528:

Complaint Counsel's proposed finding is not supported by the cited evidence.

529. When prospective customers have asked [REDACTED]
[REDACTED] In an email discussing [REDACTED]
[REDACTED] Mr. Romano noted that [REDACTED]
[REDACTED] PX1158 at 001 (Mouland email) *in camera*; PX7002 (Mouland, IHT at 189-92) *in camera*). When [REDACTED]
[REDACTED] (RX0445 at 0001 (Mouland email) *in camera*)).

Response to Finding No. 529:

Complaint Counsel's proposed finding is incomplete and misleading. Mr. Mouland explained in his IH testimony that [REDACTED]

[REDACTED]

[REDACTED] (PX7002 (Mouland, IHT at 184-85)). Mr. Mouland’s email itself

[REDACTED]

[REDACTED] (PX1037-001 [REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

530. In a July 2015 email exchange, Mr. Duvekot reminded Mr. Mouland that Tronox was continuing to [REDACTED]

[REDACTED]

(RX0271 at 0001-02 (Mouland/Duvekot email chain) *in camera*)).

Response to Finding No. 530:

Complaint Counsel’s proposed finding is misleading and incomplete, and takes the cited document out of its proper context. In that same email, both Mr. Mouland and Mr. Duvekot acknowledge that [REDACTED] (RX0271.0 002 [REDACTED])

[REDACTED]

[REDACTED]; (RX0271.0001 (Mouland email) [REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Further, Complaint Counsel’s proposed finding relies on RX0271, a document that was not raised at trial and thus not subject to cross examination before the Court.

531. The July 2015 email was similar to an email that Mr. Duvekot had sent the Tronox's regional sales managers in June 2015. (RX0434 at 0001-02 (Duvekot email) [REDACTED])

[REDACTED] (*in camera*)).

Response to Finding No. 531:

Complaint Counsel never presented RX0434 at trial when it had the opportunity to do so, which also deprived Respondents the opportunity to pursue questioning about the documents on cross examination or redirect.

532. In a 2014 email relating to [REDACTED] (PX1098 at 001 (Mouland email to Romano) (*in camera*)). Mr. Mouland made a similar observation on pricing activity during 2015: [REDACTED]

[REDACTED] (PX1018 at 004 (Mouland performance review) (*in camera*)); PX7002 (Mouland, IHT at 111-13) (*in camera*)). In a February 2017 email, Mr. Mouland wrote [REDACTED]

[REDACTED] (PX1215 at 008 (Mouland email to Romano) (*in camera*); PX7002 (Mouland, IHT at 118-19) (*in camera*)).

Response to Finding No. 532:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX1018, and PX1215 documents that were not presented at trial even though Mr. Mouland testified before the Court. The documents were thus never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

533. In February 2017, [REDACTED]

[REDACTED] In a follow up email about [REDACTED]
[REDACTED] (PX1099 at 001 (Email exchange between Mouland and Romano) (*in camera*)).

Response to Finding No. 533:

Complaint Counsel’s proposed finding is misleading because it is incomplete. Mr. Mouland testified about that same document that [REDACTED]

[REDACTED]
[REDACTED] (Mouland, Tr. 1170-71 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

534. Finally, in March 2017, Mr. Mouland wrote to a Tronox sales manager, Adrian Santos, responding to a call report Mr. Santos had written about a meeting with a potential customer, [REDACTED] which included not only [REDACTED] Mr. [REDACTED] Mouland responded that: [REDACTED] (PX1038 at 001-02 (Mouland email to Santos) (*in camera*); Mouland, Tr. 1200-02 (*in camera*)).

Response to Finding No. 534:

Complaint Counsel’s proposed finding is misleading and at odds with the evidence. [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2046-47). [REDACTED]

[REDACTED] (Hill, Tr. 2046-47).

535. Tronox’s relative pricing is not lost on customers. For example, [REDACTED] wrote to Terry Doherty of Tronox: [REDACTED] (PX1332 at 001 (Doherty email to Mouland) (*in camera*)).

Response to Finding No. 535:

Complaint Counsel’s proposed finding is misleading, and fails to acknowledge the realities of customer negotiations. Brian Christian , who testified on behalf of TiO2 producer Kronos, stated that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 928-29). Mr.

Romano testified, [REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2154).

536. Dr. Hill described the concern associated with the combination of [REDACTED] (PX5000 at 106 (¶ 247) (Hill Initial Report) [REDACTED] (*in camera*)).

Response to Finding No. 536:

Complaint Counsel’s proposed finding is not a fact, but rather unfounded opinion. The opinion expressed in the proposed finding is undermined by data presented at trial which suggests [REDACTED] For

example, [REDACTED]

[REDACTED] (PX 5004-036, Fig. 13). Dr. Hill admitted that [REDACTED]

[REDACTED] (Hill, Tr. 2046 (*in camera*)). Complaint Counsel’s proposed finding is also misleading because it overlooks the entire rationale behind the transaction. The transaction is output enhancing, and seeks to reduce Tronox’s costs while increasing output to enable Tronos to keep pace with its large, and growing, global customers. (Quinn, Tr. 2363-64) (testifying that the goal of vertical integration and the transaction is to “reduce [Tronox’s] cost to the lowest possible level,” which will enable Tronox to “increase output . . . because of the additional pigment plants.”). Complaint Counsel’s proposed finding improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

(c) The merger would increase transparency among North American chloride TiO₂ producers

537. The major TiO₂ producers such as Tronox, Chemours, Kronos, and Venator are publically traded companies. All are essentially “pure play” TiO₂ producers, which serves to make investor calls and presentations particularly productive sources of information. (Hill, Tr. 1810-11; *see* CCFE ¶¶ 462-74, above).

Response to Finding No. 537:

Complaint Counsel’s proposed finding improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Judge Chappell, Order on Post-Trial Briefs at 3).

538. In 2015, Chemours was spun off from DuPont and became its own publically traded company. (PX7052 (O’Sullivan, Dep. at 13) (*in camera*)). In 2017, Venator was spun off from Huntsman and became its own publicly traded company. (PX8005 at 001 (¶ 1) (Maiter Decl.)).

Response to Finding No. 538:

Complaint Counsel’s proposed finding relies on testimony from witnesses who did not testify at trial and thus were not subject to cross examination before this Court.

539. The recent spinoffs of Chemours from DuPont and Venator from Huntsman have increased the ability to monitor and communicate with rivals using public statements and earnings calls because prior to the spinoffs, disaggregated information on TiO2 was typically not available in the financial reports of DuPont and Huntsman. Cristal’s Mark Stoll testified to this fact in his Investigational Hearing:

[REDACTED]
[REDACTED]
[REDACTED] (PX7006 (Stoll, IHT at 119-21) (*in camera*); PX3000 at 003 (Venator Presentation) (*in camera*)).

Response to Finding No. 539:

Complaint Counsel’s proposed finding uses selective quoting and ellipses, which lead to cites that are ultimately incomplete and misleading testimony. Mr. Stoll testified, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] (PX7006 (Stoll, IHT at 120-21)).

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] Complaint Counsel’s proposed finding relies on testimony and a portion of a document that were not presented at trial and thus were not subject to cross examination before this Court.

540. In 2015, Huntsman told investors during an investor conference, that having more publically traded TiO2 companies will “[a]bsolutely” change the dynamics of the market. (PX9041 at 004 (Basic Materials Conference Transcript)).

Response to Finding No. 540:

541. Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX9041, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. In a June 2017 investor presentation, Venator explained that [REDACTED] PX3000 at 004 (Venator presentation) (*in camera*). This statement suggests that [REDACTED] (PX3000 at 004 (Venator presentation) (*in camera*); PX5000 at 95 (¶ 218) (Hill Initial Report) (*in camera*)).

Response to Finding No. 541:

Complaint Counsel's proposed finding is not a fact but an incorrect reinterpretation of the cited document. Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX3000, which was not presented to any fact witnesses at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. Complaint Counsel's proposed finding also improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

542. A week later at its Analyst Day presentation Venator again [REDACTED] (PX3054 at 094 (Venator presentation) (*in camera*)).

Response to Finding No. 542:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX9041, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

543. In a September 2017 presentation to investors, Kronos highlighted “Industry Consolidation and Recent Independence of Leading [chloride TiO₂] Players.” Kronos went further noting “Improving TiO₂ focus across [the] industry” meaning a greater percentage of each firm’s business was tied to TiO₂ than it had been in the past, before the spinoffs of Venator and Chemours and the proposed merger of Tronox and Cristal. (PX3011 at 020 (Kronos investor presentation)).

Response to Finding No. 543:

The cited evidence is misleading, out of context, and does not support the proposed finding. Complaint Counsel discussed this document with Kronos’ Brian Christian, but the proposed finding relies entirely on the document for the proposed finding, rather than the trial transcript.

544. As more TiO₂ suppliers have become pure play TiO₂ companies, their earnings calls will focus more on TiO₂ than they have in the past, when the companies had other unrelated businesses. Also, the more pure play TiO₂ suppliers need to carefully run their businesses because they are not diversified or assisted with cash from other businesses and the benefits of a larger organization with possibly better technical services. (Christian, Tr. 769-71).

Response to Finding No. 544:

Respondents have no specific response.

- (d) The merger would result in greater symmetry between the merged firm and Chemours, making it easier to coordinate

545. As discussed in CCFF ¶ 391, above, the merger will result in a new firm similar in size to Chemours. Dr. Hill concluded that in the current market structure, Chemours is in a fundamentally different position than Tronox, Cristal, Kronos and Venator because it is more sensitive to changes in the market price than its smaller rivals are because it is a lot bigger than they are. The merger will change that as the merged Tronox and Cristal will be similar in size to Chemours. (PX5000 at 101 (¶ 236) (Hill Initial Report) (*in camera*); Hill, Tr. 1810).

Response to Finding No. 545:

Complaint Counsel’s proposed finding is not fact, but improper legal argument.

Complaint Counsel’s proposed finding also improperly cites to expert testimony to support

factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

546. In 2017, Chemours has shared publically its plans to implement a TiO₂ strategy to capture more value for TiO₂ across a range of applications. At an industry conference Chemours stated: “Now, reflecting on the dynamics of the past, we at Chemours conclude that our own response to market dynamics was a contributor to the volatility that we experienced in our business performance. And we’ve decided to take a more meaningful approach to the TiO₂ market.” (PX9025 at 003-04 (Goldman Sachs Basic Materials Conference transcript)).

Response to Finding No. 546:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX9025, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

547. According to Tronox’s Mr. Arndt, “analysts now view [Tronox] as a price leader along with DuPont [Chemours], based on [their] respective low cost positions, something [Tronox] [have] been stressing with the investment community.” (PX1143 at 001 (Arndt email); PX7007 (Van Niekerk, IHT at 199-200) [REDACTED] [REDACTED]) (*in camera*)).

Response to Finding No. 547:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1143, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. The proposed finding also cites to hearing testimony from Dr. Van Niekerk where he qualitatively describes data. Complaint Counsel does not cite to the underlying data in support of the finding, but instead cites to testimony was not elicited at trial and thus not subject to cross examination.

548. Dr. Hill also concluded that pre-merger, tacit coordination among Chemours, Tronox and Cristal would be more challenging because Cristal and Tronox are significantly smaller than Chemours, which means that the two smaller firms would have different incentives

than the much larger Chemours. Post-transaction those incentives would be aligned. (PX5000 at 101 (¶ 238) (Hill Initial Report) (*in camera*); Hill, Tr. 1816-18).

Response to Finding No. 548:

Complaint Counsel's proposed finding is not a fact, but rather unfounded opinion. Dr. Hill's own modeling in his coordinated capacity closure model shows that Chemours and the combined entity *do not* have the incentive to coordinate. The model shows that "Chemours in fact does not have the incentive in his model to coordinate" but rather the model predicts that Chemours' incentives promote "free riding and not participating in coordination." (Shehadeh, Tr. 3412-13). Complaint Counsel's proposed finding also improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

549. Dr. Hill concluded that in the long run, Chemours and post-merger Tronox would have increased incentive to pursue higher profits by coordinating and lowering their production volumes. (Hill, Tr. 1996-97). Dr. Hill used his model, which represents one possible way tacit coordination could occur, and analyzed whether the firms might have increased incentive to engage in coordination. (Hill, Tr. 1998-99; PX5000 at 101 (¶ 237) (Hill Initial Report) (*in camera*)).

Response to Finding No. 549:

Complaint Counsel's proposed finding is not a fact, but rather unfounded opinion. Dr. Hill's own modeling in his coordinated capacity closure model shows that Chemours and the combined entity *do not* have the incentive to coordinate. The model shows that "Chemours in fact does not have the incentive in his model to coordinate" but rather the model predicts that Chemour's incentives promote "free riding and not participating in coordination." (Shehadeh, Tr. 3412-13). Complaint Counsel's proposed finding also improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

550. Dr. Hill also concluded that the combined firm would have less of an incentive to pursue a North American expansion plan than Cristal alone because the combined firm will be more than twice Cristal's size and therefore more sensitive to changes in the market price. In other words, it will value more highly maintaining or raising the market price than increasing its share. (PX5000 at 104 (¶ 245) (Hill Initial Report) (*in camera*)).

Response to Finding No. 550:

Complaint Counsel's proposed finding is not a fact, but rather unfounded opinion.

Complaint Counsel's proposed finding relies on a paragraph from an expert report and not trial testimony that was subject to cross examination. Paragraph 245 from PX5000 is unsupported speculation because it does not cite to any documents or testimony in support. Complaint Counsel's proposed finding also improperly cites to an expert report to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

B. The Merger Would Increase Tronox's Incentive to Unilaterally Reduce Output

551. The merger will likely result in unilateral anticompetitive effects. Basic economic principles and the evidence in the record—ordinary course documents, testimony, and econometric work—uniformly show that industry participants, including the Respondents, already recognize that withholding chloride TiO₂ output from the North American market results in higher prices. This evidence also shows that the merged firm, with its “larger base of sales on which to benefit from the resulting price rise” would have a greater incentive to withhold output from the market than the stand-alone firms do today. (PX9085 at 026 (Horizontal Merger Guidelines, § 6.3); *see* CCF ¶¶ 552-694, below).

Response to Finding No. 551:

Complaint Counsels proposed finding is not fact, but rather improper legal argument.

Further, it relies on unfounded evidence, including Dr. Hill's flawed economic model.

Respondents' specific response to these proposed findings can be found at ¶¶ 552-694, below.

i. The Merger Guidelines Recognize that Mergers Like This One May Lead to Output Suppression

552. The Merger Guidelines recognize that “[i]n markets involving relatively undifferentiated products” a merged firm may “find it profitable unilaterally to suppress output and elevate the market price. A firm may leave capacity idle, refrain from building or

obtaining capacity that would have been obtained absent the merger, or eliminate pre-existing production capabilities.” (PX9085 at 025-26 (Horizontal Merger Guidelines, § 6.3)).

Response to Finding No. 552:

Complaint Counsel’s proposed finding is not fact, but rather improper legal argument.

553. Industry participants consistently recognize that [REDACTED] (PX0016 at 26 (Oct. 2017 Tronox White Paper) (*in camera*)) [REDACTED] PX7014 (Quinn, Dep. at 38) (*in camera*)) [REDACTED]; PX7036 (Keegel, Dep. at 110) (*in camera*)) [REDACTED] PX2250 at 028 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Bart de Jong) (*in camera*); see also CCFF ¶¶ 493-97).

Response to Finding No. 553:

Respondents have no specific response.

554. [REDACTED] (Young, Tr. 688 (*in camera*)); Pschaidt, Tr. 974-75; Hill, Tr. 1840 (*in camera*)); PX2250 at 028 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Bart de Jong) (*in camera*)). If a firm reduces its output, all else being equal, the market price will increase. (PX5000 at 010 (¶ 16) (Hill Initial Report) (*in camera*)). [REDACTED] PX2247 (Stoll, Dep. at 043) (*in camera*)).

Response to Finding No. 554:

Complaint Counsel’s proposed finding relies in part on PX2250, a deposition transcript from an entirely separate litigation that occurred over six years ago and was not presented live at trial. Further, the cited evidence is entirely consistent with the TiO₂ market’s notorious cyclicity, which is driven by the balance of supply and demand. (Stern, Tr. 3736-37).

555. As explained by a past CEO of Millennium, Cristal’s predecessor, [REDACTED] (PX2250 at 028-29, 050 (*In Re: Titanium Dioxide Antitrust Litigation*, Deposition Transcript of Bart de Jong) (*in camera*)); Young, Tr. at 688 (*in camera*)) [REDACTED] RX0069 at 043 [REDACTED]

[REDACTED] (*in camera*); PX7033 (Post, Dep. at 121-22) (*in camera*) [REDACTED]
 [REDACTED]; PX7046
 (Romano, Dep. at 181-182) (*in camera*)
 [REDACTED]

Response to Finding No. 555:

Respondents rely in part on PX2250, a deposition transcript from an entirely separate litigation that occurred over six years ago and was not presented at trial. Further, the cited evidence is entirely consistent with the TiO₂ market's notorious cyclical nature, which is driven by the balance of supply and demand. (Stern, Tr. 3736-37).

556. [REDACTED] (Arrowood, Tr. 1085-86 ("The other suppliers, Kronos, Huntsman/Venator and DuPont/Chemours, they won't send quotes. They don't reach out to me or Deceuninck . . .")); PX8001 at 002 (Zamac Decl.) (¶6) (*in camera*); PX7025 (Malichky, Dep. at 170-72) (*in camera*); PX7030 (Arrowood, Dep. at 13) (*in camera*)). [REDACTED]
 [REDACTED] (Young, Tr. 687-88 (*in camera*)).

Response to Finding No. 556:

Complaint Counsel's proposed finding is vague, speculative, and relies entirely on customer testimony to state facts about the actions of producers. As such, the proposed finding is entirely speculative as to the underlying reasons behind any producer actions.

557. As customers like PPG described at trial, [REDACTED]
 [REDACTED]
 (Malichky, Tr. 330-31 (*in camera*); *see also* Pschaidt, Tr. 974 ("In my experience, what happens when the -- the market gets -- when we call it too long or there's too much TiO₂ in the marketplace, that then suppliers usually would reduce their production capacity to rein in and tighten the market up again.")).

Response to Finding No. 557:

Complaint Counsel's proposed finding is vague, overbroad, and relies entirely on customer testimony to put forth facts about the actions of producers. As such, the proposed finding is entirely speculative as to the underlying reasons behind any producer actions.

558. Based on the fundamental economics of supply and demand, Dr. Hill shows that the benefit to a supplier of withholding output in a commodity market where supply largely determines price is that, due to the higher market price resulting from the reduced supply, the firm earns more profit per unit on the output that it continues to produce. (PX5000 at 073 (¶ 168) (Hill Initial Report) (*in camera*)).

Response to Finding No. 558:

Complaint Counsel's proposed finding is not fact, but improper legal argument.

559. Dr. Hill's economic analysis also shows that in an unconcentrated market with many firms, where each has a small market share, there is typically little incentive to withhold output because most of the benefit of that withholding would be captured by other firms. (PX5000 at 075 (¶ 176) (Hill Initial Report) (*in camera*)). As a firm's market share rises, however, the benefit it obtains from withholding its output increases. (PX5000 at 075 (¶ 176) (Hill Initial Report) (*in camera*)). As a result, a larger firm has a greater incentive to withhold output than a smaller one. (Hill, Tr. 1764-65, 1768-69).

Response to Finding No. 559:

Complaint Counsel's proposed finding is not fact, but rather improper legal argument.

Complaint Counsel's proposed finding is also vague and overly broad. The evidence at trial showed that in this industry, firms the size of Chemours or the merged firm *do not* have an incentive to withhold output because any potential benefit to the merged firm would be wiped out with a competitive response of only 25 ktpa. (Hill, Tr. 1985-86). Complaint Counsel's proposed finding also improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

560. As the Merger Guidelines recognize, a merger increases the incentives of a firm to unilaterally reduce output because the larger a firm's market share, the more it captures the benefits resulting from the withheld output. (PX9085 at 026 (Horizontal Merger Guidelines, § 6.3) ("a merger may provide the merged firm a larger base of sales on which to benefit from the resulting price."); PX5000 at 072-75 (§ 5.A.1) (Hill Initial Report) (*in camera*)).

Response to Finding No. 560:

Complaint Counsel's proposed finding is not fact, but rather a cite to the Horizontal Merger Guidelines that something "may" occur. That citation is not applicable to this case

where evidence at trial showed that in this industry, firms the size of Chemours or the merged firm *do not* have an incentive to withhold output because any potential benefit to the merged firm would be wiped out with a competitive response of only 25 ktpa. (Hill, Tr. 1985-86). Complaint Counsel's proposed finding also improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs)..

561. Dr. Hill's analysis of the chloride TiO₂ producers' invoice data shows that pre-merger, Cristal and Tronox account for [REDACTED] and [REDACTED] of chloride TiO₂ sales in North America, respectively. (PX5000 at 068 (¶ 152, Figure 25) (Hill Initial Report) (*in camera*)). The proposed merger would create a firm with a [REDACTED] market share, [REDACTED] in the benefit, and therefore, the incentives, of the merged firm to withhold output. (Hill, Tr. 1768-69 ("So roughly either of the stand-alone firms is being doubled in size, and that gives it greater incentive to withhold output than the stand-alone firms have."); PX5000 at 075 (¶ 177) (Hill Initial Report) (*in camera*)).

Response to Finding No. 561:

Complaint Counsel's proposed finding is predicated on an incorrect and unsupported assumption that there is a discrete "North American" market. The "economic evidence" confirms "that the market is broader than North America." (Shehadeh, Tr. 3204-05). To the extent the proposed finding suggests that the merged firm has an increased incentive to reduce output, that proposed finding is undermined by the facts elicited at trial. In this industry, firms the size of Chemours or the merged firm *do not* have an incentive to withhold output because any potential benefit to the merged firm would be wiped out with a competitive response of only 25 ktpa. (Hill, Tr. 1985-86). Complaint Counsel's proposed finding improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

562. The Merger Guidelines recognize that a merged firm is especially likely to adopt an output withholding strategy "when (1) the merged firm's market share is relatively high; (2) the share of the merged firm's output already committed for sale at prices unaffected by the output suppression is relatively low; (3) the margin on the suppressed output is

relatively low; (4) the supply responses of rivals are relatively small; and (5) the market elasticity of demand is relatively low.” (PX9085 at 026 (Horizontal Merger Guidelines, § 6.3)). All of these conditions are met here. (See CCFE ¶¶ 563-67, below).

Response to Finding No. 562:

Complaint Counsel’s proposed finding that “all of these conditions are met here” is not a fact, but improper legal argument is not fact, but instead improper legal argument. Respondents respond to paragraphs 563-67 below.

563. First, the merged firm will have a “relatively high” market share in a market for the sale of chloride titanium dioxide to North American customers. Post-merger, Tronox will be [REDACTED] of chloride TiO₂ in North America with a market share exceeding [REDACTED]. This combined market share is [REDACTED] than stand-alone Tronox and Cristal’s [REDACTED] and [REDACTED] market shares premerger, respectively. (PX5000 at 068 (¶152) (Hill Initial Report) (*in camera*); see CCFE ¶ 391, above).

Response to Finding No. 563:

Complaint Counsel’s proposed finding is wrong. First, the proposed finding is predicated on an incorrect and unsupported assumption that there is a discrete “North American” market. The “economic evidence” confirms “that the market is broader than North America.” (Shehadeh, Tr. 3204-05). Second, there is no evidence cited and there was no evidence presented at trial that [REDACTED] of a market is “relatively high” as that term is used in the Guidelines. Third, Chemours already has a similar market share and there is no evidence that Chemours has engaged in a strategy of withholding output to impact price. Complaint Counsel’s proposed finding improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs).

564. Second, in the market for the sale of chloride TiO₂ to North American customers, “[t]he share of the merged firm’s output already committed for sale at prices unaffected by the output suppression is relatively low.” (PX9085 at 026 (Horizontal Merger Guidelines, § 6.3)). [REDACTED] (Romano, Tr. 2156-57 (*in camera*); Young, Tr. 687 (*in camera*); Pschaidt, Tr. 975; Stoll, Tr. 2095; PX7025 (Malichky, Dep. at 160) (*in camera*)). [REDACTED]

(PX7002 (Mouland, IHT at 66-67) (*in camera*); PX7025 (Malichky, Dep. at 161) (*in camera*)). Because prices are short term, TiO₂ sellers could quickly reap the benefits of a price increase resulting from reduced supply.

Response to Finding No. 564:

Complaint Counsel's proposed finding is not fact, but improper legal argument. The evidence cited by Complaint Counsel undermines the proposed finding. [REDACTED]

[REDACTED] (PX7002 (Mouland, IHT at 66-67) (*in camera*)). Even when TiO₂ sellers announce an increase, individual negotiations with customers determine the actual amount of the increase or whether any increase will occur at all. (PX7002 (Mouland, IHT at 76-77) (*in camera*)).

565. Third, an output withholding strategy would be profitable for the merged entity because the overall profit on the large amount of retained sales at the higher price resulting from the reduction in output would exceed the profits that would have been earned on the foregone sales. (PX5000 at 072-73, 87-88 (¶¶167-68, 199) (Hill Initial Report) (*in camera*)). Respondents' view of the North American chloride TiO₂ market and the effect output reduction has on prices, along with the fact that Respondents have reduced output several times over the past decade, shows that they believe it would be profitable. (*See* CCF ¶¶ 568-82, 586-630, below).

Response to Finding No. 565:

Complaint Counsel's proposed finding is false. Complaint Counsel's proposed finding relies on the flawed Capacity Closure Model which was shown to be unreliable at trial for a number of reasons. First, the Capacity Closure Model relies on the unfounded assumption that competitors would have essentially no competitive response to a major increase in the relative price of TiO₂. Dr. Hill's "capacity closure model does not allow for expansion of capacity" by any competitor "above and beyond the growth of demand." (Hill, Tr. 1983). Dr. Hill's "capacity closure model assumes that no competitor will take TiO₂ that it currently exports out of North America and instead sell it in North America if there's a reduction of output." (Hill, Tr.

1983-84). Even “under the scenario where price in North America increased 79 percent, [Dr. Hill’s] model still assumes that no firm would repatriate any exports.” (Hill, Tr. 1992). These assumptions were undermined by evidence presented at trial. Cristal’s ordinary course

documents show that [REDACTED]

[REDACTED] (PX2356 at 011 (Gunther email to Gigou with attachment) (in camera). Tronox ordinary course documents show Tronox doing the same. (RX0250 (in camera) [REDACTED]

[REDACTED] Second, the Capacity Closure Model fails its own validity check. The Capacity Closure Model “predicted that Chemours should supply less to North America” than Chemours is actually supplying according to Dr. Hill’s model and data. (Hill, Tr. 2010). Third, even if the Capacity Closure Model was a reliable tool (and it is not), it shows that even a small competitive response of 25 ktpa would wipe out any potential benefit of unilaterally withholding output. (Hill, Tr. 1985-86). Complaint Counsel’s proposed finding improperly cites to expert testimony to support factual propositions that should be established by fact witnesses or documents (Chappell, J., Order on Post-Trial Briefs). Respondents’ specific responses can be found in response to ¶¶167-68, 199, 568-82, 586-630.

566. Fourth, the remaining North American chloride TiO₂ suppliers are unlikely to increase their own output in North America to undercut the merged firm’s efforts to raise prices through output reduction. If other North American chloride TiO₂ suppliers would react by significantly increasing their supply in North America, that could render the merged firm’s effort to raise prices unprofitable, but there is no evidence they would do so, rather the evidence is to the contrary. (*See, e.g.*, Hill, Tr. 1772-73; CCF ¶¶ 583-85, 636-57, below).

Response to Finding No. 566:

Complaint Counsel’s proposed finding is not fact, but unfounded opinion. Evidence at trial shows that this proposed finding is false. Even if the Capacity Closure Model was a reliable

tool (and it is not), it shows that even a small competitive response of 25 ktpa would wipe out any potential benefit of unilaterally withholding output. (Hill, Tr. 1985-86). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2038-39 (emphasis added); PX7052 (O’Sullivan Dep, at 80-81)). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Shehadeh,

Tr. 3478-79). Respondents respond to proposed findings 583-85 and 636-57, below.

567. Finally, consistent with the Merger Guidelines’ factors, North American customer demand for chloride TiO₂ is highly inelastic. (PX5000 at 051-52 (¶113) (Hill Initial Report) (*in camera*)). After conducting quantitative analysis, Dr. Hill found that North American customers are unlikely to substitute sulfate TiO₂ or stop using TiO₂ altogether even if prices for chloride TiO₂ were to rise significantly. (Hill, Tr. 1692; PX5000 at 051 (¶ 113) (Hill Initial Report) (*in camera*)). Those results are consistent with the comments and behavior of chloride TiO₂ producers and customers. (See CCF ¶¶ 111-33, above).

Response to Finding No. 567:

Complaint Counsel’s proposed finding is not fact, but rather unfounded opinion. Dr. Hill failed to analyze the *cross*-elasticity of demand. Dr. Hill’s elasticity calculations are unreliable because he analyzed whether customers changed purchasing behavior based on the *absolute* price of chloride-process TiO₂—not whether customers changed their behavior based on the *relative* price difference between sulfate-process and chloride-process. Dr. Hill’s analysis focused on the fact that customers did not switch even in 2011 when chloride prices, [REDACTED]

[REDACTED]

[REDACTED]. (RX0170-0144-146 (showing average rutile

chloride and sulfate process TiO₂ for Cristal, Venator and Kronos)). Thus, there is no reliable basis for this proposed finding..

- ii. TiO₂ Producers Recognize that Withholding Chloride TiO₂ Output Supports Higher Prices
 - (a) Tronox’s public statements and internal correspondence demonstrate that the company recognizes that withholding chloride TiO₂ output supports higher prices

568. Given this market context where prices are largely determined by supply and demand, it is not surprising that the Respondents and other chloride TiO₂ suppliers recognize the benefits of strategically withholding chloride TiO₂ output in North America to increase prices relative to what otherwise would have prevailed. (See CCFE ¶¶ 569-85, below).

Response to Finding No. 568:

Complaint Counsel’s proposed finding is not fact, but an inaccurate summary of the evidence. Complaint Counsel has recognized that it is entirely proper for companies sometimes to reduce output for legitimate business reasons. (Vote, Aug. 8, 2018 D.D.C. Tr., 836-37) (“[w]e also aren’t suggesting that, you know to sort of setting your output levels at the right place unilaterally isn’t the right thing to do. Companies should profit-maximize and do that.”).

Respondents’ specific responses can be found in response to ¶¶ 569-85, below.

569. Tronox has made repeated public statements that it withholds chloride TiO₂ from the North American market to affect price. (PX9003 at 010-11 (Tronox Q1 2016 Earnings Call); PX9005 at 009-10 (Tronox Q3 2015 Earnings Call); PX9007 at 005 (Tronox Q2 2015 Earnings Call)).

Response to Finding No. 569:

Complaint Counsel’s proposed finding is false and mischaracterizes the documents. None of the cited documents state that Tronox withholds chloride TiO₂ from the North American market to affect price. Complaint Counsel has recognized that it is entirely proper for companies sometimes to reduce output for legitimate business reasons. (Vote, Aug. 8, 2018 D.D.C. Tr., 836-37) (“[w]e also aren’t suggesting that, you know to sort of setting your output levels at the

right place unilaterally isn't the right thing to do. Companies should profit-maximize and do that." Respondents provides further responses to each cited document below..

570. For example, in a 2015 earnings call, Mr. Casey, then CEO of Tronox, observed that Tronox is "managing [its] production so that inventories get reduced to normal or below normal levels. And when that happens price will rise... From what we see with Chemours and Huntsman and presumably the others as well, they're doing the same thing. We see them acting in the same way." (PX9005 at 010 (Tronox Q3 2015 Earnings Call)).

Response to Finding No. 570:

Complaint Counsel's proposed finding mischaracterizes the evidence it cites. The cited document does not support the finding that Tronox "withholds chloride TiO₂ from the North American market to affect price." In 2015, the industry was "three years into a down cycle," (Romano, Tr. 2252), and Tronox had "close to a billion dollar[s] of inventory." (Turgeon, Tr. 2637). At the time of this statement, the market was in a downturn, which Brennen Arndt described as "the worst market conditions" in his six years in the industry, (Arndt, Tr. 1401-02). Both Tronox and Cristal suffered financial losses at the time. (Romano, Tr. 2252). Industry expert Ken Stern concluded that, if Tronox had not reduced production during this time period [the trough period of late 2015, early 2016], they would have continued building unsold inventory, typing up working capital, and stated that "it's entirely likely they would have found themselves right back in Chapter 11." (Stern, Tr. 3747).

571. When asked in a 2016 earnings call about Tronox's production decisions, including capacity cuts at its Hamilton plant, Mr. Casey emphasized Tronox's focus on managing supply to support increasing prices, asserting that "a very disciplined approach to production, to managing supply relative to demand, is what has facilitated the recovery in our markets, and we intend to continue to be disciplined about that." (PX9003 at 010-11 (Tronox Q1 2016 Earnings Call)).

Response to Finding No. 571:

Complaint Counsel's proposed finding misinterpret's Mr. Casey's remarks which were focused on reducing inventory — not prices. Mr. Casey made these statements in Q1 2016, right

as the industry was emerging from a difficult trough period. (Stern, Tr Tr. 3746). Throughout 2015, the market was in a downturn, the circumstances of which Brennen Arndt described as “the worst market conditions” in his six years in the industry, and a time during which Tronox announced losses for each of the four quarters in 2015 (Arndt, Tr. 1401-02) — both Tronox and Cristal were suffering financial losses at the time. (Romano, Tr. 2252). In 2015, the industry was “three years into a down cycle,” (Romano, Tr. 2252), and Tronox had “close to a billion dollar[s] of inventory.” (Turgeon, Tr. 2637) Industry expert Ken Stern concluded that, if Tronox had not reduced production during this time period [the trough period of late 2015, early 2016], they would have continued building unsold inventory, tying up working capital, and stated that “it’s entirely likely they would have found themselves right back in Chapter 11.” (Stern, Tr. 3747).

572. Tronox’s internal correspondence confirms that [REDACTED]. (PX1075 at 001 (Hinman/Casey email chain) (*in camera*); PX1074 at 001 (Casey/Turgeon email chain) (*in camera*); PX1231 at 014 (Tronox presentation) (*in camera*); PX1353 at 011 (Tronox presentation) (*in camera*)).

Response to Finding No. 572:

Complaint Counsel’s proposed finding is not a fact, but an inaccurate summary of the evidence that does not align with the underlying documents. PX1075 [REDACTED]
[REDACTED]
[REDACTED] (PX1075 at 001 (*in camera*)). PX1074 likewise explains that [REDACTED]
[REDACTED]
[REDACTED] (PX1074 at 001). PX1231 does not discuss adjusting TiO₂ output. (PX1231-014) [REDACTED] PX1353 at 011 does not discuss adjusting TiO₂ output. (PX1353 at 011 (stating that [REDACTED]
[REDACTED]). Further, Complaint Counsel’s

proposed finding relies on PX1075, PX1074, and PX1231, none of which were presented at trial and thus were not subject to cross examination before the Court..

573. In 2012, John Romano wrote in an email to Tom Casey and Daniel Greenwell that “[u]sing price to take market share in a soft market will create churn [and] destroy value,” and that he was “recommending that we slow down production so that we minimize or eliminate the inventory build that will occur if we continue running at the existing rates.” (PX1015 at 001 (Romano email) (*in camera*)).

Response to Finding No. 573:

Complaint Counsel’s proposed finding is misleading and incomplete because it fails to account for Mr. Romano’s testimony about the same document. Mr. Romano explained at trial that, at the time of his email, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2162). Industry expert Ken Stern concluded that, if Tronox had not reduced production during this time period [the trough period of late 2015, early 2016], they would have continued building unsold inventory, typing up working capital, and stated that “it’s entirely likely they would have found themselves right back in Chapter 11.” (Stern, Tr. 3747).

574. [REDACTED]
[REDACTED] (PX1075 at 001 (Hinman/Casey email chain) (*in camera*)).

Response to Finding No. 574:

The evidence relied upon by Complaint Counsel was not presented at trial, and thus not subject to cross examination by Respondents. [REDACTED]

[REDACTED]

[REDACTED] (PX1075 at 001).

575. [REDACTED] Mr. Turgeon, the head of Tronox's TiO2 business, wrote to then-CEO Mr. Casey that [REDACTED] (PX1074 at 001 (Casey/Turgeon email chain) (*in camera*)). Mr. Casey responded to this email, noting that [REDACTED] (PX1074 at 001 (Casey/Turgeon email chain) (*in camera*)).

Response to Finding No. 575:

Complaint Counsel's proposed finding is misleading insofar as it claims that Tronox reduced output to affect price. Testimony at trial showed that in 2015, Tronox reduced output because its inventory was growing and putting the company in financial peril. Industry expert Ken Stern concluded that, if Tronox had not reduced production during this time period [the trough period of late 2015, early 2016], they would have continued building unsold inventory, tying up working capital, and stated that "it's entirely likely they would have found themselves right back in Chapter 11." (Stern, Tr. 3747) As further evidence that Tronox was focused on inventory management instead of pricing, during the period from 2012-2016 when Complaint Counsel claims Tronox adjusted output to impact price, *Tronox and Cristal's prices continually fell*. (Stern, Tr. 3770-71; Hill, Expert Report (PX5000 at 064). Complaint Counsel's proposed finding relies upon PX1074, which was not presented at trial, and thus not subject to cross examination by Respondents.

576. In a 2016 draft presentation, [REDACTED] (PX1030 at 015 (Tronox presentation) (*in camera*)).

Response to Finding No. 576:

Complaint Counsel's proposed finding is misleading insofar as it claims that Tronox reduced output to affect price. Complaint Counsel suggests that a strategy that adjusts supply to balance demand supports its proposed finding in ¶ 568. ("... [I]t is not surprising that the

Respondents and other chloride TiO₂ suppliers recognize the benefits of strategically withholding chloride TiO₂ output in North America to increase prices relative to what otherwise would have prevailed.”) Testimony at trial showed that in 2015, Tronox reduced output because its inventory was growing and putting the company in financial peril. Industry expert Ken Stern concluded that, if Tronox had not reduced production during this time period [the trough period of late 2015, early 2016], they would have continued building unsold inventory, typing up working capital, and stated that “it’s entirely likely they would have found themselves right back in Chapter 11.” (Stern, Tr. 3747) As further evidence that Tronox was focused on inventory management instead of pricing, during the period from 2012-2016 when Complaint Counsel claims Tronox adjusted output to impact price, *Tronox and Cristal’s prices continually fell*. (Stern, Tr. 3770-71; Hill, Expert Report (PX5000 at 064).

- (b) Cristal’s internal documents likewise demonstrate that the company recognizes that withholding chloride TiO₂ output increases prices

577. In a 2006 strategy document, Cristal’s predecessor company noted the importance of “Production match[ing] Sales (produce what we can sell at “market” price): Curtail production in a down market (don’t use price to push volume)...Sacrifice share in a[n] up market.” (PX2024 at 013 (Lyondell presentation)). The same presentation says that Cristal’s predecessor company curtailed production in the third quarter of 2005 due to “market weakness.” (PX2024 at 021 (Lyondell presentation)).

Response to Finding No. 577:

Complaint Counsel’s proposed finding relies on evidence that is old and not relevant. Complaint Counsel cites to a document that is over twelve years old, and was written by “Cristal’s predecessor company,” Lyondell, which no longer exists. Further, this document, PX2024, was never presented at trial, and thus never subject to cross examination before the Court.

578. 

[REDACTED]
(PX6005 at 020 (Lyondell presentation) (*in camera*)).

Response to Finding No. 578:

Complaint Counsel’s proposed finding relies on evidence that is that is old and not relevant. Complaint Counsel cites to a document that is over twelve years old, and was written by “Cristal’s predecessor company,” Lyondell, which no longer exists. Further, this document, PX6005, was never presented at trial, and thus never subject to cross examination before the Court.

579. In a 2009 market update document, Cristal noted that the TiO₂ “industry continues to curtail” and indicates that those decisions have “long term implications.” (PX2215 at 020 (Cristal Global Business Update)).

Response to Finding No. 579:

580. Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2215, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. In 2011, Cristal executive Mark Stoll justified operating plants at reduced capacity stating that “this discipline of taking supply offline and allowing inventories to fall as demand improved lead to pricing discipline and pricing power over the following quarters.” (PX2083 at 001 (Stoll/Najjar email chain)).

Response to Finding No. 580:

Complaint Counsel’s proposed finding relies on PX2083, which was not presented at trial and thus not subject to cross examination before the Court. Further, Complaint Counsel’s proposed finding is misleading. Complaint Counsel’s selective quoting removes Mr. Stoll’s comments from the context of the email, in which he explains: “There are *many market dynamics* in play that have lead to the recent price rises.” (PX2083-001). Mr. Stoll mentions the reduced inventory, as well as increased demand. Further, in the same email, he notes the risks of price drops going into Q4 2011 and Q1 2012 — a risk that would not exist if TiO₂ producers were actually reducing output to impact pricing.

581. [REDACTED] (PX2000 at 007 (Cristal presentation) (*in camera*)).

Response to Finding No. 581:

The cited document does not support Complaint Counsel’s proposed finding. The finding points to PX2000-007, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Complaint Counsel’s Finding ¶ 582). Complaint Counsel's proposed fact relies upon PX2000, which was never presented at trial, thus, it was never subject to cross examination before the Court.

582. A 2016 Cristal strategy presentation indicated that [REDACTED] (PX2116 at 005 (Cristal Presentation) (*in camera*)). That same document also noted that [REDACTED] (PX2116 at 005 (Cristal Presentation) (*in camera*)).

Response to Finding No. 582:

Complaint Counsel's proposed finding relies upon PX2116, which was never presented at trial, thus, it was never subject to cross examination before the Court. Further, Complaint Counsel’s proposed finding is misleading. Even Complaint Counsel’s expert Dr. Hill recognizes that [REDACTED]
[REDACTED] PX5000-078. While Complaint Counsel now cites a different version of the same presentation, it is [REDACTED]
[REDACTED] (PX5000-078).

- (c) Respondents' competitors also recognize that reducing chloride TiO₂ output in North America can support higher prices

583. Kronos has observed that “structural improvements” in the TiO₂ industry drove a \$250 million increase in its earnings before interest, taxes, depreciation, and amortization (EBITDA) and that “baseline TiO₂ capacity has been permanently reduced with limited near-term ability to increase capacity.” (PX3011 at 015, 038 (Kronos presentation)).

Response to Finding No. 583:

Complaint Counsel’s proposed finding is incomplete. It is incomplete because it fails to account for the testimony Mr. Christian provided about the same document, where he explained that [REDACTED]

(Christian, 874-75).

584. Chemours likewise recognizes that reduced TiO₂ output leads to higher pricing. Chemours possesses proprietary chloride titanium dioxide production technology that allows it to more easily “vary [its] production in line with customer demand.” (PX9025 at 003 (Chemours presentation)). It has told investors that it will use this ability to operate “at lower levels of output when customer needs . . . warrant that we adjust our production.” (PX9025 at 003 (Chemours May 2017 investor presentation transcript)). The company also acknowledges that “historically, pricing increases tied to high utilization.” (PX9038 at 005 (May 2017 Chemours investor presentation)).

Response to Finding No. 584:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX9025 and PX9038, documents that were not presented at trial. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

585. Consistent with that recognition, in connection with adding a new line at its Altamira facility in Mexico, Chemours announced it would “dial back production at our other sites to offset the new Altamira volumes until our customer demand warrants additional production.” (PX9055 at 004 (Chemours Q1 2016 Earnings Call)). Those reductions included permanently closing its Edge Moor plant in Delaware, and shutting down a production line at its New Johnsonville, TN, plant, removing **{150,000 metric tons}** of capacity. (PX2055 at 024 (Cristal presentation) (*in camera*)). Tronox cheered these developments as “good news,” with Tronox’s then CEO Mr. Casey remarking, “[i]t’s good [Chemours] can follow the leader!” (PX1130 at 003 (Romano/Bender e-mail chain); PX1325 at 001 (Casey email)).

Response to Finding No. 585:

Complaint Counsel’s proposed finding relies on PX2055 and PX1325, which were not presented at trial and thus were not subject to cross examination before the Court. Further, Complaint Counsel’s proposed finding is misleading, because it fails to acknowledge Chemours’ near-simultaneous opening of an additional chloride facility with capacity in excess of 150,000 metric tons in Alta Mira, Mexico, that more than offset these losses. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (RX0170.0218-20).

iii. Respondents Have a History of Withholding Output to Support North American Chloride TiO₂ Pricing

(a) Tronox has reduced North American chloride TiO₂ output over the past decade in order to support North American TiO₂ prices

586. Tronox has reduced its North American TiO₂ output over the past decade to support TiO₂ pricing through both plant closures and throttled output. (See CCF ¶¶ 587-612, below).

Response to Finding No. 586:

Complaint Counsel’s proposed finding is a mischaracterized summary of the evidence. Tronox has never reduced its North American TiO₂ output to support TiO₂ pricing. (Duvekot, Tr. 1337; Romano, Tr. 2253; Turgeon, Tr. 2249-52; Respondents’ Response to Findings No. ¶¶ 587-612, below.)

(1) Tronox has closed TiO₂ production facilities to support TiO₂ prices

587. Tronox’s previous acquisition of North American TiO₂ plants resulted in reduced TiO₂ output in North America. (PX5000 at 081 (¶ 185) (Hill Initial Report) (*in camera*));

PX9070 at 001 (PR Newswire article); PX9078 at 001 (PR Newswire article); PX9069 at 001 (ICIS article)).

Response to Finding No. 587:

Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents. Complaint Counsel's proposed finding is wrong. In 2000, Tronox's predecessor acquired two plants from Kemira — one in Botlek and one in Savannah. Only one document (PX9078) refers to Kerr-McGee's decision to close an anatase sulfate plant in 2004. None of Complaint Counsel's proposed markets include anatase sulfate, so any actions related to the sulfate plant are irrelevant..

Complaint Counsel's proposed finding is misleading because it ignores that Tronox expanded capacity and output since 2000 when that transaction occurred. Between 2004 and present day, Tronox increased the capacity at its Hamilton plant from 180,000 tons to approximately 235,000 tons—an increase of over 50,000 tons. (Dean, Tr. 2960).

588. In 2000, Tronox's predecessor, Kerr-McGee, purchased Kemira's TiO₂ operations in Savannah, GA, which consisted of a sulfate plant and a chloride plant. At the time of the acquisition, Kerr-McGee stated that the plants were part of its long-term strategy to grow the business. (PX9070 at 001 (PR Newswire article)).

Response to Finding No. 588:

Respondents have no specific response.

589. At the time of the acquisition, Kerr-McGee claimed that because of its familiarity with the technology used at the acquired plants, it was better positioned to update them and make them more profitable than other potential buyers. (PX9078 at 001 (PR Newswire article)).

Response to Finding No. 589:

Complaint Counsel mischaracterizes the cited evidence. Nowhere in the cited article did Kerr-McGee state that it was better positioned to update these plants as compared to other potential buyers.

590. Despite those promises, Kerr-McGee closed the sulfate plant in 2004, citing a lack of demand for sulfate TiO₂ in North America as a reason for the closure. (PX9069 at 001 (ICIS article)). Then, in 2009, Tronox closed the chloride TiO₂ facility in Savannah, Georgia, [REDACTED] (PX1486 at 004 (Tronox presentation) (*in camera*); Romano, Tr. 2164–2165 (*in camera*)).

Response to Finding No. 590:

Complaint Counsel mischaracterizes the cited evidence. The closing of the sulfate in 2004 is not relevant. The first document cited, PX9069, refers to demand for *anatase*, not rutile sulfate TiO₂. Anatase sulfate TiO₂ is in neither Complaint Counsel’s nor Respondents’ proposed product market and thus is not relevant.

Complaint Counsel’s proposed finding also mischaracterizes the evidence of why the chloride lines closed in 2009. The second cited document, PX1486, does not state that there was a “need” to “rationalize capacity to market demand.” The plant closed after Tronox filed for bankruptcy and [REDACTED]

[REDACTED] (Romano, Tr. 2165). Specifically, Tronox’s bondholders required the company’s assets to have the capability to run within their own cash flow, and because Savannah was incapable of that, it was closed. (Romano, Tr. 2249).

591. {When Tronox increased TiO₂ prices shortly after the closure, Tronox Vice-President Jeff Engle directed the company’s sales staff to emphasize to customers the Savannah closure as among “the key points to support the price increase.”} (PX1299 at 001 (Engle email) (*in camera*)).

Response to Finding No. 591:

Complaint Counsel's proposed finding is misleading. Complaint Counsel's cited evidence is misleading because [REDACTED] Savannah was closed not for the purpose of affecting price, but because Tronox's bondholders would not allow the plant to operate outside its cash flow during bankruptcy. (Romano, Tr. 2249). Complaint Counsel's proposed finding is misleading because it ignores that Tronox expanded capacity and output since 2000 when that transaction occurred. Between 2004 and present day, Tronox increased the capacity at its Hamilton plant from 180,000 tons to approximately 235,000 tons—an increase of over 50,000 tons. (Dean, Tr. 2960).

592.

[REDACTED] (PX3000 at 003 (Venator 2017 Private-side Supplement) (*in camera*)).

[REDACTED] (Romano, Tr. 2167 (*in camera*)).

Response to Finding No. 592:

The first cited document does not support Complaint Counsel's proposed finding. The cited page does not evidence [REDACTED] [REDACTED] [REDACTED] (PX3000-003). Moreover, the cited page was not presented at trial and thus was not subject to cross-examination by Respondents. The second part of the proposed finding is incomplete because it ignores that Tronox's Savannah plant was closed after it filed for bankruptcy. The Savannah plant closed after Tronox filed for bankruptcy and [REDACTED]

[REDACTED] (Romano, Tr.

2165). Specifically, Tronox’s bondholders required the company’s assets to have the capability to run within their own cash flow, and because Savannah was incapable of that, it was closed.

(Romano, Tr. 2249).

593.

[REDACTED]

[REDACTED] (PX1075 at 001 (Hinman/Casey email chain) (*in camera*)).

Response to Finding No. 593:

Complaint Counsel’s proposed finding relies on PX1075, which was not presented at trial and thus was not subject to cross examination by Respondents before the Court. [REDACTED]

[REDACTED]

[REDACTED] (PX1075 at 001).

594. Fixed costs are not a deterrent to reducing output. As Tronox’s then-CFO, Dan Greenwell, put it in 2012, “So that’s [operating at 80 percent capacity utilization] not an uncomfortable position for us. Obviously we would like to be operating in the high 90s but we have reconfigured some of our activities and think we can do it profitably without a lot of fixed costs overhang associated with it.” (PX9033 at 012 (Tronox Q2 2012 Earnings Call)).

Response to Finding No. 594:

Complaint Counsel’s characterization of evidence is false. High fixed costs provide strong motivation for running plants full-out. (PX7025 (Malichky, Dep. at 294) [REDACTED])

[REDACTED]

[REDACTED] The quotation explicitly states that it is preferable to be operating at an output rate in the “high 90s.” Moreover, the cited document was not presented at trial and thus was not subject to cross examination by Respondents before the Court. Because of high fixed costs, TiO2 producers generally and Tronox specifically prefer to run at maximum capacity. (Christian, Tr. 792; Arndt,

[REDACTED] (PX1109 at 025 (Tronox presentation) (*in camera*); PX1352 at 033 (Tronox presentation) (*in camera*)).

Response to Finding No. 597:

Complaint Counsel’s proposed finding relies upon PX1109-025 and PX1352-033, which were not presented at trial and thus were not subject to cross examination by Respondents before the Court. The presentation makes it clear that the focus was on [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Romano, Tr. 2168-70, 2280-81); (PX1109 at 021 (Tronox Presentation)).

598. [REDACTED] (Romano, Tr. 2165-66 (*in camera*)).
[REDACTED] (Romano, Tr. 2173-74 (*in camera*)).
[REDACTED] (PX1025 at 002 (Santos email to Casey) (*in camera*)).

Response to Finding No. 598:

Complaint Counsel’s cited evidence, PX1025, was not presented at trial and thus was not subject to cross examination by Respondents before the Court. Again, PX1025 shows that Tronox was focused on reducing bloated inventories — not impacting prices. (PX1025 at 002 [REDACTED]).

599. [REDACTED] (Romano, Tr. 2171-73 (*in camera*)).
[REDACTED] (Romano, Tr. 2172-73 (*in camera*)).
[REDACTED] (Romano, Tr. 2176 (*in camera*)).

Response to Finding No. 599:

Complaint Counsel's cited testimony is misleading in that Mr. Romano was asked questions by Complaint Counsel about the [REDACTED]

600. [REDACTED] (PX5002 at 006 (¶9) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)). In fact, [REDACTED] (PX5002 at 006 (¶9) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 600:

Complaint Counsel's proposed finding is misleading. Variable margin does not indicate whether a plant is profitable. (Stern, Tr. 3766). Variable margins do not take into account capital expenditures, fixed costs, or most cash costs. (Stern, Tr. 3767). During the time periods cited by Complaint Counsel in which Tronox experienced a "very high average variable margin," in reality its profitability was actually falling. (Stern, Tr. 3767). To the extent that the proposed finding proffers a factual proposition, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

- (3) Tronox reduced its North American TiO₂ output again in 2013 in order to support North American chloride TiO₂ prices

601. Tronox reduced its North American chloride TiO₂ output [REDACTED] (PX5002 at 006 (Figure 1) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 601:

Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

602. [REDACTED] (PX1349 at 009, 028 (Tronox presentation) *in camera*)).
[REDACTED] (PX1349 at 009 (Tronox presentation) *in camera*)).
Nevertheless, [REDACTED] (PX1349 at 008 (Tronox presentation) *in camera*)).

Response to Finding No. 602:

Complaint Counsel’s cited evidence is misleading to the extent that it [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (PX1349-008 (Tronox presentation)).

603. [REDACTED] (PX1399 at 002 (Tronox investor presentation) *in camera*)).
[REDACTED] (PX1399 at 002 (Tronox investor presentation) *in camera*)).

Response to Finding No. 603:

The cited document, PX1399 at 002, does not support either of Complaint Counsel’s purported assertions. In fact, the cited document undermines Complaint Counsel’s case because it states [REDACTED] *increase*

expert testimony to support factual propositions that should be established by fact witnesses or documents.

606. In a 2015 earnings call, Tronox's then CEO Mr. Casey explained, "It is our view that an upward move in pigment selling prices will be predicated on a reduction of supply in the pigment market relative to demand, and/or an upward move in feedstock selling prices and we expect to see both." (PX9007 at 005 (Tronox Q1 2015 Earnings Call)).

Response to Finding No. 606:

Complaint Counsel's proposed finding is misleading to the extent that it purports to indicate Mr. Casey was commenting on Tronox's actions. Mr. Casey's comments were related to the general supply *and* demand trends in the market and did not mention Tronox. (PX9007-005 (Tronox Q1 2015 Earnings Call)).

607. Following that call, Tronox idled [REDACTED] its Hamilton chloride TiO₂ plant. (Romano, Tr. 2165 (*in camera*); PX0003 at 015 (Tronox Second Request Narrative Response to Specification 4(d)) (*in camera*)). Both [REDACTED] (PX7001 (Romano, IHT at 167) (*in camera*); PX7026 (Duvekot, Dep. at 148-49) (*in camera*)).

Response to Finding No. 607:

Complaint Counsel's proposed finding is misleading in that it attempts to connect the slowdown at Hamilton to the earnings call. [REDACTED]

[REDACTED] (Romano, Tr. 2170; Turgeon Tr. 2648-49; Stern Tr. 3746-47, 3766-67). The cited testimony from Mr. Romano's internal investigation is also misleading in that he answered questions on the cited page as to why output reduction had *not* affected pricing. Moreover, Complaint Counsel did not ask these questions at trial, thus depriving Respondents the opportunity to address them on cross examination. (PX7001 (Romano, IHT at 167)). Complaint Counsel's citation to Mr. Duvekot's deposition is also misleading in that his answer involved "price erosion" and not "higher prices." Complaint Counsel failed to pursue this line of

questioning at trial and thus deprived Respondents an opportunity to explore the full extent of the witness's statements on cross examination.

608. [REDACTED] (PX7007 (Van Niekerk, Dep. at 064) (*in camera*); see also PX7024 (Harper, Dep. at 42) (*in camera*); PX9003 at 011 (Tronox Q1 2016 Earnings Call)). [REDACTED] (Romano, Tr. 2165 (*in camera*)). While these curtailments caused Tronox to absorb about \$30 million in fixed costs, the company found the benefits from doing so to outweigh the costs. (PX9003 at 011 (Tronox Q1 2016 Earnings Call)).

Response to Finding No. 608:

The cited evidence, PX7007, does not support Complaint Counsel's purported finding. Complaint Counsel's failure to cite Mr. Van Niekerk's trial testimony seeks to avoid citing testimony that was open to redirect examination by Respondents. Respondents objected to the form of the question posed to Ms. Harper in her deposition cited in Complaint Counsel's proposed finding. Moreover, Complaint Counsel chose not to call Ms. Harper at trial, depriving Respondents of the opportunity to cross examine her statements. Complaint Counsel did not question any witness at trial about a portion of PX9003 referenced in Complaint Counsel's Finding ¶ 608, thus depriving Respondents the opportunity to ask the witness further questions about this portion of the document on cross examination or redirect.

609. Mr. Romano of Tronox testified that [REDACTED] (PX7001 (Romano, IHT at 167) (*in camera*)).

Response to Finding No. 609:

Complaint Counsel's proposed finding is misleading and is a mischaracterization of trial testimony. Mr. Romano's answer in deposition does not clearly state that reduced production at Hamilton and Kwinana "did play into" TiO₂ price increases. In fact, two questions before Complaint Counsel's cited question, [REDACTED]

[REDACTED]. (PX7001 (Romano, IHT at 166)). Moreover, Complaint Counsel failed to pursue this line of questioning at trial, thus depriving Respondents the opportunity to further explore the topic on cross examination.

610. In another 2015 earnings call, Tronox's then CEO, Tom Casey stated "And then the question is when will [the prices] turn. We're addressing that by managing our production, so that inventories get reduced to normal or below normal levels; and when that happens, prices will rise. We--from what we see with Chemours and Huntsman and presumably the others as well, they're doing the same thing. We see them acting in the same way." (PX9005 at 010 (Tronox Q3 2015 Earnings Call)).

Response to Finding No. 610:

Complaint Counsel's proposed finding is misleading in that it fails to also acknowledge that Mr. Casey's comment was in the context of a price cycle where "[a]t the level of prices [then], basically, it is not a sustaining business at either the mining business, the feedstock production business, or the TiO2 business at these prices." (PX9005-010 (Tronox Q3 2015 Earnings Call)). Tronox's Senior Vice President of Investor Relations, Brennan Arndt, testified that he disagreed with Mr. Casey's assessment in PX9005. (Arndt. Tr. 1378 ("I do not agree with Tom in that case. As I said earlier, there are times when prices rise, and there are numerous times where prices don't rise after a balancing of supply and demand, including the prior year, 2014.")).

611. [REDACTED] (PX1435 at 001 (Duvekot/Bianchi email chain) (*in camera*)). [REDACTED] (Duvekot, Tr. 1333-1335) (*in camera*)). Mr. Duvekot further explained that [REDACTED] (PX1435 at 001 (Duvekot/Bianchi email chain) (*in camera*)). Mr. Duvekot further stated that [REDACTED] (PX1435 at 001 (Duvekot/Bianchi email chain) (*in camera*)).

Response to Finding No. 611:

Complaint Counsel's proposed finding is misleading and inaccurate. [REDACTED] (Duvekot, Tr. 1338). Instead, Tronox reduced output because inventory was so great there was no longer a place to store and the company had too much capital in the form of product. (Duvekot, Tr. 1338; Romano, Tr. 2170; Turgeon Tr. 2648-49; Stern Tr. 3746-47, 3766-67).

612. After conducting an economic analysis using Tronox's internal data, Dr. Hill also confirmed that [REDACTED] (PX5002 at 006 (¶9 & Fig. 1) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 612:

Complaint Counsel's proposed finding is misleading. Variable margin does not indicate whether a plant is profitable. (Stern, Tr. 3766). Variable margins do not take into account capital expenditures, fixed costs, or most cash costs. (Stern, Tr. 3767). During the time periods cited by Complaint Counsel in which Tronox experienced a "very high average variable margin," in reality its profitability was actually falling. (Stern, Tr. 3767). To the extent that Complaint Counsel's Finding ¶ 612 proffers a factual proposition, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

(b) Tronox remains committed to adjusting output to support North American chloride TiO₂ prices

613. Tronox remains committed to adjusting its output in order to support chloride TiO₂ pricing in North America. (See CCF ¶¶ 614-16, below). [REDACTED]

[REDACTED]
 (PX1074 at 001 (Casey/Turgeon email chain) (*in camera*)).

Response to Finding No. 613:

Complaint Counsel’s proposed finding is inaccurate. Tronox reduced output in order to correct an overabundance of inventory and to free up capital at a time when the company needed cash. It did not do so to impact prices. (Turgeon, Tr. at 2640-41, 2648-59; Duvekot, Tr. 1338; Romano, Tr. 2170; Stern Tr. 3746-47, 3766-67). Moreover, Complaint Counsel had the opportunity to question Mr. Turgeon at trial about the email chain referenced in the proposed finding and chose not to do so, depriving Respondents an opportunity to address the email on redirect.

614. Tronox continues to abide by that strategy, even today in times of high demand, by adjusting output to support higher prices in North America. (PX9003 at 010 (Tronox Earnings Call Q1 2016); PX1333 at 010 (Tronox presentation) (*in camera*)). For example, a 2017 Tronox strategic document explained that [REDACTED] (PX1333 at 010 (Tronox presentation) (*in camera*)). Matching supply to demand requires changing output with an aim toward maintaining more favorable pricing. (PX9005 at 010 (Tronox Q3 2015 Earnings Call)).

Response to Finding No. 614:

Complaint Counsel’s proposed finding is misleading and inaccurate. In the TiO₂ industry, producers “have an incentive to run their plants at high operating rates.” (Stern, Tr. 3712). Tronox typically runs its plants “all out,” or “flat out.” (Quinn, Tr. 2321; Duvekot, Tr. 1342). In the TiO₂ industry, “everybody wants to run their mine or their pigment plant at full capacity, because that’s the most economical way to run them.” (Turgeon, Tr. 2636-37). Today, Tronox is “making every ounce [of TiO₂ it] can, selling every ounce [it] make[s],” and it “wish[es it] had more product.” (Arndt, Tr. 1422). It is unlikely the combined Tronox-Cristal

entity would reduce output at Hamilton or Ashtabula because they are the lowest cost posture plants for both Tronox and Cristal. (Stern, Tr. 3853). There is no “business logic” that would underlie reducing production at the Ashtabula and Hamilton plants, particularly at the present time in an industry upswing and given their posture as the lowest cost plants for the companies. (Stern, Tr. 3853). Moreover, Complaint Counsel had the opportunity and chose not to ask any fact witnesses about PX1333 at trial, depriving Respondents the opportunity for further exploration under cross examination or redirect. Finally, Mr. Arndt did “not agree” with the statements presented in PX9005, stating that “there are times when prices rise, and there are numerous times where prices don’t rise after a balancing of supply and demand.” (Arndt, Tr. 1378).

615. Similarly, despite strong North American demand (*see* CCF ¶¶ 611, 614, above), [REDACTED] (RX0510 at 0001 (Mei email) (*in camera*)). As Ms. Mei of Tronox told senior executives, [REDACTED] (RX0510 at 0001 (Mei email) (*in camera*)).

Response to Finding No. 615:

Complaint Counsel’s proposed finding is misleading. While 225K tons is only approximately 96% capacity, Ms. Mei explained in testimony [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] (Mei, Tr. 3185-86).

616. Tronox has also indicated that the acquisition of Cristal will not change the company's strategy of limiting output to support pricing. (See CCFF ¶¶ 617-18, below). For example, in an earnings call in February 2017, Mr. Casey publically assured investors that Tronox would "still balance our supply with demand" after the acquisition. (PX9000 at 012 (Tronox Q4 2016 Earnings Call)).

Response to Finding No. 616:

Complaint Counsel's proposed finding is misleading as Tronox's publicly stated strategy during that timeframe was to "continue to match production to meet market demand while keeping inventories at or below normal seasonal levels. [Tronox was] running [its] facilities at practical maximum in order to meet demand and expect[ed] to continue to operate this way . . ." (Turgeon, Tr. 2730). The company was "running flat out." (Turgeon, Tr. 2730). Moreover, Complaint Counsel had the opportunity to question fact witnesses about PX9000 at trial and chose not to do so, depriving Respondents the opportunity to ask questions on cross examination or redirect.

617. During the February 2017 earnings call, Mr. Casey elaborated that "[Tronox] ha[s] tried to be economically rational over these last several years. If there was surplus supply in the market, we slowed down our production, and we did that with respect to pigment. We also did it with respect to mineral sands. . . . [O]ver the last couple of years [] we shut down about 75,000 tons of pigment production when we felt that all we were doing was adding supply to inventory levels. And we shut down two of our four slag furnaces." (PX9000 at 012 (Tronox Q4 2016 Earnings Call)).

Response to Finding No. 617:

Complaint Counsel's proposed finding is inaccurate. Tronox reduced output in order to correct an overabundance of inventory and to free up capital at a time when the company needed cash. It did not do so to impact prices. (Turgeon, Tr. at 2640-41, 2648-59; Duvokot, Tr. 1338; Romano, Tr. 2170; Stern Tr. 3746-47, 3766-67). Moreover, Complaint Counsel had the

opportunity to question fact witnesses about PX9000 at trial and chose not to do so, depriving Respondents the opportunity to ask questions on cross examination or redirect.

618. An internal Tronox document, [REDACTED] (PX1233 at 016 (April 2017 Strategic Feedstock Planning document) (*in camera*)). Specifically, [REDACTED] (PX1233 at 016 (April 2017 Strategic Feedstock Planning document) (*in camera*)).

Response to Finding No. 618:

Complaint Counsel’s proposed finding is false and does not accurately reflect the cited document. The cited document says nothing about Tronox’s [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (PX1233-016 (April 2017 Strategic Feedstock Planning document)).

Moreover, Complaint Counsel had the opportunity at trial to ask fact witnesses about this section of the cited document and chose not to do so, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

(c) Cristal has also withheld chloride TiO₂ output in North America to support chloride TiO₂ pricing

619. Like Tronox, Cristal has, at various times, closed plants and managed supply to support chloride TiO₂ prices in North America. (PX0002 at 021 (Cristal Second Request Response) (*in camera*); PX2083 at 001 (Stoll/Najjar email chain); PX2022 at 005-06 (Cristal presentation); PX2116 at 005, 010 (Cristal presentation) (*in camera*)).

Response to Finding No. 619:

Complaint Counsel’s citation of Cristal’s Second Request is misleading. Although Cristal admitted that [REDACTED]
[REDACTED]

[REDACTED]

[REDACTED] (PX0002-021 (Cristal Second Request Response)). Moreover, Complaint Counsel had the opportunity to question fact witnesses about PX 2083 and PX 2116 at trial, but chose not to do so, thus depriving Respondents the opportunity to pursue questioning regarding these documents on cross examination or redirect.

620. [REDACTED] (PX0002 at 021 (Cristal Second Request Response) *(in camera)*). [REDACTED] (PX0002 at 015 (Cristal Second Request Response) *(in camera)*).

Response to Finding No. 620:

Respondents have no specific response.

621. Respondents credited both those reductions with leading to large price increases over the next several years. (PX2083 at 001 (Stoll/Najjar email chain) (“the pricing momentum began when significant major capacity was taken off line in 2008 and 2009 during the financial crisis.”); PX1109 at 011 (Tronox presentation) *(in camera)* [REDACTED]).

Response to Finding No. 621:

Complaint Counsel’s proposed finding is misleading. The focus of these documents is decreased customer demand, not reduction in production. As Mr. Romano testified when asked about PX1109-011, [REDACTED]

[REDACTED]

[REDACTED]

Finally, Complaint Counsel had the opportunity to question fact witnesses about PX 2083 at trial, but chose not to do so, thus depriving Respondents the opportunity to pursue questioning regarding these documents on cross examination or redirect.

622. Cristal considered reopening Hawkins Point when prices rose dramatically in 2011 and 2012 but ultimately chose not to do so because, as Mark Stoll, then Cristal’s commercial

vice president, explained in a presentation, reopening the plant “should be assumed to have a reverse material impact on the pricing power we have achieved as of late.” Mr. Stoll went on to comment that “the only certain factor is that the markets will remain tighter with greater pricing power the longer we leave [Hawkins Point] down and further capacity recovery will only act to stabilize upward pricing dynamics.” (PX2022 at 006 (Cristal presentation)).

Response to Finding No. 622:

Complaint Counsel’s description of this evidence is incomplete. Cristal explored the potential reopening of the Hawkins Point plant with a customer who also ultimately “elected not to engage in the concept as well.” (Stoll, Tr. 2072).

623. In addition to the plant closures, [REDACTED] [REDACTED] } (PX5002 at 008 (Figs. 2-3) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*); PX0002 at 010-35, 105 (Cristal Second Request Response to Specifications 4(d) and 26) (*in camera*)).

Response to Finding No. 623:

To the extent that the proposed finding relates to a factual proposition, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

624. This strategic approach of reducing TiO₂ output to support pricing was consistent with Mr. Stoll’s warning that “the [REDACTED] would be to attempt to lower prices to take market share as markets weaken. [REDACTED] (PX2242 at 017 (Cristal presentation) (emphasis in original)).

Response to Finding No. 624:

Complaint Counsel’s proposed finding is misleading and inaccurate. Mr. Stoll explained in testimony that his comments in this document were not related to reducing output to support pricing, but rather a risk assessment in an attempt to avoid an unsustainable price war. (Stoll, Tr. 2084-86).

625. According to Dr. Hill’s economic analysis of Cristal’s plant-level production data, Cristal’s capacity utilization at its Ashtabula I plant was [REDACTED] [REDACTED] (PX5002 at 008 (Figure 2) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)). Conducting a similar analysis using the same data, Dr. Hill showed that Cristal’s capacity utilization at its Ashtabula II plant was [REDACTED] [REDACTED] (PX5002 at 008 (Figure 3) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 625:

Complaint Counsel’s proposed finding is misleading and inaccurate. As noted by Mr. Stern, each of these time periods—except for June 2016 to April 2017—represented troughs within the price cycle and that it was inaccurate for Dr. Hill to refer to these time periods as “various market conditions.” (Stern, Tr. 3765-66). As to the June 2016 to April 2017 time period, [REDACTED] [REDACTED] (RX0171.00 77, Figure 30 (Stern Expert Report)). To the extent that the proposed finding proffers a factual proposition, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

626. Dr. Hill conducted an economic analysis using plant-level data, and found that [REDACTED] [REDACTED] (PX5002 at 008 (Figs. 2-3) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)) [REDACTED] (PX0002 at 010-35; 105 (Cristal Second Request Response to Specifications 4(d) and 26) (*in camera*)). Also, Dr. Hill found that during all but two of those time period, [REDACTED] [REDACTED] (PX5002 at 008 (Figs. 2-3) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)); [REDACTED] (PX0002 at 010-35; 105 (Cristal Second Request Response to Specifications 4(d) and 26) (*in camera*)).

Response to Finding No. 626:

Complaint Counsel's proposed finding is misleading. Variable margin does not indicate whether a plant is profitable. (Stern, Tr. 3766). Variable margins do not take into account capital expenditures, fixed costs, or most cash costs. (Stern, Tr. 3767). During the time periods cited by Complaint Counsel in which Tronox experienced a "very high average variable margin," in reality its profitability was actually falling. (Stern, Tr. 3767). To the extent that Complaint Counsel's Finding ¶626 proffers a factual proposition, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

627. In 2016, a Cristal executive observed that [REDACTED] (PX2112 at 002 (Snider email) *(in camera)*). Those efforts included Cristal [REDACTED] (PX0002 at 015 (Cristal Second Request Response to Specification 4(d)) *(in camera)*).

Response to Finding No. 627:

Complaint Counsel's proposed finding relies upon PX2116, which was never presented at trial, thus, it was never subject to cross examination before the Court. Further, Complaint Counsel's proposed finding is misleading. Even Complaint Counsel's expert Dr. Hill recognizes that [REDACTED]

[REDACTED] PX5000-078. While Complaint Counsel now cites a different version of the same presentation, it is [REDACTED]

[REDACTED] (PX5000-078). The evidence relied upon by Complaint Counsel was not presented at trial and thus prevented Respondents from pursuing further questioning on cross examination or redirect.

628. In 2016, Cristal observed that [REDACTED]
 [REDACTED]
 (PX2116 at 005, 010 (Cristal presentation) (*in camera*)).

Response to Finding No. 628:

The evidence relied upon by Complaint Counsel was not presented at trial and thus prevented Respondents the opportunity to pursue questioning on cross examination or redirect.

629. Cristal acknowledges that [REDACTED]
 [REDACTED] (PX0002 at 014-020 (Cristal Second Request Response) (*in camera*)).

Response to Finding No. 629:

Complaint Counsel’s proposed finding is contradicted by its own expert insofar as it suggests that Cristal has an incentive to reduce output to influence price at that time. Dr. Hill agreed “that given the model results from the stand-alone capacity closure model, which was based on data from 2016, Cristal didn’t have an incentive to withhold output to influence the price of TiO₂” in 2016. (Hill, 2044).

630. These various output reductions provide the basis for the concerns expressed by many market participants that the merger of Tronox and Cristal will lead to output suppression (*See* CCFE ¶¶ 713-20, 725-26, below). Both competitors and customers have recognized that the merged firm would have an even greater incentive to decrease output after the merger. (*See* CCFE ¶¶ 721-24, below).

Response to Finding No. 630:

Complaint Counsel’s proposed finding is inaccurate. The merged firm will be incentivized to run at maximum capacity and will not be incentivized to reduce production. (Christian, Tr. 862-71, 881; Quinn, Tr. 2321; Arndt, Tr. 1402, 1414-15, 1422; Turgeon, Tr. 2636-37, 2651-52; Duvekot, Tr. 1342; Stern Tr. 3712, 3751, 3853).

- (d) A recent real world example shows the impact an output reduction can have on TiO2 pricing

631. [REDACTED] (Hill, Tr. 1820-22 (in camera)).

Response to Finding No. 631:

Complaint Counsel’s proposed finding is inaccurate. Both suppliers and customers of TiO2 “engage[] in arbitrage.” (Romano, Tr. 2237- 38). In particular, customers of TiO2 “have the capability to” move TiO2 “all over the world.” (Romano, Tr. 2237). Customers have the ability to engage in arbitrage of TiO2, so if prices reach levels “where it’s significantly higher for a significant period of time, customers will move product around.” (Romano, Tr. 2237-38). For example, [REDACTED]

[REDACTED] (Malichky, Tr. 381). [REDACTED]

[REDACTED] (Malichky, Tr. 378-79; 387). In fact, [REDACTED]

[REDACTED] (Malichky, Tr. 387). [REDACTED]

[REDACTED]

(Malichky, Tr. 389). Even when not actively engaging in arbitrage, customers [REDACTED]

[REDACTED] (Young, Tr. 704). Customers [REDACTED]

[REDACTED] (Young, Tr. 704). For example,

[REDACTED]

[REDACTED]

[REDACTED] (Young, Tr. 704). After

the Pori fire, Europe, which “used to be one of the lowest area price[s] in the world suddenly

switched to become the highest price,” and producers responded by “start[ing] to move their production to feed that market.” (Turgeon, Tr. 2668). [REDACTED]

[REDACTED]. (Stern, Tr. 3718; Shehadeh, Tr. 3457; Hill, Tr. 1821; Hill, Tr. 2033). As Dr. Shehadeh explained, after the Pori fire, [REDACTED]

[REDACTED] (Shehadeh, Tr. 3457). In the short-term, TiO₂ prices globally went up. (Stern, Tr. 3718). Moreover, to the extent that the Complaint Counsel relies upon the sulfate Pori plant fire in its factual findings, it is further evidence that chloride-process produced TiO₂ and sulfate-process produced TiO₂ reside within the same product market. Complaint Counsel cannot reasonably argue that sulfate-process produced TiO₂ is in a different market from chloride-process produced TiO₂ while using sulfate-process produced TiO₂ for its economic arguments. Finally, to the extent that Complaint Counsel’s Finding¶ 631 proffers a factual proposition, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

632. In January 2017, Venator’s TiO₂ plant in Pori, Finland caught fire, forcing the closure of the plant. (PX3009 at 033 (Venator lender presentation) (*in camera*); PX7015 (Maiter, Dep. at 115-16, 139, 164) (*in camera*); PX7025 (Malichky, Dep. at 261) (*in camera*)). The plant has a nameplate capacity of about [REDACTED] metric tons of TiO₂ annually. (PX3009 at 033 (Venator lender presentation) (*in camera*)). The plant is not projected to return to full capacity until [REDACTED] at the earliest. (PX3009 at 033 (Venator lender presentation) (*in camera*)).

Response to Finding No. 632:

Complaint Counsel’s proposed finding is misleading. [REDACTED]

[REDACTED]. (Stern, Tr. 3718; Shehadeh, Tr. 3457; Hill, Tr. 1821, 2033). As Dr. Shehadeh explained, after the Pori fire, [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED] (Shehadeh, Tr. 3457). In the short-term, TiO₂ prices globally went up. (Stern, Tr. 3718). Moreover, to the extent that the Complaint Counsel relies upon the sulfate Pori plant fire in its factual findings, it is further evidence that chloride-process produced TiO₂ and sulfate-process produced TiO₂ reside within the same product market. Complaint Counsel cannot reasonably argue that sulfate-process produced TiO₂ is in a different market from chloride-process produced TiO₂ while using sulfate-process produced TiO₂ for its economic arguments.

633. Dr. Hill analyzed TiO₂ producer invoice data and found that following the fire and loss of Pori's output, [REDACTED] (Hill, Tr. 1821-22 (*in camera*); PX5004 at 039 (¶¶ 89-90 & Fig. 17) (Hill Rebuttal Report to Shehadeh (*in camera*)). While Tronox and Cristal's average North American price [REDACTED], respectively, their average prices in Europe [REDACTED] from January 2017 to December 2017. (PX5004 at 039 (¶ 90 & Fig. 17) (Hill Rebuttal Report to Shehadeh (*in camera*); Hill, Tr. 1822 (*in camera*)). Prior to the fire at Venator's Pori, Finland plant, average European prices were [REDACTED] (PX5002 at 021 (¶ 44) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 633:

Complaint Counsel's proposed finding is misleading. Prices in Europe went up in the *short term* due to the Pori fire, before "supplies from other regions [were able] to pour in to replace the supply that was lost. (Stern, Tr. 3718). After the Pori fire, Europe, which "used to be one of the lowest area price[s] in the world suddenly switched to become the highest price," and producers responded by "start[ing] to move their production to feed that market." (Turgeon, Tr. 2668). Even though the Pori plant is located in Finland and makes TiO₂ using only the sulfate process—it does not use the chloride method—the fire affected TiO₂ prices worldwide,

including in North America. (Stern, Tr. 3718; Shehadeh, Tr. 3457; Hill, Tr. 1821, 2033). As Dr. Shehadeh explained, after the Pori fire, [REDACTED]

[REDACTED] (Shehadeh, Tr. 3457). In the short-term, TiO₂ prices globally went up. (Stern, Tr. 3718). Moreover, to the extent that the Complaint Counsel relies upon the sulfate Pori plant fire in its factual findings, it is further evidence that chloride-process produced TiO₂ and sulfate-process produced TiO₂ reside within the same product market. Complaint Counsel cannot reasonably argue that sulfate-process produced TiO₂ is in a different market from chloride-process produced TiO₂ while using sulfate-process produced TiO₂ for its economic arguments. Finally, to the extent that the proposed finding proffers a factual proposition, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

634. To the extent that alternative sources of supply, if any, replaced the Pori plant's lost output (presumably either imports or through arbitrage), it did so [REDACTED] and caused prices in Europe [REDACTED] (PX5002 at 021 (¶ 45) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*); Hill, Tr. 2036-37 [REDACTED] (*in camera*)).

Response to Finding No. 634:

Prices in Europe went up in the *short term* due to the Pori fire, before "supplies from other regions [were able] to pour in to replace the supply that was lost." Stern, Tr. 3718. *See also* Respondents' Replies to Complaint Counsel's proposed Factual Findings 631-33.

Moreover, to the extent that Complaint Counsel relies upon the sulfate Pori plant fire in its factual findings, it is further evidence that chloride-process produced TiO₂ and sulfate-process produced TiO₂ reside within the same product market. Complaint Counsel cannot reasonably

argue that sulfate-process produced TiO₂ is in a different market from chloride-process produced TiO₂ while using sulfate-process produced TiO₂ for its economic arguments. Finally, to the extent that the proposed finding proffers a factual proposition, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

635. The results of this natural experiment confirm Dr. Hill's conclusion that [REDACTED] (Hill, Tr. 1822 (*in camera*); PX5002 at 021 (¶ 45) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 635:

Complaint counsel's proposed finding is inaccurate. Arbitrage can and is performed in the TiO₂ market. Respondent's Response to Findings ¶¶ 631-34. Moreover, to the extent that Complaint Counsel relies upon the sulfate Pori plant fire in its factual findings, it is further evidence that chloride-process produced TiO₂ and sulfate-process produced TiO₂ reside within the same product market. Complaint Counsel cannot reasonably argue that sulfate-process produced TiO₂ is in a different market from chloride-process produced TiO₂ while using sulfate-process produced TiO₂ for its economic arguments. Finally, to the extent that the proposed finding proffers a factual proposition, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

- iv. North American Chloride TiO₂ Producers Are Unlikely to Increase Output in North America Sufficiently to Offset a Price Increase Resulting from the Merged Firm's Unilateral Output Reduction

636. North American chloride TiO₂ producers are unlikely to increase their output if prices were to rise in response to the merged firm's output reduction. Even in the current market without the proposed merger, the North American TiO₂ producers recognize their mutual interdependence and avoid competing aggressively to maintain higher pricing. (*See* CCF ¶¶ 427-59, above). Consistent with this, other North American chloride TiO₂

producers believe that this merger is likely to lead to “continued capacity constraints” (Christian, Tr. 772; PX3011 at 038 (Kronos presentation)) and [REDACTED] (PX3000 at 004 (Venator presentation) (*in camera*)).

Response to Finding No. 636:

Complaint Counsel’s proposed finding is inaccurate. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr.

2038-39 (emphasis added); {PX7052 (O’Sullivan Dep, 80-81)}.} Said differently, if there were a SSNIP of 5-10% in North America in the real world, [REDACTED]

[REDACTED]

[REDACTED] (Shehadeh, Tr. 3478-79). [REDACTED]

[REDACTED] directly contradicts the academic predictions of Dr. Hill’s capacity closure model. (Shehadeh, Tr. 3478-80). Further, [REDACTED]

[REDACTED]

[REDACTED] (Shehadeh, Tr. 3478-79; PX7052(O’Sullivan, Dep. at 79-80)).

Ordinary course documents from Respondents likewise show that sellers reposition their business to take advantage of relative price differences: Cristal’s ordinary course documents show that [REDACTED]

[REDACTED]

[REDACTED] (PX2356 at 011 (Gunther email to Gigou with attachment) (*in camera*)). Tronox ordinary course documents show Tronox doing the same. (RX0250 (*in camera*)) [REDACTED]

[REDACTED] Dr. Hill

further acknowledged that “if a firm increases its sales” in the domestic market “because of

export repatriation, it would in some way mitigate the anticompetitive effect” of another firm withholding output. (Hill, Tr. 1931-32).

637. Further, in addition to the lack of incentive for the merged firm’s North American rivals to increase output, even if North American producers wanted to increase output in response to the merged firm’s output reduction, [REDACTED] (See CCFE ¶¶ 638-39, below). Kronos’s worldwide utilization was over {100%} in the first half of 2017, (PX7035 (Christian, Dep. at 75-76) *in camera*), and TZMI reported its estimate of the North American utilization rate was {98%} in 2016. (PX1663 (2017 TZMI Pigment Producers Cost Study spreadsheet) *in camera*). Venator had [REDACTED] in North America in 2016. (PX1663 (2017 TZMI Pigment Producers Cost Study spreadsheet) *in camera*). Likewise, Chemours has told investors that “we are seeing strong demand globally and are utilizing all our TiO₂ plants at their full capability.” (PX9059 at 004 (Chemours Q1 2017 Earnings Call Transcript)). Given this high demand, Chemours expected that long lead times for chloride TiO₂ would continue. (PX9059 at 004 (Chemours Q1 2017 Earnings Call Transcript)).

Response to Finding No. 637:

Complaint Counsel’s proposed finding is inaccurate. Respondents’ Response to Findings ¶ 636.

638. Reflecting the lack of available capacity in North America, [REDACTED] (PX7025 (Malichky, Dep. at 170-72) *in camera*). As Mr. Malichky explained, [REDACTED] (PX7025 (Malichky, Dep. at 172) *in camera*)).

Response to Finding No. 638:

Complaint Counsel’s proposed finding is misleading because it does not [REDACTED]

[REDACTED]

[REDACTED] (Malichky, Tr. 378-79; 387). In fact,

[REDACTED]

[REDACTED] (Malichky, Tr. 387). [REDACTED]

[REDACTED]

(Malichky, Tr. 389). Moreover, Complaint Counsel is relying upon deposition testimony that it

chose not to elicit at trial, depriving Respondents the opportunity for further exploration by way of cross examination.

639.

[REDACTED] . (PX7033 (Post, Dep. at 191-92) (*in camera*); PX7030 (Arrowood, Dep at 13) (*in camera*); PX7040 (Santoro, Dep. at 126-28) (*in camera*) (“so they are pretty much sold out”)).

Response to Finding No. 639:

Complaint Counsel is relying upon witnesses that it chose not to call and deposition testimony that it chose not to elicit at trial, depriving Respondents the opportunity for further exploration by way of cross examination.

640. Moreover, after conducting a detailed econometric analysis of how North American TiO₂ suppliers responded to past price increases in North America, Dr. Hill concluded that neither imports to North America nor repatriated exports (i.e., a North American producer redirecting planned chloride TiO₂ exports back to North America) are likely to discipline a price increase in North America resulting from output suppression. (Hill, Tr. 1929-30, 1932-33; *see* CCF ¶¶ 641-57, below).

Response to Finding No. 640:

Complaint Counsel’s proposed finding is inaccurate as Dr. Hill’s economic modeling was repeatedly demonstrated to be flawed on cross examination. *See* Respondents’ Responses to Findings ¶¶ 641-57, below.

641. Dr. Hill examined both imports and export repatriation empirically relying on prior industry responses to price changes to determine whether they might discipline a price increase resulting from the unilateral withdrawal of chloride titanium dioxide by the merged firm. (Hill, Tr. 1774-75).

Response to Finding No. 641:

Complaint Counsel’s proposed finding is misleading and inaccurate. This is an inaccurate description of Dr. Hill’s methods and assumptions. Dr. Hill’s “capacity closure model does not allow for expansion of capacity” by any competitor “above and beyond the growth of demand.”

(Hill, Tr. 1983). Instead, Dr. Hill’s “capacity closure model assumes that no competitor will take TiO₂ that it currently exports out of North America and instead sell it in North America if there’s a reduction of output.” (Hill, Tr. 1983-84). In other words, Dr. Hill’s capacity closure model “assumes that there is no export repatriation back into North America in response to [North American] price changes.” (Hill, Tr. 1984). The assumption that North American rivals “won’t keep some of those exports home in response to higher prices in his model” is deliberately “imposed” by Dr. Hill on his capacity closure model. (Shehadeh, Tr. 3341-42). As Dr. Hill succinctly put it: “There’s no export repatriation allowed.” (Hill, Tr. 1983). Dr. Hill’s assumption of no export responses in his capacity closure model does not depend at all on how big or small the hypothetical price increase is. (Shehadeh, Tr. 3342-43). In other words, Dr. Hill’s capacity closure model assumes no export response in North America even for the highest price increases predicted by his model. (Shehadeh, Tr. 3342-43).

642. Specifically, Dr. Hill estimated how responsive imports of chloride titanium dioxide are to changes in the price of chloride titanium dioxide in North America based on how imports have responded to changes in price in North America in the past. (Hill, Tr. 1774). This measure is known as the price elasticity of imports. (Hill, Tr. 1691-92). Dr. Hill’s analysis shows that any increase in imports would be small and insufficient to offset higher prices resulting from the merger. (Hill, Tr. 1774-75; PX5000 at 11-12 (¶¶ 21) (Hill Initial Report) (“Imports of chloride titanium dioxide are unlikely to offset any price increase that results from the merger.”) (*in camera*)).

Response to Finding No. 642:

Complaint Counsel’s proposed finding is an inaccurate portrayal of market conditions in North America. Imports of TiO₂ into North America show significant “elasticity of import supply over time,” which is “reflected in the variation of imports to respond to demand in North America.” (Shehadeh, Tr. 3217-18). From 2002 to 2016, imports of TiO₂ into North America “var[ied] from a high in excess of 200,000 tons per year to a low of approximately 75,000 tons per year.” (Shehadeh, Tr. 3217-18). The significant magnitude and variation in imports of TiO₂

into North America is “striking” and “reflects the flexibility of import supply to respond to changes in demand, including demand that would arise in response to a SSNIP [small but significant nontransitory increase in price] in the hypothetical monopolist test, the ability to respond to that in North America.” (Shehadeh, Tr. 3217-18; PX5000-033, Figure 12). Imports of TiO₂ into North America also show a “variation of the origin countries,” including, more recently, increases from China. (Shehadeh, Tr. 3220-21). UN Comtrade data reflecting imports of TiO₂ into North America by “country of origin” is depicted in Hill Figure 13 (PX5000-035; Shehadeh, Tr. 3220-21). Additionally, to the extent that Dr. Hill’s testimony proffers factual assertions, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

643. Dr. Hill also examined whether North American chloride TiO₂ producers would reduce their exporting behavior and instead sell some of that product in North America. (Hill, Tr. 1775). That analysis shows that North American chloride TiO₂ producers have historically not changed their exporting behavior in response to North American prices. (Hill, Tr. 1775-76, 1929-30, 1932-33; PX5000 at 142-43 (¶¶ 319-20) (Hill Initial Report) (*in camera*); PX5004 at 021 (¶ 42) (Hill Rebuttal Report) [REDACTED] [REDACTED] (*in camera*)).

Response to Finding No. 643:

Complaint Counsel’s proposed finding is an inaccurate portrayal of the real world dynamics of global TiO₂ manufacturers. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Hill, Tr. 2038-39 (emphasis added); PX7052 (O’Sullivan Dep, 80-81)). Said differently, if there were a SSNIP of 5-10% in North America in the real world, [REDACTED]

[REDACTED]

[REDACTED] (Shehadeh, Tr. 3478-79). [REDACTED]

[REDACTED] directly contradicts the academic predictions of Dr. Hill’s capacity closure model. (Shehadeh, Tr. 3478-80). Further, [REDACTED]

[REDACTED]

[REDACTED]

Ordinary course documents from Respondents likewise show that sellers reposition their business to take advantage of relative price differences: Cristal’s ordinary course documents show that [REDACTED]

[REDACTED]

[REDACTED] (PX2356 at 011 (Gunther email to Gigou with attachment) (*in camera*)). Tronox ordinary course documents show Tronox doing the same. (RX0250 (*in camera*)) [REDACTED]

[REDACTED] Dr. Hill

further acknowledged that “if a firm increases its sales” in the domestic market “because of export repatriation, it would in some way mitigate the anticompetitive effect” of another firm withholding output. (Hill, Tr. 1931-32). Additionally, to the extent that Dr. Hill’s testimony and PX5000 and PX50004 proffer factual assertions, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

644. Dr. Hill’s empirical conclusions regarding the lack of a response to higher chloride TiO₂ prices in North America in the form of either imports or repatriated exports are supported by the evidence that there are persistent price differences by region. (PX5000 at 060-063 (¶¶ 138-143) (Hill Initial Report) (*in camera*)). Specifically, Dr. Hill’s analysis shows that chloride TiO₂ prices were [REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 1723 (*in camera*); PX5000 at 060-063 (¶¶ 138-43) (Hill Initial Report) (*in camera*); see CCF ¶¶ 232-58, above).

Response to Finding No. 644:

Complaint Counsel’s proposed findings are undermined by the evidence. To the extent that there have been relative differences in regional prices, evidence shows that TiO2 sellers reposition their business to take advantage of those differences. Cristal’s ordinary course documents show that [REDACTED]

[REDACTED]

[REDACTED] (PX2356 at 011 (Gunther email to Gigou with attachment) (*in camera*). Tronox ordinary course documents show Tronox doing the same. (RX0250 (*in camera*) [REDACTED]

[REDACTED]

Likewise, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2038-39 (*emphasis added*); [REDACTED]

[REDACTED] Said differently, if there were a SSNIP of 5-10% in North America in the real world, [REDACTED]

[REDACTED]

[REDACTED] (Shehadeh, Tr. 3478-79). [REDACTED]

[REDACTED] directly contradicts the academic predictions of Dr. Hill’s capacity closure model.

(Shehadeh, Tr. 3478-80). Further, [REDACTED]

[REDACTED] (Shehadeh, Tr. 3478-79;

PX7052 [REDACTED]

Complaint Counsel's proposed finding is an inaccurate portrayal of the real-world TiO2 industry. [REDACTED]

[REDACTED] (Romano, Tr. 2155-56). [REDACTED]

[REDACTED] (Romano, Tr. 2182).

"[A]nytime . . . the TiO2 pricing moves outside of that band, it [tends] to migrate back into the band over time." (Romano, Tr. 2233). [REDACTED]

[REDACTED] (Romano, Tr. 2155). If one region were to fall outside of that trend, it would open up arbitrage opportunities. (Stern, Tr. 3719). [REDACTED]

[REDACTED]. (Romano, Tr. 2182). The same factors influence prices across the globe, so in that sense prices for TiO2 are

"interdependent" of one another in different parts of the world. (Romano, Tr. 2237). [REDACTED]

[REDACTED] (Shehadeh, Tr. 3453-54). The apparent differences in average prices can be based on [REDACTED]

[REDACTED] (Shehadeh, Tr. 3453). Additionally, to the extent that

Dr. Hill's testimony and PX5000 proffer factual assertions, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

645. Imports of chloride TiO2 into North America have been, and remain, limited, even when chloride TiO2 prices in North America were significantly higher than those in the rest of

the world. (PX5000 at 063-64 (¶¶ 144) (Hill Initial Report) (*in camera*)). For example, [REDACTED] (PX5000 at 032-33 (¶ 78 & Figure 12) (Hill Initial Report) (*in camera*)).

Response to Finding No. 645:

Complaint Counsel’s proposed finding fails to accurately depict the current state of the TiO₂ market and that of the near future. The Chinese chloride threat to North American competitors is very real. Since 2012, China has made “great strides” in the commercialization of chlorideprocess TiO₂ technology. (Arndt, Tr. at 1407). [REDACTED]

[REDACTED]
[REDACTED]
(Christian, Tr. 828). [REDACTED]

[REDACTED]
(Malichky, Tr. 416). [REDACTED]

[REDACTED] (Romano, Tr. 2244). [REDACTED]

[REDACTED] (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility of 300,000 tons of chlorideprocess TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244). Chinese imports have already come to dominate the South Korean and Brazilian markets, and they threaten to do the same in the United States. (Stern, Tr. 3824). Additionally, to the extent that Dr. Hill’s testimony and PX5000 proffer factual assertions, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

646. The high costs of importing TiO₂ into North America, including shipping and duties, limit imports. (PX5000 at 064-065 (¶¶ 146) (Hill Initial Report) (*in camera*); see CCF ¶¶ 789-93, below). Those costs can [REDACTED]

[REDACTED] (PX8005 at 004 (¶ 20) (Maiter Decl.) (*in camera*)); PX0003 at 038 (Tronox Second Request Narrative Response to Specification 16) [REDACTED] [REDACTED] (*in camera*)).

Response to Finding No. 646:

Complaint Counsel’s proposed finding is an inaccurate depiction of the real-world TiO₂ industry because those purported limitations have not stopped substantial quantities of TiO₂ from being traded around the world. TiO₂ is traded internationally in significant quantities because TiO₂ has no expiration date, a virtually infinite shelf life, and no safety issues involved with transporting TiO₂. (Mei, Tr. 3157-58). TiO₂ is easily transported by truck, rail, or sea. (Mei, Tr. 3154-57). There are “no special requirement in terms of handling or transportation” of TiO₂. (Mei, Tr. 3156). TiO₂ is also relatively inexpensive to ship across the globe. TiO₂ costs about 3% of the total price to move it into and out of the United States. (Mei, Tr. 3158). Indeed, shipping TiO₂ internationally is so economical that total shipping costs, including tariffs and taxes, can be lower for TiO₂ shipped internationally than TiO₂ shipped domestically. (Mei, Tr. 3159-60). For instance, it costs less to ship TiO₂ from Australia to Los Angeles than it does to ship it from Hamilton, Mississippi to Los Angeles. (Mei, Tr. 3159). Additionally declaration testimony relied upon by Complaint Counsel was not presented at trial, depriving Respondents the opportunity to test the statements by cross examination. To the extent that PX5000 proffers factual assertions, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

647. Because of those costs, [REDACTED] [REDACTED] (PX7035 (Christian, Dep. at 77-78) (*in camera*); PX8002 at 003 (¶ 14) (Christian Decl.) (*in camera*); PX8005 at 004 (¶ 19) (Maiter Decl.) (*in camera*)). Those specialty grades typically earn a high margin that partially offsets the costs associated with shipping the product as well as the import duties. (PX8005 at 004 (¶¶ 19, 22) (Maiter Decl.) (*in camera*)).

Response to Finding No. 647:

Complaint Counsel's proposed finding is an inaccurate portrayal of the current and future status of chloride imports into North America. Respondents' Response to Findings ¶¶645 and 646. Additionally, declaration testimony relied upon by Complaint Counsel was not presented at trial, depriving Respondents the opportunity to test the statements by cross examination.

648. Kronos indicated that [REDACTED] (PX7035 (Christian, Dep. at 77-78) (*in camera*)). It cited [REDACTED] (PX7035 (Christian, Dep. at 77-78) (*in camera*)).

Response to Finding No. 648:

Complaint Counsel is relying upon deposition testimony that it had the ability to elicit at trial and chose not to do so, depriving Respondents of the opportunity to test such statements by way of cross examination. Respondents' Replies Findings ¶¶ 645 and 646.

649. Moreover, [REDACTED] (*in camera*)).

Response to Finding No. 649:

Complaint Counsel is relying upon an interrogatory response that it had the ability to elicit at trial and chose not to do so, depriving Respondents of the opportunity to test such statements by way of cross examination. Moreover, the proposed fact's hypothetical is devoid of the context of an incentive to sell more product in North America.

650. As Venator further explained, [REDACTED] (PX8005 at 004 (¶ 21) (Maiter Decl.) (*in camera*)). As a result, the company believes [REDACTED] (PX8005 at 004 (¶ 21) (Maiter Decl.) (*in camera*)).

Response to Finding No. 650:

Complaint Counsel is relying upon a declaration from a witness that it chose not to call at trial, depriving Respondents of the opportunity to test such statements by way of cross examination. Moreover, the proposed fact's hypothetical is devoid of the context of an incentive to sell more product in North America.

651. Chloride TiO₂ imports from China are also unlikely to offset the price effects of a North American output reduction. (See CCFF ¶¶ 745-812, below). Chinese chloride TiO₂ production remains limited and demand for TiO₂ is booming in China and nearby parts of Asia, resulting in tight supply, high prices, and reduced availability of Chinese TiO₂ for export to North America. (See CCFF ¶¶ 775-88, below).

Response to Finding No. 651:

Complaint Counsel's proposed finding fails to accurately depict the current state of the TiO₂ market and that of the near future. The Chinese chloride threat to North American competitors is very real. Since 2012, China has made "great strides" in the commercialization of chlorideprocess TiO₂ technology. (Arndt, Tr. at 1407). As of 2017, [REDACTED]

[REDACTED]

(Christian, Tr. 828). [REDACTED]

[REDACTED]

(Malichky, Tr. 416). Lomon Billions' current chloride plant is running at a capacity of 70,000 tons per year. (Romano, Tr. 2244). Lomon Billions will expand production at its chloride plant by 300,000 tons per year at the end of 2019. (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility of 300,000 tons of chlorideprocess TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244). Chinese imports have already come to dominate the South Korean and Brazilian markets, and they threaten to do the same in

the United States. (Stern, Tr. 3824). Respondents Responses to Findings ¶¶ 745-812 and 775-88 below.

652. In addition to the evidence suggesting that increased imports by North American suppliers would be unlikely to discipline a price increase in North America, there is no evidence that North American producers have responded to higher prices in North America by redirecting their exports back to North America or that they would likely do so in the future. (See CCFE ¶¶ 653-57, below). This qualitative evidence that export repatriation has not occurred in the past is consistent with Dr. Hill’s quantitative analysis showing that North American producers have not repatriated exports in the past. (See CCFE ¶ 643, above).

Response to Finding No. 652:

Complaint Counsel’s proposed finding is an inaccurate portrayal of the real-world TiO₂ market. Cristal’s ordinary course documents show that [REDACTED]
[REDACTED]
[REDACTED] (PX2356 at 011 (Gunther email to Gigou with attachment) (in camera). Tronox ordinary course documents show Tronox doing the same. (RX0250 (in camera) [REDACTED])

[REDACTED] Dr. Hill acknowledged that “if a firm increases its sales” in the domestic market “because of export repatriation, it would in some way mitigate the anticompetitive effect” of another firm withholding output. (Hill, Tr. 1931-32). *See also* Respondents Responses to Findings ¶¶ 642-43, above, and ¶¶ 653-57, below.

653. Chemours, [REDACTED] (PX5000 at 038-039 (¶ 85 & Figure 16) (Hill Initial Report) (in camera)). [REDACTED] (PX7052 (O’Sullivan, Dep. at 146-47) (in camera)) [REDACTED]

Response to Finding No. 653:

Complaint Counsel’s proposed finding is misleading, as it is simply not an accurate portrayal of the real-world TiO2 market or of Mr. O’Sullivan’s testimony and Chemours’s attitude, particularly in the face of a *sustained* hypothetical price increase in North America.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Hill, Tr. 2038-39 (emphasis added); PX7052 (O’Sullivan Dep, 80-81)). Said differently, if there were a SSNIP of 5-10% in North America in the real world,

[REDACTED]

[REDACTED]

[REDACTED] (Shehadeh, Tr. 3478-79). [REDACTED]

[REDACTED] directly contradicts the academic predictions of Dr. Hill’s capacity closure model.

(Shehadeh, Tr. 3478-80). Further, [REDACTED]

[REDACTED] (Shehadeh, Tr. 3478-79;

PX7052 (O’Sullivan, Dep. at 79-80)).

654. In explaining [REDACTED] Chemours’s Mr. O’Sullivan testified that [REDACTED] (PX7052 (O’Sullivan, Dep. at 70) (*in camera*)). He explained that [REDACTED] (PX7052 (O’Sullivan, Dep. at 70) (*in camera*)) [REDACTED]

Response to Finding No. 654:

Complaint Counsel’s proposed finding is pure speculation by Dr. Hill and not supported by any documents or fact testimony. It is also misleading as it is simply not an accurate

portrayal of the real-world TiO₂ market or of Mr. O'Sullivan's testimony. Mr. O'Sullivan explained that [REDACTED]

[REDACTED]

(PX7052 (O'Sullivan, Dep. at 71) (*in camera*)) Thus, the proposed finding misstates and Chemours's attitude, particularly in the face of a *sustained* hypothetical price increase in North America. Respondents' Response to Findings ¶ 653.

655. [REDACTED] with the economic intuition underlying Section 6.3.3 of the Merger Guidelines and Dr. Hill's unilateral effects analysis. Chemours has a very high market share in North America and as a result, is very sensitive to North American chloride TiO₂ prices. (Hill, Tr. 1936-37). As a result, Chemours would be reluctant to repatriate exports because it would drive down North American prices. (Hill, Tr. 1936-37).

Response to Finding No. 655:

Complaint Counsel's proposed finding is misleading as it is simply not an accurate portrayal of the real-world TiO₂ market or of Mr. O'Sullivan's testimony and Chemours's attitude, particularly in the face of a *sustained* hypothetical price increase in North America. *See also* Respondents' Reply to Complaint Counsel's Proposed Factual Finding 653. Mr. Stern, who has spent four decades in the chemicals industry, stated that "[i]f prices in North America, for that matter almost any other region, were to rise significantly and without parallel in other regions, that would then create a situation where other regions would send material to, in this particular example, North America to take advantage of that higher price." (Stern, Tr. 3831). Mr. Stern also stated that "if prices in North America were higher and were sustained at a higher level than other regions, that would provide an incentive for North American exporters to turn their ships around and take advantage of the market with higher prices." (Stern, Tr. 3831-32).

656. Mr. O'Sullivan also explained that [REDACTED]
[REDACTED]
(PX7052 (O'Sullivan, Dep. at 147) (*in camera*)).

Response to Finding No. 656:

Complaint Counsel's proposed finding is misleading as it is simply not an accurate portrayal of the real-world TiO₂ market or of [REDACTED] attitude, particularly in the face of a *sustained* hypothetical price increase in North America.

Respondents' Responses to Finding ¶653.

657. Dr. Hill analyzed export data from Kronos and Venator, the remaining North American chloride TiO₂ producers (other than the merged firm and Chemours), and found that Kronos and Venator have [REDACTED] (PX5000 at 038 (¶ 85) (Hill Initial Report) (*in camera*)). As a result, even if Kronos or Venator were to repatriate their North American chloride TiO₂ exports, it would have limited impact on North American prices.

Response to Finding No. 657:

Complaint Counsel's proposed finding is misleading. By ignoring Tronox, Cristal, and Chemours, Dr. Hill's analysis fails to capture the real-world dynamics of the TiO₂ market.

Moreover, even if Dr. Hill's assessment of Kronos and Venator having [REDACTED] [REDACTED] was accurate, Complaint Counsel cites not evidence for its allegation that the [REDACTED] would "have limited impact on North American prices." [REDACTED]

[REDACTED] To the extent that Complaint Counsel relies on PX5000 rather than trial testimony, it deprived Respondents of the opportunity to test the veracity of Dr. Hill's conclusions through cross examination. Finally, to the extent that PX5000 proffers factual findings, Complaint Counsel violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

- v. Economic Modelling Shows that the Merged Firm Has an Even Greater Incentive to Withhold Output than the Stand-alone Firms

658. The qualitative evidence and data show that suppliers of chloride TiO₂ in North America have found it profit-maximizing in the past to withhold output to support North American TiO₂ prices. (PX5004 at 041 (¶ 94) (Hill Rebuttal to Shehadeh) (*in camera*); see CCF ¶¶ 586-630, above). Economic intuition, incorporated into Merger Guidelines § 6.3, suggests that a larger firm will capture more of the benefit of withholding output (i.e., a price increase) than a smaller firm because it accounts for a larger proportion of the market and have an greater incentive to reduce output. (Hill, Tr. 1764-69; PX5000 at 011, 069-75 (¶¶ 17, 159-77) (Hill Initial Report) (*in camera*)).

Response to Finding No. 658:

Complaint Counsel's proposed finding is not fact, but rather improper legal argument.

659. Dr. Hill conducted an independent empirical analysis to test whether this intuition would hold true here (i.e., whether the Tronox/Cristal merger would increase the incentives of the merged firm to withhold output relative to those of the stand-alone firms). He used two standard economic models commonly applied to oligopoly commodity markets—the capacity closure model and the Cournot model to estimate the merger's impact on unilateral incentives. (Hill, Tr. 1759-60; PX5000 at 011 (¶ 18) (Hill Initial Report) (*in camera*)). Both models showed that the merged firm has a significantly increased incentive to reduce output relative to the stand-alone firms today, meaning that the merger is likely to lead to higher North American chloride TiO₂ prices and customer harm. (Hill, Tr. 1764-1769; PX5000 at 011, 069-75 (¶¶ 17-18, 159-77) (Hill Initial Report) (*in camera*)).

- (a) The capacity closure model predicts that the merged firm has a stronger incentive to reduce output than the stand-alone firms

Response to Finding No. 659:

Complaint Counsel's proposed finding is unfounded. Dr. Hill's implementation of his capacity closure model and Cournot model was flawed and cannot accurately predict anticompetitive harm of this merger. Dr. Hill's capacity closure model suffers from numerous fundamental flaws, including ignoring real-world competition, which cause the model to artificially predict competitive effects. (Shehadeh, Tr. 3329-30). By the same token, Dr. Hill's Cournot model suffers from numerous fundamental flaws and fails multiple validity tests. (Shehadeh, Tr. 3388).

660. The capacity closure model predicts that the transaction is likely to have an anticompetitive effect in the North American chloride TiO₂ market by increasing the incentives of the merged firm relative to each of the stand-alone firms to reduce output today. (Hill, Tr. 1858).

Response to Finding No. 660:

Complaint Counsel’s proposed finding is unfounded because Dr. Hill’s capacity closure model is unreliable. Dr. Hill’s capacity closure model failed several validity tests. First, when running Dr. Hill’s capacity closure model for Chemours, Dr. Shehadeh found that the results of the model fail to predict Chemours “real world” behavior and thus is not “attuned to industry reality.” (Shehadeh, Tr. 3331, 3337). Dr. Hill also acknowledged that his capacity closure model “predicted that Chemours should supply less to North America... than Chemours is actually supplying according to [Dr. Hill’s] model and data.” (Hill, Tr. 2010). Second, Dr. Hill’s capacity closure model does not allow for competitive responses by rivals, thereby predetermining its conclusions. *See* Respondents’ Findings ¶¶ 629-60. Third, if Dr. Hill’s capacity closure model allowed even slight competitive responses of rivals, it would show all unilateral reduction scenarios to be unprofitable. *See* Respondents’ Findings ¶¶ 661-69. Finally, Dr. Hill admittedly made a number of “mistakes” and “errors” in his “capacity closure” model. *See* Respondents’ Findings ¶¶ 670-85.

661. Dr. Hill developed the capacity closure model to assess a merger’s impact on incentives to withhold output in markets involving relatively homogenous products and high fixed costs. (Hill, Tr. 1771). Those conditions are met by the chloride TiO₂ industry. (Hill, Tr. 1771).

Response to Finding No. 661:

Respondents have no specific response.

662. The capacity closure model has been employed by the Department of Justice’s Antitrust Division in a number of merger matters, has been accepted by at least one federal court in *Unites States v. Abitibi Consol., Inc.*, 584 F. Supp. 2d 162 (D.D.C. 2008), and has been the subject of published articles. (Hill, Tr. 1770-71).

Response to Finding No. 662:

Complaint Counsel’s proposed finding is false and misleading. Dr. Hill’s “capacity closure” model “has not been published in an academic journal.” (Hill, Tr. 1962). Dr. Hill’s “capacity closure” model also “has not been subject to peer review” “in the publication of a paper.” (Hill, Tr. 1961-62). Neither Dr. Hill’s report nor his testimony identified anyone other than Dr. Hill who has used his “capacity closure” model. (Hill, Tr. 1659-60, 1967). Dr. Hill testified that his “capacity closure” model “was accepted by a court” in “one case”: the Tunney Act proceeding for the Abitibi-Bowater matter. (Hill, Tr. 1962, 1771). However, the Abitibi-Bowater court explained that “the relevant inquiry is whether the United States’ conclusion about the adequacy of the Snowflake divestiture,” which was based on the “capacity closure” model, “was reasonable, *not whether it was correct.*” (RX2010.0006 (emphasis added); Hill, Tr. 1964 (emphasis added)). In fact, Dr. Hill’s “capacity closure” model has never been accepted by any appellate court. (Hill, Tr. 1771).

663. The capacity closure model focuses on whether a merger changes the merged firm’s incentives to reduce output relative to the stand-alone firms. (Hill, Tr. 1772; PX5002 at 011 (¶16) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 663:

Complaint Counsel’s proposed finding is misleading. Although it is true that the capacity closure model “focuses on whether a merger changes the merged firm’s incentives to reduce output relative to the stand-alone firms,” this understanding highlights why the model is so flawed. Not only is the model flawed because it is “inconsistent with the real world” and fails several validity tests (Shehadeh, Tr. 3329-30), but also because it “artificially and incorrectly ignores the ability of North American suppliers to competitively respond to pricing in North America, thereby predetermining the result of his analysis.” (RX0170 at 0037 (¶51) (Shehadeh Expert Report)). Specifically, Dr. Hill’s capacity closure model “assumes its conclusion because

it imposes on the model an unfounded and unsupported constraint—i.e., that the supply of TiO₂ cannot possibly increase from numerous rivals (including other North American producers as well as from international producers) in response to the post-merger company’s hypothetical unilateral reduction, including no response by rivals in North America either from increased imports or reduced exports.” (RX0170.0037 at 0037 (¶51) (Shehadeh Expert Report)).

664. The capacity closure model computes the benefits and costs to a firm of withholding output. (PX5000 at 085-086 (¶ 190) (Hill Initial Report) (*in camera*)). If the benefits are greater than the costs, the merged firm is likely to have an incentive to reduce output. (PX5000 at 085-086 (¶ 190) (Hill Initial Report) (*in camera*)). To do that, the model assesses both the firm’s costs of closing capacity and whether the potential price increase would be defeated by customers turning to other products or sources of supply. (PX5000 at 086 (¶¶ 191-94) (Hill Initial Report) (*in camera*)).

Response to Finding No. 664:

665. Complaint Counsel’s proposed finding is misleading. Dr. Hill’s capacity closure model is flawed. Not only is the model flawed because it is “inconsistent with the real world” and fails several validity tests (Shehadeh, Tr. 3329-30), but also because it “artificially and incorrectly ignores the ability of North American suppliers to competitively respond to pricing in North America, thereby predetermining the result of his analysis.” (RX0170 at 0037 (¶51) (Shehadeh Expert Report)). Specifically, Dr. Hill’s capacity closure model “assumes its conclusion because it imposes on the model an unfounded and unsupported constraint—i.e., that the supply of TiO₂ cannot possibly increase from numerous rivals (including other North American producers as well as from international producers) in response to the post-merger company’s hypothetical unilateral reduction, including no response by rivals in North America either from increased imports or reduced exports.” (RX0170.0037 at 0037 (¶51) (Shehadeh Expert Report)). In running the capacity closure model, Dr. Hill relied on the Respondents’ own documents and data, including various internal assessments of the likely costs of idling production lines or closing plants, to assess the costs of actually doing so. (PX5000 at 086, 147-50 (¶¶ 191, 331-49) (Hill Initial Report) (*in camera*)). Those costs include manufacturing and variable costs for an idling scenario and both actual variable and fixed costs for a closure scenario. (PX5000 at 149 (¶¶ 344-46) (Hill Initial Report) (*in camera*)).

Response to Finding No. 665:

Complaint Counsel’s proposed finding is misleading because despite using “Respondents’ own documents and data” to run his capacity closure model, Dr. Hill’s capacity

closure model is still flawed and unreliable because it fails basic model validity tests. *See* Reply to Fact No. 660, above.

666. The capacity closure model also considers whether customers would switch to a different product altogether or if a response from rivals (i.e., increased output, imports, or export repatriation) would render the merged firm's output reduction unprofitable. (Hill, Tr. 1772; PX5000 at 086 (¶¶ 193-94) (Hill Initial Report) (*in camera*)).

Response to Finding No. 666:

Complaint Counsel's proposed finding is false and misleading. As Dr. Shehadeh explained at trial, Dr. Hill's capacity closure model assumed away any meaningful competitive response by North American competitors. "Except in the case of a very small segment of imports, [Dr. Hill's] model does not let these reactions happen, and as he described, he assumed those for his model. So he assumed that exports will not respond; that's built into the model. He assumed that imports from North American rivals, Kronos, Chemours, Venator, will not increase; that's imposed in his model." (Shehadeh, Tr. 3332-33). "In the same way that he assumes that rivals cannot divert exports and can—at least in the case of North American rivals cannot increase imports, he similarly imposes that rivals cannot expand production, including thorough expanding capacity." (Shehadeh, Tr. 3332).

667. In specifying the extent to which the model allowed both customers to switch products and rivals to respond, Dr. Hill relied on real-world, historical data to calculate various elasticities of demand (i.e., whether customers would switch to another product if TiO₂ prices rose) and supply (i.e., responsiveness of imports, export repatriation, and increases in North American output) to determine whether the output reduction would be profitable. (PX5000 at 086, 148, 150 (¶¶ 193-94, 338-40, 348-49) (Hill Initial Report) (*in camera*); PX5004 at 041-044 (¶¶ 97-104) (Hill Rebuttal to Shehadeh) (*in camera*)). As Dr. Hill testified, Dr. Hill's capacity closure model incorporates demand growth and contemplates the one-year response period. (Hill, Tr. 1983). Dr. Hill incorporated those elasticities, which showed that in response to a North American price increase, imports do not significantly increase and domestic producers do not reduce exports, into the capacity closure model. (Hill, Tr. 1772, 1774-75; PX5000 at 086, 148-50 (¶¶ 193-94, 338-40, 348-49) (Hill Initial Report) (*in camera*); (PX5004 at 042 (¶¶ 98-99) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 667:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel’s proposed finding is also unfounded because Dr. Hill’s capacity closure model is unreliable. Dr. Hill’s capacity closure model failed several validity tests. First, when running Dr. Hill’s capacity closure model for Chemours, Dr. Shehadeh found that the results of the model fail to predict Chemours “real world” behavior and thus is not “attuned to industry reality.” (Shehadeh, Tr. 3331, 3337). Dr. Hill also acknowledged that his capacity closure model “predicted that Chemours should supply less to North America... than Chemours is actually supplying according to [Dr. Hill’s] model and data.” (Hill, Tr. 2010). Second, Dr. Hill’s capacity closure model does not allow for competitive responses by rivals, thereby predetermining its conclusions. *See* Respondents’ Findings ¶¶629-60. Third, if Dr. Hill’s capacity closure model allowed even slight competitive responses of rivals, it would show all unilateral reduction scenarios to be unprofitable. *See* Respondents’ Findings ¶¶ 661-69. Finally, Dr. Hill admittedly made a number of “mistakes” and “errors” in his “capacity closure” model. *See* Respondents’ Findings ¶¶ 670-85. Complaint Counsel’s proposed finding is also not a fact, but rather improper legal argument.

668. The capacity closure model predicts that, under current market conditions, the merged firm would have [REDACTED] (Hill, Tr. 1776, 1826-27 (*in camera*)). It shows that [REDACTED] (Hill, Tr. 1826-27 (*in camera*)); PX5000 at 087 (¶199) (Hill Initial Report) (*in camera*)).

Response to Finding No. 668:

Complaint Counsel’s proposed finding is unfounded because Dr. Hill’s capacity closure model is unreliable. Dr. Hill’s capacity closure model failed several validity tests. When running Dr. Hill’s capacity closure model for Chemours, Dr. Shehadeh found that the results of the model fail to predict Chemours “real world” behavior and thus is not “attuned to industry reality.”

(Shehadeh, Tr. 3331, 3337). Dr. Hill also acknowledged that his capacity closure model “predicted that Chemours should supply less to North America... than Chemours is actually supplying according to [Dr. Hill’s] model and data.” (Hill, Tr. 2010). Dr. Hill’s capacity closure model does not allow for competitive responses by rivals, thereby predetermining its conclusions. *See* Respondents’ Findings ¶¶ 629-60. Moreover, if Dr. Hill’s capacity closure model allowed even slight competitive responses of rivals, it would show all unilateral reduction scenarios to be unprofitable. *See* Respondents’ Findings ¶¶ 661-69. Finally, Dr. Hill admittedly made a number of “mistakes” and “errors” in his “capacity closure” model. *See* Respondents’ Findings ¶¶ 670-85. Complaint Counsel’s proposed finding is also not a fact, but rather improper legal argument.

669. The scale of the output reduction scenarios predicted by the capacity closure model, including the most profitable scenario, is similar to those taken by the Respondents combined during prior periods of output reduction. The capacity closure model predicts that the most profitable outcome for the merged firm would be [REDACTED] (PX5000 at 088 (¶¶ 199-200 & Fig. 33) (Hill Initial Report) (*in camera*)). In 2015, for example, Tronox idled [REDACTED] (Romano, Tr. 2165 (*in camera*); PX0003 at 015 (Tronox Second Request Narrative Response to Specification 4(d)) (*in camera*); PX5002 at 008 (Fig. 2) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 669:

Complaint Counsel’s proposed finding is unfounded because Dr. Hill’s capacity closure model predictions are unreliable. For example, in Dr. Hill’s April 6 report, his capacity closure “model predicted that the most profitable scenario to the merged firm was to idle two lines at Hamilton.” (Hill, Tr. 1968). By contrast, in Dr. Hill’s “April 18 report, [his] model run with its revised code no longer shows idling two lines at Hamilton as the most profitable scenario for the merged firm”; instead, the “revised code predicts that idling three lines at Hamilton is the most profitable scenario for the merged firm.” (Hill, Tr. 1976). The errors and mistakes in Dr. Hill’s

capacity closure model result in “very, very significant changes in the predictions of the model,” and therefore show “the underlying sensitivity and ultimately unreliability of the model.”

(Shehadeh, Tr. 3437-39). These substantial errors and mistakes in Dr. Hill’s capacity closure model, and the inherent unreliability of the model partly explain why the model fails “validity tests” and fails “to incorporate real-world competitive responses.” (Shehadeh, Tr. 3439-40).

670. To confirm that the merger increases the incentives to withhold output, Dr. Hill checked whether the model predicts that the stand-alone firms have an incentive to withhold output today. (Hill, Tr. 1777; PX5000 at 088 (¶201) (Hill Initial Report) (*in camera*)). The capacity closure model shows that absent the merger, neither stand-alone Tronox nor stand-alone Cristal have an incentive to reduce output, demonstrating that the merger creates an incentive to reduce output. (Hill, Tr. 1777; PX5000 at 088-89 (¶ 202-04) (Hill Initial Report) (*in camera*)). This model’s “change in incentives compared to those of the stand-alone firms is the model’s key conclusion, rather than a specific prediction” of harm. (PX5002 at 011 (¶16) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 670:

Complaint Counsel’s proposed finding is unfounded because Dr. Hill’s capacity closure model cannot reasonably make reliable predictions. Dr. Hill’s capacity closure model failed several validity tests. When running Dr. Hill’s capacity closure model for Chemours, Dr. Shehadeh found that the results of the model fail to predict Chemours “real world” behavior and thus is not “attuned to industry reality.” (Shehadeh, Tr. 3331, 3337). Dr. Hill also acknowledged that his capacity closure model “predicted that Chemours should supply less to North America... than Chemours is actually supplying according to [Dr. Hill’s] model and data.” (Hill, Tr. 2010). Dr. Hill’s capacity closure model does not allow for competitive responses by rivals, thereby predetermining its conclusions. *See* Respondents’ Findings ¶¶ 629-60. Additionally, if Dr. Hill’s capacity closure model allowed even slight competitive responses of rivals, it would show all unilateral reduction scenarios to be unprofitable. *See* Respondents’ Findings ¶¶ 661-69. Finally, Dr. Hill admittedly made a number of “mistakes” and “errors” in his “capacity closure” model. *See* Respondents’ Findings ¶¶ 670-85.

(b) Dr. Shehadeh's attack on the capacity closure model is unavailing

671. Dr. Shehadeh argues that Dr. Hill's capacity closure model underestimates rivals' responses to the merged firm's output reduction. (Hill, Tr. 1787). Not only is this argument belied by the qualitative evidence and data in this case, *see* CCFF ¶¶ 636-57, above, but it also relies on flawed econometrics and misrepresented measures of likely responses. (*See* CCFF ¶¶ 672-79, below). Finally, as Dr. Hill testified, [REDACTED] [REDACTED] (Hill, Tr. 1829 (*in camera*)).

Response to Finding No. 671:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument and should be discarded in considering any fact or issue in dispute. Complaint Counsel's proposed finding is incomplete and misguided. Dr. Shehadeh not only criticized Dr. Hill's capacity closure model for underestimating the response of rivals, but also criticized it for a host of other reasons including failing the Chemours validity test and making a number of mistakes and errors in his model. *See* Respondents' Findings ¶¶ 617-28, 670-85. Additionally, Complaint Counsel's proposed finding that [REDACTED] is false because "the errors and mistakes in Dr. Hill's capacity closure model result in "very, very significant changes in the predictions of the model," and therefore show "the underlying sensitivity and ultimately unreliability of the model." (Shehadeh, Tr. 3437-39). For example, by comparing the original result of his model to the new results of his model, it shows "very significant differences in which strategies are preferred." (Shehadeh, Tr. 3440-41). Moreover, Complaint Counsel's proposed finding that the "qualitative evidence and data" belies Dr. Shehadeh's critique of the capacity closure model is unwarranted because Dr. Hill's model remains unreliable and is still riddled with flaws.

672. First, Dr. Shehadeh contends that Dr. Hill's initial capacity closure model overly restricts the responses of imports. (Hill, Tr. 1787). Dr. Shehadeh calculated his own import elasticity, but his analysis is flawed for multiple reasons. First, it suffers from a multicollinearity problem. Multicollinearity makes it hard to accurately estimate the

causal effects of the different variables. Dr. Hill shows that Dr. Shehadeh's regression models exhibit the signs of multicollinearity. (Hill, Tr. 1787-89; PX5004 at 015-16 (¶¶ 27-34) (Hill Rebuttal Report to Shehadeh) (*in camera*)). In addition, Dr. Shehadeh also limits the time period he considers, excluding both older and more recent data. (Hill, Tr. 1787-89; PX5004 at 017 (¶¶ 35-39) (Hill Rebuttal Report to Shehadeh) (*in camera*)). Both flaws result in a significant overestimate of the responsiveness of imports if TiO₂ prices rose in North America. When the issues are addressed, Dr. Shehadeh's approach yields results similar to Dr. Hill's. (Hill, Tr. 1788-89; PX5004 at 016, 019 (¶¶ 34, 39) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 672:

Complaint Counsel's proposed finding is inaccurate and misleading. Dr. Shehadeh explained in his deposition that [REDACTED] PX7058 (Shehadeh, Dep. at 258). [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] PX7058 (Shehadeh, Dep. at 258-59). Essentially, by raising this critique of multicollinearity, Dr. Hill acknowledges that the prices of sulfate rutile and chloride rutile and the the prices of North America and other regions are "highly related" and move together.

673. Dr. Shehadeh also relies on an estimate from a 2006 academic paper by Broda and Weinstein (RX1069) that he claims is an import elasticity to support his claim that imports are highly responsive to price changes in North America. (Hill, Tr. 1789-93). However, Dr. Shehadeh misrepresents the nature of that estimate. (Hill, Tr. 1790-93). As the paper makes clear, though, it is actually focused on whether U.S. consumers would substitute between TiO₂ imports from different countries when the prices of those imports varies, not whether they would switch to imports over domestic TiO₂. (Hill, Tr. 1790-92; RX1069 at 001-002 (showing that "the unmeasured growth in product variety from U.S. imports has been an important source of gains from trade" and finding "that consumers have low elasticities of substitution across similar goods produced in different countries"). As such, the elasticity that Dr. Shehadeh cites greatly overstates the likely responsiveness of imports if TiO₂ prices rose in North America. (Hill, Tr. 1793).

Response to Finding No. 673:

Complaint Counsel's proposed finding is not a fact, but improper legal argument and should be discarded in determining any fact or issue in dispute..

674. To be conservative, Dr. Hill reran his capacity closure model in his rebuttal report to account for various import elasticities, including an estimate using Dr. Shehadeh's methodology and one derived from an economic paper cited by Dr. Shehadeh, and applied it to both all imports and adjustable imports. (PX5004 at 042 (¶¶ 98-99) (Hill Rebuttal to Shehadeh) (*in camera*)). Even with these adjustments, the model's predictions that the merged firm has an increased incentive to reduce output remained unchanged, affirming the robustness of the model's results. (Hill, Tr. 1797; PX5004 at 042 (¶ 99 and Figure 19) (Hill Rebuttal to Shehadeh) (*in camera*)).

Response to Finding No. 674:

Complaint Counsel's proposed finding is not a fact, but improper legal argument and should be discarded in determining any fact or issue in dispute. Complaint Counsel's proposed finding is also inaccurate and misleading. Although it is true that Dr. Hill reran his capacity closure model in his rebuttal report to account for various import elasticities, his rerunning of the model "still doesn't allow any competitor to vary exports out of North America or to bring excess capacity to bear," which configures the model to predetermine its conclusion. (Hill, Tr. 1982-83).

675. Dr. Shehadeh also claims that Dr. Hill's export repatriation elasticity is too low. (Hill, Tr. 1787). Dr. Shehadeh never calculates his own export repatriation elasticity, and instead relies on an estimate from a 2008 academic paper from Broda et al. (RX1068) that he claims is an export repatriation elasticity to support that claim. (Hill, Tr. 1793-96; PX5004 at 021, 042 (¶¶ 43, 100) (Hill Rebuttal to Shehadeh) (*in camera*)). However, as with the 2006 Broda paper, Dr. Shehadeh also misrepresents the nature of that estimate. (Hill, Tr. 1793-96). Not only is it an estimate for anatase rather than rutile TiO₂, but it is also not, in fact, an export demand elasticity at all, but more akin to an import supply elasticity. (Hill, Tr. 1793-96; PX5004 at 022, 042 (¶¶ 45, 100) (Hill Rebuttal to Shehadeh) (*in camera*)). Not surprisingly, then, this estimate is very close to Dr. Hill's own estimate of import supply elasticity. (PX5004 at 022 (¶ 45) (Hill Rebuttal to Shehadeh) (*in camera*)). Accordingly, Dr. Hill's export repatriation elasticity is un rebutted. (PX5004 at 042 (¶ 100) (Hill Rebuttal to Shehadeh) (*in camera*)).

Response to Finding No. 675:

Complaint Counsel's proposed finding is false. On cross examination, Dr. Shehadeh confirmed that the Broda (2008) paper reports that the elasticity measured is an elasticity of "exports out of the United States that were being repatriated back into the United States." (Shehadeh, Tr. 3589).

676. Dr. Shehadeh further states that Dr. Hill only allows a fraction of imports to respond to changes in price, causing it to over-predict harm. (Shehadeh, Tr. 3364). Dr. Shehadeh's claim is erroneous as Dr. Hill's rebuttal report contains analyses allowing all imports to respond to changes in price, and the results continue to predict that the merged firm would have an incentive to withhold output. (PX5004 at 042 (¶ 99) (Rebuttal Expert Report to Dr. Shehadeh) (*in camera*))

Response to Finding No. 676:

Complaint Counsel's proposed finding is misleading. Respondent's expert, Dr. Shehadeh, criticized the restrictions in Dr. Hill's model, observing that "Dr. Hill's capacity closure model is invalid because it artificially and incorrectly ignores the ability of North American suppliers to competitively respond to pricing in North America, thereby predetermining the result of his analysis." (RX0170-039) Dr. Hill reports results from his Capacity Closure Model in three different reports: in his original report (RX1649), in his "Updated" expert report (PX5000), and in his "Rebuttal Report" to Dr. Shehadeh (PX5004). Dr. Hill retracted the results from his first report since they were plainly wrong. (Hill, Tr. 1968) Thus, the report to which Dr. Shehadeh responded to was the "Updated" report (PX5000). In that report, Dr. Hill constructed his model so that "North American rivals cannot respond at all" including blocking them from increasing imports. After Dr. Shehadeh criticized Dr. Hill for not allowing Chemours, Venator, or Kronos respond at all, Dr. Hill adjusted his code and released new results in his May 10 rebuttal report (PX5004). In his new model, he allowed North American rivals to adjust imports, but his model from May 10 "still doesn't allow any competitor

to vary exports out of North America or to bring excess capacity to bear.” (Hill, Tr. 1982-83).

Dr. Shehadeh acknowledged that Dr. Hill made that slight adjustment to import responses in his rebuttal report, but that the fundamental flaws with the model and the unreasonable restraints on capacity expansion and export repatriation still make those revised results unreliable.

(Shehadeh, Tr. 3385).

677. Finally, contrary to Dr. Shehadeh’s claims, there is also no evidence that North American rivals could or would expand North American production beyond the growth in demand to offset a price increase in North America. (See CCF ¶¶ 678-79, below).

Response to Finding No. 677:

Complaint Counsel’s proposed finding cites to no evidence from the record.

Respondents’ specific response can be found in response to CCF ¶¶ 678-79, below.

678. Dr. Shehadeh argues that Dr. Hill’s capacity closure model fails to predict Chemours’s behavior, but he overlooks that Chemours has recently taken steps to limit its potential output by shuttering its Edge Moor plant and a line at New Johnsonville in 2015. (PX2055 at 024 (Cristal presentation) (*in camera*)). Dr. Shehadeh also ignores data, which suggests that **{Chemours was running under capacity during the relevant time.}** (PX5004 at 044 (¶ 104) (Hill Rebuttal Report to Shehadeh) (*in camera*)). Additionally, Dr. Hill did not have the detailed internal cost data from Chemours that he had from Tronox or Cristal. (PX7056 (Hill, Dep. at 122-24) (*in camera*)).

Response to Finding No. 678:

Complaint Counsel’s proposed finding is false and misleading. First, Complaint Counsel misunderstands the reason for the closure of the Edge Moor plant. The reason was not to withhold output. Rather, [REDACTED]

[REDACTED]

[REDACTED] (PX7052 (O’Sullivan, Dep. at 123-24)). Next, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

679. Dr. Shehadeh also argues that a price increase resulting from the merger would prompt chloride TiO₂ suppliers to increase their supply of chloride TiO₂ to the North American market and render the output reduction predicted by the capacity closure model unprofitable. (Shehadeh, Tr. 3373-74; Hill, Tr. 1985). Both historical experience in the North American TiO₂ industry and Dr. Hill's empirical work, including the elasticities of supply which reflect that reality and are specifically incorporated into the capacity closure model, show that such a response in the form of increased North American production, imports, or repatriated exports is unlikely to occur. (See CCFF ¶¶ 667, 674-75, above). Indeed, [REDACTED] (PX5000 at 033 (¶ 78 & Fig. 12) (Hill Initial Report) (*in camera*)). It would also require that [REDACTED] (PX5000 at 032 (¶ 78 & n.132) (Hill Initial Report) (noting that [REDACTED] (*in camera*)).

Response to Finding No. 679:

Complaint Counsel's proposed finding is inaccurate and misleading. Dr. Shehadeh found that allowing a competitive response by rivals of just 24 kilotons per year ("ktpa") "would render the prices increases across all of [Dr. Hill's] model scenarios unprofitable." (Shehadeh, Tr. 3370-71; Shehadeh, Tr. 3382-83). 24 ktpa is a relatively miniscule amount. (Shehadeh, Tr. 3371-72). For example, 24 ktpa is "less than 2 percent of the chloride produced titanium dioxide capacity in the hands of rivals." (Shehadeh, Tr. 3371). That means, if Dr. Hill's model "were to permit only 2 percent of global produced [chloride-process only] titanium [dioxide] capacity in the hands of rivals to respond to these prices increases in North America, then the model would no longer predict the price increases that Dr. Hill proposes." (Shehadeh, Tr. 3371-72). 24 ktpa is also equivalent to "approximately 0.4 percent" of all global TiO₂ capacity, irrespective of chloride-process or sulfate-process. (Shehadeh, Tr. 3372). Because 24 ktpa is a relatively miniscule amount, by accounting for real-world responses of exports, imports, and expansion, a

response of 24 ktpa is “virtually certain to occur, and therefore, it’s inappropriate to predict likely anticompetitive effects.” (Shehadeh, Tr. 3416).

- (c) The Cournot model also predicts that the merged firm has a stronger incentive to reduce output relative to the stand-alone firms

680. In addition to the capacity closure model, Dr. Hill also tested the impact of the merger using a Cournot model. (Hill, Tr. 1778, 1859). Like the capacity closure model, the Cournot model also examines whether the merger changes the incentives for the merged firm relative to the stand-alone firms to withhold output from the market. (Hill, Tr. 1778).

Response to Finding No. 680:

Complaint Counsel’s proposed finding is misleading. Similar to his capacity closure model, Dr. Hill’s Cournot model was not used “to calculate a precise measure of harm.” (Hill, Tr. 2053). The focus is largely on “changes in incentives.” (Hill, Tr. 2053). Similar to his capacity closure model, Dr. Hill’s Cournot model “effectively imposes that the proposed merger will raise prices by failing to account for the responses of rivals including imports and exports. For both imports and exports, his model assumes ‘strategic behavior’ that imposes limits on the competitive response.” (RX0170 at 0190 (¶ 307) (Shehadeh expert report)).

681. The Cournot model is “widely used by economists who are analyzing concentrated commodity markets. This makes it a natural choice for analyzing the chloride TiO₂ market.” (PX5000 at 090 (¶ 205) (Hill Initial Report) (*in camera*)); Hill, Tr. 1779; RX1072 at 0003 (Greenfield et al. paper) (“The Cournot model is a standard framework for analyzing issues of market power in homogenous goods industries”); RX1072 at 0003, n.4 (Greenfield et al. paper) (“Surveys on economic theories relevant to antitrust emphasize the importance of Cournot models for homogenous good industries.”)).

Response to Finding No. 681:

Complaint Counsel’s proposed finding is incomplete and misleading. Dr. Hill, himself, admitted that the Cournot model is the “oldest economic model analyzing oligopoly.” (Hill, Tr. 1778).

682. The Cournot model has a few differences from the capacity closure model. (PX5000 at 090 (¶ 207) (Hill Initial Report) (*in camera*)). While Dr. Hill accounted for rivals’ responses in his capacity closure model using data reflecting historical responses,

Cournot allows rivals to readily adjust their output in response to the actions of the merged firm. (Hill, Tr. 1778-79 (“in the Cournot model, rivals can have an unbridled response. They can bring to bear any amount of capacity they find profitable.”); PX5000 at 090 (¶ 207) (Hill Initial Report) (*in camera*)). It also assumes that all firms behave strategically, accounting for the understanding among competitors that output decisions play an important role in chloride TiO₂ pricing. (PX5000 at 090 (¶ 207) (Hill Initial Report)(*in camera*)).

Response to Finding No. 682:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument and should be discarded in considering any fact or issue in dispute.

683. Dr. Hill employed two models here because there are benefits to analyzing the effect of the merger using these different models. (Hill, Tr. 1778; PX5000 at 090 (¶ 206) (Hill Initial Report) (*in camera*)). It tests the accuracy of the prediction made by each individual model. (PX5000 at 090 (¶ 206) (Hill Initial Report) (*in camera*)). If both models, despite their differences, predict similar effects, “it shows that the prediction of an anticompetitive effect is robust and not unduly reliant on specific modeling assumptions.” (PX5000 at 090 (¶ 206) (Hill Initial Report) (*in camera*); Hill, Tr. 1778 (“To check how robust my findings were...”).

Response to Finding No. 683:

Complaint Counsel’s proposed finding is misguided. It does not matter that Dr. Hill employed two economic models here because both of his models were flawed—producing flawed results. At trial, Dr. Shehadeh concluded from his review of Dr. Hill’s capacity closure model and Cournot model that “those models are invalid; they fail important economic validity tests. Those validity tests are whether or not the model performs in a way that’s consistent with the real world, as it’s operating today, using the data that were used to construct the model. Two was during those validity tests, you would understand how those models assume constraints on the responses of rivals, in particular, that are inconsistent with the real world and that result in their predictions of price increases. And once one accounts for the responses in the real world that would arise in response to the price increases that are predicted by the models, that, in fact,

those models would no longer predict the price increases that Dr. Hill references.” (Shehadeh, Tr. 3329-30).

684. Dr. Hill’s Cournot model predicts that the merger would lead to higher chloride TiO₂ pricing in North America relative to the but-for world absent the merger unless the merger were to generate a more than 70 percent reduction in the merged firm’s marginal cost as compared to those of the stand-alone firms. (Hill, Tr. 1781; PX5000 at 090-091 (¶209) (Hill Initial Report) (*in camera*)). Such a dramatic reduction in the firm’s marginal cost far exceeds any measure of the efficiencies even claimed by the merging parties let alone what analysis suggests is likely. (Hill, Tr. 1781; PX5000 at 090-091 (¶209) (Hill Initial Report) (*in camera*)). Consequently, the Cournot model, like the capacity closure model, predicts that the merger increases incentives to withhold output and will result in higher prices for chloride TiO₂ in North America. (Hill, Tr. 1781; PX5000 at 090-091 (¶209) (Hill Initial Report) (*in camera*)).

Response to Finding No. 684:

Complaint Counsel’s proposed finding is unfounded because Dr. Hill’s Cournot model is unreliable. Dr. Hill’s Cournot model suffers from numerous fundamental flaws and fails multiple model validity tests. First, and the most obvious error, Dr. Hill’s Cournot model predicts that this merger would not be profitable in North America, which directly conflicts with industry reality. *See* Respondents’ Findings ¶¶ 696-97. Second, Dr. Hill’s Cournot model predicts anticompetitive price increases for merger involving unconcentrated markets. *See* Respondents’ Findings ¶¶ 693-95 (“Dr. Hill concludes that a price increase would in fact occur even in markets that the FTC . . . Horizontal Merger Guidelines[] would say is a market in which, because it’s unconcentrated, anticompetitive effects are unlikely to occur and then typically require no further inquiry.”(Shehadeh, Tr. 3395)). Third, Dr. Hill’s Cournot model suffers from what FTC economists have recognized as a “glaring inconsistency.” *See* Respondents’ Findings ¶¶698-701. Essentially, Dr. Hill’s Cournot model fails because it inherently suffers from a “bias built into it” that “inserts too much market power.” (Shehadeh, Tr. 3391). His model “assigns too much market power, relative to what’s in the real world, to suppliers with large shares.” (Shehadeh, Tr. 3390).

(d) Dr. Shehadeh’s criticism of Dr. Hill’s Cournot model is unavailing

685. Dr. Shehadeh’s criticisms of Dr. Hill’s Cournot model are unavailing. (See CCFF ¶¶ 686-94, below).

Response to Finding No. 685:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument.

Respondents’ specific responses can be found in response to CCFF ¶¶ 686-94, below.

686. First, Dr. Shehadeh describes the Cournot model as being biased towards concluding that mergers will be anticompetitive. (Shehadeh, Tr. 3390-91). Significantly, however, even the paper that Dr. Shehadeh affirmatively endorses for its approach actually endorses the usage of the Cournot model for understanding the competitive dynamics in commodity industries. Specifically, it states, “The Cournot model is a standard framework for analyzing issues of market power in homogenous goods industries.” To substantiate this conclusion it includes the following footnote, “Surveys on economic theories relevant to antitrust emphasize the importance of Cournot models for homogenous good industries. See, for example, Werden and Froeb (2008) and Kaplow and Shapiro (2007).” (RX1072 at 0002 (Greenfield et al.)). Not only is Cournot a standard oligopoly model, but the relevant question is not the prediction of harm itself, but its magnitude. Here, Dr. Hill’s Cournot model predicts a substantial price increase from the merger—over eight percent. (PX5004 at 047 (¶ 115) (Hill Rebuttal Report to Shehadeh)).

Response to Finding No. 686:

Complaint Counsel’s proposed finding is vague, irrelevant, and misleading. Although the quote cited by Complaint Counsel is accurate, it misses the point of Dr. Shehadeh’s criticism entirely. Dr. Shehadeh cited to RX1072 (Greenfield et al.) for purposes of establishing that Dr. Hill’s Cournot model suffers from a “glaring inconsistency” that was identified and explained in that working paper. (Shehadeh, Tr. 3401-03). Dr. Shehadeh testified that Dr. Hill’s Cournot model generates a “glaring inconsistency,” which “means that it fails to incorporate real-world competitive constraints that the companies supplying in his candidate market face, and that’s why it leads to this inconsistency, and so likewise, given its failure to incorporate those, it will predict an ability and incentive to raise price in the Cournot model for the postmerger Tronox-

Cristal that is not reflected in the real world.” (Shehadeh, Tr. 3402). Complaint Counsel’s proposed finding fails to address this “glaring inconsistency.”

687. Second, Dr. Shehadeh’s claim that Dr. Hill’s Cournot model imposes limits on the abilities of rivals to respond is an erroneous depiction of how the Cournot framework functions. (Shehadeh, Tr. 3388). In a Cournot model, rivals can freely alter their production choices. The only constraint on their decision-making is that they seek to maximize their overall profits while also expecting all other firms in the marketplace to be behaving similarly. Thus, any inhibitions on the magnitude of rivals’ supply responses reflect their recognition of the oligopolistic nature of the market and the impact on price of additional supply. Dr. Hill explains these issues, citing to canonical textbooks on industrial organization, in his initial report. (PX5000 at 88-89 (¶¶ 205-09) (Hill Initial Report) (*in camera*)).

Response to Finding No. 687:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument and should be discarded in determining any issue or fact in dispute. Complaint Counsel’s proposed finding is incomplete. Dr. Shehadeh testified that Dr. Hill’s Cournot model predicts anti-competitive price increases for mergers involving unconcentrated markets under the Merger guidelines, which fails a basic model validity test. (Shehadeh, Tr. 3390). In other words, “Dr. Hill concludes that a price increase would in fact occur even in markets that the FTC . . . Horizontal Merger Guidelines[] would say is a market in which, because it’s unconcentrated, anticompetitive effects are unlikely to occur and then typically require no further inquiry.” (Shehadeh, Tr. 3395). The reason Dr. Hill’s Cournot model fails this model validity test is because of the “imposition in the model of limited competitive responses of rivals and customers and as a result the assignment of too much market power relative to the real world.” (Shehadeh, Tr. 3397). “[T]he implication is that the model is both inconsistent with the guidelines as well as the recognition in economics of real-world competitive constraints because of the way it constrains economic behavior of rivals and of customers.” (Shehadeh, Tr. 3395). For this reason, Dr. Hill’s Cournot model is invalid. (Shehadeh, Tr. 3394-95). Complaint Counsel’s proposed

finding also does not cite to any specific evidence in the record and should be discarded in determining any issue or fact in dispute.

688. Furthermore, Dr. Hill shows that the qualitative record indicates that there are multiple factors suggesting that the Cournot model may actually be too conservative in how fluidly it allows rivals to respond. He notes that there is significant evidence suggesting that many of the merging parties' rivals in the North American market would struggle to increase their sales as predicted by the Cournot model. (PX5004 at 51-52 (¶¶ 131-33) (Rebuttal Expert Report to Shehadeh) (*in camera*)).

Response to Finding No. 688:

Complaint Counsel's proposed finding is not a fact, but improper legal argument and should be discarded in determining any fact or issue in dispute. Complaint Counsel's proposed finding does not cite any supporting documents or testimony.

689. Dr. Shehadeh criticizes the marginal costs implied by Dr. Hill's Cournot model because he claims they are inconsistent with the marginal costs Dr. Hill used in the capacity closure model. (Shehadeh, Tr. 3401-02). However, Dr. Shehadeh's criticism fails because he conflates total costs with marginal costs. As Dr. Hill explained, the capacity closure model uses total costs in reaching its predictions, while the Cournot model focuses only on marginal costs. (PX5004 at 41 (¶ 112) (Hill Rebuttal Report to Shehadeh) (*in camera*)). Thus, the prediction performed by Dr. Shehadeh was comparing apples to oranges and was not probative of the Cournot model's validity. (PX5004 at 41 (¶ 112) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 689:

Complaint Counsel's proposed finding is not a fact, but improper legal argument and should be discarded in determining any fact or issue in dispute. Complaint Counsel's proposed finding misstates the record. At trial, Dr. Shehadeh did not criticize the marginal costs implied by Dr. Hill's Cournot model because he claims they are inconsistent with the marginal costs from his capacity closure model. Rather, Dr. Shehadeh criticized the marginal costs implied by Dr. Hill for showing a "glaring inconsistency . . . between what the model implies and what [the] data in turn imply about marginal costs in the Cournot model." (Shehadeh, Tr. 3401-02).

Because Dr. Hill assigned too much market power relative to the real-world competitive constraints, his Cournot model results in this “glaring inconsistency.” (Shehadeh, Tr. 3401-02).

690. Moreover, Dr. Hill presents a table comparing the variable costs implied by the Cournot model with those taken from accounting and third party data, and shows that they are similar, affirming the accuracy of his model. (PX5004 at 46 (¶112 & Fig. 21) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 690:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument and should be discarded in determining any fact or issue in dispute. Complaint Counsel’s proposed finding is misleading. The numerous fundamental flaws confirm the model is useless, and the fact that he can point to some third party data that might be consistent with the variable costs implied by the Cournot model does not change this fact.

691. In another unavailing effort to undermine Dr. Hill’s Cournot model, Dr. Shehadeh, without justification, applied an alternative modeling framework to Dr. Hill’s Cournot model and claims that doing so reduces the predicted price increase from the merger. (Shehadeh, Tr. 3403-06). First, Dr. Shehadeh’s reliance on the Greenfield et al. approach is unwarranted here. While Greenfield was attempting to address a quirk in the California refinery market where the standard Cournot model predicted marginal costs that were below the cost of one of the inputs to the finished product, an implausible result, no such issues arise here because the margins predicted by Cournot are similar to observed data, undermining the use of the Greenfield et al. approach. (PX5004 at 048 (¶¶ 117-19) (Hill Rebuttal Report to Shehadeh) (*in camera*)). Moreover, as Dr. Hill shows in his rebuttal report, altering the Cournot model so that it more closely resembles that used by Greenfield et al. has trivial impact on the predicted price increase, lowering it from 8.4% to 8%. (PX5004 at 047-51 (Section 5.B.2) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 691:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Further, even though both Dr. Hill and Dr. Shehadeh testified live at trial, none of this evidence to discredit Dr. Shehadeh’s reliance on the Greenfield et al. approach was presented and thus was not subject to cross examination before this Court.

692. Dr. Hill shows that allowing fringe firms to be more responsive—as done in the Greenfield et al. model—does not have a large impact on the predicted harm from the merger. (PX5004 at 047-51 (Section 5.B.2) (Hill Rebuttal Report to Shehadeh) (*in camera*)). Instead, the driving force behind Dr. Shehadeh’s smaller predicted price increase is the margin earned on Tronox’s final sale that he imposes, which ultimately determines what all market participants are earning on their own final sales. (PX5004 at 047-51 (Section 5.B.2) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 692:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel’s proposed finding is nothing but a recitation of PX5004, Dr. Hill’s Rebuttal report to Dr. Shehadeh, and is unsupported by the evidence in the record. Additionally, Complaint Counsel’s proposed finding improperly relies on expert testimony to support a factual issue in dispute. (Judge Chappell, Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

693. Dr. Shehadeh’s imposition of a margin of 11% for Tronox’s final sale is neither justified by the Greenfield et al. paper nor is it well-founded in the evidence assembled in the record. (*See* RX0170 at 186 (¶ 315) (Shehadeh Expert Report)). As Dr. Hill explains, the usage of the difference between the North American price and the world price is not consistent with reasonable econometric examinations of market participant behavior. Moreover, it is out of step with evidence that Dr. Shehadeh himself assembled on the variation in capacity utilization of different plants. (PX5004 at 44-45 (¶¶ 122-25) (Hill Rebuttal Report to Shehadeh) (*in camera*)).

Response to Finding No. 693:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel’s proposed finding is nothing but a recitation of PX5004, Dr. Hill’s Rebuttal report to Dr. Shehadeh, and is unsupported by the evidence in the record.

694. Dr. Shehadeh also argues that the Cournot model is unreliable because it predicts that the merger would not be profitable. (Shehadeh, Tr. 3390, 3398-99). Dr. Shehadeh’s conclusion is incorrect as Dr. Hill explains that firms value total profits, not just variable ones. (PX5004 at 052 (¶ 134) (Hill Rebuttal to Shehadeh)). Thus, even if a merger lowers variable profits in a market, it may be worth pursuing if it also lowers fixed costs or affects profits in some other market. Thus, Dr. Shehadeh’s focus on the variable profitability of the transaction is misplaced. (PX5004 at 052 (¶ 134) (Hill Rebuttal to Shehadeh)). Dr. Hill also notes that the qualitative record suggests that there are multiple

factors suggesting that the Cournot model may actually be too conservative in how fluidly it allows rivals to respond. He notes that there is significant evidence suggesting that many of the merging parties' rivals in the North American market would struggle to increase their sales as predicted by the Cournot model. (PX5004 at 051-52 (¶ 131-33) (Hill Rebuttal to Shehadeh)).

Response to Finding No. 694:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument. Complaint Counsel's proposed finding is nothing but a recitation of PX5004, Dr. Hill's Rebuttal report to Dr. Shehadeh, and is unsupported by the evidence in the record. Additionally, Complaint Counsel's proposed finding improperly relies on expert testimony to support a factual issue in dispute. (Judge Chappell, Tr. 3792-93 (J. Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute"))).

C. The Merger Will Eliminate Beneficial Competition Between Tronox and Cristal

695. In addition to the potential for unilateral output reduction, this merger will also eliminate beneficial head-to-head competition between the merging parties. (*See* CCF ¶¶ 696-703, below). The Horizontal Merger Guidelines warn that mergers can harm a market when "a merger between two competing sellers prevents buyers from playing those sellers off against each other in negotiations. This alone can significantly enhance the ability and incentive of the merged entity to obtain a result more favorable to it, and less favorable to the buyer, than the merging firms would have offered separately absent the merger." (PX9085 at 025 (Horizontal Merger Guidelines, § 6.2).

Response to Finding No. 695:

Complaint Counsel's proposed finding is not a fact, but an improper legal argument.

696. Tronox and Cristal compete head-to head for many accounts, benefitting customers. For example, both Cristal and Tronox have competed to win volume at [REDACTED] (PX1017 at 001, 003 (Wilson email to Mouland (*in camera*)). [REDACTED] (Mouland, Tr. 1162 (*in camera*)).

Response to Finding No. 696:

Complaint Counsel's proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The

increase in global supply and availability of TiO₂ resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; [REDACTED]; Shehadeh, Tr. 3443). Customer [REDACTED]

[REDACTED] (Vanderpool, Tr. 248; Young, Tr. 733-34). *See also* Respondents' proposed Factual Findings ¶¶ 121-30.

697. Similarly, in an effort to obtain more favorable pricing from its current supplier, Tronox, Deceuninck North America, a plastics manufacturer, has reached out to Cristal as a potential source of supply that would compete with Tronox. (Arrowood, Tr. 1069-71).

Response to Finding No. 697:

Respondents have no specific response.

698. PPG, a manufacturer of architectural and industrial coatings, currently purchases [REDACTED]. (Malichky, Tr. 293-94 (*in camera*); PX8000 at 002 (¶ 8) (Malichky Decl.) (*in camera*)). [REDACTED] (Malichky, Tr. 324-25; 609-10 (*in camera*)). Specifically, [REDACTED] (PX8000 at 002 (¶ 8) (Malichky Decl.) (*in camera*)).

Response to Finding No. 698:

Complaint Counsel's proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 696.

699. Those benefits may be coming to an end if this merger is consummated. During PPG's recent negotiations with Tronox, John Romano, Tronox's Chief Commercial Officer, informed PPG that Tronox intends to raise PPG's price for chloride TiO₂ if the merger is completed. (Malichky, Tr. 280-81; 561). Specifically, Mr. Romano told PPG that Tronox plans to raise the premerger price PPG receives from Cristal because Cristal lacks "market discipline" and "give[s] [TiO₂] away" at prices that are too low. (Malichky, Tr. 280-81). Tronox told PPG that [REDACTED] (Malichky, Tr. 285-86 (*in camera*)). Tronox also

told PPG that [REDACTED]
[REDACTED] Malichky, Tr. 284-85 (*in camera*); Malichky, Tr. 563).

Response to Finding No. 699:

Complaint Counsel’s proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. *See* also Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 696. Moreover, Complaint Counsel fails to account for [REDACTED]

[REDACTED]

700. In the U.S. and Canada, [REDACTED]
[REDACTED] (Malichky, Tr. 286 (*in camera*)).
[REDACTED] (Malichky, Tr. 289 (*in camera*)).
[REDACTED] (Malichky, Tr. 289-91 (*in camera*)).

Response to Finding No. 700:

Complaint Counsel’s proposed finding is misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, (Malichky, Tr. 582-84, 600-01). Moreover, Complaint Counsel fails to account for [REDACTED]
[REDACTED] *See* also Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 696.

701. [REDACTED]
[REDACTED] (Malichky, Tr. 325
[REDACTED] *in camera*)).

Response to Finding No. 701:

Complaint Counsel’s proposed finding is a misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, Malichky, Tr. 582-84, 600-01.

Moreover, Complaint Counsel fails to account for [REDACTED]

[REDACTED] See also Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 696.

702. Masco, the manufacturer of Behr paint, [REDACTED]
[REDACTED] (Pschaidt, Tr. 996-97 (*in camera*)).

Response to Finding No. 702:

Complaint Counsel's proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. See also Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 696.

703. In addition to price effects, Tronox's acquisition of Cristal could also harm customers in other ways. [REDACTED]
[REDACTED] (Malichky, Tr. 329-30 (*in camera*)).

Response to Finding No. 703:

Complaint Counsel's proposed fact is a misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. See, e.g., (Malichky, Tr. 582-84, 600-01). See also Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 696.

D. Industry Participants Believe Consolidation Will Lead to Higher Chloride TiO₂ Prices in North America

704. The evidence is clear that Tronox and Cristal, as well as customers and TiO₂ competitors, projected that the Acquisition would result in reduced competition and higher prices. (See CCF ¶¶ 705-24, below). This evidence supports the overall conclusion that the Acquisition would violate Section 7. (PX9085 at 007-09 (Horizontal Merger Guidelines, § 2.2); Hill, Tr. 1841-42; PX5000 at 106-08 (¶¶248-250) (Hill Initial Report) (*in camera*)).

Response to Finding No. 704:

Complaint Counsel's proposed finding is not a fact, but an improper legal argument. Complaint Counsel's proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The increase in global supply and availability of TiO₂ resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; [REDACTED]; Shehadeh, Tr. 3443). [REDACTED]

[REDACTED] (Vanderpool, Tr. 248; Young, Tr. 733-34). *See also* Respondents' proposed Factual Findings ¶¶ 121-30.

705. Cristal and Tronox both recognize [REDACTED]. [REDACTED] For example, in a December 2015 Marketing and Sales presentation, Cristal stated that [REDACTED] (PX2000 at 013 (Cristal presentation) (*in camera*)). In the same presentation, Cristal observed that [REDACTED] (PX2000 at 013 (Cristal presentation) (*in camera*)).

Response to Finding No. 705:

Complaint Counsel's proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 704. Moreover, Complaint Counsel failed to present PX2000 at trial, thus depriving Respondents the opportunity to pursue questioning on redirect or cross examination.

706. Tronox also believes that the acquisition will lead to higher pricing for chloride TiO₂. In February 2017, in response to a congratulatory email from the Chairman of Huntsman, Tom Casey, CEO of Tronox responded that the acquisition would be good for the

merged firm and its competitors as well: “Nevertheless, I am very happy that we were able to put it together since I think it will be very good for our shareholders - and if today’s market reaction is an indication, for yours, and Chemours’ and Kronos’ too.” (PX1045 at 001 (Casey email)).

Response to Finding No. 706:

Complaint Counsel’s proposed finding is misleading. Complaint Counsel mischaracterizes the cited evidence, as nothing about the cited document indicates that Tronox believes the proposed acquisition will “lead to higher pricing for chloride TiO₂.” One of the “primary drivers” of the transaction is to permit Tronox to increase production and output of TiO₂. (Romano, Tr. 2216-17; *see also* Quinn, Tr. 2363-64). Tronox believes that the increased global supply created through the proposed transaction will benefit consumers. (Mei, Tr. 3167). Moreover, the cited evidence was never presented at trial, depriving Respondents the opportunity to pursue questioning on redirect or cross examination.

707. Further, a few weeks after the acquisition, Tronox’s Mr. Mouland emailed one of his sales team, Adrian Santos, stating that [REDACTED] (PX1038 at 001 (Mouland email) (*in camera*)).

Response to Finding No. 707:

Complaint Counsel proposed finding is misleading. Mr. Mouland explained that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Mouland, Tr. at 1270-73).

708. A conversation between Tronox and PPG confirms that Tronox believes the acquisition will lead to higher chloride TiO₂ pricing in North America. At trial, PPG’s Mr. Malichky testified that Tronox’s Mr. Romano and Mr. Mouland were explicit in telling PPG that Tronox intended to raise PPG’s price after the acquisition: “Q: And what specifically

did Mr. Romano tell you about what they were planning to do with price? A. They were planning on raising the Cristal price at PPG. After the -- and let me -- after the transaction is complete, obviously, but after the transaction, they were going to raise the Cristal price.” (Malichky, Tr. 280-81).

Response to Finding No. 708:

Complaint Counsel’s proposed finding is misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, (Malichky, Tr. 582-84, 600-01).

Mr. Malichky’s characterization of the meeting was completely discredited by Mr. Mouland.

(Mouland, Tr. 1217-27). Moreover, Complaint Counsel fails to account for [REDACTED]

See also

Respondents’ Response to Finding Finding ¶ 704.

709. According to PPG’s Mr. Malichky, Mr. Romano attributed Cristal’s low pricing to a lack of “market discipline”: “Q. And did Mr. Romano explain why? A. We had a long conversation about that that day, and we’ve had other conversations with him. And it relates to market discipline. Q. What do you mean by “market discipline”? A. Market discipline, as the way it was explained to me during that meeting and other meetings, is to be able to sell the product at a reasonable price and modulate production accordingly, and Cristal didn’t have market discipline.” (Malichky, Tr. 281).

Response to Finding No. 709:

Complaint Counsel’s proposed fact is misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, (Malichky, Tr. 582-84, 600-01). Mr.

Malichky’s characterization of the meeting was completely discredited by Mr. Mouland.

(Mouland, Tr. 1217-27). Moreover, Complaint Counsel fails to account for [REDACTED]

See also

Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 704.

710. Mr. Malichky’s testimony is consistent with a contemporaneous email he sent to his supervisor in July 2017, describing “multiple conversations” with Tronox Senior Management, John Romano in particular. In these conversations, Mr. Romano stated that “Cristal’s price is too low in the market,” and that “Tronox would like to harmonize the price at customers (including PPG) and this could mean increasing the Cristal price up to the Tronox price at PPG.” The email further states that “in USCA [the United States and

Canada] the current price difference is [REDACTED] and this harmonization would cost PPG [REDACTED] (PX4079 at 002 (Malichky email) (*in camera*)).

Response to Finding No. 710:

Complaint Counsel's proposed finding is inaccurate. Complaint Counsel does not cite any emails from Mr. Romano in proposed finding. To the extent that statements of Mr. Romano's are characterized by Mr. Malichky in PX4079, these statements constitute unreliable hearsay and should be digarded. Mr. Malichky admitted under cross examination that the contents of the email he sent to his supervisor did not come from Mr. Romano. (Malichy, Tr. 568-69). Moreover, Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, Malichky, Tr. (582-84, 600-01). Additionally, Complaint Counsel fails to account for [REDACTED]

[REDACTED] *See also* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 704.

711. Mr. Malichky's testimony is also consistent with internal Tronox documents. For example, in an internal email, Tronox's Mr. Mouland stated that [REDACTED] (PX1038 at 001 (Mouland email) (*in camera*); PX1300 at 001 (Mouland email to Newman) [REDACTED] (*in camera*); PX1740 at 001 (Newman email) [REDACTED] (*in camera*)).

Response to Finding No. 711:

Complaint Counsel's proposed finding is misleading. Mr. Mouland explained that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Mouland, Tr. at 1270-73). Moreover, Complaint Counsel fails to account for [REDACTED]

[REDACTED] } See

also Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 704. Finally, Complaint Counsel never presented PX1300 or PX 1740 at trial, depriving Respondents of the opportunity for further questioning under redirect or cross examination.

712. Both Mr. Romano and Mr. Mouland testified at trial and had the opportunity to state under oath that Mr. Malichky's recollection was inaccurate. Mr. Romano did not even mention Mr. Malichky's testimony on the discussion between PPG and Tronox. (Romano, Tr. 2135-2292 (providing no testimony addressing Mr. Malichky's testimony) (partially *in camera*)). Mr. Mouland discussed the July 2017 meeting but did not dispute Mr. Malichky's claims that Tronox said it would increase prices. (Mouland, Tr. 1218-20, 1256-69 (partially *in camera*)).

Response to Finding No. 712:

Complaint Counsel's proposed finding is misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. See, e.g., Malichky, Tr. 582-84, 600-01. Mr. Malichky's characterization of the meeting was completely discredited by Mr. Mouland.

(Mouland, Tr. 1217-27). Moreover, Complaint Counsel fails to account for [REDACTED]

[REDACTED] See also

Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 704.

713. [REDACTED]

(See CCFE ¶¶ 714-20, below).

Response to Finding No. 713:

Complaint Counsel's proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The

increase in global supply and availability of TiO2 resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; [REDACTED] Shehadeh, Tr. 3443). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Vanderpool, Tr.

248; Young, Tr. 733-34). *See also* Respondents' proposed Factual Findings ¶¶ 121-30.

714. Mr. Vanderpool, Division Vice President for Paint for True Value, a cooperative of 4500 members that operate retail stores nationwide, [REDACTED]

[REDACTED]

(Vanderpool, Tr. 213-14 (*in camera*)). Mr.

Vanderpool further testified that [REDACTED]

[REDACTED] (Vanderpool, Tr. 213-14 (*in camera*)).

Response to Finding No. 714:

Complaint Counsel's proposed finding is an incomplete statement of the record. Mr.

Vanderpool also stated that [REDACTED]

[REDACTED]

[REDACTED] Vanderpool, Tr. 248. Mr. Vanderpool also

stated that [REDACTED]

[REDACTED]

[REDACTED] Vanderpool, Tr. 247. *See also* Respondents' proposed Factual Findings ¶¶ 121-30.

715. Mr. Pschaidt, Vice-President of Procurement for Masco, which manufactures the Behr line of architectural coatings, [REDACTED]

[REDACTED]

[REDACTED] (Pschaidt, Tr. 997 (*in camera*)).

Response to Finding No. 715:

Complaint Counsel’s proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The increase in global supply and availability of TiO₂ resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; Vanderpool, Tr. 284; Shehadeh, Tr. 3443). *See also* Respondents’ proposed Factual Findings ¶¶ 121-30.

716. As Mr. Santoro, the Vice-President of Global Procurement for Ampacet, a major producer of plastics masterbatch, wrote, [REDACTED] (PX4130 (Santoro email) (*in camera*)). In particular, Mr. Santoro testified that [REDACTED] (PX7040 (Santoro, Dep. at 122-23, 125-26) (*in camera*)).

Response to Finding No. 716:

Complaint Counsel’s proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The increase in global supply and availability of TiO₂ resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; [REDACTED]; Shehadeh, Tr. 3443). *See also* Respondents’ proposed Factual Findings ¶¶ 121-30. Moreover, Complaint Counsel had the opportunity to call Mr. Santoro as a witness at trial and chose not to do so, depriving Respondents the opportunity to question him under cross examination.

717. Steve DeCastro, the Vice-President of Purchasing for RPM, a producer of the Rust-Oleum paints, testified that he had concerns about the merger because “when you have less producers, it’s not good for buyers.” (PX7016 (DeCastro, Dep. at 127)).

Response to Finding No. 717:

Complaint Counsel’s proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market.

Complaint Counsel also ignores that Mr. Decastro testified at [REDACTED]

[REDACTED] (Hill, Tr. 2024). Also, the increase in global supply and availability of TiO₂ resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; [REDACTED]; Shehadeh, Tr. 3443). *See also* Respondents' proposed Factual Findings ¶¶ 121-30.

Complaint Counsel also ignores that customers “have a lot of power in the titanium dioxide industry,” that customers often “engage in very complex and strategic decision in procuring their titanium dioxide,” and that [REDACTED]. (Christian, Tr. 878-79, 886; Mouland, Tr. 1247). Finally, Complaint Counsel had the opportunity to call Mr. DeCastro as a witness at trial and chose not to do so, depriving Respondents the opportunity to question him under cross examination.

718. As Mr. Post of Akzo Nobel, a multi-national coatings manufacturer, testified at his deposition, there is a high risk that the merged firms closes a plant after the acquisition. (PX7033 (Post, Dep. at 127-28)). Mr. Post's concern is based on what happened in the TiO₂ industry after a recent acquisition: “[W]hen [Venator] acquired Rockwood,” it closed a plant and “it did have a material impact on the market.” (PX7033 (Post, Dep. at 127-28)).

Response to Finding No. 718:

Complaint Counsel's proposed finding is based entirely upon speculation and should be disregarded. Complaint Counsel had the opportunity to call Mr. Post as a fact witness and chose not to do so, depriving Respondents of the opportunity to question Mr. Post under cross examination.

719. Even if the merged firm decided not to reduce output, Mr. Post still has concerns about the merger because North American chloride TiO₂ “is a very consolidated market, probably the top 5% suppliers in the world sits on 60% of global capacities and therefore, you know, Tronox Cristal would have a stronger power position versus AkzoNobel.” (PX7033 (Post, Dep. at 129)).

ignores that customers “have a lot of power in the titanium dioxide industry,” that customers often “engage in very complex and strategic decision in procuring their titanium dioxide,” and that [REDACTED]. (Christian, Tr. 878-79, 886; Mouland, Tr. 1247). Complaint Counsel had the opportunity to call Mr. Post as a fact witness and chose not to do so, depriving Respondents of the opportunity to question Mr. Zamec under cross examination.

721. Further, Tronox’s TiO₂ competitors have made clear in public disclosures to their investors after the acquisition was announced that that increased TiO₂ consolidation from the proposed acquisition would lead to a reduced level of competition and therefore increased pricing. (See CCF ¶¶ 722-24, below).

Response to Finding No. 721:

Complaint Counsel’s proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The increase in global supply and availability of TiO₂ resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; [REDACTED]; Shehadeh, Tr. 3443). *See also* Respondents’ Proposed Factual Findings ¶¶ 121-30 and Respondents’ Replies to Complaint Counsel’s proposed Factual Findings ¶¶ 722-24, below.

722. Kronos, in a September 2017 Public Investor Presentation, advised investors that “[h]igher concentration increases likelihood of continued capacity constraints.” It described the higher concentration, therefore, to be a part of the industry “[s]tructural improvements” that would lead to increased earnings. (PX3011 at 38 (Kronos presentation); Christian, Tr. 772 (“Higher concentration” means “less players in the industry” and “capacity constraints” means “that the capacity constraints already existed at the time in the industry, and these potential -- and in some cases these consolidations that we were seeing -- we think further increase the likelihood that those constraints would be present for a longer period of time.”)).

Response to Finding No. 722:

Complaint Counsel’s proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The increase in global supply and availability of TiO₂ resulting from the proposed transaction will

benefit cusomters. (Mei, Tr. 3167; ██████████; Shehadeh, Tr. 3443). *See also* Respondents' proposed Factual Findings ¶¶ 121-30.

723. Venator, in a June 2017 investor presentation prepared in connection with the Initial Public Offering for the TiO2 business, projected that the acquisition would **lead to** ██████████ (PX3000 at 004 (Venator presentation) (*in camera*)).

Response to Finding No. 723:

Complaint Counsel's proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The increase in global supply and availability of TiO2 resulting from the proposed transaction will benefit cusomters. (Mei, Tr. 3167; ██████████; Shehadeh, Tr. 3443). *See also* Respondents' proposed Factual Findings ¶¶ 121-30. Moreover, Complaint Counsel did not present PX3000 to any fact witness at trial, depriving Respondents the opportunity to pursue questions about the document on cross examination. Nor did Complaint Counsel call a witness from Venator to testify at trial when it had the opportunity to do so, again depriving Respondents the opportunity to pursue questioning on cross examination.

724. About a month later, a Venator July 2017 Analyst Day presentation by Venator's Chairman, Peter Huntsman, and President, Simon Turner, ██████████ (PX3054 at 14 (Venator presentation) (*in camera*)).
██████████
██████████ (PX3054 at 19 (Venator presentation) (*in camera*)).

Response to Finding No. 724:

Complaint Counsel’s proposed finding is an incomplete statement of the record as it fails to acknowledge the pro-competitive benefits that outweigh the loss of Cristal in the market. The increase in global supply and availability of TiO₂ resulting from the proposed transaction will benefit customers. (Mei, Tr. 3167; [REDACTED]; Shehadeh, Tr. 3443). *See also* Respondents’ proposed Factual Findings ¶¶ 121-30. Moreover, Complaint Counsel did not present PX3054 to any fact witness at trial, depriving Respondents the opportunity to pursue questions about the document on cross examination. Nor did Complaint Counsel call a witness from Venator to testify at trial when it had the opportunity to do so, again depriving Respondents the opportunity to pursue questioning on cross examination.

725. Referring to the testimony of market participants – customers and competitors – with respect to the effects of the merger, Dr. Hill described how this testimony regarding competitive effects “reinforces my conclusions.” (Hill, Tr. 1895-96)

Response to Finding No. 725:

To the extent that Complaint Counsel’s proposed finding proffers a factual determination, the finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

726. Dr. Hill described customer testimony in which the “the general concerns are that it will likely lead to increased withholding of output and a higher market price.” (Hill, Tr. 1896; PX5000 at 107 (¶250) (Hill Initial Report) (discussing deposition testimony of several customers and concluding that “[w]hile rivals of Tronox and Cristal view the deal positively, some of Tronox and Cristal’s customers are concerned by it.”) (*in camera*); *see also* Malichky, Tr. 615 [REDACTED] (*in camera*)).

Response to Finding No. 726:

Complaint Counsel’s proposed finding mischaracterizes the record. The FTC’s theory of withholding output and the “conclusions [Dr. Hill] reaches [regarding withholding output] don’t comport with the way the real world works in the chemical industry.” (Stern, Tr. 3854).

Although “[a] lot of capacity” was “taken offline” during the 1995 to 2010 time frame “as a result of poor financial performance of the industry,” these closures were prompted by “downturns either in the general economy or specifically in the TiO₂ industry.” (Christian, Tr. 766). From the very beginning, Tronox has planned to run its TiO₂ and feedstock facilities “all out,” or at full capacity, after the Cristal transaction. (RX0236.0001; Quinn, Tr. 2316-17; Turgeon, Tr. 2652, 2655). Tronox has experience increasing output at newly acquired plants. (Dean, Tr. 2950). For example, when Tronox acquired Botlek, it produced 45-48,000 tons per year, and currently it produces 90,000 tons per year. (Dean, Tr. 2950). Tronox will have an incentive to increase its output after the transaction, especially at Hamilton and Ashtabula, because those plants represent the lowest cost structure for both Tronox and Cristal presently. (Stern, Tr. 3852; Turgeon, Tr. 2642 (describing how having the lowest cost structure earns producers “the right to grow”)). Furthermore, Complaint Counsel’s proposed fact is a misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, (Malichky, Tr. 582-84, 600-01). Finally, to the extent that Complaint Counsel’s proposed finding proffers a factual determination, the finding’s citations to Dr. Hill and Dr. Hill’s expert report violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

727. Dr. Hill also observed that “a number of statements from competitors . . . indicate that they believe the transaction is likely to lead to increased output withholding and higher prices.” (Hill, Tr. 1896-97; PX5000 at 107 (¶249) (Hill Initial Report) (describing ordinary course documents and public statement of competitors and concluding that “[c]ompetitors state that increased consolidation will increase profitability.”) (*in camera*)).

Response to Finding No. 727:

Complaint Counsel's proposed finding mischaracterizes the record. *See* Respondents' Reply to Complaint Counsel's Proposed Factual Finding No. 726. Moreover, to the extent that Complaint Counsel's proposed finding proffers a factual determination, the finding's citations to Dr. Hill and Dr. Hill's expert report violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

VI. ENTRY AND EXPANSION

728. Entry or expansion into the market for the sale of chloride TiO₂ to North American customers will not be timely, likely, or sufficient to offset the anticompetitive effects of the merger. (*See* PX9085 at 028-29 (Horizontal Merger Guidelines, §§ 9.1-9.3)). First, entry or expansion into the mature North American chloride TiO₂ market is expensive and takes a significant amount of time. (*See* CCF ¶¶ 729-44, below). Second, the prospect of increased imports of chloride TiO₂ into North America from China or elsewhere is highly uncertain and speculative, and also unlikely to alleviate potential anticompetitive effects from the merger. (*See* CCF ¶¶ 745-812, below).

Response to Finding No. 728:

Complaint Counsel mischaracterizes record evidence. Entry or expansion into the market for the sale of chloride TiO₂ to North America is imminent and more than offsets any anticompetitive effects of eliminating Cristal as a competitor in the market. *See* Respondents' proposed Factual Findings ¶¶ 477-510 and Respondents' Replies to Respondents' proposed Factual Findings ¶¶ 729-812.

A. Entry or Expansion by Building a New Plant in North America Would Not Be Timely, Likely or Sufficient to Deter or Counteract the Merger's Anticompetitive Effects

729. Under the Horizontal Merger Guidelines the, "Agencies consider the actual history of entry into the relevant market and give substantial weight to this evidence." (PX9085 at 027-29 (Horizontal Merger Guidelines, § 9)). The record evidence is clear that there has been no new TiO₂ entry in North America for many years. (PX1650 at 018 (Tronox Presentation) [REDACTED] (*in camera*); PX9119 at 006 (Tronox investor call transcript) (No new chloride TiO₂ plant put into commercial

production since 1994.)). There is no evidence of any large-scale output expansions by North American producers even when North American chloride TiO₂ prices exceeded \$4,000 per ton in 2012. (PX9020 at 040 (Chemical Economics Handbook); PX1532 at 153 (TZMI Cost Study); PX5000 at 064, 111-12 (¶¶ 256-57 & Figs. 24, 38) (Hill Initial Report) (*in camera*)).

Response to Finding No. 729:

Complaint Counsel’s proposed finding is misleading. In “the mid-1990s, there was growth of world-scale plants outside China in the TiO₂ business,” and there was additional growth since then in the form of “capacity creep, the result of debottlenecking efforts to improve plant capacity by two percent or three percent a year.” (Stern, Tr. 3773-74). Tronox and Cristal have both expanded capacity over the past two decades through capacity creep. (Stern, T. 3774). “Kronos has been very successful in debottlenecking.” (Christian, Tr. 763). Moreover, Complaint Counsel failed to ask any fact witness about PX1650 or PX9119, depriving Respondents of the opportunity to pursue questioning on cross examination. Finally, to the extent that PX5000 is offered to establish a factual finding, Complaint Counsel’s proposed finding violates the ALJ’s Order on Post-Trial Brief by citing to an expert for something that should have been established by a fact witness or documents.

730. According to a 2017 TZMI report, [REDACTED] (PX1663 at 030 (TZMI, presentation) (*in camera*); PX3038 at 050 [REDACTED] (*in camera*)). Tronox similarly [REDACTED] (PX0017 at 033 (Tronox Response to FTC Request for Additional Information) (*in camera*)).

Response to Finding No. 730:

Complaint Counsel’s proposed finding is misleading in that it ignores that in the form of “capacity creep, the result of debottlenecking efforts to improve plant capacity by two percent or

three percent a year.” (Stern, Tr. 3773-74). Tronox and Cristal have both expanded capacity over the past two decades through capacity creep. (Stern, T. 3774). “Kronos has been very successful in debottlenecking.” (Christian, Tr. 763). Tronox has been particularly successful at debottlenecking by “unlocking the hidden factory” in its plants, for example expanding the production capacity at Hamilton from 180,000 tons to 235,000 tons. (Turgeon, Tr. 2655-59; Dean, Tr. 2959-60). Moreover, Complaint Counsel failed to offer PX1663 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect. Finally, Complaint Counsel is relying upon an interrogatory response containing information that it had the ability to elicit at trial and chose not to do so, depriving Respondents of the opportunity to test such statements by way of cross examination.

731. The reasons for the absence of entry are clear: there are significant and costly hurdles to entering the chloride TiO₂ market. [REDACTED]

[REDACTED] PX3038 at 022 [REDACTED]

[REDACTED] (*in camera*)).

Response to Finding No. 731:

Complaint Counsel is relying upon an interrogatory response containing information that it had the ability to elicit at trial and chose not to do so, depriving Respondents of the opportunity to test such statements by way of cross examination.

732. Tronox and Cristal agree with [REDACTED] that the capital costs of constructing a new chloride titanium dioxide plant are very high. (PX9119 at 003 (Tronox investor call transcript) (“the capital costs for a new chloride plant are very high and therefore, the capital risk associated with decision is not insignificant.”)). Recently, Tronox estimated the cost of constructing such a new plant in the United States as ranging from [REDACTED]

[REDACTED] (PX0017 at 033-34 (Tronox Response to FTC Request for

Additional Information) (*in camera*); PX5000 at 108-09 (¶ 253) (Hill Initial Report) (*in camera*)). Cristal similarly estimated that building a new plant in the United States would cost [REDACTED] (PX0002 at 067 (Cristal Second Request Response) (*in camera*)).

Response to Finding No. 732:

Respondents have no specific response.

733. Entry into the North American TiO₂ market is unlikely under current market conditions—or even after a price increase resulting from the merger—because the likely returns on the investment do not justify the investment required to build new chloride TiO₂ plants in North America. (*See* CCF ¶¶ 734-36, below).

Response to Finding No. 733:

Complaint Counsel’s proposed finding mischaracterizes record evidence. Chinese competitors have entered the North American market and their growth is imminent and North American producers face “significant competition from China in all world regions.” (Quinn, Tr. 2347-48; Turgeon, Tr. 2659, 2665-66; Engle Tr. 2486, 2488; Arndt, Tr. 1411-12; Romano, Tr. 2221-22; Moulard, Tr. 1243; Stern, Tr. 3704-05). *See also* Respondents proposed Factual Findings ¶¶ 477-510 and Replies to Complaint Counsel Factual Findings ¶¶ 734-36, below.

734. [REDACTED] (PX1091 at 035, 084 (Tronox TiO₂ Strategic Plan 2017) (*in camera*)). Similarly, in a 2017 presentation, Venator estimated that TiO₂ prices would need to reach price levels of [REDACTED] to make adding new TiO₂ production capacity economical. (PX3035 at 025 (Venator Analyst Day) (*in camera*)).

Response to Finding No. 734:

Complaint Counsel did not present PX1091 or PX3035 to any fact witness at trial, depriving Respondents the opportunity to pursue questions about the document on cross examination or redirect. Nor did Complaint Counsel call a witness from Venator to testify at

trial when it had the opportunity to do so, again depriving Respondents the opportunity to pursue questioning on cross examination.

735. In a recent investor presentation, Kronos stated that “at current pricing structure, capacity increases would yield a negative IRR {internal rate of return} with a significant payback period.” It concluded that a price and margin improvement of about \$1,000 per metric ton would be “required to justify reinvestment” and shared that there were no announced plant expansion projects in North America (PX3011 at 015, 027) (Kronos Public Investor Presentation); PX3038 at 022 [REDACTED] (in camera)).

Response to Finding No. 735:

Complaint Counsel is relying upon an interrogatory response containing information that it had the ability to elicit at trial and chose not to do so, depriving Respondents of the opportunity to test such statements by way of cross examination.

736. The potential impact on prices of adding additional chloride TiO₂ capacity to the North American market further reduces the likelihood of entry or expansion, especially by the major North American TiO₂ producers who would most benefit from the higher TiO₂ resulting from the merger. (PX7036 (Keegel, Dep. at 170) [REDACTED] (in camera); PX1091 at 084 (Tronox presentation) (with respect to greenfield entry, [REDACTED] (in camera))).

Response to Finding No. 736:

Complaint Counsel is relying deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect. Moreover, Complaint Counsel did not present PX1091 to any fact witness at trial, also depriving Respondents an opportunity to pursue additional questioning on cross examination or redirect.

737. Capacity expansion at an existing chloride TiO₂ plant, which could increase a plant’s output by adding a new line, is also costly. (Christian, Tr. 764). Kronos estimates that

such an effort could cost upwards of \$200 million. (PX3007 at 014 (Kronos presentation)). Cristal estimates it would cost [REDACTED] (PX0002 at 067 (Cristal Response to FTC Request for Additional Information) (*in camera*)).

Response to Finding No. 737:

Complaint Counsel's proposed finding mischaracterizes the record evidence by ignoring expansion through debottlenecking and "capacity creep," "efforts to improve plant capacity by two percent or three percent a year." (Stern, Tr. 3773-74). Tronox and Cristal have both expanded capacity over the past two decades through capacity creep. (Stern, T. 3774). "Kronos has been very successful in debottlenecking." (Christian, Tr. 763). Tronox has been particularly successful at debottlenecking by "unlocking the hidden factory" in its plants, for example expanding the production capacity at Hamilton from 180,000 tons to 235,000 tons. (Turgeon, Tr. 2655-59; Dean, Tr. 2959-60).

738. Although TiO₂ producers have actively engaged over the years in debottlenecking to increase their production of TiO₂, there are limits to debottlenecking, including the physical size of the plant, technology, and permitting. (Christian, Tr. 761-62; *see also* Hill, Tr. 1864-65 (Incremental increases like debottlenecking is usually absorbed by increases in demand.)). More importantly, most of the potential debottlenecking has already occurred over the last 15-20 years, so it is unlikely to have an effect on the market. (Christian, Tr. 761-62 ("a lot of the debottlenecking has already taken place over the last 15, 20 years")).

Response to Finding No. 738:

Complaint Counsel's proposed finding mischaracterizes record evidence by citing to Mr. Christian, who did not testify to having personal knowledge of Tronox's debottlenecking capabilities. Tronox has been particularly successful at debottlenecking by "unlocking the hidden factory" in its plants, for example expanding the production capacity at Hamilton from 180,000 tons to 235,000 tons. (Turgeon, Tr. 2655-59; Dean, Tr. 2959-60). Tronox intends to apply these same principles to all of the Cristal facilities it acquires. (Turgeon, Tr. 2657-59; Dean, Tr. 2973-74; 2995-96). To the extent that the finding proffers Dr. Hill's testimony to

establish evidentiary facts, Complaint Counsel’s finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

739. In addition to high costs, constructing a new chloride TiO₂ plant is a lengthy process that typically requires at least four to five years, rendering such efforts untimely. For example, Tronox estimates that entry into the manufacture of chloride TiO₂ would [REDACTED] (PX0003 at 034 (Tronox Response to FTC Request for Additional Information) *(in camera)*); PX1636 at 001 (Romano email to Arndt) (“Four years for a greenfield plant would be aggressive. . . Total time line would be 54 months or 4.5 years if everything went according to plan (aggressive).”); Romano, Tr. 2138-39 (agreeing that “aggressive” means “faster than you would expect”).

Response to Finding No. 739:

Respondents have no specific response.

740. Other TiO₂ producers have similar views regarding the lengthy time required to build a new chloride TiO₂ plant. PX0002 at 067 (Cristal Narrative Response, Response to Specification 13) [REDACTED] *(in camera)*; PX3007 at 014 (Kronos Presentation); Christian, Tr. 765 (“[Y]ou would have to get permitting both from a manufacturing standpoint and an environmental standpoint, and then you have to invest a significant amount of capital to actually build a TiO₂ plant. You know, they’re not available for sale, you know, off the shelf. It’s a completely engineered and a slow process that’s individual to each producer’s technology. They take a long time to build.”); PX3037 at 003 [REDACTED] *(in camera)*; Hill, Tr. 1869-70; PX5000 at 107 (¶ 251) (Hill Initial Report) *(in camera)*; PX3035 at 025 (Venator presentation) [REDACTED] *(in camera)*).

Response to Finding No. 740:

Documents cited by Complaint Counsel in this finding (PX3007, PX3037, and PX3035) were not presented by Complaint Counsel at trial, thus depriving Respondents the opportunity to pursue further questioning on cross examination or redirect. To the extent that the finding proffers Dr. Hill’s testimony or report (PX5000) to establish evidentiary facts, Complaint Counsel’s finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

741. Even after expending the cost and time required to design, build, and bring a new chloride TiO₂ plant on-line, many customers would then need to qualify the TiO₂ grades produced by the new plant. (See CCFE ¶¶ 748-54, below). This process can be quite lengthy, and the qualification process [REDACTED] (PX8000 at 003 (¶ 13) (Malichky Decl.) (*in camera*); PX8006 at 002 (¶ 11) (Pschaidt Decl.) (*in camera*); PX8003 at 004 (¶¶ 17-20) (Young Decl.) (**{1-3 years}**) (*in camera*)). This makes it even less likely entry will be a timely or effective deterrent against anticompetitive effects. (PX5000 at 116 (¶266) (Hill Initial Report) (“To be considered timely enough to offset anticompetitive effects, entry must be able to occur quickly enough to render the actions that cause those effects unprofitable, even though such effects would be profitable until entry occurred.”) (*in camera*)).

Response to Finding No. 741:

Complaint Counsel’s proposed finding is misleading because it assumes that a new chloride TiO₂ plant would not provide the same grades as existing chloride TiO₂ plants. Complaint Counsel cites a declaration from Mr. Malichky and Mr. Pschaidt, rather than eliciting the information from them at trial, depriving Respondents the opportunity to pursue further questioning under cross examination. Furthermore, Complaint Counsel’s proposed fact is a misleading because Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, Malichky, Tr. (582-84, 600-01). *See also* Respondents’ Replies to Complaint Counsel’s proposed Factual Findings ¶¶ 748-54, below. Moreover, Complaint Counsel cites a declaration from Mr. Young, rather than calling him as a fact witness at trial, also depriving Respondents the opportunity to test the veracity of his statements under cross examination. Finally, to the extent that the finding proffers Dr. Hill’s testimony or report (PX5000) to establish evidentiary facts, Complaint Counsel’s finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

742. In addition to the cost and timing of constructing a chloride TiO₂ plant, chloride TiO₂ producers also view intellectual property as a significant hurdle to entering the chloride TiO₂ market from a technology and know-how standpoint. While the major North American chloride TiO₂ producers already have access to the relevant intellectual property and know-how, potential new entrants, including the Chinese producers, do not,

Additional Information) [REDACTED] (in camera); Hill, Tr. 1867-68)).

Response to Finding No. 743:

Complaint Counsel did not present PX9119 to any fact witness at trial, depriving Respondents the opportunity to pursue questioning about the document on cross examination or redirect. Likewise, Complaint Counsel never presented PX1001 or PX0003 at trial when it had the opportunity to do so, which also deprived Respondents the opportunity to pursue questioning about the documents on cross examination or redirect. Finally, to the extent that the finding proffers Dr. Hill’s testimony or report to establish evidentiary facts, Complaint Counsel’s finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents.

744. Brian Christian, Executive Vice-President at Kronos, likewise emphasized that the technology to operate a chloride TiO₂ plant “is one of the critical barriers to entry to the industry. It’s highly customized and bespoke, and it’s a critical aspect of [Kronos’] business. [Kronos] do[es] everything we can to protect it.” (Christian, Tr. 789; PX3011 at 013, 019, 027 (Kronos presentation) (“High barriers to entry for chloride process TiO₂ capacity . . . Chloride process technology is closely held by the major producers.”); (PX3038 at 022 [REDACTED] (in camera))).

Response to Finding No. 744:

Complaint Counsel’s proposed finding is not a fact, but improper argument. Complaint Counsel’s proposed finding is also misleading to the extent that it suggests that the chloride technology creates a “high barrier to entry” into the TiO₂ market. Further, Mr. Christian’s testimony only speaks to his own personal views and does not represent the views of the TiO₂ industry as a whole. In other words, none of the cited evidence stands for the absolute and unqualified assertion that all “North American customers and producers” have reached uniform “agreement” on anything. Moreover, Complaint Counsel’s proposed finding ignores the evidence that Chinese chloride quality has been improving, which directly refutes its proposed

finding. The evidence shows that since 2012, China has made “great strides” in the commercialization of chloride-process TiO₂ technology. (Arndt, Tr. at 1407). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Lomon Billions’ current chloride plant is running at a capacity of 70,000 tons per year. (Romano, Tr. 2244). Lomon Billions will expand production at its chloride plant by 300,000 tons per year at the end of 2019. (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility of 300,000 tons of chloride process TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244). Moreover, Complaint Counsel cites an interrogatory response containing information that it could have elicited at trial; Respondents did not have the opportunity to pursue questioning related to the interrogatory response on cross examination.

B. Entry or Expansion by Chinese Producers Would Not Be Timely, Likely, or Sufficient to Deter or Counteract the Likely Anticompetitive Effects from the Merger

745. TiO₂ from Chinese producers is not a meaningful competitive constraint in North America. (PX9001 at 009 (Tronox Q3 2016 Earnings Call) (“So the question for us is, do we confront China-produced supply in the market as a competitive alternative to our supply. And as I’ve said, we don’t. . . . [T]he kind of customers that will buy our high-quality pigments are not simultaneously looking at for the same supply need Chinese product.”); PX9006 at 006 (Tronox Q2 2015 Earnings Call) (“We do not see that exports from China or from Europe are playing a material role in the competitive balance in the North American market.”); PX9010 at 010 (Tronox Q2 2014 Earnings Call) (Chinese TiO₂ producers have thus far failed to establish themselves as a “material competitive presence, either in terms of volume or in terms of price. That implies to [Tronox] that it’s staying pretty much within the Chinese or the Asian market. I think a lot of supply generally from China generally tends to go into Latin America, then into the Middle East. It’s simply not a major force in our markets.”); PX7037 (Pickett, Dep. at 58-59) (Cristal’s GM for Sales in the Americas [REDACTED] (in camera); PX4020 at 001 (Sherwin-

[REDACTED] (in camera); PX8004 at 002-03 (¶ 9) (O’Sullivan Decl.)

[REDACTED] (in camera)).

Response to Finding No. 745:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel’s proposed finding is inaccurate, misleading, and vague. It does not specify the meaning of “meaningful competitive constraint,” and it ignores all of the evidence presented at trial that suggest the contrary—that Chinese producers, such as Lomon Billions, are a major and growing competitive threat. *See* Respondents’ Findings ¶¶ 477-528. Complaint Counsel’s proposed finding also improperly relies on evidence that was never presented at trial and thus was not subject to cross examination before this Court.

746. This would not change with the merger as imports of TiO₂ from China, including both sulfate and chloride TiO₂, would not offset the anticompetitive impact from the proposed merger. (*See* CCFE ¶¶ 747-807, below).

Response to Finding No. 746:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel’s proposed finding is inaccurate, misleading, and unsupported by any evidence. It ignores the many evidence that Chinese TiO₂ producers, especially Lomon Billions, have significantly expanded their chloride capability in China, and are targeting North America for increased exports. (Engle, Tr. 2498-99). Since 2012, China has made “great strides” in the commercialization of chloride-process TiO₂ technology. (Arndt, Tr. at 1407). Even large multinational North American TiO₂ customers have taken notice. For example, [REDACTED] [REDACTED] (Pschaidt, Tr. 1007).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Moreover, several Tronox executives have admitted that they were mistaken and underestimated the growth of the Chinese TiO₂ producers. For example, Mr. Romano testified that “[w]hat’s changed in the last ten years or fifteen years is the evolution of the Chinese. The Chinese initially started out with low-quality TiO₂, which kind of I think put sulfate into a category of lower quality incorrectly. The Chinese over that last ten to fifteen years and more importantly in the last five have become an extremely competitive and they make very good grades, and in some instances those grades are better than ours.” (Romano, Tr. 2238-39). Since 2012, China has made “great strides” in the commercialization of chloride process TiO₂ technology. (Arndt, Tr. at 1407). For instance, Tronox’s senior business development manager and grade specialist, Mr. Jeff Engle, testified that some Lomon Billions’ chloride products Tronox had tested were better than Tronox’s chloride products. (Engle, Tr. 2527). [REDACTED]

[REDACTED]

[REDACTED] (Christian, Tr. 828). [REDACTED]

[REDACTED]

[REDACTED] (Malichky, Tr. 416). Lomon Billions’ current chloride plant is running at a capacity of 70,000 tons per year. (Romano, Tr. 2244). Lomon Billions will expand production at its chloride plant by 300,000 tons per year at the end of 2019. (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility of 300,000 tons of chloride process TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244).

Respondents' specific response to CCFE ¶¶ 747-807 can be found below. Further, by citing exclusively to 60 other proposed findings to support its claim, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record.

- i. Imported Chinese Chloride TiO₂ Would Not Offset Likely Anticompetitive Effects in the Relevant Market for Sale of Chloride TiO₂ to North American Customers

747. Imports of chloride TiO₂ to North America will not offset the anticompetitive effect of the merger for several reasons: (1) Chinese chloride TiO₂ does not meet the standards that North American customers require; (2) Chinese producers lack the technology and know-how to successfully operate chloride TiO₂ plants; (3) there is no cost advantage to manufacturing chloride TiO₂ in China; (4) North American customers are unlikely to benefit from Chinese chloride TiO₂ production because of lack of available supply; (5) import costs, duties and other logistical issues present additional huddles for increasing imports of chloride TiO₂ from China; and (6) the supposed expansion by Lomon Billions is speculative, years away, and unlikely to prevent any anticompetitive effects from the merger. (See CCFE ¶¶ 748-807, below).

Response to Finding No. 747:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

Complaint Counsel's proposed finding is also misleading. See Respondents' Reply to Complaint Counsel's proposed Factual Finding ¶ 747. Further, by citing exclusively to 34 other proposed findings to support its claim, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Complaint Counsel's proposed finding is conclusory and unsupported by any cited evidence.

- (a) Chinese chloride TiO₂ does not meet the standards North American customers require

748. Customers in North America have strict quality requirements for their TiO₂ and strict requirements for their suppliers, including strong reliability standards. (See CCFE Section III.A.i., ¶¶ 26-133, above).

Response to Finding No. 748:

Complaint Counsel's proposed finding is not a fact, but rather improper argument. Further, by citing exclusively to 107 other proposed findings to support its claim, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Complaint Counsel's proposed finding is conclusory and unsupported by any cited evidence.

749. Chinese chloride TiO₂ lacks the requisite quality that customers in North America require. Chloride TiO₂ from Chinese producers, including [REDACTED], has not passed the qualification requirements set by several North American customers, to even be considered as a potential source of supply. [REDACTED] (PX8003 at 005 (¶ 23) (Young Decl.) (*in camera*); Young, Tr. 683, 686 (Chinese manufactured TiO₂ [REDACTED] (*in camera*)). [REDACTED] (PX8000 at 004-05 (¶ 20) (Malichky, Decl.) (*in camera*); Vanderpool, Tr. 202-03 [REDACTED] (*in camera*); Vanderpool, Tr. 251 (qualification takes a long time – [REDACTED] (*in camera*); PX7044 (Vanderpool, Dep. at 101-02) (*in camera*); Pschaidt, Tr. 986-87 [REDACTED] (*in camera*); see RX1198 at 0067 (TZMI Presentation) (“Exports from China primarily serve emerging economies where product quality is a better fit for the customer base in those regions.”)). Mr. Arrowood from Deceuninck stated that Deceuninck would import TiO₂ from China only as a “last resort.” (Deceuninck, Tr. 1094-95)

Response to Finding No. 749:

Complaint Counsel's proposed finding is not a fact, but rather improper legal argument. Complaint Counsel's proposed finding is also inaccurate and misleading because it ignores the vast amount of evidence that show that Chinese product quality is continually increasing. See Respondents' Reply to Complaint Counsel's proposed Factual Finding ¶ 747. For example,

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Additionally, much of Complaint Counsel’s proposed finding improperly relies on documents and testimony that were never presented at trial and thus were not subject to cross examination before this Court.

750. North American TiO₂ producers also believe that the quality of Chinese chloride TiO₂ is **{lacking}** as Venator’s recent investor presentation described **{the “differential between Western and Chinese product quality” as “now transparent to all customers and producers.”}** (PX3035 at 025 (Venator Presentation) (*in camera*)).

Response to Finding No. 750:

Complaint Counsel’s proposed finding is inaccurate and misleading. While Complaint Counsel indicates that this statement means customers have found Chinese quality to be “lacking,” [REDACTED]

[REDACTED]

[REDACTED] See PX7015 (Maiter, Dep. at 191-92.) Complaint Counsel’s proposed finding is also broad and sweeping and does not represent the views of all North American TiO₂ producers. Additionally, Complaint Counsel’s proposed finding relies on a document that was never presented at trial and thus was not subject to cross examination before this Court. Furthermore, Complaint Counsel’s proposed finding ignores testimony from other North American TiO₂ producers. For example, a Tronox executive testified that since 2012, China has made “great strides” in the commercialization of chloride-process TiO₂ technology. (Arndt, Tr. at 1407). A [REDACTED]

[REDACTED]

[REDACTED]

751. Mr. Christian of Kronos similarly observed that chloride TiO₂ from China has continued to be lower quality. (Christian, Tr. 797 (“We just don’t see Chinese chloride in the

markets in which we compete. I think the extremely minimal amount of Chinese [chloride TiO₂] product stays in lower and goes into lower quality products.”)).

Response to Finding No. 751:

Complaint Counsel’s proposed finding is unwarranted and misleading. At trial, Mr. Christian admitted that he did not know the amount of chloride TiO₂ exported from China into the United States in 2016 and 2017. When asked to provide an order of magnitude, he responded [REDACTED] (Christian, Tr. 824-25). Moreover, when asked whether he knew China’s chloride process capacity, Mr. Christian responded [REDACTED]

[REDACTED] (Christian, Tr. 824-25).

752. According to Sherwin-Williams, [REDACTED] (in camera).

Response to Finding No. 752:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. Complaint Counsel’s proposed finding relies on a document that was never presented at trial and was not subject to cross examination before this Court, even though Mr. Young of Sherwin-Williams testified live. Additionally, PX4020 is Complaint Counsel’s questionnaire related to this transaction that was filled out by someone at Sherwin-Williams, and no data or information was cited in support of these “facts.” Indeed, Complaint Counsel’s cited testimony reflects only the view of one customer who reflect only a small fraction of total TiO₂ customers and should not be treated as dispositive.

753. Moreover, [REDACTED] (PX7016)

(DeCastro, Dep. at 92-95) (*in camera*); PX8000 at 004-05 (¶¶ 20-22) (Malichky Decl.)

[REDACTED]

(*in camera*); PX8003 at 005 (¶¶ 23-24) (Young Decl.)

[REDACTED] *in camera*; Pschaidt, Tr. 986-87 (*in camera*); PX7027 (Pschaidt, Dep. at 137-38) (*in camera*); PX8006 at 003 (¶ 16) (Pschaidt Decl.)

[REDACTED] (*in*

camera); PX8001 at 003 (¶ 14) (Zamec Decl.) (*in camera*)).

Response to Finding No. 753:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. First, Complaint Counsel’s proposed finding heavily relies on documents and testimony that were never presented at trial and thus were not subject to cross examination, even though Mr. Malichky, Mr. Young, and Mr. Pschaidt all testified live. Further, none of the cited evidence stands for the broad and unqualified claim that there is universal “agreement” among “North American customers” about anything, much less whether Chinese chloride producers are a reliable source of supply. Indeed, Complaint Counsel’s cited testimony reflects only the views of a few hand-picked customers who reflect only a small fraction of total TiO2 customers. Complaint Counsel’s proposed finding is misleading because it ignores the evidence that customers are, in fact, increasingly switching over to Chinese suppliers. For example, Kronos

[REDACTED]

[REDACTED]. See also Respondents’ Findings ¶¶ 518-28.

754.

[REDACTED] (PX8000 at 004 (¶ 17) (Malichky Decl.) (*in camera*); Pschaidt, Tr. 986-87 (*in camera*); PX7027 (Pschaidt, Dep. at 62-63) [REDACTED] (*in camera*)).

Response to Finding No. 754:

Complaint Counsel’s proposed finding is inaccurate and misleading. First, the fact that making slurry in-house would be cost-prohibitive is false and contradicted by evidence in the record. Many titanium dioxide customers already make their own slurry. *See* [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Moreover, it is undisputed that slurry is simply the mixture of dry TiO₂ with water. *See* (Malichky, Tr. 413); see also (Engle, Tr. 2452)

[REDACTED]

Complaint Counsel also ignores the possibility that dry TiO₂ can be shipped from one location to another and slurried at the destination location. *See* PX7052 (O’Sullivan, Dep. at 106 (*in camera*))

[REDACTED]

[REDACTED]

- (b) No Chinese producer is currently supplying chloride TiO₂ to North American customers in significant volume in part because of technology issues and lack of know-how

755. Imports of chloride TiO₂ from all producers in China account for {only 0.5%} of the North American market for chloride TiO₂. (PX5000 at 067-68 (¶ 152 & Fig. 25) (Hill Initial Report) (*in camera*)).

Response to Finding No. 755:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. Furthermore, by citing Dr. Hill’s analysis for the proposition that “imports of chloride TiO₂ from all producers in China account for ██████████ of the North American market for chloride TiO₂”, the proposed finding violates the ALJ’s Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents. (Judge Chappell, Tr. 3792-3793 (Judge Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

756. According to a Tronox strategic plan, ██████████ (PX1036 at 006 (Tronox Presentation) (*in camera*); PX1033 at 002 (Tan email to Engle) (**Actual chloride TiO₂ production in China estimated at “0.1 mio mt per year”** ██████████ (*in camera*)). In November 2016, Tronox observed that ██████████ (PX1006 at 015 (Tronox presentation) (*in camera*)).

Response to Finding No. 756:

Complaint Counsel’s proposed finding is inaccurate and misleading. First, Complaint Counsel’s cited evidence is stale and no longer reflects the views of Tronox. For example, Mr. Engle testified that Chinese TiO₂ quality has rapidly improved since 2012, and this improvement continues. (Engle, Tr. 2486). Another executive testified that since 2012, China has made “great strides” in the commercialization of chloride-process TiO₂ technology. (Arndt, Tr. 1407). Moreover, Complaint Counsel’s proposed finding is inconsistent with Mr. Christian’s testimony at trial. At trial, Mr. Christian testified that ██████████ (Christian, Tr. 947-48). Specifically, Kronos reported to the European Commission that ██████████

[REDACTED] (Christian, Tr. 949-51). It is also inconsistent with Mr. Malichky's trial testimony, where he said that [REDACTED]

[REDACTED] (Malichky, Tr. 491). Another large North American customer, Masco, stated that it [REDACTED] (Pschaidt, Tr. 981).

757. Chinese TiO₂ producers have struggled to produce chloride TiO₂. Tronox has identified several reasons accounting for those struggles, including: [REDACTED] (PX1000 at 018 (2016 Tronox Strategy Document) (*in camera*); PX1012 at 005 (Tronox presentation) (*in camera*); [REDACTED]; PX1062 at 009-11 (Tronox presentation); PX1067 at 001 (Engle email to Larson) ("They have no idea what they are doing."); PX1387 at 002 (Keegel email to Merturi) [REDACTED] (*in camera*); PX1399 (Tronox "Fireside Chat" Q&A) [REDACTED] (*in camera*)).

Response to Finding No. 757:

Complaint Counsel's proposed finding is false, misleading, and contradicted by testimony. Chinese TiO₂ producers, especially Lomon Billions, have significantly expanded their chloride capability in China, and targeting North America for increased exports. (Engle, Tr. 2498-99). Since 2012, China has made "great strides" in the commercialization of chloride-process TiO₂ technology. (Arndt, Tr. at 1407). Even large multinational North American TiO₂ customers have taken notice. For example, [REDACTED] (Pschaidt, Tr. 1007). [REDACTED]

[REDACTED] (Malichky, Tr. 409). [REDACTED]

[REDACTED] (Romano, Tr. 2273-74). [REDACTED]

[REDACTED]. (Mouland, Tr. 1240-41).

Moreover, several Tronox executives have admitted that they were mistaken and underestimated the growth of the Chinese TiO₂ producers. For example, Mr. Romano testified that “[w]hat’s changed in the last ten years or fifteen years is the evolution of the Chinese. The Chinese initially started out with low-quality TiO₂, which kind of I think put sulfate into a category of lower quality incorrectly. The Chinese over that last ten to fifteen years and more importantly in the last five have become an extremely competitive and they make very good grades, and in some instances those grades are better than ours.” (Romano, Tr. 2238-39). For instance, Tronox’s senior business development manager and grade specialist, Mr. Jeff Engle, testified that some Lomon Billions’ chloride products Tronox had tested were better than Tronox’s chloride products. (Engle, Tr. 2527). [REDACTED]

[REDACTED] (Christian, Tr. 828).

[REDACTED] (Malichky, Tr.

416). Lomon Billions’ current chloride plant is running at a capacity of 70,000 tons per year. (Romano, Tr. 2244). Lomon Billions will expand production at its chloride plant by 300,000 tons per year at the end of 2019. (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility of 300,000 tons of chloride process TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244).

758. As Tronox concluded, [REDACTED] (PX1003 at 023 (Tronox presentation) [REDACTED] (in camera); PX1036 at 006 (Tronox presentation) [REDACTED] (in camera)).

Response to Finding No. 758:

Complaint Counsel’s proposed finding is false, misleading, and contradicted by evidence.

See Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 758.

759. Chinese producers struggle to produce chloride TiO₂ in part because of the “[s]uperior chloride process technology closely guarded by Western producers.” (PX3011 at 019 (Kronos presentation); see CCFF ¶¶ 742-44, above).

Response to Finding No. 759:

Complaint Counsel’s proposed finding is inaccurate and misleading. One such way that Chinese chloride producers are able to produce superior chloride process TiO₂ is [REDACTED]

[REDACTED] For example, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

760. Other North American TiO₂ producers have also observed that [REDACTED]
[REDACTED]

[REDACTED] Christian, Tr. 808-10
(discussing Lomon Billions' announced expansion:
[REDACTED]
(*in camera*); PX7035 (Christian, Dep. at 227)
[REDACTED]
(*in camera*); PX8002 at 005 (¶ 22) (Christian
Decl.)
[REDACTED] (*in camera*)).

Response to Finding No. 760:

Complaint Counsel's proposed finding is false, misleading, and contradicted by evidence. See Respondents' Response to Finding ¶ 758.

761. Based on all of these issues, Tronox concluded that [REDACTED] (PX1401 at 002 (Tronox presentation) (*in camera*)).

Response to Finding No. 761:

Complaint Counsel's proposed finding is inconsistent with testimony in the record. At trial, several Tronox executives have admitted that they were mistaken by underestimating the growth of Chinese TiO₂ producers. For example, Mr. Romano testified that "[w]hat's changed in the last ten years or fifteen years is the evolution of the Chinese. The Chinese initially started out with low-quality TiO₂, which kind of I think put sulfate into a category of lower quality incorrectly. The Chinese over that last ten to fifteen years and more importantly in the last five have become an extremely competitive and they make very good grades, and in some instances those grades are better than ours." (Romano, Tr. 2238-39). Since 2012, China has made "great

[REDACTED]

[REDACTED] See See PX7015 (Maiter, Dep. at 85-87).

[REDACTED] See PX7015 (Maiter, Dep. at 106-08.)

763. In response to [REDACTED] (PX2073 at 012) (*in camera*).

Response to Finding No. 763:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. Complaint Counsel cites only one producer who represents a small fraction of the TiO2 industry, none of whom purport to—or even could—speak for the entire industry. Complaint Counsel’s proposed finding also relies on a document that has never been presented at trial and thus not subject to cross examination before this Court.

764. In July 2017, Venator, who has first-hand experience with Lomon Billions through a licensing arrangement for a single grade of TiO2 to resolve competition concerns in Europe, gave an investor presentation stating: [REDACTED] (PX3027 at 024 (Venator presentation))

[REDACTED] (in camera)).

Response to Finding No. 764:

Complaint Counsel’s proposed finding is directly refuted by the evidence. [REDACTED]

765. [REDACTED] (PX3035 at 020, 025 (Venator presentation) (in camera)).

Response to Finding No. 765:

Complaint Counsel’s proposed finding relies on a document that has never been presented at trial and thus not subject to cross examination before this Court. Meanwhile, Complaint Counsel ignores the vast amount of evidence presented at trial that support the counterfinding—Chinese TiO₂ producers, especially Lomon Billions, have significantly expanded their chloride capability in China, and targeting North America for increased exports.

(Engle, Tr. 2498-99). *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding ¶ 758.

- (c) There is no cost advantage to manufacturing chloride TiO₂ in China

766. The evidence demonstrates that the Chinese producers cannot manufacture chloride TiO₂ at a low enough cost to overcome transportation costs and duties to counter price increases to North American customers resulting from the merger. (See CCFF ¶¶ 767-74, below).

Response to Finding No. 766:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

Complaint Counsel's proposed finding is misleading. China dominates the TiO₂ export market. (Stern, Tr. 3820). In 2008, exports of TiO₂ from China into the rest of the world were about a hundred thousand tons per year. (Romano, Tr. 2221-22). China became a net exporter of TiO₂ in May 2013. (Turgeon, Tr. 2665). The amount it has exported has increased dramatically since. (Turgeon, Tr. 2665-66). From May 2013, five years ago, to today, "China has grown its export of pigment year after year, and today it's a million ton that is coming out of China." (Turgeon, Tr. 2666). When domestic demand slowed in China in late 2014, Chinese producers maintained their production levels and exported more TiO₂. (Arndt, Tr. 1421-22). Competition has continued to grow each year since China became a net-exporter of TiO₂. (Turgeon, Tr. 2666-67). Indeed, while "Lomon Billions is the biggest," there are "tens" of Chinese companies that are "exporting pigment and competing with [Tronox] on a global scale." (Turgeon, Tr. 2666). As of the end of 2017, exports of TiO₂ from China into the rest of the world were about "a million tons per year." (Romano, Tr. 2221-22). Shehadeh Figure 48 (RX0170.0096) shows the rolling 12-month average of Chinese TiO₂ exports from January 2010 - July 2017. (Shehadeh, Tr. 3223-24). Chinese competition is growing quickly in North America. [REDACTED]

[REDACTED] (Mouland, Tr. 1243). From 2010 to 2016, Chinese imports of TiO₂ into

North American increased by “approximately five times.” (Shehadeh, Tr. 3220-21). [REDACTED]
 [REDACTED] Customers in North America initially began to use Chinese product to lower their costs. As Chinese quality has increased, customers have increased the amount of Chinese TiO₂ they are purchasing. (Turgeon, Tr. 2670). Chinese imports into North America are “growing” and have “been growing since 2013.” (Turgeon, Tr. 2671). See also Respondents’ proposed Factual Findings ¶¶ 477-528. By citing exclusively to 7 other proposed findings to support its claim, the proposed finding violates Judge Chappell’s Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record. Respondents’ specific responses to the cited evidence can be found at CCFF ¶¶ 59-66 and ¶¶ 67-92, below.

767. At the end of 2015, Tronox’s Mr. Engle, who had observed to his colleagues that

[REDACTED] estimated that [REDACTED]
 [REDACTED]
 [REDACTED]

(PX1068 at 001-02 (Engle email) (in camera)).

Response to Finding No. 767:

Complaint Counsel’s proposed finding is misleading because it relies on a Tronox document that is stale and no longer represents the current market dynamic. Multiple Tronox executives, including Mr. Engle, have testified at trial that Chinese competition is a real and growing threat today. For example, “Chinese producers are a competitive threat to Tronox due to their rapid growth in capacity, improving quality, and low-cost production. (Engle, Tr. 2486). Chinese producers’ ability to produce at a low cost is a competitive advantage because it can “compete more aggressively” during both the up-cycles and down-cycles in price that characterize the TiO₂ industry. (Engle, Tr. 2496). Chinese companies are not publicly listed and have the freedom to invest capital in ways that are not responsive to shareholders as is typically

required of Western producers. (Turgeon, Tr. 2666-67). The evidence also shows that Lomon Billions “is the number one producer in China,” “the number four producer in the world,” and “is bigger than Tronox.” (Turgeon, Tr. 2660). Lomon Billions “is also a vertically integrated producer,” which lowers their cost and makes them very competitive with Tronox and other global TiO₂ producers. (Turgeon, Tr. 2663). After conducting a cost-curve analysis using TZMI data, Mr. Stern found that “there are Chinese plants that are lower in cost than the Chemours lowest cost plant.” (Stern, Tr. 3785). Specifically, there are two Chinese plants that are “lowest cost plant in the world” and “third lowest cost plant in the world.” (Stern, Tr. 3786). Further, Mr. Stern concluded that based on TZMI data those two Chinese plants are “the most profitable plants in the world.” (Stern, Tr. 3786).

768. According to a 2015 TiO₂ producer cost study published by TZMI, the CITIC Jinzhou plant in China is the highest cost of the 21 chloride TiO₂ plants identified in the study. (RX0105 at 072 (TZMI presentation)). These higher costs are attributable to higher utility costs and higher fixed costs due to the lack of scale. (RX0105 at 141 (TZMI presentation)).

Response to Finding No. 768:

Complaint Counsel’s proposed finding is misleading. None of the cited evidence stands for the broad and unqualified assertion that all Chinese TiO₂ producers have high costs. Complaint Counsel cites to only one example, which account for only a single producer in China and should not be treated as dispositive. Furthermore, Complaint Counsel ignores evidence in the record that shows that there are some Chinese producers that have some of the lowest costs in the world. See Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 768.

769. TZMI’s 2016 Producer Cost Study, [REDACTED] (PX1663 at 149 (TZMI presentation) (*in camera*); PX1663 at 133-53 (TZMI presentation)) [REDACTED]

[REDACTED] (in camera)).

Response to Finding No. 769:

The finding relies on a TZMI study that used only 2016 data. Chinese chloride TiO₂ production has improved rapidly since then, with additional, larger capacity plants expected to come online next year. (Romano, Tr. 2244-45; Engle, Tr. 2498-501). Additionally, the finding relies on a document that was never introduced at trial, where it would have been subject to cross-examination (PX1663).

770. Unlike sulfate TiO₂, chloride TiO₂ manufacturing is not a low labor cost process, a factor that erodes one source of potential cost advantage for manufacturing TiO₂ in China. (PX3011 at 019 (Kronos presentation) (“Benefits of production in China such as low labor and environmental costs not applicable to chloride technology.”); Christian, Tr. 796 (“[C]heap labor and relaxed environmental standards” are not applicable to chloride TiO₂ as opposed to sulfate TiO₂ because “because [the latter is] much more labor-intensive and it generates a significant amount of waste or byproducts per ton of TiO₂.... So when you think about China as a potential competitor, a lot of their historic, perceived advantages over the western world just don’t exist or at least aren’t overly material in comparison to western producers.”)).

Response to Finding No. 770:

Complaint Counsel’s proposed finding is not a fact, but instead is improper argument. Complaint Counsel’s proposed finding is also inaccurate, misleading, and refuted by the evidence. Chinese producers are a competitive threat to Tronox due to their rapid growth in capacity, improving quality, and low-cost production. (Engle, Tr. 2486). Chinese producers’ ability to produce at a low cost is a competitive advantage because it can “compete more aggressively” during both the up-cycles and down-cycles in price that characterize the TiO₂ industry. (Engle, Tr. 2496). Chinese companies are not publicly listed and have the freedom to invest capital in ways that are not responsive to shareholders as is typically required of Western producers. The evidence also shows that Lomon Billions “is the number one producer in China,” “the number four producer in the world,” and “is bigger than Tronox.” (Turgeon, Tr. 2660).

Lomon Billions “is also a vertically integrated producer,” which lowers their cost and makes them very competitive with Tronox and other global TiO₂ producers. (Turgeon, Tr. 2663).

After conducting a cost-curve analysis using TZMI data, Mr. Stern found that “there are Chinese plants that are lower in cost than the Chemours lowest cost plant.” (Stern, Tr. 3785).

Specifically, there are two Chinese plants that are “lowest cost plant in the world” and “third lowest cost plant in the world.” (Stern, Tr. 3786). Further, Mr. Stern concluded that based on TZMI data those two Chinese plants are “the most profitable plants in the world.” (Stern, Tr. 3786).

771. In recent years, manufacturing costs in China have also increased due to pressures on TiO₂ feedstock availability and costs.

[REDACTED]

(PX1268 at 001 (Van Niekerk email to Keegel)

(*in camera*);

PX1266 at 001 (Van Niekerk email to Turgeon) (“Iron ore prices have declined to such a point that its production is cut back and as a result ilmenite as byproduct will become scarce. Once inventories on the east coast dwindle, I expect an increase in ilmenite prices.”); PX1265 at 001 (Van Niekerk email to Romano) (“I think one can read into this that ilmenite in China is getting very tight.”); PX1385 at 001 (Engle email to Tronox sales force)

(*in*

camera); PX1387 at 002 (Keegel email to Merturi)

[REDACTED] (*in camera*)).

Response to Finding No. 771:

Complaint Counsel’s proposed finding is misleading. China dominates the TiO₂ export market. (Stern, Tr. 3820). In 2008, exports of TiO₂ from China into the rest of the world were about a hundred thousand tons per year. (Romano, Tr. 2221-22). China became a net exporter of TiO₂ in May 2013. (Turgeon, Tr. 2665). The amount it has exported has increased dramatically since. (Turgeon, Tr. 2665-66). From May 2013, five years ago, to today, “China has grown its

export of pigment year after year, and today it's a million ton that is coming out of China.” (Turgeon, Tr. 2666). When domestic demand slowed in China in late 2014, Chinese producers maintained their production levels and exported more TiO₂. (Arndt, Tr. 1421-22). Competition has continued to grow each year since China became a net-exporter of TiO₂. (Turgeon, Tr. 2666-67). Indeed, while “Lomon Billions is the biggest,” there are “tens” of Chinese companies that are “exporting pigment and competing with [Tronox] on a global scale.” (Turgeon, Tr. 2666). As of the end of 2017, exports of TiO₂ from China into the rest of the world were about “a million tons per year.” (Romano, Tr. 2221-22). Shehadeh Figure 48 (RX0170.0096) shows the rolling 12-month average of Chinese TiO₂ exports from January 2010 - July 2017. (Shehadeh, Tr. 3223-24). Chinese competition is growing quickly in North America. [REDACTED]

[REDACTED]. From 2010 to 2016, Chinese imports of TiO₂ into North American increased by “approximately five times.” (Shehadeh, Tr. 3220-21). [REDACTED]

[REDACTED] Customers in North America initially began to use Chinese product to lower their costs. As Chinese quality has increased, customers have increased the amount of Chinese TiO₂ they are purchasing. (Turgeon, Tr. 2670). Chinese imports into North America are “growing” and have “been growing since 2013.” (Turgeon, Tr. 2671). *See also* Respondents’ proposed Factual Findings ¶¶ 477-528.

772. Other chloride TiO₂ producers have also highlighted the increasing feedstock costs in China. (PX3027 at 009 (Venator presentation) [REDACTED] (*in camera*); PX3011 at 019 (Kronos presentation) (“CP production depends on ore imports to service existing capacity”); PX8002 at 005 (¶ 21) (Christian Decl.) [REDACTED] (*in camera*)).

Response to Finding No. 772:

Complaint Counsel’s proposed finding is misleading. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 767. *See also* Respondents’ proposed Factual

Findings ¶¶ 477-528. Finally, Complaint Counsel failed to offer PX3027 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

773. Further, manufacturing costs in China have increased due to the costs of complying with environmental and other government regulations. (PX5002 at 020 (¶ 41) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*)). Tronox has emphasized these continuing cost pressures publicly in recent lender and investor presentations. For example, Tronox in September 2017, stated to a lender that there were the several [REDACTED] [REDACTED] (PX1437 at 019 (Tronox presentation) (*in camera*)); PX1438 at 019 (Tronox presentation) (*in camera*); Christian, Tr. 798-99 (“But then they also made the existing suppliers put in improved pieces of equipment, whether it’s a desulfurization unit or some sort of environmental equipment that just adds cost to the product, but does not actually change the quality of the product, so their cost structure increase.”); Turgeon, Tr. 2727).

Response to Finding No. 773:

Complaint Counsel’s proposed finding is misleading. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 767. *See also* Respondents’ proposed Factual Findings ¶¶ 477-528. Finally, Complaint Counsel failed to offer PX1437 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

774. In 2017, Venator made similar points to its investors, addressing the range of factors contributing to increasing costs associated with TiO₂ manufacture in China. (PX3027 at 003 (Venator presentation) [REDACTED] [REDACTED] (*in camera*)).

Response to Finding No. 774:

Complaint Counsel’s proposed finding is misleading. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 767. *See also* Respondents’ proposed Factual Findings ¶¶ 477-528. Finally, Complaint Counsel failed to offer PX3027 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

- (d) Local Chinese demand for chloride TiO₂ is increasing and there are limits on availability of chloride TiO₂ from China

775. Domestic demand for Chinese chloride TiO₂ is growing faster than supply, making it unlikely that there will be an increase in Chinese imports into North America. (See CCF ¶¶ 776-80, below; Hill, Tr. 1879).

Response to Finding No. 775:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

Complaint Counsel's proposed finding is also directly refuted by the evidence and defies economic logic since China would not be one of the world's largest exporter of TiO₂ if "domestic demand for Chinese chloride TiO₂ is growing faster than supply." See Respondents' Reply to Complaint Counsel's proposed Factual Finding ¶ 767. See also Respondents' proposed Factual Findings ¶¶ 477-528. Moreover, by citing Dr. Hill's analysis for the proposition that domestic demand for Chinese TiO₂ is growing faster than supply, the proposed finding violates the ALJ's Order on Post-Trial Briefs by citing expert testimony to support factual propositions that should be established by fact witnesses or documents. (Tr. 3792-3793 (Judge Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute"). Further, by citing exclusively to *four* other proposed findings to support its claim, the proposed finding violates Judge Chappell's Order on Post-Trial Briefs by failing to cite specific references to the evidentiary record.

776.

[REDACTED] (PX0011 at 036 (Tronox board of directors and committee meetings) (*in camera*)). In November 2016, Tronox told its Board this very fact: [REDACTED] (PX0011 at 036 (Tronox board of directors and committee meetings) (*in camera*); PX1193 at 001 (Keegel email to Casey) [REDACTED] (*in camera*); RX1198 at 0046 (TZMI presentation) (Chinese "capacity changes from 2018-2021 are expected to net far less supply than is required to meet the additional demand.")); Hill, Tr. 1877-78; PX5002

at 019 (¶ 39 & Fig. 5) (Hill Rebuttal Report to Stern and Imburgia) (citing TZMI, “Pigment Supply Demand”) (*in camera*)).

Response to Finding No. 776:

Complaint Counsel’s proposed finding is not a fact, but improper argument. Complaint Counsel’s proposed finding is misleading. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 767. *See also* Respondents’ proposed Factual Findings ¶¶ 477-528. Additionally, Complaint Counsel’s proposed finding is highly speculative and does not account for the possibility that either Tronox or TZMI can be mistaken or ill informed. Finally, Complaint Counsel failed to offer PX0011, PX1193, and RX1198 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

777. The growth in demand for chloride TiO₂ in China will likely exceed overall TiO₂ demand, since chloride TiO₂ will continue to replace sulfate TiO₂ in China, in part due to Chinese government emphasis on the development of the chloride TiO₂. (PX3027 at 023 (Venator presentation) [REDACTED] (*in camera*)). TZMI estimates that China’s share of global TiO₂ demand is rapidly increasing from “4% of global demand in 2005” to an estimated “27% in 2020.” (PX1532 at 040 (TZMI presentation); PX8002 at 005 (¶ 21) (Christian Decl.) [REDACTED] [REDACTED] (*in camera*); PX3032 at 001-02 (Ogden email to Huntsman with attachment) (noting “Chinese TiO₂ growth is primarily feeding local and Asian demand” and attaching “one of the better analyst reports” regarding Chinese TiO₂ manufacturing with a report describing how Chinese “government policy appears tilted towards limiting investment into new/expansion of sulfate-based technology for environmental reasons.”)).

Response to Finding No. 777:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. Complaint Counsel’s proposed finding is misleading. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 767. *See also* Respondents’ proposed Factual Findings ¶¶ 477-528. Additionally, Complaint Counsel’s proposed finding is highly speculative and does not account for the possibility that Venator, Kronos, or TZMI can all be mistaken or ill informed.

Finally, Complaint Counsel failed to offer PX3027, PX1532, PX8002, and PX3032 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

778. Additionally, it is [REDACTED] (PX7000 (Snider, IHT at 132-33) (*in camera*); PX8000 at 005 (¶ 22) (Malichky Decl.) (Chinese producers [REDACTED] (*in camera*); PX7016 (DeCastro, Dep. at 90) [REDACTED] (*in camera*)).

Response to Finding No. 778:

Complaint Counsel's proposed finding is not a fact, but rather improper argument. Complaint Counsel's proposed finding is also misleading. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding ¶ 767. *See also* Respondents' proposed Factual Findings ¶¶ 477-528. Complaint Counsel also ignores evidence in the record that Chinese capacity and production of chloride TiO₂ have greatly expanded. Since 2012, China has made "great strides" in the commercialization of chloride process TiO₂ technology. (Arndt, Tr. 1407). For instance, Tronox's senior business development manager and grade specialist, Mr. Jeff Engle, testified that some Lomon Billions' chloride products Tronox had tested were better than Tronox's chloride products. (Engle, Tr. 2527). [REDACTED]

[REDACTED] (Malichky, Tr. 416). Lomon Billions' current chloride plant is running at a capacity of 70,000 tons per year. (Romano, Tr. 2244). Lomon Billions will expand production at its chloride plant by 300,000 tons per year at the end of 2019. (Romano, Tr. 2244-45). Lomon Billions has plans to bring online a total of 500,000 additional tons of chloride TiO₂ capacity, including building a facility

of 300,000 tons of chloride process TiO₂ along with expanding its existing facility in Sichuan province by another 200,000 tons. (Romano, Tr. 2244). Finally, Complaint Counsel failed to offer PX7000, PX8000, and PX7016 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

779. Overall, Chinese TiO₂ capacity has declined over the last several years due to increasing environmental regulation and enforcement. (PX2072 at 023 (Cristal presentation) (10-15 plants idled, many expected to close, and others expected to close due to environmental issues); PX9001 at 006 (Tronox Q3 2016 Earnings Call) (observing that net Chinese production was down in 2015 and would be down again in 2016 and 2017); PX9002 at 007 (Tronox Q2 2016 Earnings Call) (estimating that approximately 400,000 metric tons of capacity could be reduced in China because of regulation); PX8002 at 001 (¶ 21) (Christian Decl.) [REDACTED] (in camera); Young, Tr. 685 [REDACTED] (in camera); PX7025 (Malichky, Dep. at 231) [REDACTED] (in camera)).

Response to Finding No. 779:

Complaint Counsel’s proposed finding is inaccurate and contradicted by the evidence. In fact, China currently dominates the TiO₂ export market. (Stern, Tr. 3820). In 2008, exports of TiO₂ from China into the rest of the world were about a hundred thousand tons per year. (Romano, Tr. 2221-22). China became a net exporter of TiO₂ in May 2013. (Turgeon, Tr. 2665). The amount it has exported has increased dramatically since. (Turgeon, Tr. 2665-66). From May 2013, five years ago, to today, “China has grown its export of pigment year after year, and today it’s a million ton that is coming out of China.” (Turgeon, Tr. 2666). When domestic demand slowed in China in late 2014, Chinese producers maintained their production levels and exported more TiO₂. (Arndt, Tr. 1421-22). Competition has continued to grow each year since China became a net-exporter of TiO₂. (Turgeon, Tr. 2666-67). Indeed, while “Lomon Billions is the biggest,” there are “tens” of Chinese companies that are “exporting pigment and competing with

[Tronox] on a global scale.” (Turgeon, Tr. 2666). As of the end of 2017, exports of TiO₂ from China into the rest of the world were about “a million tons per year.” (Romano, Tr. 2221-22). Shehadeh Figure 48 (RX0170.0096) shows the rolling 12-month average of Chinese TiO₂ exports from January 2010 - July 2017. (Shehadeh, Tr. 3223-24). [REDACTED]

[REDACTED] From 2010 to 2016, Chinese imports of TiO₂ into North American increased by “approximately five times.” (Shehadeh, Tr. 3220-21). [REDACTED]

[REDACTED]. Customers in North America initially began to use Chinese product to lower their costs. As Chinese quality has increased, customers have increased the amount of Chinese TiO₂ they are purchasing. (Turgeon, Tr. 2670).

Chinese imports into North America are “growing” and have “been growing since 2013.” (Turgeon, Tr. 2671). *See also* Respondents’ proposed Factual Findings ¶¶ 477-528. Finally, Complaint Counsel failed to offer PX2027, PX7025, PX8002, or PX9002 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

780. Tronox described the reduced production in China in its third quarter 2016 earnings call: “In the longer term, we look at the various additions and subtractions of production in China...[N]et of both additions and withdrawals or closures, it was down last year. It’s going to be down this year, and it’s going to be down next year... As demand grows domestically, more and more supply will go into the domestic market, which means less will be available for the export market, and Chinese share in the global market we think is going to decline over the next several years.” (PX9001 at 009 (Tronox Q3 2016 Earnings Call); *see also* PX1006 at 015 (Tronox Presentation) [REDACTED] (in camera); PX1004 at 005 (Tronox Presentation) (in camera); PX1641 at 001 (Casey email to Arndt with a forwarded note) (Mr. Casey describing “This is a very good note - data based and comprehensive,” and the note observing “Chinese producer Yunnan Xinli noted government policies aimed at consolidating the industry will reduce the producer base in China from 42 companies in 2015 to fewer than 20 by 2020. While China exports have ticked up this year, they remain a small share of Western markets.”); PX1395 (Tronox investor draft Q&As at 008)).

Response to Finding No. 780:

Complaint Counsel’s proposed finding is misleading. *See* Respondents’ Replies to Complaint Counsel’s Proposed Factual Finding ¶¶ 778-79; *see also* Respondents’ Proposed Factual Findings ¶¶ 478-529. Finally, Complaint Counsel failed to offer PX1004, PX1006, or PX1935 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

781. Venator also believes that [REDACTED] (PX3027, at 022 (Venator presentation) (in camera); (PX7015 (Maiter, Dep. at 212-13) (in camera)). In reaching that conclusion, Venator relied in part on a TiO₂ industry report in coming to this conclusion: [REDACTED] (PX3027 at 008 (Venator presentation) (in camera); PX3004 at 001 (Venator document) (summarizing “Highlights from 2017 CCM reports describing capacity moderation/issues” describing “supply-side reform in the past two years which eliminated 360ktpa of outdated capacity” and further projected that about 20% of the capacity in China, about 690 ktpa of small scale capacity of less than 50ktpa would also be eliminated)).

Response to Finding No. 781:

Complaint Counsel’s proposed finding is misleading. *See* Respondents’ Replies to Complaint Counsel’s Proposed Factual Finding ¶¶ 778-79. *See also* Respondents’ Proposed Factual Findings ¶¶ 478-529. Finally, Complaint Counsel failed to offer PX3004, PX3027, or PX7015 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

782. A few months after the Venator investor presentation, Mr. Turgeon of Tronox made a presentation at the September 2017 RBC Global Industrials Conference where he described [REDACTED]

[REDACTED]
[REDACTED] (RX0981 at 013, 016 (Tronox presentation) (*in camera*)).

Response to Finding No. 782:

Complaint Counsel’s proposed finding is misleading. Mr. Turgeon testified that “the TiO₂ industry has always been very competitive, but I say that today it’s . . . worse. And what I mean by that, it’s because of China.” (Turgeon, Tr. 2659-60. He also stated that the amount of TiO₂ China has exported has increased dramatically. (Turgeon, Tr. 2665-66). From May 2013, five years ago, to today, “China has grown its export of pigment year after year, and today it’s a million ton[s] that is coming out of China.” (Turgeon, Tr. 2666). Competition has continued to grow each year since China became a net-exporter of TiO₂. (Turgeon, Tr. 2666-67). *See also* Respondents’ Replies to Complaint Counsel’s Proposed Factual Finding ¶¶ 778-79 and Respondents’ proposed Factual Findings ¶¶ 478-529. Finally, Complaint Counsel failed to offer PX3004, PX3027, or PX7015 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

783. Kronos in its September 2017 investor presentation also described increased rationalization among TiO₂ producers in China: “China continuing to rationalize capacity as government drives environmental improvements.” (PX3011 at 038 (Kronos presentation)). This was among the factors, along with the capacity reductions and industry structural improvements, that Kronos described to its investors would drive increased EBITDA for Kronos. (PX3011 at 038 (Kronos presentation)).

Response to Finding No. 783:

Complaint Counsel’s proposed finding is misleading. [REDACTED]

[REDACTED] (Christian, Tr. 947-48).

Specifically, Kronos reported to the European Commission that [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] (Christian, Tr. 949-51). *See also* Respondents' Replies to Complaint Counsel's Proposed Factual Finding ¶¶ 778-79 and

Respondents' proposed Factual Findings ¶¶ 478-529.

784. Further, as the overall availability of TiO₂ has diminished, the price of TiO₂ in China has increased quite dramatically in recent years. In a May 2017 investor call, Tom Casey estimated that through Q1 of 2017, prices for Chinese TiO₂ increased by 65% for domestic sales and 45% for export sales since the start of 2016 alone, due to the reduced capacity for pigment, as well as reduced availability and higher costs of feedstocks in China. (PX9028 at 004 (Tronox Q1 2017 Earnings Call); see also PX1061 at 005 (Tronox presentation) (showing increasing Chinese export prices since the beginning of 2016); PX1395 at 008 (Tronox investor draft Q&As) ("Chinese pigment producers continue to raise domestic and export selling prices. Since the start of [2016], we have seen 11 price increase announcements made by Chinese TiO₂ producers, essentially one per month. Chinese domestic selling prices offered on a delivered basis are up 15-20% YTD. In export markets, selling prices offered on a CIF basis are also up 15-20% YTD.")).

Response to Finding No. 784:

Complaint Counsel's proposed finding is misleading because it takes the record out of context. At trial, Mr. Turgeon provided context to PX1395, testifying, "They are running below nameplate capacity today...[A]t the time, we felt that they're already running at full capacity, like we are, so they cannot suddenly flow the market with ne pdocut because they're already producing at full capacity and they already have depleted their inventory." (Turgeon, 2716-17).

See also Respondents' Replies to Complaint Counsel's Proposed Factual Finding ¶¶ 778-79 and Respondents' Proposed Factual Findings ¶¶ 478-529.

785. Those Chinese prices have continued to increase in 2017. (PX9099 at 007 (Tronox Q3 2017 earnings call) ("[W]e feel very comfortable today that the Chinese price have [sic] moved in the same range as our price."); PX7001 (Romano, IHT at 229) (discussing [REDACTED] (in camera); PX1619 at 016, 019 (Tronox TiO₂ Variance Analysis) (indicating that TiO₂ [REDACTED] (in camera); PX8003 at 005 (¶ 24) (Young Decl.); PX7025 (Malichky, Dep. at 230) [REDACTED] (in camera)).

Response to Finding No. 785:

Complaint Counsel’s proposed finding is misleading. Chinese producers are a competitive threat to Tronox due to their rapid growth in capacity, improving quality, and low-cost production. (Engle, Tr. 2486). Chinese producers’ ability to produce at a low cost is a competitive advantage because it can “compete more aggressively” during both the up-cycles and down-cycles in price that characterize the TiO₂ industry. (Engle, Tr. 2496). Chinese companies are not publicly listed and have the freedom to invest capital in ways that are not responsive to shareholders as is typically required of Western producers. (Turgeon, Tr. 2666-67) *See also* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding ¶ 775 and Respondents’ proposed Factual Findings ¶¶ 477-528. Finally, Complaint Counsel failed to offer PX8003 or PX9099 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

786. With reduced availability and higher TiO₂ prices in Asia, overall TiO₂ imports into North America from China have declined. For example, Tronox’s Monthly China Trade Report from October 2017 showed that from October 2016 through September 2017, China’s TiO₂ exports to the U.S. decreased by 19% from their already small amount. (PX1538 at 004 (Tronox presentation); PX7021 (McGuire, Dep. at 101) (discussing PX1538: [REDACTED] (in camera); see PX1395 at 008 (Arndt email) [REDACTED] (in camera); PX3027 at 014 (Venator presentation) (Chinese “Net exports flat” based on information through May 2017); PX3054 at 091 (Venator presentation) [REDACTED] [REDACTED]; PX1570 at 007 (TZMI Presentation) (showing overall imports of TiO₂ from China to be 10% lower in Q1 2017 than in Q1 2015); RX1198 at 0072 (TZMI Presentation) (level of TiO₂ exports from China to North America in first half of 2017 below exports levels for first half of both 2015 and 2016)).

Response to Finding No. 786:

Complaint Counsel’s proposed finding is misleading. Chinese competition is growing quickly in North America. [REDACTED]

[REDACTED] From 2010 to 2016, Chinese imports of TiO2 into North American increased by “approximately five times.” (Shehadeh, Tr. 3220-21). [REDACTED]

[REDACTED]. Customers in North America initially began to use Chinese product to lower their costs. As Chinese quality has increased, customers have increased the amount of Chinese TiO2 they are purchasing. (Turgeon, Tr. 2670).

Chinese imports into North America are “growing” and have “been growing since 2013.”

(Turgeon, Tr. 2671). “[W]e are seeing... exports from China to the United States of both

chloride and sulfate TiO2.” (Stern, Tr. 3825). Additionally, Lomon Billions is significantly

expanding its chloride capability in China, and targeting the North America for increased

exports. (Engle, Tr. 2498-99 (discussing RX1642); Stern, Tr. 3825). Mr. Turgeon agreed that

Chinese TiO2 producers are “disruptors” in the global market. (Turgeon, Tr. 2733-34). TiO2

producers in North America are losing market share to Chinese producers in their export

markets. (Stern, Tr. 3828). For instance, over the past five years, Tronox has lost significant

business in South America to Chinese competition. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. [REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *See also* Respondents' Replies to Complaint Counsel's proposed Factual Finding ¶¶ 778-79 and Respondents' proposed Factual Findings ¶¶ 478-529. Furthermore, Complaint Counsel did not call Ms. McGuire as a witness at trial, but instead relies upon deposition testimony, thus depriving Respondents from pursuing further questioning on cross examination or redirect. Finally, Complaint Counsel failed to offer PX1538 at trial, depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

787.

[REDACTED]

[REDACTED] PX7052 (O'Sullivan, Dep at 043) [REDACTED] (in camera)).

Response to Finding No. 787:

Complaint Counsel's proposed finding is misleading. Chinese competition is growing quickly in North America. *See* Respondents' Replies to Complaint Counsel's proposed Factual Finding ¶¶ 778-79. *See also* Respondents' proposed Factual Findings ¶¶ 478-529. Furthermore, Complaint Counsel did not call Mr. O'Sullivan as a witness at trial, but instead relies upon his deposition testimony, thus depriving Respondents from pursuing further questioning on cross examination.

788. Similarly, Mr. Christian of Kronos testified that the [REDACTED] [REDACTED] (Christian, Tr. 814-15 (*in camera*)).

Response to Finding No. 788:

Complaint Counsel's proposed finding is misleading. Kronos [REDACTED] [REDACTED] (Christian, Tr. 947-48).

Specifically, Kronos reported to the European Commission that [REDACTED]

[REDACTED]
 [REDACTED]
 [REDACTED] (Christian, Tr. 949-51). *See also* Respondents' Replies to Complaint Counsel's proposed Factual Finding ¶¶ 778-79 and Respondents' proposed Factual Findings ¶¶ 478-529.

- (e) Import costs and other logistical issues present additional hurdles for increasing imports of chloride TiO₂ from China

789. Costs and logistical issues make it unlikely that Chinese producers will increase exports of chloride TiO₂ to North America. (CCFF ¶¶ 810-813). Duties to import chloride TiO₂ into North America are around {5.5%}. (PX7050 (Mei, Dep. at 081-82, 112-13) [REDACTED] (*in camera*); *see also* Duvkot, Tr. 1303-05 (*in camera*)). [REDACTED] Malichky, Tr. 318 [REDACTED] (*in camera*); PX7016 (DeCastro, Dep. at 64-65) [REDACTED] (*in camera*); PX7050 (Mei, Dep. at 112-13) (*in camera*)). Moreover, the duty for importing TiO₂ from China—for example, from Lomon Billions—could go up if the administration chooses to raise the duty. (PX7028 (Duenwald, Dep. at 142-43)).

Response to Finding No. 789:

Complaint Counsel's proposed finding is misleading. TiO₂ is traded internationally in significant quantities because TiO₂ has no expiration date, a virtually infinite shelf life, and no safety issues involved with transporting TiO₂. (Mei, Tr. 3157-58). TiO₂ is easily transported by truck, rail, or sea. (Mei, Tr. 3154-57). There are "no special requirement in terms of handling or transportation" of TiO₂. (Mei, Tr. 3156). TiO₂ is also relatively inexpensive to ship across the globe. TiO₂ costs about 3% of the total price to move it into and out of the United States. (Mei, Tr. 3158). Indeed, shipping TiO₂ internationally is so economical that total shipping costs, including tariffs and taxes, can be lower for TiO₂ shipped internationally than TiO₂ shipped

domestically. (Mei, Tr. 3159-60). For instance, it costs less to ship TiO₂ from Australia to Los Angeles than it does to ship it from Hamilton, Mississippi to Los Angeles. (Mei, Tr. 3159). *See also* Respondents' Reply to Complaint Counsel's proposed Factual Finding ¶¶ 775, 786, and Respondents' proposed Factual Findings ¶¶ 477-528. Moreover, Complaint Counsel had the opportunity to elicit testimony from Ms. Mei at trial, whereas its reliance upon her deposition testimony deprives Respondents the opportunity to pursue further questioning on redirect. Likewise, Complaint Counsel had the opportunity to call Mr. DeCastro and Mr. Duenwald as witnesses at trial but chose not to, and relying on their deposition testimony deprives Respondents of the opportunity to pursue further questioning on cross examination.

790. A producer from China would also face the cost of maintaining storage to meet the needs of customers who require regular on-time delivery. (PX7054 (O'Malley Noe, Dep. at 111-12) ("What we do is if we bring material over it's put in the third-party warehouse, and then customers would receive it from the warehouse, if that's what you mean by storing it.")).

Response to Finding No. 790:

Complaint Counsel's proposed finding is misleading. Ms. Noe also testified, immediately before the quoted testimony, [REDACTED]

[REDACTED]

[REDACTED]

(PX7054 (Noe Dep. 111). TiO₂ is easily transported by truck, rail, or sea. (Mei, Tr. 3154-57). There are "no special requirement in terms of handling or transportation" of TiO₂. (Mei, Tr. 3156). TiO₂ is also relatively inexpensive to ship across the globe. (Mei, Tr. 3158) *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 775, 785 and Respondents' proposed Factual Findings ¶¶ 477-528. Moreover, Complaint Counsel had the opportunity to call Ms. Noe as witnesses at trial but chose not to, and relying on her deposition

testimony deprives Respondents of the opportunity to pursue further questioning on cross examination.

791. Shipping from China also adds significant delay in receiving the TiO₂. According to Ms. O’Malley Noe of Billions America, shipping from China adds at least four weeks of lead time, and can be longer depending on a variety of factors such as “issues with the ports in China.” (PX7054 (O’Malley Noe, Dep. at 113)). These shipping delays have occurred “relatively often” over the last two years, causing delays in deliveries to customers. (PX7054 (O’Malley Noe, Dep. at 108, 113); Young, Tr. 671 (advantages of local sourcing are [REDACTED] [REDACTED]) (*in camera*)).

Response to Finding No. 791:

Complaint Counsel’s proposed finding is misleading. “TiO₂ is one of those chemicals that is a global chemical or a global—globally marketed chemical. . . . TiO₂ is quite benign, travels very well, has very, very long shelf life, and is relatively inexpensive to transport.” Stern, Tr. 3712-13. *See also* Respondents’ Reply to Complaint Counsel’s proposed Factual Findings ¶¶ 778, 789, and Respondents’ proposed Factual Findings ¶¶ 478-529. Moreover, Complaint Counsel had the opportunity to call Ms. Noe as witnesses at trial but chose not to, and relying on her deposition testimony deprives Respondents of the opportunity to pursue further questioning on cross examination.

792. [REDACTED] and quality issues cause customers to have concerns about the reliability of Chinese TiO₂ producers. (PX7016 (DeCastro, Dep. at 93) [REDACTED] [REDACTED] (*in camera*)). [REDACTED] because when procuring TiO₂, a key input to the customers’ products, [REDACTED] (PX7025 (Malichky, Dep. at 081-82) (**{quality, supply consistency and price}**) (*in camera*); PX7044 (Vanderpool, Dep. at 21) (product quality, pricing, availability and service level are key factors with sourcing TiO₂); PX7016 (DeCastro, Dep. at 47) [REDACTED] [REDACTED]) (*in camera*); (Christian, Tr. at 784) (North American customers have “extremely high demands” for on time delivery of TiO₂ that consistently meets their quality specifications)).

Response to Finding No. 792:

Complaint Counsel's proposed finding is misleading because it overlooks the practice that most customers have of holding raw material in inventory for production. (*See, e.g.*, Vanderpool, Tr. 171 and 173 (discussing inventories dedicated to managing inventory in-house, and that new deliveries are put into inventory); Arrowood Tr. 1054 (testifying that he was responsible for managing TiO₂ inventory at Deceunink); Romano, Tr. 2277-78). "TiO₂ is quite benign, travels very well, has very, very long shelf life, and is relatively inexpensive to transport." Stern, Tr. 3712-13. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 775, 786 and Respondents' proposed Factual Findings ¶¶ 477-528. Additionally, Complaint Counsel's had the opportunity to elicit testimony from Mr. Malichky, Mr. Vanderpool, and Mr. Christian at trial, but its reliance on their deposition testimony deprives Respondents from pursuing further questioning on cross examination. Finally, Complaint Counsel had the opportunity to call Mr. DeCastro at trial but chose not to do so, also depriving Respondents from pursuing further questioning on cross examination.

793. Reliability of supply is especially important for customers buying slurry TiO₂, which cannot be stockpiled for long in the customers' inventory. (PX7035 (Christian, Dep. at 185) [REDACTED] (in camera)). For these customers, when they no longer have a supply of TiO₂, they must shut down their plants. (PX7025 (Malichky, Dep. at 12); Christian, Tr. at 785-86 (customers buying slurry store less inventory and do not have "a lot of cushion" if a supplier is unreliable)).

Response to Finding No. 793:

Complaint Counsel's proposed finding is misleading because the quoted deposition testimony does not support the assertion made in the finding. Moreover, neither Complaint Counsel or its expert proposes that slurry is a relevant product market. (Hill, Tr. 1949). *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 775, 784 and

Respondents' proposed Factual Findings ¶¶ 477-528. Additionally, Complaint Counsel's had the opportunity to elicit testimony from Mr. Malichky and Mr. Christian at trial, but its reliance on their deposition testimony deprives Respondents from pursuing further questioning on cross examination.

- (f) Chloride TiO₂ expansion by Lomon Billions will not deter or counteract the likely anticompetitive effects in North America

794. The Respondents single out Chinese TiO₂ producer Lomon Billions as particularly likely to provide a competitive constraint on their North American chloride TiO₂ business. (Respondents' Pre-Trial Brief, at 43) ("In short, Chinese TiO₂ producers, particularly Lomon Billions, pose a credible, growing threat to TiO₂ producers in North America"). Specifically, Respondents point to Lomon Billion's announcement of plants to expand chloride TiO₂ production capacity at its plant in Jiaozuo, Henan Province, China by 200,000 tons by 2020. (RX0195 at 001-02) (Lomon Billions Press Release)).

Response to Finding No. 794:

Respondents have highlighted growing competition of Lomon Billions and also note that there are a number of top tier Chinese competitors currently expanding. (Turgeon, Tr. 2661).

See also Respondents' proposed Factual Findings ¶¶ 478-529.

795. Tronox, however, has explained to investors that, even considering the potential expansion of Lomon Billion's chloride TiO₂ capacity at the Jiaozuo plant, it does not expect the expansion to have any impact on "market dynamics" because it will be absorbed by rising demand. (PX9101 at 008 (Q4 2017 Tronox earnings call) ("Jeffrey N. Quinn: Yes, I think we're seeing all the incremental expansion over the next 18 to 24 months, will really kind of just be soaked up by the incremental global growth. So we don't see that, that incremental expansion will significantly change the current dynamics. John D. Romano: At 6.2 million tonnes of current demand – 200,000 tonnes is about 3% growth and that's what you need to support it."); Quinn, Tr. 2410-11 (discussing PX9101) (Lomon's possible chloride expansion would "would sort of balance the incremental, you know, global growth.")). Mr. Turgeon also testified to what he described as expected "flat production in China," considering the mix of plants being closed and debottlenecking of other plants. (Turgeon, Tr. 2704). TZMI projects that even accounting for the announced Billions expansion, "[t]he capacity changes from 2019-2022 are expected to net far less supply than is required to meet the additional demand." (RX1197 at 46 (TZMI presentation); *see* RX1197 at 11 (TZMI presentation) ("Lomon Billions formally announced a significant expansion, slated for 2019-20")).

Response to Finding No. 795:

Complaint Counsel's proposed finding is misleading. Mr. Turgeon's testimony specifically stated that debottlenecking and expansions in larger Chinese plants offset the closure of smaller Chinese plants, creating "flat production." He was not testifying that overall Chinese Production was flat. Moreover, Mr. Quinn's noted during redirect that his comments in PX9101 did not constitute the principal answer posed during the investor call, but were additional comments added to the answer given by Mr. Romano. Furthermore, China dominates the TiO₂ export market. (Stern, Tr. 3820). In 2008, exports of TiO₂ from China into the rest of the world were about a hundred thousand tons per year. (Romano, Tr. 2221-22). China became a net exporter of TiO₂ in May 2013. (Turgeon, Tr. 2665). The amount it has exported has increased dramatically since. (Turgeon, Tr. 2665-66). From May 2013, five years ago, to today, "China has grown its export of pigment year after year, and today it's a million ton[s] that is coming out of China." (Turgeon, Tr. 2666). *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 778, 789 and Respondents' proposed Factual Findings ¶¶ 478-529.

796. Consistent with the testimony of Mr. Quinn and Mr. Turgeon, and based on his review of documents and industry reports such as the TZMI report, Dr. Hill concluded that the announced Lomon Billions expansion would not affect his opinions regarding the impact of Chinese expansion, due to the fact that the expansion, even were it to occur, "will likely be absorbed by growth in demand in the Asia-Pacific region." (Hill, Tr. 1881).

Response to Finding No. 796:

Complaint Counsel's proposed finding is misleading. Dr. Hill's opinion is not consistent with the testimony of Mr. Quinn and Mr. Turgeon, who testified that Chinese producers generally and Lomon Billions specifically compete in North America and are continuously expanding into the market. *See* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 778, 789 and Respondents' proposed Factual Findings ¶¶ 478-529.

797. The new Lomon Billions plant is unlikely to have an impact on North American customers for the following reasons: (1) Lomon Billions has virtually no [REDACTED] (2) Lomon Billions has [REDACTED] (3) Lomon Billions has not been successful with its current chloride TiO₂ plant; (4) Lomon Billions has an unrealistic timeframe for constructing its new plant; and (5) the potential impact is highly speculative. (See CCFF ¶¶ 798-807, below).

Response to Finding No. 797:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument.

Complaint Counsel’s proposed finding also violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. Further, it is directly contradicted by the representative from Billions America Corp., [REDACTED]

[REDACTED] (PX7054 (Noe, Dep. 30-32). Lomon Billions is significantly expanding its chloride capability in China, and targeting the North America for increased exports. (Engle, Tr. 2498-99 (discussing RX1642); Stern, Tr. 3825). Mr. Turgeon agreed that Chinese TiO₂ producers are “disruptors” in the global market. (Turgeon, Tr. 2733-34). The company is “getting much bigger, and given recent comments” the company is “looking to be number on” in the world in terms of production. (Mouland, Tr. 1209; Turgeon, Tr. 2667). *See also* Respondents’ Reply to Complaint Counsel’s proposed Factual Findings ¶¶ 775, 786 and Respondents’ proposed Factual Findings ¶¶ 477-528.

798. Lomon Billions has two employees in North America, with access to a third-party operated warehouse to maintain its limited TiO₂ inventory. (PX7054 (O’Malley Noe, Dep. at 112) (Billions has one warehouse in Gary, Indiana). It offers one grade of chloride TiO₂ (PX7054 (O’Malley Noe, Dep. at 19-20), and its sales of chloride TiO₂ in the U.S. in 2017 was approximately 3,000-4,000 tonnes, which is less than {0.5%} of the North American chloride TiO₂ sales. (PX7054 (O’Malley Noe, Dep. at 102); *see* PX5000 at 067-68 (¶152 & Fig. 25) (Hill Initial Report) (*in camera*)).

Response to Finding No. 798:

The proposed finding is incorrect. Billions America Corp., a subsidiary of Lomon Billions, [REDACTED] (O’Malley Noe, Dep. 101). Another subsidiary of Lomon Billions, Lomon USA, [REDACTED] (Noe, Dep. 127-28).

Additionally, Complaint Counsel had the opportunity to call Ms. Noe as a fact witness at trial, but chose not to do so, thus depriving Respondents from pursuing additional questioning on cross examination.

799. Lomon Billions has a limited infrastructure in place to supply customers in North America and does not [REDACTED] (Malichky, Tr. 317) [REDACTED]) (*in camera*); Malichky, Tr. 607 [REDACTED]) (*in camera*)).

Response to Finding No. 799:

The proposed finding is misleading. Mr. Malichky testified that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Moreover, neither Complaint Counsel or its expert proposes that slurry is a relevant product market. (Hill, Tr. 1949).

800. Further, Lomon Billions does not have the sort of local sales and service infrastructure comparable to what the other North American producers maintain. (PX7054 (O’Malley Noe, Dep. at 065) (Billions America provides no technical service to customers); PX9104 at 010 (Tronox 10-K) (“Due to the technical requirements of TiO2 applications, our technical service organization and direct sales offices are supported by a regional customer service staff located in each of our major geographic markets.”); Engle, Tr. 2536-37 (describing technical service to be an important part of Tronox’s value proposition to customers)).

Response to Finding No. 800:

Complaint Counsel’s proposed finding is misleading. Ms. Noe testified that Billions America does not provide technical service assistance to its customers. She did not testify about its parent company, Lomon Billions. Moreover, Complaint Counsel had the opportunity to call Ms. Noe as a fact witness at trial, but chose not to do so, thus depriving Respondents from pursuing additional questioning on cross examination. Finally, Complaint Counsel did not present PX9104 to any witness at trial, thus depriving Respondents from pursuing further questioning on cross examination or redirect.

801. Lomon Billions does not have a successful record in running chloride TiO₂ plants, making it even less likely that the proposed expansion will have an impact on North American customers. (PX7054 (O’Malley Noe, Dep. at 124) ; Engle, Tr. 2492; Quinn, Tr. 2412)). The 100,000 kilotons per annum plant that Lomon Billions made operational in 2015 has never achieved its nameplate capacity and continues to operate at a capacity of just 60,000 tons per year of TiO₂. (PX7054 (O’Malley Noe, Dep. at 124); Engle, Tr. 2492; Quinn, Tr. 2412 (“I know that Lomon has been running their plants below nameplate capacity. I’m not familiar with the specific utilization numbers.”); Turgeon, Tr. 2716 (asked about Billions, “[T]hey are running below their nameplate capacity as of today.”); PX2072 at 023 (Cristal presentation)).

Response to Finding No. 801:

The proposed finding is incorrect, misleading and mischaracterizes testimony. In support of its premise that Lomon Billions has not had success running a chloride TiO₂ plant, Complaint Counsel cites Ms. Noe’s hearsay deposition testimony that [REDACTED]

[REDACTED] (PX7054 (O’Malley Noe, Dep. at 124)). However, Complaint Counsel has insisted strenuously that Cristal’s pigment plants, like Yanbu, are successful, despite operating below nameplate capacity. (*See, infra*, VII.A. ii). Additionally, the cited testimony from Mr. Engle says that Lomon Billions has increased its chloride TiO₂ product by 42%, supporting Mr. Engle’s belief in Lomon Billions’

success rather than the opposite.. (Engle, Tr. 2492). Mr. Quinn also testified that he was not familiar with Lomon Billions' specific utilization numbers. (Quinn, Tr. 2412).

802. As Mr. Malichky of PPG, [REDACTED]
[REDACTED]
[REDACTED]
(Malichky, Tr. 322-23 (*in camera*)).

Response to Finding No. 802:

Complaint Counsel's proposed finding is misleading. Complaint Counsel cites Mr. Malichky's testimony to support its assertion that [REDACTED]
[REDACTED] However, Mr. Malichky is not familiar with the process of running a TiO₂ chloride plant, and he has no experience working for a TiO₂ producer. (Malichky, Tr. 267-68). Moreover, Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, (Malichky, Tr. 582-84, 600-01).

803. [REDACTED] (Malichky, Tr. 322 (*in camera*)).
[REDACTED]
[REDACTED] (Malichky, Tr. 322 (*in camera*)).

Response to Finding No. 803:

Complaint Counsel's proposed finding is misleading. Complaint Counsel cites Mr. Malichky's testimony to support its assertion that [REDACTED]
[REDACTED] However, Mr. Malichky is not familiar with the process of running a TiO₂ chloride plant, and he has no experience working for a TiO₂ producer. (Malichky, Tr. 267-68). Moreover, Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, (Malichky, Tr. 582-84, 600-01).

804. [REDACTED] (Christian, Tr. 806).
[REDACTED] (Christian, Tr. 806).

Response to Finding No. 804:

Complaint Counsel’s proposed finding is misleading. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] (Christian, Tr. 806; Romano, Tr. 2244-45; Engle, Tr. 2498-501).

805. [REDACTED] (RX0338 at 014 (Tronox 5 Year Strategic Plan, Board Presentation) [REDACTED] (in camera); PX1681 at 003-08 (March 2015 Van Niekerk/Gan email chain) (in camera); PX1268 at 001) (Van Niekerk email to Keegel) (“[REDACTED] (in camera); PX1062 at 079 (Tronox presentation) (Lomon Billions {“interested in mining assets, distribution channels, chloride technology.”}) (in camera); PX1062 at 077 (Tronox presentation) (“[I]verage Tronox chloride technology.”}) (in camera)); PX1671 (Casey email) (“They have expressed interest in “cooperating” with us, but probably not until their combination is closed.”)).

Response to Finding No. 805:

Complaint Counsel’s proposed finding is misleading because it cites the record out of context—it relies especially [REDACTED]. (RX0338 at 001).

Complaint Counsel cites no document created after 2015 in support of its conclusion, before Lomon Billions improved its technology. (Romano, Tr. 2244-45; Engle, Tr. 2498-501).

Moreover, Complaint Counsel never presented PX1062, PX1268, PX1671, PX1681, or RX0338

to any witness at trial, thus depriving Respondents of the opportunity to pursue further questioning on cross examination or redirect.

806. Moreover, even though Lomon Billions has struggled to make its current chloride TiO₂ plant fully operational, Lomon Billions' estimate of the amount of time it will likely take to build its new plant is much faster than other much more experienced operators, such as Chemours. (Romano, Tr. 2140; PX1636 at 001 (Arndt email)). The announced construction time for the new production lines included in Lomon Billions' press release was significantly lower than the amount of time it took other producers to build or expand their plants. (RX0195 at 001-02 (Lomon Billions press release) (Lomon Billions stating it would expect commercial production during 2019); Romano, Tr. 2140 (about 4.5 years to build a greenfield TiO₂ plant); PX1636 at 001 (Arndt email) (Altamira plant expansion announced in 2011 became operational in 2016)).

Response to Finding No. 806:

Complaint Counsel's proposed finding is misleading, as Mr. Romano specifically testified that "China's timeline is much different" from that of western producers. (Romano, Tr. 2140).

807. In any event, a statement in a press release is far from an assurance of what is likely to happen. When Tronox acquired Kemira's TiO₂ plants in Savannah, it also put out a press release describing aspirations for the two plants at that site. However, Tronox never met its objectives and it closed the two plants. (PX9070 at 001 (PR Newswire article) (announced plan to achieve \$40 million per year in cost reductions); PX7001 (Romano, IHT at 108-09) [REDACTED] [REDACTED] (in camera)).

Response to Finding No. 807:

Complaint Counsel's proposed finding is not a fact, but an improper legal argument. Moreover, Complaint Counsel never presented PX9070 to any witness at trial, thus depriving Respondents of the opportunity to pursue further questioning on cross examination or redirect. Finally, Complaint Counsel had the opportunity to pursue this line of questioning with Mr. Romano at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on cross examination or redirect.

- ii. Imported Chinese Sulfate TiO₂ Would Not Offset Likely Anticompetitive Effects in the Relevant Market for Sale of Rutile TiO₂ to North American Customers

808. The vast majority of TiO₂ manufactured in China is sulfate TiO₂. (Malichky, Tr. 320 (“The chloride material out of China is very, very limited. There’s not much of it out there.”); PX1036 at 006 (Tronox presentation) [REDACTED] (in camera); PX9023 at 041 (TZMI Report) (“Virtually all production and exports are currently using sulfate technology. For 2015, TZMI expects most production volume to occur via sulfate technology”); PX1091 at 011 (Tronox presentation) [REDACTED] (in camera); PX1033 at 002 (Tan email to Engle) (actual chloride TiO₂ production in China estimated at “0.1 mio mt per year” as compared to nameplate capacity of “0.24 mio mt”)).

Response to Finding No. 808:

Complaint Counsel’s reliance on Mr. Malichky’s testimony is misleading. [REDACTED]

[REDACTED]

[REDACTED] (Malichky, Tr. 316).

Moreover, Mr. Malichky proved to be an unreliable fact witness under cross examination. *See, e.g.*, (Malichky, Tr. 582-84, 600-01). Finally, Complaint Counsel never presented PX1033, PX1036, or PX9023 at trial and never presented PX1091 to any fact witness at trial, thus depriving Respondents of the opportunity to pursue further questioning on cross examination or redirect.

809. The record is clear that most North American customers do not switch from chloride TiO₂ to sulfate TiO₂ in the face of a SSNIP. (*See* CCFE ¶¶ 111-33, above). But even to the extent that some North American customers would consider using sulfate TiO₂, Chinese sulfate TiO₂ use by North American customers as a response to a North American price increase would be insufficient to offset a price increase in the rutile market. Limited amounts of Chinese sulfate TiO₂ meets the quality standards required by those North American customers. (PX3009 at 030 (Venator presentation) (showing that Chinese titanium dioxide is largely limited to “low end” applications); PX1395 at 008 (Tronox investor draft Q&As) (Chinese “exports have largely stayed within Asia-Pacific to serve low-grade sulfate pigment applications—applications that do not compete with our high-grade chloride applications in the region.”); PX3000 at 003 (Venator presentation) [REDACTED] (in camera); PX8006 at 002-03 (¶¶ 13-14) (Pschaidt Decl.) (in camera);

PX8002 at 004-05 (Christian Decl.)

(*in camera*); PX8003 at 003 (¶14) (Young Decl.)

(*in camera*); PX1399 at 006 (Tronox “Fireside Chat” Q&A)

(*in camera*)).

Response to Finding No. 809:

Complaint Counsel’s proposed finding constitutes an improper legal argument, is misleading, and misrepresents trial testimony. Chinese quality “has gotten so much better just over the last three or four years.” (Engle, Tr. 2486). Overall, “it gets better every day.” (Engle, Tr. 2488). Since 2015, the quality of Chinese TiO₂ product “has increased significantly.” (Arndt, Tr. 1411-12). The Chinese TiO₂ companies that are “big player[s]” in the global TiO₂ market are Lomon Billions, Bluestar, Xinli, and CNNC.⁵⁹ (Turgeon, Tr. 2661). These producers “export a lot of material, and their quality is as good as [Tronox’s] today.” (Turgeon, Tr. 2660-61). This change occurred within the last five or six years. (Turgeon, Tr. 2662). At that time, “none of them had good quality product,” “but as they’ve been refining their process, investing tremendous amount of money in R&D and combining their strength,” they have “improve[d] the quality” and “improve[d] the process.” (Turgeon, Tr. 2662). The merger that created Lomon Billions led to a significant “jump” in the quality of its TiO₂ pigment. (Turgeon, Tr. 2664). As Chinese quality has increased, customers have increased the amount of Chinese TiO₂ they are purchasing. (Turgeon, Tr. 2670). The quality of Chinese TiO₂ has improved in “recent year[s]” and “continue[s] to improve,” in part because Chinese TiO₂ producers are “very aggressive.” (Turgeon, Tr. 2661). Chinese TiO₂ quality has rapidly improved since 2012, and this improvement continues. (Engle, Tr. 2486; Stern, Tr. 3745). Since 2012, Chinese companies have improved their sulfate grades such that they compete in certain specifications anywhere in the

world. (Arndt, Tr. 1408). Indeed, some tier-one type producers from China produce TiO₂ product that is indistinguishable from Western material. (Engle, Tr. 2486-89; Stern, Tr. 3840).

Tronox noted a significant increase in Lomon Billions' quality after the combination of the individual Lomon and Billions companies. (Turgeon, Tr. 2663-64). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Stoll, Tr. 2120-21). [REDACTED]

[REDACTED] (Stoll, Tr. 2121).

Today, Chinese sulfate products compete with Tronox's chloride products. (Romano, Tr. 2242).

The Chinese "make very good grades, and in some instances those grades are better than [Tronox's]." (Romano, Tr. 2239). In particular, sulfate TiO₂ from Lomon Billions "has continued to get better," such that "they have some grades that actually perform better than [Tronox's] in some architectural applications." (Romano Tr. 2244). Customers have also recognized that [REDACTED]

[REDACTED] (Young, Tr. 718). For instance, [REDACTED]

[REDACTED]

[REDACTED] (Pschaidt,

Tr. 1005-06; PX4142). [REDACTED]

[REDACTED] (Pschaidt, Tr. 1007). *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 775, 786 and Respondents' proposed Factual Findings ¶¶ 477-528.

Furthermore, Complaint Counsel had the opportunity to pursue this line of questioning with Mr. Pschaidt, Mr. Christian, and Mr. Young at trial but chose to cite to their declarations, depriving Respondents of the opportunity to pursue further questioning on cross examination. Finally,

Complaint Counsel's proposed finding relies upon evidence (PX1399, and PX3009) that was never presented to any witness at trial, also depriving Respondents of pursuing further questioning on cross examination or redirect.

810.

(See CCFE ¶ 753, above).

Response to Finding No. 810:

Complaint Counsel's proposed finding is not a fact, but improper legal argument. Complaint Counsel's proposed finding also violates the ALJ's Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 753, 775, 786, 805 and Respondents' proposed Factual Findings ¶¶ 477-528.

811. In addition to North America concerns with the quality and reliability of supply of Chinese sulfate TiO₂, for the reasons identified above, prices for Chinese TiO₂, including sulfate TiO₂, have risen significantly in recent years, further limiting the incentives and ability of Chinese sulfate TiO₂ to offset price increases in North America. (See CCFE ¶¶ 771-74, above).

Response to Finding No. 811:

Complaint Counsel's proposed finding is not a fact, but improper legal argument. Complaint Counsel's proposed finding also violates ALJ's Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 771-74, 775, 786, 805 and Respondents' proposed Factual Findings ¶¶ 477-528.

812. Chinese TiO₂ would not be cheap enough to offset price effects in North America as shown by the European price increases following the plant fire at Venator's Pori, Finland plant. (See CCFE ¶¶ 631-35, above).

Response to Finding No. 812:

Complaint Counsel's proposed finding is not a fact, but improper legal argument.

Complaint Counsel's proposed finding also violates the ALJ's Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 631-35, 775, 786, 805 and Respondents' proposed Factual Findings ¶¶ 477-528.

C. There Are No Rapid Entrants Who Would Provide Sufficient Supply Responses to Deter or Counteract the Likely Anticompetitive Effects from the Merger

813. Under the Horizontal Merger Guidelines, only firms that “would very likely provide rapid supply responses with direct competitive impact in the event of a SSNIP, without incurring significant sunk costs” are considered market participants. (PX9085 at 018-19 (Horizontal Merger Guidelines, §5.1)).

Response to Finding No. 813:

Complaint Counsel's proposed finding is not a fact, but improper legal argument.

Complaint Counsel's proposed finding also violates the ALJ's Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 775, 786, 805 and Respondents' proposed Factual Findings ¶¶ 477-528.

814. The record evidence in this case does not indicate that there are rapid entrants among overseas producers of chloride TiO₂. (*See* CCF ¶¶ 813-22, below)

Response to Finding No. 814:

Complaint Counsel's proposed finding is not a fact, but improper legal argument.

Complaint Counsel's proposed finding also violates the ALJ's Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents' Reply to Complaint Counsel's proposed Factual Findings ¶¶ 775, 786, 805, 813-22 and Respondents' proposed Factual Findings ¶¶ 477-528.

815. The major producers of chloride TiO₂ outside of North America are also major domestic producers such as Tronox, Cristal, Kronos and Venator. (PX1663 at 051 (TZMI TiO₂ Product Cost and Profitability Study 2017)). As existing market participants, these firms are not considered “rapid entrants” into the relevant market of North American sales of chloride TiO₂. (PX9085 at 018-19 (Horizontal Merger Guidelines, §5.1)).

Response to Finding No. 815:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument. The cited evidence (PX1663) also lists Chemours and Chinese producers as “major producers” of chloride pricess TiO₂ worldwide. Furthermore, Complaint Counsel did not present PX1663 to any witness at trial, depriving Respondents of the opportunity to pursue further questioning on cross examination or redirect.

816. The experience of the major chloride TiO₂ producers—{ [REDACTED] }—is an additional indicator that overseas chloride TiO₂, from any producer, should not be considered “readily available” capacity to supply North America. (See CCFE ¶¶ 817-20, below).

Response to Finding No. 816:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument. Complaint Counsel’s proposed finding also violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents’ Reply to Complaint Counsel’s proposed Factual Findings ¶¶ 775, 786, 805, 817-20 and Respondents’ proposed Factual Findings ¶¶ 477-528.

817. Tronox’s Mr. Romano testified that [REDACTED] (PX7001 (Romano, IHT at 75) (*in camera*)). Tronox’s Ms. Mei also acknowledged that { [REDACTED] } (Mei, Tr. 3179 (*in camera*)).

Response to Finding No. 817:

The proposed finding is misleading. Mr. Romano is a senior vice president and chief commercial officer at Tronox, where he has responsibilities for sales and marketing TiO2. (Romano, Tr. 2135-36). He is not responsible for global planning and logistics and has little first-hand knowledge of the process through which Tronox fulfills orders, which falls under Rose Mei's responsibilities. (Mei, Tr. 3140-41). Finally, Complaint Counsel relies upon Mr. Romano's investigative hearing testimony and had the opportunity to pursue this line of questioning at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

818. [REDACTED] (PX7000 (Snider, IHT at 78-80 [REDACTED] (in camera)). [REDACTED] (PX7000 (Snider, IHT at 67) (in camera); PX7004 (Gunther, IHT at 60) [REDACTED] (in camera)).

Response to Finding No. 818:

Complaint Counsel had the opportunity to Call Mr. Snider and Mr. Gunther as witnesses at trial but chose not to do so. Complaint Counsel's reliance on their investigative hearing testimony deprives Respondents the opportunity to pursue further questioning on redirect.

819. [REDACTED] (PX7035 (Christian, Dep. at 77) (discussing [REDACTED] (in camera); PX7035 (Christian, Dep. at 77-78) [REDACTED] (in camera)).

Response to Finding No. 819:

Complaint Counsel relies upon Mr. Christian's investigative hearing testimony and had the opportunity to pursue this line of questioning at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on cross examination.

820. Venator, from its chloride TiO₂ plant in the U.K., [REDACTED] annually. (PX8005 at 004 (¶19) (Maiter, Decl.) (partially *in camera*); PX3025 at 011 (Venator presentation) (*in camera*)).

Response to Finding No. 820:

Complaint Counsel relies upon a declaration from a witness that it chose not to call at trial, depriving Respondents of the opportunity to test such statements by way of cross examination. Complaint Counsel also cites a document (PX8005) that was never presented to any witness at trial, also depriving Respondents the opportunity to pursue further questioning on cross examination.

821. Further, the customer-specific qualification process, which can take years, precludes most firms from being rapid entrants. (*See* CCF ¶¶ 93-110; 382-89, above).

Response to Finding No. 821:

The proposed finding is incorrect—in another proposed finding, Complaint Counsel relied on testimony that customers can qualify products in as little as three to six months. (Arrowood, Tr. 1067.) Complaint Counsel's proposed finding is also not a fact, but improper legal argument. Furthermore, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents replies to Complaint Counsel's proposed Factual Findings ¶¶ 93-110, 382-89.

822. Dr. Hill therefore assessed market shares based on chloride TiO₂ sales to targeted customers in North America, and unlike Dr. Shehadeh, did not include speculative sales that were unlikely to affect the market. (*See* CCF ¶¶ 745-812, above).

Response to Finding No. 822:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument.

Complaint Counsel’s proposed finding also violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record. *See also* Respondents replies to Complaint Counsel’s proposed Factual Findings ¶¶ 45-812.

VII. EFFICIENCIES**A. Respondents Failed to Substantiate Cognizable Efficiencies Under the Guidelines**

- i. Dr. Zmijewski Is the Only Expert to Provide a Methodology for Evaluating the Claimed Efficiencies and the Only Expert to Opine About the Claimed Efficiencies in a Guidelines Framework

823. On August 15, 2017, Tronox submitted advocacy to the FTC titled “White Paper on Synergies on Behalf of Tronox” (herein “Synergies White Paper”). The Synergies White Paper purports to describe the efficiencies that Respondents believe will result from the proposed acquisition. (PX0005 at 001-05 (Synergies White Paper) (*in camera*)).

Response to Finding No. 823:

Complaint Counsel’s proposed finding related to Dr. Zmijewski is not a fact, but improper legal argument. Complaint Counsel’s proposed finding also violates the ALJ’s Order on Post-Trial Briefs by failing to contain specific references to the evidentiary record.

824. Complaint Counsel has relied on Respondents’ representations for the understanding that the Synergies White Paper sets forth their efficiencies claims in this matter. [REDACTED]

[REDACTED] PX0003 at 049 (Tronox Narrative Response to 2nd Request Spec. 21) (*in camera*)). [REDACTED] (PX0002 at 087 (Cristal Narrative Response to 2nd Request Spec. 21) (*in camera*)).

Response to Finding No. 824:

Complaint Counsel’s proposed finding is not a fact, but improper legal argument.

825. [REDACTED]

[REDACTED] (PX1475 at 014 (Tronox’s Response to Interrogatory 14) (*in camera*)).

Response to Finding No. 825:

Respondents have no specific response.

826. [REDACTED] (PX0005 at 002-03 (Synergies White Paper) (*in camera*)).

Response to Finding No. 826:

Complaint Counsel’s proposed finding is incomplete and thus potentially misleading.

[REDACTED] (PX0005 at 002-03 (Synergies White Paper) (*in camera*)). There is nothing in the document that suggests those are the only efficiencies that might be achieved from the Proposed Acquisition.

827. Tronox developed its initial synergies estimates internally and in collaboration with Cristal’s management. In addition, it engaged third-party consultant KPMG to review and comment on its synergies. [REDACTED] (PX0006 at 003 (KPMG Report) (*in camera*)). [REDACTED] (PX0006 at 003 (KPMG Report) (*in camera*)). [REDACTED] (PX0006 at 003, 005-06 (KPMG Report) (*in camera*)).

Response to Finding No. 827:

Respondents have no specific response to the majority of Complaint Counsel’s findings.

The last sentence of the proposed finding, however, uses selective quotes to mislead. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX0006 at 003). But KPMG was not hired to conduct an audit — “KPMG was engaged to perform detailed synergy assessment and to substantiate synergy assumptions included in the financial model.” (Quinn, Tr. 2338 (discussing PX 10-0175)). Second, the word “assumption” was not related to any disclaimer in the report. The “assumptions” from pages 5 and 6 were the very “assumptions” KPMG was hired to substantiate. (Quinn, Tr. 2338 (discussing PX 10-0175)). For example, [REDACTED]

[REDACTED] (PX0006 at 003, 005-06 (KPMG Report) (*in camera*)). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX0006 at 049; 047) (KPMG Report) (*in camera*).

828. [REDACTED] (Zmijewski, Tr. 1436-37, 1440-41 (*in camera*)).

Response to Finding No. 828:

Respondents have no specific response.

829. Dr. Mark Zmijewski submitted an initial report in this matter on April 6, 2018. (PX5001 at 01 (Zmijewski Initial Report) (*in camera*)). In addition, he submitted two rebuttal reports, the first dated April 30, 2018, rebutting the reports of Respondents’ experts Mr. Kenneth Stern and Mr. Basil Imburgia (herein “Zmijewski Rebuttal Report to Stern and Imburgia”); the second dated May 10, 2018, rebutting the report of Respondents’ expert Dr. Ramsay Shehadeh (herein “Zmijewski Rebuttal Report to Dr. Shehadeh”). (PX5003 at 01 (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 01 (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)).

Response to Finding No. 829:

Respondents have no specific response.

830. Dr. Zmijewski evaluated Respondents' claimed efficiencies according to the analytical framework set forth in the Horizontal Merger Guidelines and the Commentary on the Horizontal Merger Guidelines. (Zmijewski, Tr. 1430). His initial report clearly sets forth the applicable standards under the Horizontal Merger Guidelines and his methodology for evaluating the verifiability and merger specificity of claimed efficiencies, which is consistent with those standards. (PX5001 at 012-17 (¶¶ 16-24) (Zmijewski Initial Report) (*in camera*); *see also* Zmijewski, Tr. 1431-33).

Response to Finding No. 830:

Complaint Counsel's proposed finding is not a fact but improper legal argument and an unfounded expert opinion. The proposed finding is also misleading and misrepresents the substance of the Merger Guidelines. [REDACTED]

[REDACTED]

[REDACTED] (Zmijewski, Tr. 1489). To the extent the proposed finding contains disputed facts, Complaint Counsel's proposed finding improperly relies on expert testimony to support a disputed fact. (Tr. 3792-3793 (J. Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute")).

831. [REDACTED]

[REDACTED] (PX5001 at 011-12 (¶ 15) (Zmijewski Initial Report) (*in camera*)). His two rebuttal reports reaffirm this opinion. (PX5003 at 007-08 (¶ 8) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 007 (¶ 6) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). [REDACTED] (Zmijewski, Tr. 1442-43 (*in camera*)).

Response to Finding No. 831:

To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support of the disputed fact. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”).

Complaint Counsel’s proposed finding is not fact but rather an unfounded expert opinion. Dr. Zmijewski’s opinion is unreliable for a number of reasons. First, the evidence on synergies that Dr. Zmijewski reviewed was limited to what Complaint Counsel disclosed to him. Dr. Zmijewski failed to review the totality of evidence in the record. (Zmijewski, Tr. 1514). Second, Dr. Zmijewski does not have expertise to evaluate the output-enhancing synergies. Dr. Zmijewski is not an expert in the TiO₂ industry or TiO₂ manufacturing process. (Zmijewski, Tr. 1492-93). [REDACTED]

[REDACTED]
(Zmijewski, Tr. 1496). [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

(Zmijewski, Tr. 1492-93). Third, Dr. Zmijewski stated that [REDACTED]
[REDACTED]
[REDACTED] (Zmijewski, Tr. 1552). [REDACTED]
[REDACTED] (Zmijewski, Tr. 1552).
[REDACTED]
[REDACTED] (Mancini Tr. 2802). This

team was clean-team certified and were given access to the entire data room, including to data that company personnel at Tronox and Cristal could not access. (Mancini, Tr. 2802-04).

[REDACTED]

[REDACTED] (PX0010-175). [REDACTED]

[REDACTED]

[REDACTED] (Quinn, Tr. 2338-39).

832.

[REDACTED] (PX5001 at 011-12 (¶ 15) (Zmijewski Initial Report) (*in camera*)). His two rebuttal reports reaffirm this opinion. (PX5003 at 007 (¶ 8) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 007 (¶ 6) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). [REDACTED] (Zmijewski, Tr. 1442-43 (*in camera*)).

Response to Finding No. 832:

To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support of the disputed facts. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”). Complaint Counsel’s proposed finding is not fact, but rather unfounded expert opinions. Dr. Zmijewski’s opinion is unreliable for a number of reasons. First, there was substantial testimony before the court demonstrating that the efficiencies for the Proposed Acquisition are merger-specific. Tronox is specifically uniquely situated to improve Cristal’s TiO₂ plants, namely the Yanbu plant and is uniquely positioned and incentivized to fix the Jazan smelter. (Mancini, Tr. 2779). Kerr-McGee, the predecessor company to Tronox, helped Cristal build Yanbu. (Dean, Tr. 2930, 2979; Hewson, Tr. 1608). Yanbu was built using Kerr-McGee’s proprietary lowpressure chloride TiO₂ production technology. (Dean, Tr. 2930,

2979; Hewson, Tr. 1609). Tronox, the legacy company of Kerr-McGee, is “the master in the titanium dioxide industry at low-pressure technology.” (Dean, Tr. 2929-30). Tronox has “inherent intellectual property that exists in that low-pressure technology.” (Dean, Tr. 2930-31). “Tronox was the only company that ever . . . mastered that particular technology.” (Dean, Tr. 2930-31). “[W]e’ve refined [low-pressure] technology. We’ve become very good at it. We’re recognized as one of the top producers of good quality pigment.” (Dean, Tr. 2930-31). The lowpressure chloride technology in place at Yanbu is Tronox’s “bread and butter. It’s what we do in Mississippi and in Australia.” (Quinn, Tr. 2355). Dr. Zmijewski did not consider any of that trial testimony when he offered the opinion cited by Complaint Counsel in the proposed finding. (Zmijewski, Tr. 1516).

- (a) Tronox’s experts do not conduct a guidelines analysis of the claimed efficiencies

833.

[REDACTED]

(PX5003 at 008 (¶ 10) (Zmijewski Rebuttal Report to Stern and Imburgia (*in camera*); see also (Zmijewski, Tr. 1479-80 (*in camera*)).

Response to Finding No. 833:

To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”). Complaint Counsel’s proposed finding is not a fact, but rather unfounded expert opinion. [REDACTED]

[REDACTED]

[REDACTED]

(Zmijewski, Tr. 1489). Complaint Counsel’s proposed finding is also irrelevant. [REDACTED]

[REDACTED]

[REDACTED]

(Zmijewski, Tr. 1489).

834. [REDACTED]
[REDACTED] (PX7059 (Stern, Dep. at 134-35) (*in camera*)).

Response to Finding No. 834:

Complaint Counsel’s proposed finding is irrelevant. [REDACTED]

[REDACTED]

[REDACTED] (Zmijewski, Tr. 1489).

835. [REDACTED] (PX7059 (Stern, Dep. at 40) (*in camera*)).

Response to Finding No. 835:

Complaint Counsel’s proposed finding is irrelevant. [REDACTED]

[REDACTED]

[REDACTED] (Zmijewski, Tr. 1489).

836. [REDACTED]
[REDACTED] (PX7059 (Stern, Dep. at 134-35) (*in camera*)).

Response to Finding No. 836:

Complaint Counsel’s proposed finding is vague, irrelevant, and misleading. Complaint Counsel’s proposed finding is vague insofar as it uses the phrase “cognizable under the Horizontal Merger Guidelines.” Complaint Counsel’s proposed finding is also irrelevant because the Merger Guidelines do not prescribe a methodology for evaluating the cognizability of synergies. [REDACTED]

[REDACTED]

[REDACTED] (Zmijewski, Tr. 1489). Complaint Counsel’s proposed finding is misleading insofar as it ignores that Mr. Stern presented the opinion at trial that “the expected transaction synergies will increase Tronox’s production capacity and lower its costs, increasing Tornox’s ability to compete, including against growing Chinese competition.” (Stern, Tr. 3704-05; *see also* Stern, Tr. 3851-54).

837.

[REDACTED]

(PX5003 at 015 (¶ 22) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); *see also* (Zmijewski, Tr. 1479-80 (*in camera*))).

Response to Finding No. 837:

To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support of the disputed facts. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)). Complaint Counsel’s proposed finding is not a fact, but rather unfounded expert opinion.

838.

[REDACTED] (PX5003 at 040-41, 052 (Appx. B § 9, Appx. C § 6) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*)).

Response to Finding No. 838:

Complaint Counsel’s proposed finding is not a fact but rather an inappropriate legal conclusion. Complaint Counsel’s proposed finding is also an unfounded expert opinion. To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on

expert testimony for support of the disputed facts. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”).

839. [REDACTED] (PX7060 (Imburgia, Dep. at 009-10) (*in camera*); RX1258 at 004 (¶ 8) (Imburgia Report) (*in camera*)).

Response to Finding No. 839:

Respondents have no specific response.

840. [REDACTED] (PX5005 at 006 (¶ 5) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*); *see also* (Zmijewski, Tr. 1480-81 (*in camera*)).

Response to Finding No. 840:

Complaint Counsel’s proposed finding is not a fact but rather an inappropriate legal conclusion and an unfounded expert opinion. To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support of the disputed facts. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”).

841. [REDACTED] (Zmijewski, Tr. 1439 (*in camera*)). Further, {KPMG merely received estimates for all of the operational efficiencies from Tronox’s managers and did not independently verify the numbers.} (PX7045 (Nolan, Dep. at 47-48) (*in camera*)).

Response to Finding No. 841:

Complaint Counsel’s proposed finding is not a fact but rather an inappropriate legal conclusion and an unfounded expert opinion. [REDACTED]

[REDACTED]

[REDACTED] (Zmijewski, Tr. 1489). To the extent the

proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support of the disputed facts. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)). Complaint Counsel’s proposed finding that [REDACTED]

[REDACTED] is not supported by the cited testimony. (PX7045 (Nolan, Dep. at 47-48) (*in camera*) [REDACTED]

[REDACTED]).

ii. Tronox’s Claimed Efficiency of Increased Production at Cristal’s Pigment Plant in Yanbu, Saudi Arabia, Is Not Cognizable

842. Respondents claim a synergy related to improving the performance of Yanbu, Cristal’s chloride TiO₂ plant in Saudi Arabia (herein “Yanbu improvement synergy”).

[REDACTED] (PX0005 at 018-19 (Synergies White Paper) (*in camera*)).

Response to Finding No. 842:

Respondents have no specific response.

843. [REDACTED] (PX1425 at 001-02 (Yanbu Improvement Plan) (*in camera*)).

[REDACTED] (PX1425 at 001-02 (Yanbu Improvement Plan) (*in camera*)).

[REDACTED] (PX7023 (Dean, Dep. at 18) (*in camera*)).

[REDACTED] (PX1425 at 001 (Yanbu Improvement Plan) *(in camera)*); *see also* (PX7023 (Dean, Dep. at 18, 22) *(in camera)*). [REDACTED]

[REDACTED] (PX1425 at 001 (Yanbu Improvement Plan) *(in camera)*); *see also* (PX7023 (Dean, Dep. at 18, 22) *(in camera)*).

Response to Finding No. 846:

Complaint Counsel’s proposed finding is incomplete insofar as it suggests that the on-stream time at Hamilton was the only evidence provided to support the projected on-stream-time at Yanbu. [REDACTED]

[REDACTED]

847. [REDACTED] (PX7023 (Dean, Dep. at 23) *(in camera)*). [REDACTED] (PX7023 (Dean, Dep. at 22-23) *(in camera)*).

Response to Finding No. 847:

Complaint Counsel’s proposed finding is misleading and inaccurate. Reducing Dean’s line rate projections in the Yanbu Improvement Plant to merely his “judgment” is misleading.

[REDACTED]

[REDACTED] On cross examination Complaint

Counsel asked Mr. Dean whether the predictions [REDACTED]
[REDACTED]
[REDACTED] (Dean,
Tr. 3109 (*in camera*)). [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (Zmijewski, Tr.
1492-93). [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

848. [REDACTED]
[REDACTED] (PX7023 (Dean, Dep. at 73-75) (*in camera*)).

Response to Finding No. 848:

Complaint Counsel’s proposed finding is false. This finding repeats the false mantra that Tronox’s Yanbu synergy projections are solely based on “business judgment.” Complaint Counsel and its expert repeat this claim throughout the case hoping that repetition will make it true. [REDACTED]
[REDACTED]

multiple plants.” (Dean, Tr. 3045). [REDACTED]

[REDACTED]

[REDACTED] Mr. Dean’s projections are the result of careful analysis of many incremental improvements that Tronox plans to make at Yanbu. On cross examination

Complaint Counsel asked Mr. Dean whether the predictions [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Dean, Tr. 3109 (*in camera*)). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Zmijewski, Tr. 1492-93). Mr. Dean testified at length about the specific and unique steps that Tronox plans to take to improve line rate (his detailed testimony covered more than twenty pages). (Dean, Tr. 3023-45 [REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

849. [REDACTED]

(Zmijewski, Tr. at 1465-66 (*in camera*)). If any underlying calculations exist, Respondents have not presented them.

Response to Finding No. 849:

Complaint Counsel's proposed finding is false. The document itself provides the foundation for the contained analysis and Mr. Dean testified for hours before the Court laying out in detail how Tronox plans to achieve these output increases. For example, Mr. Dean testified at length about the specific and unique steps that Tronox plans to take to improve line rate (his detailed testimony covered more than twenty pages). (Dean, Tr. 3023-45 [REDACTED])

[REDACTED]. To the extent that Complaint Counsel claims that Respondents have failed to produce documents, the parties went through a comprehensive discovery process in this case. Further, if Complaint Counsel thought it was missing anything, the appropriate time to raise that issue was in the spring of 2018 — not in post-trial briefing. Complaint Counsel deposed Mr. Mancini and Mr. Dean who were responsible for the document and, Complaint Counsel also cross examined each witness at trial.

850.

[REDACTED]
 (Zmijewski, Tr. 1464-66 (*in camera*); PX5001 at 029 (¶ 39 n.70) (Zmijewski Initial Report) (*in camera*); see also PX5003 at 044 (Appx C § 2 n.16) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 010 (¶ 11 n.16) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)).

Response to Finding No. 850:

Complaint Counsel's proposed finding is not a fact, but rather unreliable expert opinion. On cross examination Complaint Counsel asked Mr. Dean whether the predictions [REDACTED]

[REDACTED] (Dean, Tr. 3109 (*in camera*)). The document itself provides the foundation for the analysis and Mr. Dean testified for hours before the Court laying out in detail how Tronox plans to achieve these output increases. For example, Mr. Dean testified at length about the specific and unique steps that Tronox plans to take to improve the line rate (his detailed testimony covered more than twenty pages). (Dean, Tr. 3023-45 [REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] }) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Zmijewski, Tr. 1492-93).

851. [REDACTED] (PX1425 at 001 (Yanbu Improvement Plan) (*in camera*)).

[REDACTED] (PX7023 (Dean, Dep. at 160-61) (*in camera*)).

Response to Finding No. 851:

Complaint Counsel’s proposed finding that the Yanbu Improvement Plan “fails to account for non-technical differences that can affect its ability to map its experience at Hamilton to Yanbu” is not supported by any evidence. Respondents have accounted for non-technical differences between Hamilton and Yanbu. To the extent that Complaint Counsel is insinuating (as it has throughout this trial) that the culture in Saudi Arabia is the root cause of Yanbu’s

problems, Tronox has accounted for the cultural differences that exist in Saudi Arabia. (Dean, Tr. 2985-88).

Additionally, Complaint Counsel's proposed finding that Hamilton did not undergo a turnaround is misleading. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Dean,

Tr. 2962-63).

852.

[REDACTED] (PX1502 at 001 (Dean email) (*in camera*)). [REDACTED]

[REDACTED] (PX7023 (Dean, Dep. at 173-74) (*in camera*)). [REDACTED]

[REDACTED] (PX7042

(Gunther, Dep. at 26)).

Response to Finding No. 852:

Complaint Counsel's proposed finding is incomplete and misleading. While a workforce culture may present a challenge, Mr. Dean testified at length about Tronox's experiences with similar workplace issues. Specifically, Mr. Dean explained how Tronox, and Mr. Dean personally, have handled those challenges in the past. (Dean, Tr. 2986-7). To the extent that Complaint Counsel is insinuating, as it has throughout this trial, that there is some inherent cultural issue with Saudi nationals that is the root cause of Yanbu's problems, Tronox employees explained why they disagree with the premise of that argument. For example Mr. Dean explained "I actually think that the Saudi workforce, from the engagement that I've had with it to date, is very easy to learn. They don't like to be talked down to. They like to be part of a winning team. There are some workers there that we've identified that are quite capable."

(Dean, Tr. 2987). Tronox expects to turn the Yanbu plant around, without “changing the workforce, other than changing the mind-set of the workforce and the knowledge base of the workforce.” (Dean, Tr. 2991-92). In other words, Tronox is “not planning on cleaning house” but rather “to refocus the current workforce.” (Dean, Tr. 2992). Tronox has a plan to work with the Saudi workforce. Mr. Mancini explained that Tronox is “looking at best practices, looking at the ways you manage successfully in Saudi, and it’s been done by others.” (Mancini, Tr. 2356-57). Ultimately, Tronox’s response can be summarized by a single question and answer: “Q: And do you anticipate any difficulty in meeting your output goals given the Saudization program? A: No, I don’t.” (Dean, Tr. 2986-7).

853.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (PX7023 (Dean, Dep. at 43-45) (*in camera*)).

Response to Finding No. 853:

Complaint Counsel’s proposed finding is misleading and incorrect. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] (PX7023, Dean, Dep. at 41-42). Mr. Dean also noted that Yanbu is not unique for having “subcultures” and that he has encountered subcultures at “every plant that I’ve ever been in.” (Dean, Tr. 3129). Mr. Dean’s complete testimony on Hamilton thus undermines Complaint Counsel’s attempt to paint a picture of an untested “Tronox Way” that has not been applied to plants in need of improvement or with various cultural dynamics. In fact, as Mr. Dean testified that he has been able to improve the performance at each plant with the existence of subcultures, “by getting the operating cultures aligned across the different

operating elements in the organizations and getting the people to work in a common direction.”
(Dean, Tr. 3130).

854. Located in Saudi Arabia, Yanbu is different from Hamilton in other ways that can affect productivity. [REDACTED]
[REDACTED] (PX7023 (Dean, Dep. at 87-88) (*in camera*)). [REDACTED]
[REDACTED] (PX7023 (Dean, Dep. at 87-88) (*in camera*)). [REDACTED]
[REDACTED] PX7023 (Dean, Dep. at 88-89) (*in camera*)). [REDACTED]
[REDACTED] (PX7023 (Dean, Dep. at 89-90) (*in camera*)).

Response to Finding No. 854:

Complaint Counsel’s proposed finding is incorrect and exaggerates the cited testimony. First, all geographies where Tronox operates are subject to environmental and other types of regulation. (Dean, Tr. 3128-29). Second, Complaint Counsel’s proposed finding related to sourcing parts off-shore ignores the fact that “Cristal faces” this issue now. [REDACTED]
[REDACTED]. Finally, it is ludicrous for Complaint Counsel to make a blanket claim that the fact that a large Muslim workforce in Saudi Arabia will be an impediment for Tronox to achieve improved output. Complaint Counsel does not present any facts to support its assertion that employing a large Muslim workforce will or can affect Yanbu’s productivity. To the contrary, a Muslim or “Saudi workforce . . . [are] very easy to learn . . . They like to be part of a winning team.” (Dean, Tr. 2987). Tronox has “identified [workers] that are quite capable.” (Dean, Tr. 2987). Tronox does not consider the requirement that the Yanbu plant must employ Muslims in its workforce to be an obstacle for Tronox realizing its improvement plan at Yanbu. (Dean, Tr. 29; Quinn, Tr. 2356-57). Complaint Counsel points to Ramadan as a potential stumbling block for Tronox, but Mr. Dean testified at his deposition that during holidays like Ramadan and Eid

[REDACTED]

[REDACTED] Complaint Counsel presents no evidence that accommodating religious holidays is particularly challenging or will have any impact on productivity. Moreover, even though Mr. Dean testified at great length before this Court, Complaint Counsel does not cite to any of that testimony in support of the proposed finding—instead it relies solely on deposition testimony that was not subject to cross-examination before this Court.

855. [REDACTED]
(PX7012 (Mancini, Dep. at 71) (*in camera*)).

Response to Finding No. 855:

Complaint Counsel’s proposed finding is irrelevant. Tronox and Cristal operate plants around the world and have a track record of successfully adapting to various cultural and regulatory differences. (Dean, Tr. 3129-30). Mr. Dean noted during his testimony before the Court that Tronox has been successful at adopting to various cultures at each plant, irrespective of geographic location, “by getting the operating cultures aligned across the different operating elements in the organizations and getting the people to work in a common direction.” (Dean, Tr. 3130).

856. [REDACTED] (PX2155 at 001 (Orris email) (*in camera*)).
[REDACTED] (PX2487 at 015 (Orris email attaching Yanbu Summit presentation) (*in camera*)).

Response to Finding No. 856:

Complaint Counsel’s proposed finding is irrelevant because Scott Orris’s opinion about how “challenging” or “complicated” fixing Yanbu are not at issue in this case. These documents

were not presented at trial and Complaint Counsel never called Mr. Orris to testify at trial. Scott Orris’s opinion about Yanbu is undermined by testimony and evidence that was presented at trial. For example, Tronox has “a very high level of confidence” in its ability to achieve the announced synergies at Yanbu. (Mancini, Tr. 2795).

857. [REDACTED] (PX1425 at 001 (Yanbu Improvement Plan) (*in camera*)). [REDACTED] (PX7012 (Mancini, Dep. at 71-72) (*in camera*)). [REDACTED] (PX7023 (Dean, Dep. at 55-58) (*in camera*)).

Response to Finding No. 857:

Complaint Counsel’s proposed finding is misleading because Tronox has already identified employees who will work at Yanbu in Saudi Arabia, including Mr. Dean who came to testified on this topic before the Court. [REDACTED]

[REDACTED]

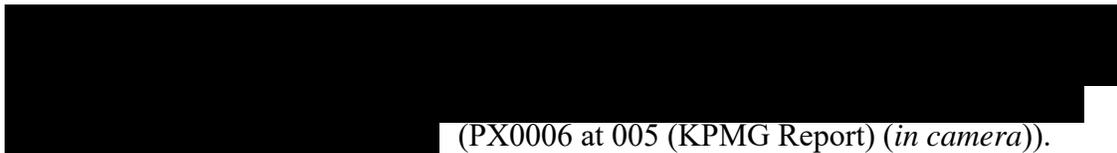
858. [REDACTED] (PX0006 at 006 (KPMG Report (*in camera*))). [REDACTED] (PX0006 at 006 (KPMG Report (*in camera*))).

Response to Finding No. 858:

Complaint Counsel’s proposed finding is irrelevant. While a workforce culture may present a challenge, Mr. Dean testified at length about Tronox’s experiences with similar workplace issues and how Tronox, and Mr. Dean personally, have handled those challenges in the past. (Dean, Tr. 2986-7; 3129-30). To the extent that Complaint Counsel is insinuating, as it has throughout this trial, that there is some inherent cultural issue with Saudi nationals that is the

root cause of Yanbu’s problems, Tronox employees testified about why the premise of that argument is wrong. For example Mr. Dean explained “I actually think that the Saudi workforce, from the engagement that I’ve had with it to date, is very easy to learn. They don’t like to be talked down to. They like to be part of a winning team. There are some workers there that we’ve identified that are quite capable.” (Dean, Tr. 2987). Tronox expects to turn the plant around, without “changing the workforce, other than changing the mind-set of the workforce and the knowledge base of the workforce.” (Dean, Tr. 2991-92). In other words, Tronox is “not planning on cleaning house” but rather “to refocus the current workforce.” (Dean, Tr. 2992). Tronox has a plan on how to work with the Saudi workforce. Mr. Mancini explained that Tronox is “looking at best practices, looking at the ways you manage successfully in Saudi, and it’s been done by others.” (Mancini, Tr. 2356-57). Tronox’s response can be summarized by a single question and answer: “Q: And do you anticipate any difficulty in meeting your output goals given the Saudization program? A: No, I don’t.” (Dean, Tr. 2986-7).

859.

 (PX0006 at 005 (KPMG Report) (*in camera*)).

Response to Finding No. 859:

Complaint Counsel’s proposed finding is misleading to suggest that KPMG based its synergy assessment on Tronox’s assumptions without scrutiny. Tronox “hired KPMG to . . . perform a detailed review of [the synergy] assessment and to pressure-check and challenge the assumptions.” (Quinn, Tr. 2338-39). Tronox “engaged the KPMG synergy assessment and validation team which includes both operating and financial personnel.” (Mancini, Tr. 2802) “[D]uring the due diligence period, they worked closely with our synergy assessment teams to

assess, pressure-test, and then put their stamp of approval i.e. they had a strong level of confidence that . . . Tronox could deliver these estimated synergies.” (Mancini, Tr. 2802).

860. [REDACTED] Zmijewski, Tr. 1463 (*in camera*); PX5001 at 029 (¶ 39) (Zmijewski Initial Report) (*in camera*); PX5003 at 044-46 (Appx C § 2) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 009-11 (¶ 11) (Zmijewski Rebuttal Report to Dr. Shehadeh).

Response to Finding No. 860:

Complaint Counsel’s proposed finding is not a fact but rather an inappropriate legal conclusion and unfounded expert opinion. To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)). Finally, Dr. Zmijewski has no expertise to opine on whether or not the Yanbu improvement synergy is verifiable. Dr. Zmijewski [REDACTED] [REDACTED] (Zmijewski, Tr. 1539-40).

(b) The Yanbu improvement synergy is not merger-specific

861. [REDACTED] (PX7023 (Dean, Dep. at 99-100) (*in camera*)).

Response to Finding No. 861:

Complaint Counsel’s proposed fact mischaracterizes trial testimony. The Tronox-Cristal transaction presents a unique opportunity to enhance TiO₂ output by improving Cristal’s pigment plant in Yanbu, Saudi Arabia. (Dean, Tr. 2917, 3027-29). The Yanbu pigment plant has experienced low production rates for years. (Dean, Tr. 2979; Stern, Tr. 3851-52). [REDACTED] [REDACTED] (Stoll, Tr. 2123). [REDACTED]

[REDACTED] (Stoll, Tr. 2123. 141). [REDACTED]

[REDACTED]

[REDACTED] (Stoll, Tr. 2123). Cristal has “brought in people that have retired or left Tronox or Tronox-related operations to . . . try and bring in that expertise, but there’s never been any sustainable” efforts implemented at Yanbu. (Dean, Tr. 2984-85). The former Tronox employees “left the business for a reason, either for retirement or other reasons personal to them, and their state of knowledge ended at that point in time, whereas the improvements in the technology are a continuous evolution. (Dean, Tr. 2984-85). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The evidence shows that Cristal has been unable to make sustained and sufficient improvements to Yanbu on a standalone basis. (Dean, Tr. 3131-32). Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect before the Court.

862. Over the last several years, [REDACTED] (Hewson, Tr. 1612-14 [REDACTED] (in camera)). [REDACTED] } (Hewson, Tr. 1619 [REDACTED]) (in camera)). In fact, [REDACTED] (Hewson, Tr. 1620 (in camera)).

Response to Finding No. 862:

Complaint Counsel’s proposed finding is misleading and mischaracterizes trial testimony. Mr. Graham Hewson is the current vice president of integration operations at Cristal, and was previously the vice president of manufacturing at Cristal, beginning in 2013. (Hewson, Tr. 1600;

1604). Mr. Hewson was also the director of Cristal’s operational excellence program for one year in 2012. (Hewson, Tr. 1604). [REDACTED]

[REDACTED] (Hewson, Tr. 1643-45). [REDACTED]

[REDACTED]

[REDACTED] (Hewson, Tr. 1649-50). *See also* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 862.

863. [REDACTED] (Hewson, Tr. 1621 (*in camera*)). Specifically, [REDACTED] PX0002 at 020 (Cristal Second Request Response) (*in camera*)). During that period, [REDACTED] (Hewson, Tr. 1621 (*in camera*)).

Response to Finding No. 863:

Complaint Counsel’s proposed finding is an incomplete statement of the trial record. Mr. Hewson explained that [REDACTED]

[REDACTED]

[REDACTED] (Hewson, Tr. 1647-48).

864. [REDACTED] (Hewson, Tr. 1623-24 (*in camera*)).

Response to Finding No. 864:

Complaint Counsel’s proposed finding is misleading. Curtailment issues were not the primary cause of Cristal’s low production rate. The Yanbu pigment plant has experienced low production rates for years. (Dean, Tr. 2979; Stern, Tr. 3851-52). [REDACTED]

[REDACTED] (Stoll, Tr. 2123).

[REDACTED]

[REDACTED] (Stoll, Tr. 2123. 141). [REDACTED]

[REDACTED] (Stoll, Tr. 2123). Cristal has “brought in people that have retired or left Tronox or Tronox-related operations to . . . try and bring in that expertise, but there’s never been any sustainable” efforts implemented at Yanbu. (Dean, Tr. 2984-85). [REDACTED]

[REDACTED] (Hewson, Tr. 1643-45). [REDACTED]

[REDACTED]

[REDACTED] (Hewson, Tr. 1649-50).

865. Immediately prior to the Acquisition, [REDACTED] (Hewson, Tr. at 1626-28 [REDACTED] (*in camera*)). During 2017, [REDACTED] (Hewson, Tr. 1626-27 (*in camera*); see CCF ¶ 862 [REDACTED] (PX2493 at 005 (Morten email attaching Cristal manufacturing update) (*in camera*); PX7048 (Strayer, Dep. at 100) (*in camera*)). [REDACTED] (PX2471 at 004 (Gunther email attaching Cristal manufacturing update) (*in camera*)). [REDACTED] (PX7042 (Gunther, Dep. at 124-26) (*in camera*); PX7048 (Strayer, Dep. at 218) (*in camera*); see also PX2374 at 001 (Gunther email [REDACTED] (PX7042 (Gunther, Dep. at 125) (*in camera*)).

Response to Finding No. 865:

Complaint Counsel’s proposed finding is misleading. The Yanbu pigment plant has experienced low production rates for years. (Dean, Tr. 2979; Stern, Tr. 3851-52). [REDACTED]

[REDACTED]

(Stoll, Tr. 2123). [REDACTED]

[REDACTED] (Stoll, Tr. 2123). [REDACTED]

[REDACTED]

[REDACTED] (Stoll, Tr. 2123). Cristal has “brought in people that have retired or left Tronox

or Tronox-related operations to . . . try and bring in that expertise, but there’s never been any sustainable” efforts implemented at Yanbu. (Dean, Tr. 2984-85). [REDACTED]

[REDACTED] (Hewson, Tr. 1643-45). [REDACTED]

[REDACTED] (Hewson, Tr. 1649-50). Additionally, Complaint Counsel’s proposed finding relies on evidence (PX2571 and PX2374) that was not presented to any witness at trial, thus depriving Respondents the opportunity to pursue further questioning on cross examination or redirect. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther and Mr. Strayer as witnesses at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

866. During 2017, [REDACTED] (Hewson, Tr. 1635, 1627 *in camera*). [REDACTED] (Hewson, Tr. 1635 *in camera*).

Response to Finding No. 866:

Complaint Counsel’s proposed finding is misleading and mischaracterizes testimony.

[REDACTED]

[REDACTED] (Hewson, Tr. 1627). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Curtailment issues were not the primary cause of Cristal’s low production rate. The Yanbu pigment plant has experienced low production rates for years. (Dean, Tr. 2979; Stern, Tr.

3851-52). [REDACTED]

[REDACTED] (Stoll, Tr. 2123). [REDACTED]

[REDACTED] (Stoll, Tr. 2123).

[REDACTED]

[REDACTED] (Stoll, Tr. 2123). Cristal has “brought in people that have retired or left Tronox or Tronox-related operations to . . . try and bring in that expertise, but there’s never been any sustainable” efforts implemented at Yanbu. (Dean, Tr. 2984-85). [REDACTED]

[REDACTED]

(Hewson, Tr. 1643-45). [REDACTED]

[REDACTED] (Hewson, Tr. 1649-50. Dean, Tr. 2979-80).

See also Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No.

861. [REDACTED]

[REDACTED] (PX7017 (Hewson, Dep. at 160-61) (*in camera*)).

867. [REDACTED] (PX7017 (Hewson, Dep. at 160-61) (*in camera*)).

Response to Finding No. 867:

Complaint Counsel’s proposed fact is misleading. The short-lived and isolated improvement that has occurred at Yanbu was largely the result of the employment of SWAT teams. (Dean, Tr. 2981-85). SWAT teams consisted of initiatives comprised of some former Tronox employees who worked at Yanbu for short periods of time to drive improvement. Although some improvement resulted from SWAT teams, it is not indicative of Cristal’s ability to sustain the high production levels required. *See also* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 862.

868. Also during Mr. Hewson's time as VP of Manufacturing, [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED] (PX7017 (Hewson, Dep. at 159-60) (*in camera*)).
 [REDACTED] (PX1425 at 001
 (Yanbu Improvement Plan) (*in camera*)).

Response to Finding No. 868:

Complaint Counsel's proposed finding mischaracterizes the trial record. [REDACTED]

[REDACTED]

[REDACTED] In 2000, Kerr-McGee divested its interest and ceased providing technical support to Yanbu. (Hewson, Tr. 1609). After its technical support agreement with Kerr-McGee ended in 2000, Cristal took over all of Yanbu's operations without assistance from Kerr-McGee. (Hewson, Tr. 1609). The Kerr-McGee technology used for the chloride process at Yanbu is "owned by Tronox." (Stoll, Tr. 2110). In fact, Cristal's Yanbu plant "is built on the same technology as . . . Tronox's Hamilton, Mississippi plant. It was built with the old Kerr-McGee technology" that Tronox is the successor to. (Quinn, Tr. 2350 - 51). Tronox, the legacy company of Kerr-McGee, is "the master in the titanium dioxide industry at low-pressure technology." (Dean, Tr. 2929-30). Tronox has "inherent intellectual property that exists in that low-pressure technology." (Dean, Tr. 2930-31). "[I]f you look back at the history of the industry, Tronox or its predecessor, Kerr McGee, continued a long period of research and development and development of the low-pressure technology." (Dean, Tr. 2930- 31). "Tronox was the only company that ever . . . mastered that particular technology." (Dean, Tr. 2930-31). As a result, Tronox has a "unique skill-set to be able to bring to [Yanbu] that no other company in the world possesses." (Quinn, Tr. 2355-56). Tronox is "uniquely qualified to assist the Yanbu plant." (Mancini, Tr. 2790-91). It is "pretty obvious that Tronox would have a significant impact on

improving the operating rate and efficiency and consequently the cost posture of that plant.” (Stern, Tr. 3851-54). The Yanbu plant is nearly identical in every material way to Tronox’s TiO2 plants, including Tronox’s Botlek, Kwinana, and Hamilton facilities. (Dean, Tr. 2979). ■

■ The “Yanbu plant was visited by a team” during pre-signing due diligence. (Dean, Tr. 2970). Mr. Dean has been to the “Yanbu plant several times” and has evaluated the plant to “ascertain its capabilities” as part of his “due diligence responsibilities.” (Dean, Tr. 2975-76). The Yanbu Transformation Plan reflects “the series of things that [Mr. Dean] believe[s] are critical” for Tronox to do “to start the process of Yanbu turning around to become a productive facility and . . . getting back to the capabilities [Yanbu] exhibited in the late nineties.” (Dean, Tr. 2994-95). *See also* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 861. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

869. ■

■ (PX7048 (Strayer, Dep. at 186) (*in camera*)).

Response to Finding No. 869:

Complaint Counsel’s proposed finding is misleading. Cristal’s continued failed attempts to improve Yanbu, do not reflect an ability to actually fix Yanbu. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 862. Moreover, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect. Finally, Complaint Counsel had the opportunity to call Mr. Strayer as a witness at trial and chose not to

do so, depriving Respondents from pursuing additional questioning on cross examination or redirect before the Court.

870. [REDACTED] (PX7017 (Hewson, Dep. at 196) (*in camera*)). [REDACTED] (PX7017 (Hewson, Dep. at 196) (*in camera*)).

Response to Finding No. 870:

Complaint Counsel's proposed finding is misleading. Cristal's continued failed attempts to improve Yanbu do not reflect an ability to actually fix Yanbu. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 862. Moreover, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

871. [REDACTED] (PX2471 at 007 (Gunther email attaching Cristal manufacturing update) (*in camera*); PX7042 (Gunther, Dep. at 135) (*in camera*)).

Response to Finding No. 871:

Complaint Counsel's proposed finding is misleading. Short-lived instances of success do not reflect Cristal's ability to improve Yanbu *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 862. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect., Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

872. [REDACTED] For example, [REDACTED]

[REDACTED] (PX7048 (Strayer, Dep. at 106) (*in camera*); PX7017 (Hewson, Dep. at 39-40) (*in camera*); *see also* PX2379 at 005 (Gunther email attaching Yanbu org changes) (*in camera*)).

Response to Finding No. 872:

Complaint Counsel's proposed finding mischaracterizes trial testimony. The individuals who Cristal hired have been unable to improve Yanbu. Cristal is unable to improve Yanbu without Tronox's help. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 861. Additionally, Complaint Counsel's proposed finding relies on exhibit PX2379 that was not presented to any witness at trial, thus depriving Respondents the opportunity to pursue further questioning on cross examination or redirect. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther and Mr. Strayer as witnesses at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

873. [REDACTED] (PX7017 (Hewson, Dep. at 51-52) (*in camera*); PX7048 (Strayer, Dep. at 76) (*in camera*); PX2379 at 005 (Gunther email attaching Yanbu org changes) (*in camera*)).

Response to Finding No. 873:

Complaint Counsel's proposed finding is misleading. The evidence presented at trial establishes that Cristal is not capable of fixing Yanbu on its own. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 862. Many of the former Tronox employees hired by Cristal have since left the company. (Dean, Tr. 2984-85). Cristal has "brought in people that have retired or left Tronox or Tronox-related operations to . . . try and bring in

expertise, but there's never been any sustainable" efforts implemented at Yanbu. (Dean, Tr. 2984-85). The former Tronox employees "left the business for a reason, either for retirement or other reasons personal to them, and their state of knowledge ended at that point in time, whereas the improvements in the technology are a continuous evolution. (Dean, Tr. 2984-85). Moreover, Complaint Counsel had the opportunity to call Mr. Gunther and Mr. Strayer as witnesses at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Additionally, Complaint Counsel's proposed finding relies on exhibit PX2379 that was not presented to any witness at trial, thus depriving Respondents the opportunity to pursue further questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

874.

 (PX2379 at 005 (Gunther email attaching Yanbu org changes) (*in camera*)).

Response to Finding No. 874:

The evidence presented at trial establishes that Cristal is not capable of fixing Yanbu on its own. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 862. Many of the former Tronox employees hired by Cristal have since left the company. (Dean, Tr. 2984-85). Cristal has "brought in people that have retired or left Tronox or Tronox-related operations to . . . try and bring in that expertise, but there's never been any sustainable" efforts implemented at Yanbu. (Dean, Tr. 2984-85). The former Tronox employees "left the business for a reason, either for retirement or other reasons personal to them, and their state of knowledge ended at that point in time, whereas the improvements in the technology are a continuous evolution. (Dean, Tr. 2984-85). Moreover, Complaint Counsel had the opportunity to call Mr. Gunther as a witness at

trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Additionally, Complaint Counsel’s proposed finding relies on exhibit PX2379 that was not presented to any witness at trial, thus depriving Respondents the opportunity to pursue further questioning on cross examination or redirect.

875.

[REDACTED]
 [REDACTED] (PX7048 (Strayer, Dep. at 117-18) *(in camera)*; see also PX7042 (Gunther, Dep. at 125-26 *(in camera)*)).

Response to Finding No. 875:

The evidence presented at trial establishes that Cristal is not capable of fixing Yanbu on its own. See Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 861. Many of the former Tronox employees hired by Cristal have since left the company. (Dean, Tr. 2984-85). Cristal has “brought in people that have retired or left Tronox or Tronox-related operations to . . . try and bring in that expertise, but there’s never been any sustainable” efforts implemented at Yanbu. (Dean, Tr. 2984-85). The former Tronox employees “left the business for a reason, either for retirement or other reasons personal to them, and their state of knowledge ended at that point in time, whereas the improvements in the technology are a continuous evolution. (Dean, Tr. 2984-85). Moreover, Complaint Counsel had the opportunity to call Mr. Gunther and Mr. Strayer as witnesses at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Additionally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

876.

[REDACTED]
 [REDACTED]
 [REDACTED]

[REDACTED] (PX1501 at 001 (Dean email) *(in camera)*); *see also* PX7023 (Dean, Dep. at 128-30) *(in camera)*).

Response to Finding No. 876:

Complaint Counsel's proposed finding is misleading. Mr. Dean's acknowledgement of some improvement does not negate the fact that there was still insufficient improvement for Cristal to demonstrate the ability to improve Yanbu on its own. Mr. Dean testified extensively at trial as to Yanbu's severe underperformance. (Dean, Tr. 2971-85). *See also* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 862. Additionally, Complaint Counsel's proposed finding relies on evidence PX1501 that was not presented to any witness at trial, thus depriving Respondents the opportunity to pursue further questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

877.

[REDACTED] (PX7042 (Gunther, Dep. at 134-35) *(in camera)*); *see also* Dean, Tr. 3107-108 *(in camera)*; PX2471 at 007 (Gunther email attaching Cristal manufacturing update) *(in camera)*).

Response to Finding No. 877:

Complaint Counsel's proposed finding is misleading. As any attempt at restructuring does not change the fact that Cristal is incapable of improving Yanbu on its own. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 861. Additionally, Complaint Counsel's proposed finding relies on evidence PX2471 that was not presented to any witness at trial, thus depriving Respondents the opportunity to pursue further questioning on cross examination or redirect. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther as a witness at trial and chose not to do so, depriving Respondents from pursuing

additional questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

878.

[REDACTED] (PX7042 (Gunther, Dep. at 125-26) (*in camera*)).

Response to Finding No. 878:

Complaint Counsel's proposed finding is misleading. Cristal is incapable of improving Yanbu on its own, and Cristal's attempts to focus on operations and maintenance planning does not change the fact that Cristal does not have the knowledge or resources as a standalone company to improve Yanbu. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 861. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Additionally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

879.

[REDACTED] (PX2373 at 018 (Box email attaching 2018 Budget and Strategic Plan) (*in camera*); PX7042 (Gunther, Dep. at 035-36) (*in camera*)).

[REDACTED] (PX2373 at 006 (Box email attaching 2018 Budget and Strategic Plan) (*in camera*); PX7042 (Gunther, Dep. at 023-24) (*in camera*)).

Response to Finding No. 879:

To the extent that this proposed finding implies that Cristal's capital expenses are evidence that it can fix the Yanbu plant on its own, it is misleading. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 862. Additionally, Complaint Counsel's proposed finding relies on evidence PX2373 that was not presented to any witness at trial, thus

depriving Respondents the opportunity to pursue further questioning on cross examination or redirect. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

880.

[REDACTED]
(PX7042 (Gunther, Dep. at 030) (*in camera*); PX7048 (Strayer, Dep. at 218) (*in camera*)).

Response to Finding No. 880:

Complaint Counsel's proposed findings is misleading. Cristal has attempted to improve Yanbu as a standalone company to no avail since it lost its support from Kerr McGee, Tronox's predecessor. Even with continued efforts, the evidence shows that Cristal does not have the resources or knowledge to improve Yanbu. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 861. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther and Mr. Strayer as witnesses at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Additionally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

881.

[REDACTED]
(PX2467 at 001 (Gunther email) (*in camera*); PX7042 (Gunther, Dep. at 149-53) (*in camera*)).

Response to Finding No. 881:

Complaint Counsel's proposed finding is misleading. Even with continued efforts, the evidence shows that Cristal does not have the ability to turnaround Yanbu. Cristal has difficulty

securing the right workforce and does not have the resources or knowledge to fix Yanbu. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 861. Furthermore, Complaint Counsel had the opportunity to call Mr. Gunther as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Moreover, Complaint Counsel relies upon evidence that was never presented at trial, thus depriving Respondents of the opportunity to pursue questioning on cross examination or redirect. Additionally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

882. [REDACTED] (PX7042
 (Gunther, Dep. at 31) (*in camera*)).
 [REDACTED] (PX7017 (Hewson,
 Dep. at 182) (*in camera*)).

Response to Finding No. 882:

Complaint Counsel's proposed finding mischaracterizes trial testimony, as numerous witnesses testified that Cristal's Yanbu plant is seriously underperforming, and only with Tronox's help can it achieve its full potential. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 861. Furthermore, Complaint Counsel had the opportunity to call Mr. Gunther as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Additionally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

883. The Tronox Way, which Tronox plans to implement at Yanbu in order to improve performance, contains a number of aspects that Respondents have not shown are merger-

specific. [REDACTED] (Dean, Tr. 3102 (*in camera*)). [REDACTED]
 [REDACTED] (Dean, Tr. 3102-06 (*in camera*)). [REDACTED]
 [REDACTED] (Dean, Tr. 3103 (*in camera*)).

Response to Finding No. 883:

Complaint Counsel’s proposed finding is misleading and incorrect. Even if *some* of the elements of Tronox’s planned improved are not merger-specific, many other aspects of the Tronox Way *are* merger specific. The elements of the Tronox Way together are unique to Tronox and constitute the Tronox Way. Dean Tr. 2995 [T]he huge benefit that [Tronox] bring[s]” is the fact that Tronox has “three plants that are operating” the same technology at Yanbu “extremely successfully.” Dean, Tr. 2986-88. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 862. *See also* Respondents’ Proposed Factual Findings 146-69.

884. [REDACTED] (PX7048 (Strayer, Dep. at 219-220) (*in camera*)). [REDACTED]
 [REDACTED] (PX2471 at 007 (Gunther email attaching Cristal manufacturing update)) [REDACTED]
 [REDACTED] (*in camera*); PX2390 at 005 (Nackshabandi email attaching board minutes) (same) (*in camera*); PX2493 at 005 (Morten email attaching manufacturing update) [REDACTED]
 [REDACTED] (*in camera*); *see also* PX7042 (Gunther, Dep. at 133) (*in camera*)).

Response to Finding No. 884:

Complaint Counsel’s proposed finding is irrelevant. Despite Cristal’s initiatives, including instituting a cultural program at Yanbu, Cristal remains unable to improve Yanbu. *See* Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 862. Additionally, Complaint Counsel’s proposed finding relies on evidence (PX2471, PX2390, PX2493) that was not presented to any witness at trial, thus depriving Respondents the opportunity to pursue

further questioning on cross examination or redirect. Moreover, Complaint Counsel had the opportunity to call Mr. Gunther and Mr. Strayer as witnesses at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

885. [REDACTED] (PX7012 (Mancini, Dep. at 080-81) (*in camera*)). Tronox has not demonstrated why Cristal could not take similar steps to help improve the organizational culture at Yanbu.

Response to Finding No. 885:

Complaint Counsel’s proposed finding mischaracterizes trial evidence. Arbinger is “an HR specialist” and utilizing an HR specialist such as Arbinger would not fix the problems at Yanbu and “wouldn’t be the Tronox Way” with respect to fixing the structural drawbacks of Yanbu. (Dean, Tr. 2684-85). Moreover, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

886. [REDACTED] (PX1502 (Dean email) (*in camera*); PX7023 (Dean, Dep. at 130-36) (*in camera*)).

Response to Finding No. 886:

Complaint Counsel’s proposed finding is misleading. As part of the merger planning, Dean worked collaboratively and extensively with Cristal to receive Cristal’s input, including

visiting Stallingborough. (Dean, Tr. 2970-75). Tronox's due diligence in ascertaining Cristal's culture do not refute the fact that the Yanbu plant is in serious need of repair, and only Tronox can provide the necessary aid. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 862. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

887.

[REDACTED] Zmijewski, Tr. 1472-76 (*in camera*); PX5001 at 031-32 (¶ 43) (Zmijewski Initial Report) (*in camera*); PX5003 at 046-47 (Appx C § 2) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 028-30 (¶ 32) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)).

Response to Finding No. 887:

Complaint Counsel's proposed finding makes an improper legal argument and is not a fact. Additionally, Dr. Zmijewski is not an expert in the TiO₂ industry or TiO₂ manufacturing process. Zmijewski, Tr. 1492-93. Dr. Zmijewski admitted that "[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case." Zmijewski, Tr. 1496. Dr. Zmijewski, does not offer the opinion that the synergies will not occur. (Zmijewski, Tr. 1519). Dr. Zmijewski did not review every document that he listed as having been reviewed in his expert report. (Zmijewski, Tr. 1502. *See also* Respondents proposed Factual Findings Nos. 227-37). Finally to the extent that that PX5001, PX5003, PX5005, and Dr. Zmijewski's Trial testimony is offered to establish a factual finding, Complaint Counsel's proposed finding violates the ALJ's Order on Post-Trial Brief by citing to an expert for something that should have been established by a fact witness or documents.

- iii. Tronox’s Claimed Efficiency of Activating the Jazan Slagger in Saudi Arabia Is Not Cognizable

888. Respondents claim a synergy related to activating the Jazan slagger (herein “activating Jazan”). [REDACTED]
[REDACTED]
(PX0005 at 030-31 (Synergies White Paper) (*in camera*)).

Response to Finding No. 888:

Respondents have no specific response.

889. The Jazan Slagger is a large smelter facility with furnaces that processes raw material or ilmenite to produce slag and metal. (Van Niekerk, Tr. 3946).

Response to Finding No. 889:

Respondents have no specific response.

890. [REDACTED] (PX7008 (Hewson, IHT at 74) (*in camera*)). Tasnee owns Cristal. (Van Niekerk, Tr. 3899).

Response to Finding No. 890:

Respondents have no specific response.

891. Activating Jazan is not an efficiency generated by the proposed acquisition, as the Jazan slagger is not among the assets to be acquired in that transaction. [REDACTED]
[REDACTED] (PX0005 at 027 (Synergies White Paper) (*in camera*)); Van Niekerk, Tr. 3901; *see also* PX0009 (Transaction Agreement)).

Response to Finding No. 891:

Complaint Counsel’s proposed finding misrepresents trial testimony. The Jazan slagger has been a part of the overall deal with Cristal from the beginning. (Quinn, Tr. 2316). Tronox “always considered” the Jazan slagger to be “part of the transaction.” (RX0236; Quinn, Tr. 2316). The first time Tronox CEO Tom Casey told the Tronox Board of Directors about the potential Cristal transaction, he mentioned the Jazan slagger and Tronox’s plan to enter into an option agreement. (RX0236; Quinn, Tr. 2310-11).

Tronox ultimately entered into two agreements with AMIC related to the Jazan slagger: an option agreement and a technical services agreement (“TSA”). (Van Niekerk, Tr. 3900-01). In the agreement that sets up the overall transaction, Tronox and Cristal agreed to negotiate and ultimately enter into an option agreement related to the Jazan slagger. (Van Niekerk, Tr. 3900-01, 3945-46). [REDACTED]

[REDACTED] The option agreement is connected to and dependent on the larger Tronox-Cristal transaction. (Quinn, Tr. 2376). At the time the parties “signed the original merger agreement, the terms of the merger required that the parties would negotiate in good faith to later complete and execute this option agreement.” (Quinn, Tr. 2376). Indeed, Tronox “would have never entered into this agreement if the big merger agreement didn’t exist.” (Quinn, Tr. 2378). *See also* Respondents proposed Factual Findings Nos. 203-217.

892. [REDACTED]
 (PX0010 at 218 (Tronox Board presentation) *in camera*); PX7012 (Mancini, Dep. at 150) *in camera*); PX7014 (Quinn, Dep. at 136 *in camera*)).

Response to Finding No. 892:

Complaint Counsel’s proposed finding is misleading. Although the original synergies presented to the board consisted of a conservative number that did not account for the entirety of the synergies, Jazan was always considered a part of the Transaction. (Quinn, Tr. 2316; RX0236). [REDACTED]

[REDACTED]. Tronox publicly communicated to the market a realization of \$100 million of EBITDA synergies by the end of year 1, and \$200 million by the end of year 3. (Mancini, Tr. 2800). The synergy estimates

are “valuable” and are “conservative estimate”; “[t]he natural tendency is to be conservative . . . because you want to make sure that the deal makes financial sense.” (Quinn, Tr. 2329, 2341-42). It was “conveyed to the board that” the synergies were a “conservative estimate” and “risk-adjusted” such that “there might be more upside than” the value estimated (Quinn, Tr. 2329; PX0010). *See also* Respondents proposed Factual Findings Nos. 181-84, 200-02. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

893. Instead of including Jazan in the proposed acquisition, Respondents entered into an option agreement on May 10, 2018. Under the terms of the option agreement, Tronox agrees to purchase Jazan if the slagger achieves certain performance metrics within a specified timeframe. (Van Niekerk, Tr. 3970). [REDACTED] (RX1603 at 0010-12, 58 (Option Agreement); Van Niekerk, Tr. 3970; PX7009 (Stoll, Dep. at 26-27) (*in camera*); PX7018 (Trabzuni, Dep. at 78-81) (*in camera*); PX7036 (Keegel, Dep. at 57-58) (*in camera*)). [REDACTED] (PX7018 (Trabzuni, Dep. at 80-81) (*in camera*)). Unless all these conditions are met within the next five years, Tronox is not obligated to acquire Jazan. (RX1603 at 0011-012 (Option Agreement); Van Niekerk, Tr. 3901). Thus, even if Tronox acquires Cristal, it does not necessarily acquire Jazan.

Response to Finding No. 893:

Complaint Counsel’s proposed finding is incorrect. The Jazan slagger is a part of the Proposed Acquisition and the structure of the deal accounts for it. The Jazan option agreement was signed by the parties on May 10, 2018. (Van Niekerk, Tr. 3969). Under the option agreement, Tronox has a five-year option to acquire. (Van Niekerk, Tr. 3901). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. The option agreement is connected to and dependent on the larger Tronox-Cristal transaction. (Quinn, Tr. 2376). At the time the parties “signed the original merger agreement, the terms of the merger required that the parties would negotiate in good faith to later complete and execute this option agreement.” (Quinn, Tr. 2376). Indeed, Tronox “would have never entered into this agreement if the big merger agreement didn’t exist.” (Quinn, Tr. 2378). *See also* Respondents proposed Factual Findings Nos. 203-17. Additionally, Complaint Counsel had the opportunity to call Mr. Trabzuni as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect. Finally, Complaint Counsel relies upon deposition testimony that it had the opportunity to elicit at trial, but chose not to do so, depriving Respondents the opportunity to pursue further questioning on redirect.

894. [REDACTED] (PX1745 (Technical Services Agreement) (*in camera*); PX7038 (Van Niekerk, Dep. at 62-63) (*in camera*)).

Response to Finding No. 894:

Respondents have no specific response except to note that Complaint Counsel relies on deposition testimony that it had the opportunity to elicit at trial, but failed to do so.

895. When referring to the Jazan smelter facility, the term slagger and smelter refer to the same thing. (Van Niekerk, Tr. 3899).

Response to Finding No. 895:

Respondents have no specific response.

896. [REDACTED] (PX1745 at 021-25 (Technical Services

Agreement) (*in camera*); PX7038 (Van Niekerk, Dep. Tr. at 62-65) (*in camera*); Van Niekerk, Tr. 3955).

Response to Finding No. 896:

Respondents have no specific response except to note that Complaint Counsel relies on deposition testimony that it had the opportunity to elicit at trial, but failed to do so.

897. [REDACTED] (PX1745 at 009 (Technical Services Agreement) (*in camera*)); PX7018 (Trabzuni, Dep. at 78) (*in camera*); PX7038 (Van Niekerk, Dep. at 123) (*in camera*)).

Response to Finding No. 897:

Respondents have no specific response.

- (a) The activating Jazan synergy is speculative and not verifiable
 - (1) The option agreement highlights the speculative nature of the activating Jazan synergy

898. [REDACTED] (PX7014 (Quinn, Dep. at 075-76) (*in camera*); (PX7008 (Hewson, IHT at 75))). [REDACTED] (PX7038 (Van Niekerk, Dep. at 74-75) (*in camera*)). Furthermore, Tronox pursued an option agreement for Jazan, because its valuation of the facility was significantly less than Cristal's valuation. (Quinn, Tr. 2381).

Response to Finding No. 898:

Respondents have no specific response.

899. Tronox has hedged against the risk that it will not be successful in activating Jazan by securing the reimbursement of its capital contributions to the project in the event the option is not exercised. [REDACTED]

[REDACTED] (RX1603 at 0027-033, Section 5.14 (Option Agreement) (*in camera*); PX7009 (Stoll, Dep. at 025-26) (*in camera*); Van Niekerk, Tr. 4002; Quinn, Tr. 2374-75).

Response to Finding No. 899:

Respondents have no specific response.

900. Tronox's CEO, Jeffrey Quinn, admitted that he was uncertain if Tronox would acquire the Jazan facility. In response to a question on whether he knew if Tronox would ultimately be able to acquire Jazan, he responded: "No. I think there's -- there's no certainty that that will actually occur." (Quinn, Tr. 2375.)

Response to Finding No. 900:

Complaint Counsel's proposed finding is misleading and incomplete, as it provides only an excerpt of Mr. Quinn's testimony. Mr. Quinn, in fact, testified that Tronox is highly confident Tronox will be able to meet the required performance metrics that will lead to Tronox being required to purchase Jazan. (Quinn, Tr. 2375). (The complete quote is as follows: "I think there's -- there's no certainty that that will actually occur. We're highly confident that we'll be able to meet those performance parameters, so TASNEE will be able to require us to do that, but certainly there's no absolute certainty of that." (Quinn, Tr. 2375). Mr. Quinn also testified before the Court that Tronox has already begun work to fix Jazan, demonstrating the confidence that Tronox has in the Jazan agreement, "the technical services agreement was signed in March of this year, and almost immediately after that agreement was signed, we began training personnel, we began onsite presence, we began consulting with them on design issues and, you know, made several significant contributions and suggestions for doing things different than how they were doing down already." (Quinn, Tr. 2426). Finally, Mr. Quinn emphasized that the Jazan slagger is "very important [to the acquisition's value proposition], because one of the things, the slagger will produce [is] a significant volume of high-grade feedstocks, which will be instrumental in . . . our vertical integration strategy." (Quinn, Tr. 2427).

901. Therefore, despite its confident pronouncements, it is clear from Tronox's own behavior that fixing the Jazan facility is a highly uncertain proposition. (PX1281 at 010 (Tronox August 2017 Update) [REDACTED] (in camera)).

Response to Finding No. 901:

Complaint Counsel’s proposed finding is misleading and incomplete, and is unsupported by the cited evidence. The evidence showed that Tronox has a “unique” skill-set for operating the Jazan slaggr. (Quinn, Tr. 2357-59). Tronox has extensive experience running slaggrs, and the Jazan smelter has a number of key similarities to Tronox’s South African smelters. (Quinn, Tr. 2357-59; Stoll, Tr. 2113-14; Van Niekerk, Tr. 3950). Further, Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX1281, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

902.

[REDACTED] (Zmijewski, Tr. 1459-60 (*in camera*); PX5001 at 027-28 (¶ 38) (Zmijewski Initial Report) (*in camera*); PX5003 at 050-51 (Appx B §5) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 015-16 (¶ 15) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)).

Response to Finding No. 902:

Complaint Counsel’s proposed finding is not fact, but rather improper legal argument. Further, the evidence shows that Tronox has a “unique” skill-set for operating the Jazan slaggr. (Quinn, Tr. 2357-59). Tronox’s highly skilled operators who will be assisting with the Jazan slaggr include two of the world’s “foremost experts” in the area of feedstock and smelting: Dr. Willem Van Niekerk and Jean-Francois Turgeon. (Quinn, Tr. 2357-58; Mancini, Tr. 2798-99). Tronox has extensive experience running slaggrs, and the Jazan smelter has a number of key similarities to Tronox’s South African smelters. (Quinn, Tr. 2357-59; Stoll, Tr. 2113-14; Van Niekerk, Tr. 3950).

Additionally, Dr. Zmijewski is not an expert in the TiO₂ industry or the manufacturing process; he himself admitted that “[t]he extent of [his] knowledge regarding the operations in the

TiO2 industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1492-93; 1496).

(2) Other factors make the activating Jazan synergy speculative

903. Even with additional expertise and capital, it is uncertain whether the Jazan slagger can be made operational due to design flaws. [REDACTED]

[REDACTED] (PX2295 at 064 (AMIC workshop) (*in camera*)).

[REDACTED] (PX0005 at 026-27 (Synergies White Paper) (*in camera*)).

Response to Finding No. 903:

Complaint Counsel’s proposed finding is incomplete and misleading. Dr. Van Niekerk acknowledged these design flaws, but also testified that Tronox can fix them. (Van Niekerk, Tr. 4007) [REDACTED]

[REDACTED] (Van Niekerk, Tr. 3967-68) (*in camera*). Further, Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2295, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

904. As Respondents’ employees have noted, [REDACTED] (PX7038 (Van Niekerk, Dep. at 221-22) (*in camera*); see also PX1280 at 003 (Van Niekerk email attaching integration slides) [REDACTED] (*in camera*)). [REDACTED] (PX7018 (Trabzuni, Dep. at 80 (*in camera*)).

Response to Finding No. 904:

Complaint Counsel’s proposed finding is incomplete and misleading. Complaint Counsel cites to Dr. Van Niekerk’s deposition, which occurred months before his trial testimony. During those months, Tronox signed the Technical Services Agreement, and has been able to start working on with the Cristal team. At trial, Dr. Van Niekerk testified that the training has begun under the Technical Services Agreement, and that “the training is going very well.” (Van Niekerk, Tr. 3955-56; Quinn, Tr. 2426).

As Complaint Counsel’s proposed finding points out, Dr. Van Niekerk acknowledges Jazan’s design flaws, but also testified that Tronox can fix the flaws. (Van Niekerk, Tr. 4007)

[REDACTED]

[REDACTED] (*in camera*).

905. In addition, it is uncertain whether Tronox is particularly well-suited to provide the technical expertise necessary to activate Jazan,

[REDACTED]

(PX2177 at 026 (Fixing Jazan Ilmenite Smelter, Dec. 2016) (*in camera*)); *see also* Van Niekerk, Tr. 3950 (testifying to the big difference between the two AC furnaces at the Jazan Slagger and the DC furnaces in South Africa owned by Tronox); *see also* PX1284 at 038 (Tronox Jazan site visit report)

[REDACTED] (*in camera*).

Response to Finding No. 905:

Complaint Counsel’s proposed finding is misleading and inaccurate. The evidence shows that Tronox has a “unique” skill-set for operating the Jazan slagger. (Quinn, Tr. 2357-59), and the Jazan smelter has a number of key similarities to Tronox’s South African smelters, including:

- 1) “they use electricity to put heat into the furnaces”; 2) “they charge through the roof into the

furnace”; 3) they both “have slag and metal tapholes”; 4) they “operate at the same temperatures”; and 5) they all have “the same thermodynamic and chemical processes that happen inside the furnace.”. (Quinn, Tr. 2357-59; Stoll, Tr. 2113-14; Van Niekerk, Tr. 3950). Tronox’s highly skilled operators for Jazan who will be assisting with the Jazan slagger include two of the world’s “foremost experts” in the area of feedstock and smelting: Dr. Willem Van Niekerk and Jean-Francois Turgeon. (Quinn, Tr. 2357-58; Mancini, Tr. 2798-99). Dr. Van Niekerk, Tronox’s Senior Vice President of Strategy, has a Ph.D. in pyrometallurgy. (Van Niekerk, Tr. 3899, 3903). Dr. Van Niekerk was “in charge of the team that designed the smelter at KZN.” (Van Niekerk, Tr. 3926-27). Mr. Turgeon, Tronox’s Chief Operating Officer, is the holder of a patent for smelting titanium dioxide. (Mancini, Tr. 2796-98; Turgeon, Tr. 2584-85). Mr. Turgeon is the inventor of the UGS high-grade feedstock at Rio Tinto and designed and developed the furnaces that Rio Tinto currently operates in Quebec. (Mancini, Tr. 2798-99). Mr. Neels Oosterhuis will manage Jazan on a day-to-day basis. (Van Niekerk, Tr. 3951-52). Mr. Oosterhuis “has a long history of ilmenite smelting.” (Van Niekerk, Tr. 3952). He “was previously the manager of [Tronox’s] Namakwa smelter” and “was also the manager at [Tronox’s] KZN smelter.” (Van Niekerk, Tr. 3952). Mr. Oosterhuis is “probably the only guy in the world who has run two different ilmenite smelters.” (Van Niekerk, Tr. 3952).

906. [REDACTED] (PX7036)
 (Keegel, Dep. at 60-62) (*in camera*).

Response to Finding No. 906:

Complaint Counsel’s proposed finding is incomplete and misleading. Dr. Van Niekerk testified that Tronox is “not concerned about the size of the slagger;” and in fact, they had considered building a slagger of about the same size as the Jazan slagger for Tronox’s next furnace. (Van Niekerk, Tr. 4006).

907. [REDACTED]
[REDACTED] (PX7012 (Mancini, Dep. at 120-123) (*in camera*); PX7008 (Hewson, IHT. at 87-88) (*in camera*)).

Response to Finding No. 907:

Respondents have no specific response.

908. [REDACTED]
[REDACTED] (PX0006 at 005 (KPMG Report) (*in camera*)).

Response to Finding No. 908:

Respondents have no specific response.

(b) The activating Jazan synergy is not merger-specific

909. Before Respondents entered the proposed acquisition, AMIC was actively exploring options for fixing the Jazan slagger, both in-house and in collaboration with third parties.
[REDACTED]
[REDACTED] (PX2196 at 013 (Cristal Titanium Slagger Project, September 2016) (*in camera*); PX7018 (Trabzuni, Dep. at 059) (*in camera*); PX7005 (Keegel, Dep. at 71) (*in camera*)).

Response to Finding No. 909:

Respondents have no specific response.

910. [REDACTED]
[REDACTED] (PX7009 (Stoll, Dep. at 033) (*in camera*)).
[REDACTED]
[REDACTED] (PX7006 (Stoll, IHT. at 243) (*in camera*)).

Response to Finding No. 910:

Respondents have no specific response. In fact, this explains why the Jazan slagger has been an integral part of the deal since the beginning of the negotiations. (Van Niekerk, Tr. 2422-23; Quinn, Tr. 2316).

911. [REDACTED] (PX7008 (Hewson, IHT at 059) (*in camera*)). [REDACTED]
 [REDACTED] (PX7008 (Hewson, IHT at 059-60) (*in camera*); (PX2166 at 002) (*in camera*)).

Response to Finding No. 911:

Respondents have no specific response.

912. Cristal has taken a number of steps toward restoring operations at the Jazan Slagger smelter facility independent of Tronox acquiring Cristal. [REDACTED]
 [REDACTED] (PX2205 at 008 (Board Directives, Dec. 2016) (*in camera*)). [REDACTED]
 [REDACTED] (PX2205 at 008 (Board Directives, Dec. 2016) (*in camera*)).

Response to Finding No. 912:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX2205, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

913. [REDACTED]
 [REDACTED] (PX2202 at 001 (Letter from TiZir CEO to Tasnee, August 1, 2016) (*in camera*)).

Response to Finding No. 913:

Complaint Counsel’s proposed finding is misleading. [REDACTED]

[REDACTED]. Further, Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2202, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court. Additionally, it is in fact Tronox who has begun taking steps towards restoring operations at the Jazan slagger. “the technical services agreement was signed in March of this year, and almost immediately after the agreement was signed, we began training personnel, we began onsite presence, we began consulting with them on design issues and, you know, made several significant contributions and suggestions for doing things differently than how they were going down already.” (Quinn, Tr. 2426). Mr. Quinn, continued that it is Tronox’s efforts at Jazan that have already “borne significant benefit so far.” In contrast to Tronox’s successful efforts, Cristal proved unable to fix Jazan and unable to make improvements to the slagger as a standalone company. [REDACTED]

[REDACTED] Cristal has also sought help from third parties with respect to the Jazan slagger, but has been unable to fix the Jazan slagger. (Stoll, Tr. 2125). Cristal encountered significant problems with the furnaces when they attempted to commission the Jazan slagger in 2015—those issues have continued through today and the Jazan slagger is still not operational. (Van Niekerk, Tr. 3900). [REDACTED]

914.

[REDACTED] (PX2202 at 001
 (Letter from TiZir CEO to Tasnee, August 1, 2016) (*in camera*)).

Response to Finding No. 914:

Complaint Counsel's proposed finding is misleading. [REDACTED]

[REDACTED] Further, Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX2202, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

915.

[REDACTED] (PX1079 at 001-03 (Casey/Van Niekerk email)
 (in
camera); (Stoll, Tr. 2103) (*in camera*); PX7008 (Hewson, IHT at 80-81) (*in camera*)). In
 fact, [REDACTED] (PX1286
 at 012 (Tronox presentation) (*in camera*)).

Response to Finding No. 915:

Complaint Counsel's proposed finding is incomplete. Dr. Van Niekerk testified that while the design of the furnace itself is the closest to the Jazan furnace, the *process* at Jazan is closer to Tronox's process. (Van Niekerk, Tr. 4008-09) (explaining that at Tizir, the "when they charge the ilmenite into the furnace, most of the chemical work is done, so their furnaces do very little chemical work compared to Jazan, Tronox, or Rio furnaces). In fact, the process employed by Tizir is "the furthest from Jazan or any of the western world ilmenite smelters." (Van Niekerk, Tr. 4008-09). Complaint Counsel's proposed finding relies on incomplete and selective

quotes from PX1079 and PX1286, documents that were not presented at trial. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

916. [REDACTED] (PX2204 at 3-5 (Cristal Titanium Slagger Update & Expectations from AMIC-TiZir Collaboration, October 2016) [REDACTED] (*in camera*)). Dr. Trabzuni reported that that the meeting went well, and described the next steps. (PX2203 (Dr. Fadi Trabzuni/Mutlaq H. Al-Morished email (“TiZir to conduct a due diligence to verify and confirm their thoughts on design modification requirement for Jazan stagger furnaces.”))).

Response to Finding No. 916:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2203 and PX2204, documents that were not presented at trial. The documents were therefore never subject to cross examination, nor were they presented to a knowledgeable witness for explanation or context before the Court.

917. [REDACTED] (PX1079 at 001-03 (Van Niekerk/Casey email) (*in camera*)).

Response to Finding No. 917:

Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2202, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

918. [REDACTED] (PX2164 at 005-34 (Mefos Design Review, Dec. 2016) (*in camera*); (PX2197 (Hatch Statement of Work Proposal, Mar. 30, 2017) (*in camera*)). [REDACTED]

[REDACTED] (PX7009 (Stoll, Dep. at 066-68) (*in camera*)).

Response to Finding No. 918:

Complaint Counsel’s proposed finding is misleading. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Complaint Counsel’s proposed finding relies on incomplete and selective quotes from PX2164, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

919. [REDACTED] (PX7008 (Hewson, IHT at 97) (*in camera*)).

Response to Finding No. 919:

Complaint Counsel’s proposed finding is misleading and fails to support the proposition for which it is cited. While Cristal may have brought in Hatch in 2015, the Jazan slagger is still not operational today. (Van Niekerk, Tr. 3900)

920. [REDACTED] (PX2199 at 006 (John Ferreira Site Visit Report, Nov. 8, 2016)).

Response to Finding No. 920:

Complaint Counsel’s proposed finding is misleading. While John Ferrieria may have the referenced statement in November 2016, the Jazan slagger is still not operational today. (Van Niekerk, Tr. 3900). Further, Complaint Counsel’s proposed finding relies on incomplete and

selective quotes from PX2199, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

921.

[REDACTED]

(PX2177 at 002 (Trabzuni/Herrmann and Wagner, et al., email, December 19, 2016) (discussing AMIC projects) (*in camera*)).

Response to Finding No. 921:

Complaint Counsel's proposed finding relies on incomplete and selective quotes from PX2177, which was not presented at trial. The document was therefore never subject to cross examination, nor was it presented to a knowledgeable witness for explanation or context before the Court.

922.

[REDACTED]

(PX7018 (Trabzuni, Dep. at 046) (*in camera*)).

Response to Finding No. 922:

Complaint Counsel's proposed finding is misleading to the extent it suggests Cristal is able to fix Jazan. *See* Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 912. *See also* Respondents proposed Factual Findings Nos. 185-92. Moreover, Complaint Counsel relies upon evidence that was never presented at trial (PX2206), thus depriving Respondents of the opportunity to pursue questioning on cross examination or redirect. Additionally, Complaint Counsel had the opportunity to call Mr. Trabzuni as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect.

923. [REDACTED]
[REDACTED] (PX2236 (Livingston/Trabzuni et al. email chain) (*in camera*)).

Response to Finding No. 923:

Complaint Counsel's proposed finding is misleading and incomplete. [REDACTED]

[REDACTED]

[REDACTED] See Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 912. See also Respondents proposed Factual Findings Nos. 185-92. Moreover, Complaint Counsel relies upon evidence that was never presented at trial (PX2236), thus depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

924. [REDACTED]
[REDACTED] (PX2295 at 005 (AMIC Workshop, February 2017) (*in camera*)).

Response to Finding No. 924:

Complaint Counsel's proposed finding is misleading and incomplete. [REDACTED]

[REDACTED]

[REDACTED] See Respondents' Reply to Complaint Counsel's proposed Factual Finding No. 912. See also Respondents proposed Factual Findings Nos. 185-92. Moreover, Complaint Counsel relies upon evidence that was never presented at trial (PX2295), thus depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

925. [REDACTED]
[REDACTED] (PX2295 at 037-54 (AMIC Workshop, February 2017) (*in camera*)).
[REDACTED]
[REDACTED] (PX2295 at 056 (AMIC Workshop, February 2017) (*in camera*); see also PX2177 at 040 (Tasnee Strategy and Growth, fixing the Jazan ilmenite smelter)

[REDACTED] (*in camera*). [REDACTED]
[REDACTED] (PX7018 (Trabzuni, Dep. at 145-47) (*in camera*)).

Response to Finding No. 925:

Complaint Counsel’s proposed finding is misleading and incomplete. [REDACTED]

[REDACTED]

[REDACTED] See Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 912. See also Respondents proposed Factual Findings Nos. 185-92. Moreover, Complaint Counsel relies upon evidence that was never presented at trial (PX2177 and PX2295), thus depriving Respondents of the opportunity to pursue questioning on cross examination or redirect. Finally, Complaint Counsel had the opportunity to call Mr. Trabzuni as a witness at trial and chose not to do so, depriving Respondents from pursuing additional questioning on cross examination or redirect.

926. [REDACTED] (PX2295 at 68 (AMIC Workshop, February 2017) (Modifications Already Carried Out/Planned.”) (*in camera*)). [REDACTED]

Response to Finding No. 926:

Complaint Counsel’s proposed finding is misleading. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] See

Respondents’ Reply to Complaint Counsel’s proposed Factual Finding No. 912. See also Respondents proposed Factual Findings Nos. 185-92. Moreover, Complaint Counsel relies upon

evidence that was never presented at trial (PX2295), thus depriving Respondents of the opportunity to pursue questioning on cross examination or redirect.

927.

[REDACTED]
 (PX2295 at 67 (AMIC Workshop, February 2017) *(in camera)*).
 [REDACTED]
 (PX2295 at 38, 56 (AMIC Workshop, February 2017) *(in camera)*).
 [REDACTED]
 (PX7018 (Trabzuni, Dep. at 117) *(in camera)*).

Response to Finding No. 927:

Respondents have no specific response.

928. Even after Tronox announced the proposed acquisition on February 21, 2017, efforts address the problems at Jazan continued. In June 2017, a Tasnee press release affirmed that “work is still ongoing to solve the technical problems” at the Jazan slagger, projecting trial operation during the first half of 2018. (PX9029 (Tasnee Press Release on Jazan Slagger); PX7008 (Hewson, IHT. at 101) *(in camera)*; PX7005 (Keegel, Dep. at 71) *(in camera)*).

Response to Finding No. 928:

Complaint Counsel’s proposed finding is incomplete and thus misleading. Testimony from Cristal employees could not be clearer that Cristal cannot fix Jazan by itself: [REDACTED]
 [REDACTED] (Stoll, Tr. 2125). The proposed finding also fails to state that today the ongoing work to solve the technical problems is being conducted under a Technical Services Agreement between Tronox and Cristal. (Quinn, Tr. 2426). The evidence relied upon by Complaint Counsel, PX9029 was not presented at trial, and thus not subject to cross examination by Respondents.

929. While Tronox’s Mr. Van Niekerk stated during the Commission’s investigation that [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]

(PX7007 (Van Niekerk, IHT, at 213) (*in camera*); PX1373 at 004 [REDACTED]
[REDACTED]) (*in camera*)).

Response to Finding No. 929:

Complaint Counsel’s proposed finding appears to be an inappropriate attempt to impeach Dr. Van Niekerk with a document that was never used at trial. Additionally, since Dr. Van Niekerk testified before the Court, the appropriate time to confront Dr. Van Niekerk was when he was on the stand — not in post-trial briefing. It is unsurprising that Complaint Counsel did not use this at trial because the statements are not inconsistent. Dr. Van Niekerk testified at the IH that [REDACTED]

[REDACTED] (PX7007 (Van Niekerk, IHT, at 213) (*in camera*)). His testimony was specific about the difficulties in operating a titanium slag furnace — not “feedstock” in general. The cited document does not undermine Dr. Van Niekerk’s testimony. The specific question referenced in the proposed finding does not ask about titanium smelting, it asks about barriers to entry for feedstocks in general (“chloride slag, sulphate slag, upgraded slag, synthetic rutile, natural rutile, and ilmenite”). PX1373 at 004 [REDACTED]
[REDACTED]) (*in camera*)).

930. There is no evidence that, prior to the Proposed Acquisition, Cristal had abandoned its efforts to make the Jazan slagger operational. (PX7018 (Trabzuni Dep. at 117 [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]) (*in camera*)).

Response to Finding No. 930:

Respondents have no specific response.

931. Even in March 2017, in its Annual Report to shareholders, Tasnee affirmed its intention to make the Jazan Slagger operational: “The company aims to complete a series of projects under construction and planned to enter the trial production phase during the

second half of 2017, including the titanium Smelter Project to produce raw material (slag) to produce titanium dioxide” (PX9090 at 20 (Tasnee Annual Report, March, 2017)).

Response to Finding No. 931:

Complaint Counsel’s proposed finding is incomplete and thus misleading. The Jazan slagger did not become operational in the second half of 2017 and is still not operational today. (Van Niekerk, Tr. 3900). The evidence relied upon by Complaint Counsel, PX9090, was not presented at trial, and thus not subject to cross examination by Respondents.

932.

[REDACTED] (Zmijewski, Tr. 1471-72 (*in camera*); PX5001 at 030-31 (¶ 42) (Zmijewski Initial Report) (*in camera*); PX5003 at 051-52 (Appx B § 5) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 034-35 (¶ 38) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)).

Response to Finding No. 932:

To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support. (Judge Chappell, Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)). Complaint Counsel’s proposed finding is not a fact, but rather an unfounded expert opinion. Dr. Zmijewski’s opinion is unreliable for a number of reasons, including the following. First, the evidence on synergies that Dr. Zmijewski reviewed was limited to what Complaint Counsel disclosed to him. Dr. Zmijewski failed to review the totality of evidence in the record. (Zmijewski, Tr. 1514). Second, Dr. Zmijewski does not have expertise to evaluate the output-enhancing synergies. Dr. Zmijewski is not an expert in the TiO₂ industry or TiO₂ manufacturing process — including feedstocks. (Zmijewski, Tr. 1492-93). [REDACTED]

[REDACTED] (Zmijewski, Tr. 1496). [REDACTED]

[REDACTED]

iv. Tronox’s Other Claimed Output Efficiencies Are Not Cognizable

(a) Respondents’ claimed synergy of applying best practices across TiO2 pigment plants is not cognizable

933. [REDACTED] (PX0005 at 019 (Synergies White Paper) *(in camera)*). [REDACTED] (PX0005 at 019-20 (Synergies White Paper) *(in camera)*). [REDACTED] (PX1646_Native at Tab 54 (Tronox Synergy Spreadsheet) *(in camera)*).

Response to Finding No. 933:

Respondents have no specific response.

934. [REDACTED] (PX1216 at 002 (Mancini email chain) *(in camera)*). [REDACTED] (PX1216 at 002 (Mancini email) *(in camera)*).

Response to Finding No. 934:

Complaint Counsel’s proposed finding of fact is incomplete and misleading. [REDACTED]

[REDACTED]

[REDACTED]—when Tronox had only reached a “preliminary framework for a deal” with Cristal. [REDACTED] Quinn,

Tr. 2300). [REDACTED]

935. [REDACTED] (PX2214 at 002 (Orris email) *in camera*)).

Response to Finding No. 935:

Complaint Counsel’s proposed finding is misleading and, irrelevant. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Complaint Counsel purports to cite and rely on PX 2214, which is not an exhibit and is not in evidence.

936. [REDACTED] (PX0006 at 071 (KPMG Report) *in camera*)).

938.

[REDACTED] (PX5001 at 029 (¶ 39) (Zmijewski Initial Report) (*in camera*)). Accordingly, he opines that the TiO₂ best practices synergy is not verifiable. (PX5001 at 029 (¶ 39) (Zmijewski Initial Report); PX5003 at 031 (Appx C § 1) (Zmijewski Rebuttal Report to Stern and Imburgia); PX5005 at 012-14 (¶ 13) (Zmijewski Rebuttal Report to Dr. Shehadeh)). Therefore the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 938:

Complaint Counsel’s proposed finding is not a fact but instead is an improper argument. In fact, the evidence on best practices synergies shows that “the combination of the know-how of Cristal and the know-how of Tronox will allow [Tronox] to refine those standards that we have developed in Tronox” on a global basis across a larger footprint of TiO₂ pigment plants after the transaction. (Turgeon, Tr. 2657-59). If anything, the best practices estimate of [REDACTED] like the rest of the synergy estimates, is “conservative” and will result in “significant savings achievable by the combined company.” (Quinn, Tr. 2329, 2341-42; Mancini, Tr. 2778-80).

939. As Dr. Zmijewski notes, Tronox declined to provide detail on any specific intellectual property rights related to the relevant TiO₂ best practices. (PX5003 at 043-44 (Appx C § 1) (Zmijewski Rebuttal Report to Stern and Imburgia); PX5005 at 031-32 (¶ 36) (Zmijewski Rebuttal Report to Dr. Shehadeh)).

Response to Finding No. 939:

Complaint Counsel’s proposed finding is inaccurate, misleading, and fails to articulate what “detail” regarding intellectual property is purportedly lacking. Further, Complaint Counsel’s proposed finding ignores substantial evidence that Tronox has “inherent intellectual

property” in its low-pressure TiO₂ production technology, including at Yanbu. (Mancini, Tr. 2930-31).

940. Accordingly, Dr. Zmijewski found that Respondents have not demonstrated the extent to which the TiO₂ best practices synergy is merger-specific. (PX5003 at 031 (Appx C § 1) (Zmijewski Rebuttal Report to Stern and Imburgia); PX5005 at 031-32 (¶ 36) (Zmijewski Rebuttal Report to Dr. Shehadeh)).

Response to Finding No. 940:

Complaint Counsel’s proposed finding is not a fact but instead is improper legal argument.

- (b) Respondents have not provided sufficient information to evaluate their claimed synergy of activating capacity, idled because of Tronox’s current “net long” position

941. [REDACTED] (PX0005 at 022 (Synergies White Paper) (*in camera*)). According to Tronox, [REDACTED] (PX0005 at 023 (Synergies White Paper) (*in camera*)).

Response to Finding No. 941:

Respondents have no specific response.

942. According to Tronox, [REDACTED] (PX0005 at 023-24 (Synergies White Paper); PX5001 at 029 (¶ 38 n.68) (Zmijewski Initial Report) (*in camera*)).

Response to Finding No. 942:

Respondents have no specific response.

943. [REDACTED]

[REDACTED] (PX5001 at 029 (¶38 n.68))
(Zmijewski Initial Report) (*in camera*)).

Response to Finding No. 943:

Complaint Counsel’s proposed finding, purportedly based on analysis performed by Dr. Zmijewski, should be given no weight because [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] As a result, Dr. Zmijewski himself admitted that he [REDACTED]

[REDACTED]

944. [REDACTED] (PX5003 at 034-35 (Appx C § 4) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*)). Accordingly, he opines that Respondents have failed to demonstrate that the activating idled feedstock capacity synergy is merger-specific. (PX5003 at 034-35 (Appx C § 4) (Zmijewski Rebuttal Report to Stern and Imburgia)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 944:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- (c) Respondents' claimed synergy of swapping ilmenite between mines at reactivated slag furnaces is not cognizable

945.

[REDACTED] (PX0005 at 022 (Synergies White Paper) (*in camera*)).

[REDACTED] (PX0005 at 024-25 (Synergies White Paper) (*in camera*)).

[REDACTED] (PX0005 at 024-25 (Synergies White Paper) (*in camera*)).

Response to Finding No. 945:

Respondents have no specific response.

946.

[REDACTED] (PX0006 at 005 (KPMG Report) (*in camera*)).

[REDACTED] (PX0006 at 005 (KPMG Report) (*in camera*)).

Response to Finding No. 946:

Respondents have no specific response.

947. Because it relies on the assumption of the activating Jazan synergy, which is not verifiable, Dr. Zmijewski opines that the ilmenite swap synergy also is not verifiable. (PX5003 at 032-33 (Appx C § 3) (Zmijewski Rebuttal Report to Stern and Imburgia); PX5005 at 017-18 (¶ 17) (Zmijewski Rebuttal Report to Dr. Shehadeh)). Therefore, the ilmenite swap synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 947:

Complaint Counsel's proposed finding is not a fact but instead is improper argument. Furthermore, Dr. Zmijewski has no expertise whatsoever to opine on the synergies to be achieved with respect to ilmenite swap or Jazan. (Zmijewski, Tr. 1493-94). Dr. Zmijewski admitted that he has no "technical or operational knowledge of how the Jazan facility works." (Zmijewski, Tr. 1494). Dr. Zmijewski further admitted that he [REDACTED]

[REDACTED]

[REDACTED]

948. Dr. Zmijewski also notes that Respondents have not presented evidence that the ilmenite swap synergy could not practically be accomplished absent the proposed acquisition. (PX5003 at 032-33 (Appx C § 3) (Zmijewski Rebuttal Report to Stern and Imburgia); PX5005 at 035-36 (¶ 40) (Zmijewski Rebuttal Report to Dr. Shehadeh)).

Response to Finding No. 948:

Respondents have no specific response.

v. Tronox’s Claimed Cost Savings Efficiencies Are Not Cognizable

949. Respondents claim cost saving synergies of [REDACTED] following the transaction. (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 949:

Respondents have no specific response.

(a) Respondents’ claimed “value in use” synergy is not cognizable

950. Respondents claim a synergy related to “value in use” of [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)). [REDACTED]
[REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 950:

Complaint Counsel’s proposed finding is not a fact but instead is improper argument.

951. [REDACTED] (PX0006 at 064 (KPMG Report) (*in camera*); PX7050 (Mei, Dep. at 224) (*in camera*)). [REDACTED]
[REDACTED] (PX0006 at 064 (KPMG Report) (*in camera*)).

Response to Finding No. 951:

Respondents have no specific response.

952. [REDACTED] (PX7036 (Keegel, Dep. at 41-42) *(in camera)*).

Response to Finding No. 952:

Complaint Counsel’s proposed finding is not supported by the cited testimony. In his testimony, Mr. Keegel acknowledges that the REV model has not been run “with both companies’ data together yet,” but nowhere does he say that that means Respondents “cannot compare pre- and post-merger REV costs” using the REV model. Complaint Counsel’s proposed “fact” that Respondents “cannot compare pre- and post-merger REV costs” is nothing more than unverified argument.

953. [REDACTED] (PX7050 (Mei, Dep. at 90) *(in camera)*).

Response to Finding No. 953:

Complaint Counsel’s proposed finding is not supported by the cited testimony. The cited testimony does not discuss the REV model, nor does it say anything about the magnitude or degree of “uncertainty” in freight costs from one year to another. Complaint Counsel’s proposed finding “fact” is an unverified argument.

954. [REDACTED] (PX1646_Native at Tab 15 (Tronox Synergy Spreadsheet) *(in camera)*); PX0006 at 065 (KPMG Report) *(in camera)*). [REDACTED] (PX7032 (Orris, Dep. at 31-34) *(in camera)*).

Response to Finding No. 954:

Respondents have no specific response.

955. [REDACTED] (PX0006 at 064 (KPMG Report) *(in camera)*).

Response to Finding No. 955:

Respondents have no specific response.

956. [REDACTED] (PX5001 at 029-30 (¶ 40) (Zmijewski Initial Report) (*in camera*); PX5003 at 031 (Appx B § 1) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 023-24 (¶ 26) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*); Zmijewski, Tr. 1452-54 (*in camera*)). [REDACTED] (PX5001 at 029-30 (¶ 40) (Zmijewski Initial Report) (*in camera*); PX5003 at 031 (Appx B § 1) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 023-24 (¶ 26) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*); Zmijewski, Tr. 1453-54 (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 956:

Complaint Counsel’s proposed finding is misleading and improper. Dr. Zmijewski has no expertise or basis to critique the “value in use” synergy because he has no expertise regarding the TiO₂ feedstock industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that “[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1496).

- (b) Respondents’ claimed “optimize pigment logistics cost” synergy is not cognizable

957. Respondents claim a synergy related to “optimize pigment logistics cost” of [REDACTED] [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)). They describe this synergy as [REDACTED] [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 957:

Respondents have no specific response.

958. [REDACTED] [REDACTED] (PX1646 Native at Tab 34 (Tronox Synergy Spreadsheet) (*in camera*)). [REDACTED] [REDACTED] (PX0006 at 080 (KPMG Report) (*in camera*)).

Response to Finding No. 958:

Respondents have no specific response.

959. [REDACTED] (PX0006 at 080 (KPMG Report) (*in camera*)).

Response to Finding No. 959:

Respondents have no specific response.

960. [REDACTED] (PX5001 at 029-30 (¶ 40) (Zmijewski Initial Report) (*in camera*); PX5003 at 032 (Appx B §2) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 024 (¶ 27) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). [REDACTED] (PX5001 at 029-30 (¶ 40) (Zmijewski Initial Report) (*in camera*); PX5003 at 032 (Appx B § 2) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 024 (¶ 27) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 960:

Complaint Counsel’s proposed finding is misleading and improper. Dr. Zmijewski has no expertise or basis to critique the “optimize pigment logistics cost” synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that “[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1496).

- (c) Respondents’ claimed “supply chain, including PET coke savings” synergy is not cognizable

961. Respondents claim a synergy related to “supply chain, including PET coke savings” of [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)). **{They describe this synergy as “[s]upply chain savings resulting from the combined company purchase.”}** (PX0005 at 034 (Synergies White Paper) (*in camera*)). **{This synergy combines a “combined PET coke buy” synergy of \$5.8 million and “other supply chain” synergy of \$19.7 million.}** (PX1646_Native at Tab 40, 43 (Tronox Synergy Spreadsheet) (*in camera*)).

Response to Finding No. 961:

Respondents have no specific response.

962. [REDACTED] (PX0006 at 037 (KPMG Report) *(in camera)*).

Response to Finding No. 962:

Complaint Counsel's proposed finding is incomplete and misleading. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX0006 at 037) (KPMG Report) *(in camera)*. Complaint Counsel does not know whether there are new contracts or the terms of the new contracts.

963. [REDACTED] (PX0006 at 039 (KPMG Report) *(in camera)*). [REDACTED] (PX0006 at 039 (KPMG Report) *(in camera)*).

Response to Finding No. 963:

Complaint Counsel's proposed finding is misleading. [REDACTED]

[REDACTED]

(PX0006 at 039) (KPMG Report) *(in camera)*. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

964. [REDACTED] (PX0006 at 039 (KPMG Report) *(in camera)*). [REDACTED] (PX0006 at 037 (KPMG Report) *(in camera)*).

Response to Finding No. 964:

Complaint Counsel misrepresents PET coke synergy assumptions. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX0006 at 039) (KPMG Report) (*in camera*).

965. [REDACTED] (PX7005 (Keegel, IHT at 203) (*in camera*)).

Response to Finding No. 965:

Complaint Counsel’s proposed finding relies on testimony from a witness, Machiel Keegel, who was not called as a witness at trial and thus not subject to direct or cross examination before the Court.

966. [REDACTED] (RX0542 at 002 (Shelden email) (*in camera*)). [REDACTED] (RX0542 at 002 (Shelden email) (*in camera*)). [REDACTED] (PX0006 at 039 (KPMG Report) (*in camera*)).

Response to Finding No. 966:

Complaint Counsel’s proposed finding relies on RX0542, which was not presented at trial and thus was not subject to cross examination before the Court. Complaint Counsel also relies on the statements of [REDACTED] who was not called as a witness and thus not subject to direct or cross examination before the Court.

967. [REDACTED] (PX5003 at 032-33 (Appx B § 3) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 020-21 (¶ 22) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). [REDACTED]

[REDACTED] (PX5003 at 032-33 (Appx B § 3) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 020-21 (¶ 22) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 967:

Complaint Counsel's proposed finding is not a fact but improper legal argument.

Complaint Counsel's proposed finding is also an unreliable expert opinion. Dr. Zmijewski has no expertise or basis to critique the "combined PET coke buy" synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that "[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case." (Zmijewski, Tr. 1496). Complaint Counsel's proposed finding is also misleading. When Dr. Zmijewski says a particular efficiency is "not verified" or "verifiable," he is *not* saying "that the efficiency will never come to pass." (Zmijewski, Tr. 1505-06). [REDACTED]

[REDACTED] (Zmijewski, Tr. 1573). Additionally, Dr. Zmijewski's assertion about the lack of adequate foundation to justify the assumption of a 10% reduction in coke costs is unreliable since he did not review every document listed as reviewed in his expert report. To the extent the proposed finding contains disputed facts, Complaint Counsel proposed finding improperly relies on expert testimony to support a disputed fact. (Tr. 3792-3793 (J. Chappell explaining that "the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute"))).

968. [REDACTED] (PX1646 Native at Tab 40 (Tronox Synergy Spreadsheet) (*in camera*); PX0006 at 067-68 (KPMG Report) (*in camera*)). [REDACTED] (Zmijewski, Tr. 1450-51 (*in camera*)).

Response to Finding No. 968:

Complaint Counsel's proposed finding is inaccurate. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (PX006 at 067) (KPMG Report) (*in camera*). [REDACTED]

[REDACTED]

[REDACTED] (PX006 at 067) (KPMG

Report) (*in camera*).

969. [REDACTED]
[REDACTED] (PX0006 at 067 (KPMG Report) (*in camera*)).

Response to Finding No. 969:

Respondents have no specific response.

970. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
(PX1216 at 002 (Mancini email to Van Niekerk and Keegel) (*in camera*)).

Response to Finding No. 970:

Complaint Counsel's proposed finding is misleading and incomplete. At trial, Mr. Mancini explained that it was important to note the date of PX1216 since it was very early in the due diligence process. [REDACTED]

[REDACTED]

(Mancini, Tr. 2905-06). [REDACTED]

[REDACTED] (Mancini, Tr. 2816). [REDACTED]

[REDACTED] (Mancini, Tr. 2816; Quinn, Tr. 2329; PX0010).

971. [REDACTED] (PX5001 at 029-30 (¶ 40) (Zmijewski Initial Report) (*in camera*); PX5003 at 032-33 (Appx B § 3) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 020-21 (¶ 22) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*); Zmijewski, Tr. 1448-50 (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 971:

Respondents have no response to the first two sentences of the proposed finding. The last two sentences however are not facts, but rather improper legal argument and unreliable expert opinion. Dr. Zmijewski has no expertise or basis to critique the “other supply chain” synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that “[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1496). Complaint Counsel’s proposed finding is also misleading. When Dr. Zmijewski says a particular efficiency, such as “other supply chain” synergies” are “not verified,” he is *not* saying “that the efficiency will never come to pass.” (Zmijewski, Tr. 1505-06). [REDACTED]

[REDACTED] (Zmijewski, Tr. 1573). Dr. Zmijewski does not say whether “the efficiencies are correct or incorrect.” (Zmijewski, Tr. 1521-22). Dr. Zmijewski’s assertion about the lack of adequate foundation to justify the “other supply chain” synergy is unreliable since he did not review every document listed as reviewed in his expert report. To the extent the proposed finding contains disputed facts, Complaint Counsel improperly relies on expert testimony for support. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”)).

- (d) Respondents' claimed "Western Australia chlorine optimization" synergy is not cognizable

972. Respondents claim a synergy related to "Western Australia chlorine optimization" [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)). [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 972:

Respondents have no specific response.

973. [REDACTED] (PX1646_Native at Tab 50 (Tronox Synergy Spreadsheet) (*in camera*); PX0006 at 41 (KPMG Report) (*in camera*)). As Dr. Zmijewski notes, Respondents have not presented adequate foundation for these assumptions. (PX5003 at 034-35 (Appx B § 4) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 021-22 (¶ 23) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). [REDACTED] (PX5003 at 034-35 (Appx B § 4) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 021-22 (¶ 23) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 973:

Complaint Counsel's proposed finding is not a fact but improper legal argument and unreliable expert opinion. Dr. Zmijewski has no expertise or basis to critique the "Western Australia chlorine optimization" synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that "[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case." (Zmijewski, Tr. 1496). Complaint Counsel's proposed finding is also misleading. When Dr. Zmijewski says a particular efficiency, such as the "Western Australia chlorine optimization" synergy is "not verified" or "verifiable," he is *not* saying "that the efficiency will never come to pass." (Zmijewski, Tr. 1505-06). As Dr. Zmijewsk explained,

██████ Dr. Zmijewski does not say whether “the efficiencies are correct or incorrect.”
(Zmijewski, Tr. 1521-22).

974. Dr. Zmijewski also notes that Respondents have not explained why ██████████ (PX5003 at 034-35 (Appx B § 4) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 037-38 (¶ 44) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). ██████████ (PX5003 at 034-35 (Appx B § 4) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 037-38 (¶ 44) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)).

Response to Finding No. 974:

Complaint Counsel’s proposed finding is not a fact but improper legal argument and unreliable expert opinion. Dr. Zmijewski has no expertise or basis to critique the “Western Australia chlorine optimization” synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that “[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1496). Complaint Counsel’s proposed finding is also misleading. When Dr. Zmijewski says a particular efficiency, such as the “Western Australia chlorine optimization” synergy is “not verified” or “verifiable,” he is *not* saying “that the efficiency will never come to pass.” (Zmijewski, Tr. 1505-06). ██████████

██████ Dr. Zmijewski does not say whether “the efficiencies are correct or incorrect.” (Zmijewski, Tr. 1521-22). Dr. Zmijewski’s assertion about the lack of adequate foundation to justify the “Western Australia chlorine optimization” synergy is unreliable since he did not review every document listed as reviewed in his expert report. To the extent the proposed finding contains disputed facts, Complaint Counsel proposed finding improperly relies on expert

testimony to support a disputed fact. (Tr. 3792-3793 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”))

(e) Respondents’ claimed “optimize chlorinator control” synergy is not cognizable

975. Respondents claim a synergy related to “optimize chlorinator control” of [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)). [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 975:

Respondents have no specific response.

976. [REDACTED] (PX1646_Native at Tab 53 (Tronox Synergy Spreadsheet) (*in camera*)); PX0006 at 050-51 (KPMG Report) (*in camera*). As Dr. Zmijewski notes, Respondents have not presented adequate foundation for these assumptions. (PX5003 at 035-36 (Appx B § 5) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 022 (¶ 24) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). [REDACTED] (PX5003 at 035-36 (Appx B § 5) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 022 (¶ 24) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 976:

Complaint Counsel’s proposed finding is misleading and improper. Dr. Zmijewski has no expertise or basis to critique the “optimize chlorinator control” synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that “[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1496). Complaint Counsel’s proposed finding is also misleading. When Dr. Zmijewski says a particular efficiency, such as the “optimize chlorinator control” synergy is “not verified” or “verifiable,” he is *not* saying “that the efficiency will never come to pass.” (Zmijewski, Tr. 1505-06). As Dr. Zmijewsk explained,

██████████ Dr. Zmijewski does not say whether “the efficiencies are correct or incorrect.”

(Zmijewski, Tr. 1521-22).

977. Dr. Zmijewski also notes that Respondents have not presented evidence that ██████████ or ██████████ that the synergy could not be achieved absent the proposed acquisition. (PX5003 at 035-36 (Appx B § 5) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 038-39 (¶ 45) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). ██████████ (PX5003 at 035-36 (Appx B § 5) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 038-39 (¶ 45) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)).

Response to Finding No. 977:

Complaint Counsel’s proposed finding is inaccurate and misleading. Tronox’s practices and technology, originating from its Kerr McGee start, consists of proprietary information. (Romano, Tr. 2221). “Kerr-McGee Chemical at this stage [in the 80’s and 90’s] is what Tronox was called . . . had their own proprietary technology . . .” (Romano, Tr. 2221). ██████████

██████████ (Dean. Tr. 3041).

Moreover, Complaint Counsel’s proposed finding on merger specificity is not a fact but instead is improper legal argument.

(f) Respondents’ claimed “recover rail car heels” synergy is not cognizable

978. Respondents claim a synergy related to “recover rail car heels” of ██████████ (PX0005 at 034 (Synergies White Paper) (*in camera*)). ██████████ (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 978:

Respondents have no specific response.

979. ██████████ (PX1646_Native at Tab 54, 55 (Tronox

Synergy Spreadsheet) (*in camera*). As Dr. Zmijewski notes, Respondents have not presented adequate foundation for these assumptions. (PX5003 at 036-37 (Appx B § 6) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 024-25 (¶ 28) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). [REDACTED] (PX5003 at 036-37 (Appx B § 6) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 024-25 (¶ 28) (Zmijewski Rebuttal Report to Dr. Shehadeh) (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 979:

Complaint Counsel’s proposed finding is misleading and improper. Dr. Zmijewski has no expertise or basis to critique the “recover rail car heel” synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that “[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1496).

Additionally, when Dr. Zmijewski says a particular efficiency, such as the “recover rail car heel” synergy is “not verified” or “verifiable,” he is *not* saying “that the efficiency will never come to pass.” (Zmijewski, Tr. 1505-06). [REDACTED]

[REDACTED] Dr. Zmijewski does not say whether “the efficiencies are correct or incorrect.” (Zmijewski, Tr. 1521-22).

980. [REDACTED] (PX7023 (Dean, Dep. at 139-40) (*in camera*); PX1505 at 002 (Gilman email chain) (*in camera*)). [REDACTED] (PX5001 at 032-33 (¶ 44) (Zmijewski Initial Report) (*in camera*); PX5003 at 036-37 (Appx B § 6) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*); PX5005 at 039 (¶¶ 46-47) (Zmijewski Rebuttal Report to Dr. Shehadeh); Zmijewski, Tr. 1470-71 (*in camera*)).

Response to Finding No. 980:

Complaint Counsel’s proposed finding is not a fact but instead is improper legal argument.

- (g) Respondents' claimed "duplicative fixed and corporate costs—3rd party spend" synergy is not cognizable

981. Respondents claim a synergy related to [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)). [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 981:

Respondents have no specific response.

982. [REDACTED] (PX0006 at 104-05, 107-09 (KPMG Report) (*in camera*)). [REDACTED] (PX0006 at 104-05, 107-09 (KPMG Report) (*in camera*)).

Response to Finding No. 982:

Respondents have no specific response.

983. As Dr. Zmijewski notes, Respondents have not presented adequate foundation for [REDACTED] (PX5003 at 038-39 (Appx B § 7) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*)). [REDACTED] (PX5003 at 038-39 (Appx B § 7) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 983:

Complaint Counsel's proposed finding is misleading and improper. Dr. Zmijewski has no expertise or basis to critique the "duplicative fixed and corporate costs--3rd party spend" synergy because he has no expertise regarding the TiO₂ industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that "[t]he extent of [his] knowledge regarding the operations in the TiO₂ industry . . . is limited to documents [he] reviewed in this case." (Zmijewski, Tr. 1496).

Complaint Counsel's proposed finding is also misleading. When Dr. Zmijewski says a particular efficiency, such as the "duplicative fixed and corporate costs--3rd party spend" synergy is "not

verified” or “verifiable,” he is *not* saying “that the efficiency will never come to pass.”

(Zmijewski, Tr. 1505-06). [REDACTED]

[REDACTED] Dr. Zmijewski does not say whether “the efficiencies are correct or incorrect.” (Zmijewski, Tr. 1521-22).

- (h) Respondents’ claimed “duplicative fixed and corporate costs—headcount related + corp allocation Tasnee” synergy is not cognizable

984. Respondents claim a synergy related to “duplicative fixed and corporate costs—headcount related + corp allocation Tasnee” of [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)). [REDACTED] (PX0005 at 034 (Synergies White Paper) (*in camera*)).

Response to Finding No. 984:

Respondents have no specific response.

985. [REDACTED] (PX0006 at 082 (KPMG Report) (*in camera*)).

Response to Finding No. 985:

Respondents have no specific response.

986. [REDACTED] (PX0006 at 082 (KPMG Report) (*in camera*)).

Response to Finding No. 986:

Respondents have no specific response.

987. Several components of the “headcount related + corp allocation Tasnee” synergy rely on unfounded assumptions. [REDACTED] (PX0006 at 093 (KPMG Report) (*in camera*)). [REDACTED] (PX0006 at 092, 086-87 (KPMG Report) (*in camera*)).

Response to Finding No. 987:

[REDACTED]

[REDACTED]

[REDACTED]. (PX006 at 082, 086) (KPMG Report) (*in camera*).

988. [REDACTED] (PX7036 (Keegel, Dep. at 34) (*in camera*); PX7005 (Keegel, IHT at 11-12) (*in camera*)). As the Horizontal Merger Guidelines point out, “[r]esearch and development cost savings may be substantial and yet not be cognizable efficiencies because they are difficult to verify or result from anticompetitive reductions in innovative activities.” (PX9085 at 034 (Horizontal Merger Guidelines, § 10)).

Response to Finding No. 988:

Respondents have no specific response.

989. As Dr. Zmijewski notes, Respondents have not presented adequate foundation for these assumptions. (PX5003 at 039-40 (Appx B at § 8) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*)). [REDACTED] (PX5003 at 039-40 (Appx B at § 8) (Zmijewski Rebuttal Report to Stern and Imburgia) (*in camera*)). Therefore, the synergy is not cognizable. (Zmijewski, Tr. 1430-31 (describing criteria for cognizable efficiencies under Horizontal Merger Guidelines)).

Response to Finding No. 989:

Complaint Counsel’s proposed finding is misleading and improper. Dr. Zmijewski has no expertise or basis to critique the “duplicative fixed and corporate costs--headcount related + corp allocation Tasnee” synergy because he has no expertise regarding the TiO2 industry. (Zmijewski, Tr. 1492-93). Dr. Zmijewski admitted that “[t]he extent of [his] knowledge regarding the operations in the TiO2 industry . . . is limited to documents [he] reviewed in this case.” (Zmijewski, Tr. 1496). Complaint Counsel’s proposed finding is also misleading. When Dr. Zmijewski says a particular efficiency, such as the “duplicative fixed and corporate costs--3rd party spend” synergy is “not verified” or “verifiable,” he is *not* saying “that the efficiency will never come to pass.” (Zmijewski, Tr. 1505-06). As Dr. Zmijewsk explained, “verification is

not about assessing whether an output is going to happen or not.” (Zmijewski, Tr. 1573). Dr. Zmijewski does not say whether “the efficiencies are correct or incorrect.” (Zmijewski, Tr. 1521-22).

990. [REDACTED] (PX1216 at 002 (Van Niekerk email chain) (*in camera*)).

Response to Finding No. 990:

Complaint Counsel’s proposed finding is misleading and inaccurate. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Tronox at large and the Board also developed confidence in the synergy estimates. The synergies from the transaction are conservatively estimated. (Mancini, Tr. 2816; Quinn, Tr. 2329; PX0010). The synergy estimates are “valuable” and are “conservative estimate”; “[t]he natural tendency is to be conservative . . . because you want to make sure that the deal makes financial sense.” (Quinn, Tr. 2329, 2341-42). It was “conveyed to the board that” the synergies were a “conservative estimate” and “risk-adjusted” such that “there might be more upside than” the value estimated.¹⁶ (Quinn, Tr. 2329; PX0010). By delivering on the synergies, Tronox will create value for shareholders that is “very significant.” (Quinn, Tr. 2331-32; PX0010-0173)

991. [REDACTED]

[REDACTED] RX0171 at 131 (¶ 282) (Stern Report) (*in camera*)).

Response to Finding No. 991:

Complaint Counsel’s proposed finding is misleading and inaccurate. The citation relied on does not stand for the proposition it purports to offer as a fact. Complaint Counsel incorrectly states that Stern asserts that a [REDACTED]

[REDACTED]

[REDACTED] (RX0171 at 131 (¶ 282) (Stern Report) (*in camera*)).

992. [REDACTED] (PX7059 (Stern, Dep. at 165-66) (*in camera*)).

Response to Finding No. 992:

Respondents have no specific response.

993. [REDACTED] (PX7059 (Stern, Dep. at 166) (*in camera*)).

Response to Finding No. 993:

Respondents have no specific response.

- vi. Tronox’s Claimed Efficiencies of Vertical Integration Are Not Cognizable
 - (a) Since becoming vertically integrated with the Exxaro merger, Tronox has on multiple occasions reduced production of both feedstock and TiO2 pigment

994. Rather than relying on cost savings from vertical integration to expand output, Tronox has instead managed its production of feedstock, and consequently TiO2, in order to affect the pricing of TiO2 in North America. (Hill, Tr. 1891-92). [REDACTED]

[REDACTED]

[REDACTED] (PX5002 at 025 (¶ 50) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*); PX5000 at 121 (¶ 280) [REDACTED] [REDACTED] (*in camera*); PX1012 at 045 (Tronox presentation) (describing [REDACTED] (*in camera*)).

Response to Finding No. 994:

Complaint Counsel’s proposed finding is not a fact, but rather improper legal argument. Complaint Counsel’s proposed finding is also false and misleading. Even after extensive discovery in this case, Complaint Counsel still could not identify a *single* example where *any* TiO₂ producer managed its production “in order to affect the pricing of TiO₂ in North America” rather than maintenance or operational issues. *See* FTC Response to Cristal Interrogatory No. 1. Several Tronox executives have provided testimony that on a handful of occasions, Tronox has been forced by severe market conditions and unsustainable financials to temporarily reduce TiO₂ production. For example, in 2012, Tronox was forced to temporarily reduce its TiO₂ output because “from 2011 to 2012, our total sales profile dropped 21 percent year over year.” (Romano, Tr. 2250-51). As Mr. Romano explained: “In the fourth quarter of ’11, it dropped 43 percent in Asia Pacific. We had to evaluate how we were going to move forward. Customers weren’t interested in buying at any price at that stage because we had just—we were—that was the back end of the cycle, so prices at that stage had peaked. And they had peaked largely due to an exacerbated impact [of] panic buying, so we had some instances where we had very large customers . . . that had over 12 months of inventory. So in an effort to manage cash, we couldn’t just continue to build inventory. We had nowhere to put the inventory. We made a decision to slow the plant down.” (Romano, Tr. 2250-51). In 2012, worldwide demand in the TiO₂ industry “declined precipitously.” (Arndt, Tr. 1397, 1400). It declined worldwide “by approximately 20 percent over a very, very short period of time.” (Arndt, Tr. 1397).

[REDACTED] (PX1394 at 006 (Van Wyk email attaching memo) (*in camera*)). Tronox at the beginning of 2015 closed one of the two KZN furnaces. (Turgeon, Tr. 2648).

Response to Finding No. 997:

Complaint Counsel’s proposed finding is false and misleading. Complaint Counsel is incorrect in stating that PX1394 presented a “recommendation” to close KZN production. PX1394 actually presents the closure of KZN production as an “option” among other options rather than a “recommendation.” *See* PX1394 at 003-04. Complaint Counsel also misrepresents PX1394 which actually shows that the option to close KZN production was considered because there was insufficient ilmenite to supply the KZN furnaces at the time. *See* PX1394 at 003. Due to the insufficient ilmenite supply, Respondent Tronox had to consider other options to solve the problem. Complaint Counsel’s proposed finding also relies on a document that was never presented at trial and thus was not subject to cross examination before this Court, even though Mr. Turgeon testified before the Court live.

998. As it has with TiO₂ pigment production decisions, Tronox shared in its public disclosures its view of how reducing its feedstock production impacted supply and pricing, and impacted decisions by the other feedstock producers. For example, when asked in the company’s 2015 Q1 earnings call about whether Tronox’s decision to reduce sales had impacted feedstock pricing, Tom Casey responded that “objectively perhaps it didn’t result in a skyrocketing slag price, but we think it resulted in improvement in the market.” (PX9007 at 009 (Tronox 2015 Q1 Earnings Call Transcript)). Further, he described the influence he believed that Tronox’s decision had on the other feedstock producers: “We think that the second quarter of 2014 was the low point in high-grade feedstock prices, and in fact that prices in this quarter and in the second half of 2014 were higher than in the second quarter of 2014 on average slag prices around the world. That is in part, we believe again, because we withdrew from the market. I think Rio responded to that by withdrawing from the market, Iluka took synthetic rutile out of the market.” (PX9007 at 009 (Tronox 2015 Q1 Earnings Call Transcript)).

Response to Finding No. 998:

Complaint Counsel’s proposed finding is false and misleading. Complaint Counsel misrepresents PX9007 entirely. Mr. Casey actually said, “If Rio Tinto had not closed a couple of its furnaces, if they hadn’t slowed down the UGS production facility in Canada? So objectively perhaps it didn’t result in skyrocketing slag price, but we think it resulted in an improvement in the market.” PX9007-009. Clearly, Mr. Casey was talking about Rio Tinto reducing its feedstock and *not* Tronox reducing its feedstock production.

999. In 2015, Tronox also reduced production of TiO₂ pigment by about 15% at two of its plants, Hamilton and Kwinana. (See CCFE ¶¶ 427-29, 611, above). Public statements and internal documents of Tronox again indicate that an objective of that reduced production was to support higher pricing of TiO₂ pigment. (See CCFE ¶¶ 427, 606-10, above).

Response to Finding No. 999:

Complaint Counsel’s proposed finding is conclusory and unsupported by any evidence, and should thus be discounted. Complaint Counsel cannot identify any single example where Tronox reduced production to support higher pricing of TiO₂ pigment. (FTC Response to Critsl Interrogatory No. 1). Respondents’ specific response can be found in response to CCFE ¶¶ 427, 606-10, 611, above.

1000. Contrary to its claims with respect to the expected benefits of increased vertical integration, Tronox has not capitalized on its existing levels of vertical integration to take market share in TiO₂ pigment. Instead, the evidence for feedstock and the evidence for TiO₂ pigment, suggests the opposite. Increasing the degree of vertical integration would not result in cost savings being shared with customers; rather, it would give Tronox control over even more production upstream and downstream with which to pursue its strategy of managing production to maintain pricing. (See CCFE ¶¶ 452, 454-57, 459, 606-10, , above).

Response to Finding No. 1000:

Complaint Counsel’s proposed finding is conclusory, unsupported by any evidence, and should thus be discounted. Complaint Counsel ignores the fact that Tronox [REDACTED]

[REDACTED] (Zmijewski, Tr. 1578-79). [REDACTED]

[REDACTED]

[REDACTED]. Tronox not only successfully realized the anticipated synergies in the Exxaro transaction, but it “overdelivered on the synergy estimates.” (Mancini, Tr. 2747-48). Respondents’ specific response can be found in response to CCFF ¶¶ 452, 454-57, 459, 606-10, above.

1001. Beginning at the time of the Tronox and Exxaro merger, in fact, key personnel at Tronox have viewed [REDACTED]

[REDACTED] (PX1635 (Van Niekerk email chain) *in camera*)).

[REDACTED] (PX1113 at 001 (Von Horn email) *in camera*)).

Response to Finding No. 1001:

Complaint Counsel relies on documents that were never presented at trial and thus were not subject to cross examination before this Court. Complaint Counsel’s proposed finding is also false and misleading because Complaint Counsel mischaracterizes PX1635 and cites excerpts from PX1635 out of context. [REDACTED]

[REDACTED]. The topic of conversation in PX1635 was around Tronox’s ability to use different ranges of slags to get the best value for its pigment plants. *See* PX1635-001 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1002.

[REDACTED] (PX1113 at 001 (Von Horn email) (*in camera*); PX1112 (Email between Casey and Romano) [REDACTED] (PX5002 at 025 (¶ 50) (Hill Rebuttal Report to Stern and Imburgia) (*in camera*).

Response to Finding No. 1002:

Complaint Counsel’s proposed finding relies on PX1113, which was never presented at trial and thus was not subject to cross examination before this Court. Complaint Counsel’s proposed finding also improperly relies on expert testimony to support a purported fact and should be discounted on that basis. (Tr. 3792-93 (J. Chappell explaining that “the facts contained in [expert] opinions do not sustain a ruling on any issue in dispute”). Complaint Counsel also cites no evidence that Tronox’s strategy to withhold over 100,000 tons of chloride process feedstock from the market to support TiO₂ prices.

(b) Through increased production of TiO₂ pigment, Tronox has ability to enhance its vertical integration absent the proposed acquisition

1003. Because Tronox is already long on feedstock, it already has the ability and incentive to expand its production of chloride process TiO₂. Therefore, because Tronox has options to increase vertical integration other than through the acquisition of Cristal, its claimed synergies of increased vertical integration are not merger specific. (*See* CCF ¶¶ 1004-10, below).

Response to Finding No. 1003:

Complaint Counsel’s proposed finding is conclusory and unsupported by any evidence, and thus should be discounted. Complaint Counsel’s proposed finding is also misleading because it ignores testimony regarding Respondents’ intent to combine companies. For example,

The transaction is “a highly synergistic acquisition.” (Quinn, Tr. 2329; PX00104). The synergies result from the fact that Tronox and Cristal are “complementary in terms of the nature of the business.” (Quinn, Tr. 2341; PX0010-218). Tronox is “long” on feedstock. This means Tronox has more feedstock than is necessary to supply its TiO₂ pigment plants. (Turgeon, Tr. 2601-03).⁵ Cristal, by contrast, is “short” on feedstock. (Turgeon, Tr. 2604). “[T]hat’s where all the value of that deal come[s] into play.” (Turgeon, Tr. 2654). “[T]he acquisition of Cristal provides a better balance between feedstock availability and feedstock requirements to make TiO₂, because Cristal is feedstock short.” (Stern, Tr. 3851).

1004. As reflected in a wide range of ordinary-course business documents, including high-level planning documents, [REDACTED] (PX1362 at 002 (2012 Board Presentation) (*in camera*)). [REDACTED] (PX1370 at 047 (Staton email attaching Tronox 2014 5-Year Business Plan) (*in camera*)). [REDACTED] (PX1380 at 012 (Keegel email attaching presentation) (*in camera*)).

Response to Finding No. 1004:

Complaint Counsel’s proposed finding is irrelevant and relies on a document from six years ago. The mere fact that companies such as Tronox were once considering expansion plans does not mean that they were capable of executing those expansion plans. Therefore, Complaint Counsel’s logic is flawed.

1005. Immediately after Tronox acquired Exxaro (*see* PX1097 at 001-09 (October 2011 Tronox investor presentation)), [REDACTED] (PX1034 at 001 (Van Niekerk email) (*in camera*)).

Response to Finding No. 1005:

Respondents have no specific response.

1006. When Tronox acquired Exxaro in 2012, Tronox also emphasized the opportunity for organic pigment expansion in public disclosures. For example, an October 2011 Investor Presentation described [REDACTED] (PX1097 at 009 (Tronox investor presentation)).

Response to Finding No. 1006:

Respondents have no specific response.

1007. In a 2014 presentation, Tronox [REDACTED] (PX1377 at 014 (Presentation to Anixter International) (*in camera*)). [REDACTED] (PX1377 at 014 (Presentation to Anixter International) (*in camera*)).

Response to Finding No. 1007:

Respondents have no specific response.

1008. Tronox earnings calls from the period after the acquisition emphasized how Tronox viewed its vertical integration as a foundation for organic expansion of TiO₂ pigment production. Specifically, in 2012 Mr. Casey stated that “[being long on feedstock] also provides us the opportunity if we were ever to expand either through acquisitions or brownfield expansions, we can feed the expansion with our own feedstock and even increase the advantage that we have so it gives us a lot of flexibility. We like that.” (PX9033 at 014 (Tronox Q2 2012 Earnings Call)). A year later he stated that “the way we think about it is that if we invest in, for example, Hamilton, our plant in Mississippi or in Botlick [sic] or even in Kwinana, the plant in Australia, we could add lines incrementally. And so our choice would be do we add one line, do we add two lines, do we do a substantial increase? . . . Do we think that the — that an acquisition that is available to us is impactful sufficiently far in advance of the financial impact of incremental expansion that it’s worth doing, and particularly that will be a function of how we see demand going in the market over the year or two that we would be building any organic. As I said earlier, my inclination is to go to — at least at the short term to look at the inorganic rather than the organic, but we are looking at both.” (PX9014 at 008 (Tronox Q2 2013 Earnings Call)).

Response to Finding No. 1008:

Respondents have no specific response.

1009. Absent the acquisition, Tronox would continue to have opportunities to expand its own TiO₂ production to take advantage of its long position in high-grade feedstock, particularly since Tronox and other market participants recognize the tight supply of TiO₂ pigment. (Arndt, Tr. 1422; Pschaidt, Tr. 973-74). [REDACTED] (PX1012 at 045-46 (Tronox TiO₂ 2017 strategic plan) (*in camera*)). [REDACTED] (Romano, IHT at 31) (*in camera*)).

Response to Finding No. 1009:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument.

1010. [REDACTED] (PX1036 at 019 (Keegel Email attaching 5-year Plan) (*in camera*)).

Response to Finding No. 1010:

Complaint Counsel relies on a document, PX1036, that was never presented at trial and thus was not subject to cross examination before this Court.

B. Tronox Has Not Demonstrated that the Claimed Efficiencies at Facilities Located Outside North America Would Positively Impact North American Customers

1011. Tronox’s CEO, Mr. Quinn, testified that “[t]he synergies that are tied to a geographic location are the operational synergies . . . and I would agree with you that the overwhelming majority of those synergies are related to ex – you know, non-U.S. assets.” (Quinn, Tr. 2407).

Response to Finding No. 1011:

Respondents have no specific response.

1012. Tronox acknowledges that it has not attempted to quantify the extent to which its claimed efficiencies would benefit North American customers of chloride TiO₂. [REDACTED] (PX7014 (Quinn, Dep. at 104-05) (*in camera*)).

Response to Finding No. 1012:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

1013.

[REDACTED]
 (PX7000 (Snider, IHT at 69-70) (*in camera*)). Consistent with this, Mr. Hewson of Cristal testified that Yanbu's TiO₂ customers are **{predominantly in Saudi Arabia.}** (Hewson, Tr. 1608 (*in camera*)).

Response to Finding No. 1013:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

1014. Even if Jazan becomes operational, Tronox has not demonstrated that this claimed synergy, which concerns the production of titanium feedstock—not chloride TiO₂—in Saudi Arabia, would benefit North American chloride TiO₂ customers. (*See* CCFE ¶¶ 1011-12, above).

Response to Finding No. 1014:

Complaint Counsel's proposed finding is not a fact, but rather improper argument.

1015.

[REDACTED] (PX5001 at 055 (Exhibit V-1) (Zmijewski Initial Report) (*in camera*); *see* CCFE Section III.A.ii., above).

[REDACTED] (PX7005 (Keegel, IHT at 155-56) (*in camera*)).

[REDACTED] (PX7005 (Keegel, IHT at 155-56) (*in camera*)).

Response to Finding No. 1015:

Complaint Counsel's proposed finding is inaccurate and misleading. The geographic location of assets does not restrict the distribution of synergies. (“[A]ll of the synergies in the deal lower our cost basis and have a positive impact on our ability to serve our global customer base at a lower cost -- from a lower cost position.”)(Quinn, Tr., 2430). Rose Mei, Tronox's director of sales and operation planning and global logistics, is the Tronox employee best suited to provide testimony about logistics. Mei testified that, “ship[ping] the TiO₂ products from one

region to the other...doesn't have required special equipment or anything on special handling, so it's -- it's relatively easy to manage. “ (Mei, Tr. 3160).

1016. [REDACTED] (PX5001 at 055 (Exhibit V-1) (Zmijewski Initial Report) (*in camera*); see CCFE Section III.A.ii., above).

Response to Finding No. 1016:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. Additionally, the geographic location of assets does not restrict the distribution of synergies. (“[A]ll of the synergies in the deal lower our cost basis and have a positive impact on our ability to serve our global customer base at a lower cost -- from a lower cost position.”).(Quinn, Tr., 2430).

1017. [REDACTED] (PX0006 at 040 (KPMG Report) (*in camera*); see CCFE Section III.A.ii., above).

Response to Finding No. 1017:

Complaint Counsel’s proposed finding is not a fact, but rather improper argument. Additionally, synergies stemming from non-U.S. production are relevant here. The transaction will create a larger “combined network” of TiO₂ production and distribution across the globe. (Mei, Tr. 3166-67). Tronox’s customers will benefit from a larger global footprint because Tronox “will be closer to the customers in terms of where the products can be produced, on average basis.” (Mei, Tr. 3167). [REDACTED]

[REDACTED]. Further, the improved global network will also give Tronox a “more reliable supply and stable quality” of TiO₂ feedstock, which will increase TiO₂ pigment output. (Mei, Tr. 3167)

COMPLAINT COUNSEL’S PROPOSED CONCLUSIONS OF LAW

A. THE FEDERAL TRADE COMMISSION HAS JURISDICTION OVER THIS ACTION

1. The Federal Trade Commission has jurisdiction over Respondents Tronox Limited, National Industrialization Company, National Titanium Dioxide Company, and the subject matter of this proceeding pursuant to Section 5 of the Federal Trade Commission Act (“FTC Act”), 15 U.S.C. § 45, and Sections 7 and 11 of the Clayton Act, 15 U.S.C. § 18, 21(b).

Response to Conclusion No. 1:

Respondents have no specific response.

2. The FTC is an administrative agency of the U.S. Government established, organized, and existing pursuant to the FTC Act, 15 U.S.C. § 41 *et seq.* (2006). The FTC is vested with authority and responsibility for enforcing, *inter alia*, Section 7 of the Clayton Act, 15 U.S.C. § 18, and Section 5 of the FTC Act, 15 U.S.C. § 18.

Response to Conclusion No. 2:

Respondents have no specific response.

3. Respondents, including their relevant operating subsidiaries, are, and at all relevant times have been, engaged in activities in or affecting “commerce” as defined in Section 4 of the FTC Act, 15 U.S.C. § 44 (2006), and Section 1 of the Clayton Act, 15 U.S.C. § 12 (2006). (Joint Stipulations of Law and Fact, JX0001-001).

Response to Conclusion No. 3:

Respondents have no specific response.

B. THE MERGER IS A VIOLATION OF CLAYTON ACT SECTION 7 AND FTC ACT SECTION 5

4. Pursuant to a February 21, 2017 agreement, Tronox seeks to acquire Cristal’s TiO₂ business for \$1.67 billion in cash and a 24% stake in the combined entity. The acquisition of Cristal is a transaction subject to Section 7 of the Clayton Act and Section 5 of the FTC Act. 15 U.S.C. § 21(a) and §45(a)(2).

Response to Conclusion No. 4:

Respondents have no specific response.

5. Complaint Counsel’s antitrust claims are brought under Section 7 of the Clayton Act and Section 5 of the FTC Act. Section 7 of the Clayton Act prohibits mergers “the effect of

[which] may be substantially to lessen competition” in “any line of commerce.” 15 U.S.C. § 18. Section 5 of the FTC Act proscribes “[u]nfair methods of competition in or affecting commerce....” 15 U.S.C. § 45(a)(1). An acquisition that violates the Clayton Act also violates Section 5 of the FTC Act. *See FTC v. Ind. Fed’n of Dentists*, 476 U.S. 447, 454 (1986).

Response to Conclusion No. 5:

Respondents have no specific response.

6. Section 7 of the Clayton Act is intended to prevent anticompetitive mergers “in their incipency,” *before* they create anticompetitive harm. *See United States v. Phila. Nat’l Bank*, 374 U.S. 321, 362 (1963) (internal quotation marks omitted).

Response to Conclusion No. 6:

Respondents have no specific response.

7. For the government to prevail in a Section 7 case, “certainty, even a high probability, need not be shown,” and any “doubts are to be resolved *against* the transaction.” *FTC v. Elders Grain, Inc.*, 868 F.2d 901, 906 (7th Cir. 1989) (emphasis added) (citing *Phila. Nat’l Bank*, 374 U.S. at 362–63); *see also Brown Shoe Co. v. United States*, 370 U.S. 294, 323 (1962). “Congress used the words ‘*may* be substantially to lessen competition’ . . . to indicate that its concern was with probabilities, not certainties.” *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 713 (D.D.C. 2001).

Response to Conclusion No. 7:

In a case challenging a transaction under the Clayton Act, Complaint Counsel has the “ultimate burden of proving a Section 7 violation.” *United States v. Sungard Data Sys., Inc.*, 172 F. Supp. 2d 172, 180 (D.D.C. 2001). Complaint Counsel has the “burden on every element of their Section 7 challenge, and a failure of proof in any respect will mean the transaction should not be enjoined.” *FTC v. Arch Coal, Inc.*, 329 F. Supp. 2d 109, 116 (D.D.C. 2004).

Complaint Counsel “bears the burden of proof and persuasion in defining the relevant market.” *Arch Coal*, 329 F. Supp. 2d at 119 (citing *Sungard Data Sys.*, 172 F. Supp. 2d at 182–83). Complaint Counsel’s case fails if it cannot define a relevant market. *FTC v. Lab. Corp. of Am.*, No. SACV 10-1873 AG (MLGx), 2011 WL 3100372, at *17 (C.D. Cal. Feb. 22, 2011) (“The failure to properly define a relevant market may lead to the dismissal of a Section 7

claim); *FTC v. Cardinal Health, Inc.*, 12 F. Supp. 2d 34, 45 (D.D.C.1998) (“Defining the relevant market is critical in an antitrust case because the legality of the proposed merger[] in question almost always depends upon the market power of the parties involved); *Bathke v. Casey’s Gen. Stores, Inc.*, 64 F.3d 340, 345 (8th Cir. 1995) (“Antitrust claims often rise or fall on the definition of the relevant market)

After proving its product and geographic market, Complaint Counsel must prove the effect of the transaction “may be substantially to lessen competition, or to tend to create a monopoly.” *In re Polypore Int’l*, 2010 WL 9434806, at *165 (citation omitted). To meet this burden, Complaint Counsel cannot simply demonstrate the “mere possibility” of harm. *United States v. AT&T Inc.*, 310 F. Supp. 3d 161, 189-90 (D.D.C. 2018) (citation omitted). Instead, Complaint Counsel must “demonstrate that the substantial lessening of competition will be ‘sufficiently probable and imminent’ to warrant relief.” *Arch Coal*, 329 F. Supp. 2d at 115 (quoting *United States v. Marine Bancorp. Inc.*, 418 U.S. 602, 623 n.22 (1974)).

8. Courts typically assess whether a merger violates Section 7 by determining: (1) the “line of commerce,” or relevant product market; (2) the “section of the country,” or relevant geographic market; and (3) the merger’s probable effect on competition in the relevant product and geographic markets. *See, e.g., United States v. Marine Bancorp. Inc.*, 418 U.S. 602, 618-24 (1974); *Chi. Bridge & Iron Co. v. FTC*, 534 F.3d 410, 422-23 (5th Cir. 2008).

Response to Conclusion No. 8:

Respondents have no specific response.

9. By showing that the proposed “transaction will lead to undue concentration in the market,” the Commission “establish[es] a presumption of anticompetitive effect.” *United States v. Anthem, Inc.*, 855 F.3d 345, 349 (D.C. Cir. 2017) (internal quotation marks omitted) (citing *United States v. Baker Hughes Inc.*, 908 F.2d 981, 982 (D.C. Cir. 1990)). This presumption establishes a *prima facie* case that the merger is unlawful. *See id.*

Response to Conclusion No. 9:

“[S]tatistics concerning market share and concentration are ‘not conclusive indicators of anticompetitive effects.’” *Arch Coal*, 329 F. Supp. 2d at 130 (quoting *United States v. Gen. Dynamics Corp.*, 415 U.S. 486, 498 (1974)). Market shares do not “as a matter of logic, necessarily give a proper picture of a company's future ability to compete.” *Gen. Dynamics.*, 415 U.S. at 501. “Evidence of market concentration simply provides a convenient starting point for a broader inquiry into future competitiveness.” *United States v. Baker Hughes*, 908 F.2d 981, 984 (D.D.C. 1990). “That the government can establish a prima facie case through evidence on only one factor, market concentration, does not negate the breadth” of the competitive effects analysis. *Id.* “[T]he court must engage in a comprehensive inquiry into the future competitive conditions in a given market.” *United States v. AT&T*, 310 F. Supp. 3d 161, 190 (D.D.C. 2018) (citations omitted). “[D]etermining the existence or threat of anticompetitive effects has not stopped at a calculation of market shares” and, therefore, “[a] finding of market shares and consideration of [the presumption created by market shares] should not end the court’s inquiry.” *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1111 (N.D. Cal. 2004); see also *Baker Hughes*, 908 F.2d at 992. Courts must also assess the “structure, history and probable future” of the relevant product market. *Gen. Dynamics*, 415 U.S. at 498. 769. Because Complaint Counsel failed to carry its burden of presenting evidence of actual anticipated anticompetitive effects at trial, the Court should conclude that Complaint Counsel’s calculation of market shares—even if they were the proper shares to calculate for this case—are not indicative of likely anticompetitive effects from the merger and that Complaint Counsel has failed to make out its *prima facie* case to establish a violation of Clayton Act Section 7.

10. Once the presumption is established, Respondents bear the burden of rebutting the *prima facie* case. See *Marine Bancorp*, 418 U.S. at 631. “The more compelling the prima facie case, the more evidence the defendant must present to rebut it successfully.” *Anthem*, 855 F.3d at 345–50 (internal quotation marks omitted).

Response to Conclusion No. 10:

Complaint Counsel fails to encapsulate the entire standard expressed by *Anthem*. While *Anthem* notes that in situations where the burden has shifted to Respondents after Complaint Counsel has made out a prima facie case that “[t]he more compelling the prima facie case, the more evidence the defendant must present to rebut it successfully,” the *Anthem* Court also cautioned that “because the burden of persuasion ultimately lies with [Complaint Counsel], the burden to rebut must not be ‘unduly onerous.’” *United States v. Anthem, Inc.*, 855 F.3d 345, 350 (D.C. Cir. 2017) (quoting *Baker Hughes*, 908 F.2d at 991). Indeed, at the end of the day, Complaint Counsel has the “burden on every element of their Section 7 challenge, and a failure of proof in any respect will mean the transaction should not be enjoined.” *FTC v. Arch Coal, Inc.*, 329 F. Supp. 2d 109, 116 (D.D.C. 2004).

11. If Respondents present evidence sufficient to rebut the presumption, then the burden of producing additional evidence of anticompetitive effect shifts back to the government and merges with the ultimate burden of persuasion, which remains with the government at all times. *Anthem*, 855 F.3d at 350.

Response to Conclusion No. 11:

Respondents agree that the ultimate burden of persuasion remains with the government at all times, in addition to the substantial burden of proof required of Complaint Counsel. *See* Respondents’ Reply to Complaint Counsel’s proposed Conclusion of Law ¶7.

C. THE RELEVANT MARKET IS THE SALE OF CHLORIDE TiO₂ IN NORTH AMERICA (UNITED STATES AND CANADA)

- i. The Relevant Product Market Is Chloride TiO₂ Sold to North American Customers
12. In a merger case, a relevant product market is the line of commerce in which competition may be substantially lessened because of the merger. *See Brown Shoe*, 370 U.S. 294, 324 (1962). The outer boundaries of a product market are determined by “the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it.” *Brown Shoe*, 370 U.S. at 325. Courts consider “whether there are other products offered to consumers which are similar in character or use . . . as well as

how far buyers will go to substitute one commodity for another.” *FTC v. Staples*, 970 F. Supp. 1066, at 1074 (D.D.C. 1997).

Response to Conclusion No. 12:

The relevant product market is comprised of “products that have reasonable interchangeability for the purposes for which they are produced—price, use and qualities considered.” *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 404 (1956). When considering interchangeability or cross-elasticity of demand, “a product market includes all goods that are reasonable substitutes, even though the products themselves are not entirely the same.” *FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, 25 (D.D.C. 2015).

13. In defining an antitrust product market, courts consider “such practical indicia as industry or public recognition of the [relevant market] as a separate economic entity, the product’s peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors.” *FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1037-38 (D.C. Cir. 2011) (quoting *Brown Shoe*, 370 U.S. at 325); *see also FTC v. CCC Holdings, Inc.*, 605 F. Supp. 2d 26, 38 (D.D.C. 2009).

Response to Conclusion No. 13:

A product market cannot be established based on customer testimony and preferences when plaintiffs fail to present a sufficiently representative set of customers. *Oracle*, 331 F. Supp. 2d at 1167 (“Drawing generalized conclusions about an extremely heterogeneous customer market based upon testimony from a small sample is not only unreliable, it is nearly impossible.” (citing *United States v. Sungard Data Sys., Inc.*, 172 F. Supp. 2d 172, 182-83 (D.D.C. 2001))).

The relevant question is whether customers—specifically, marginal customers—would divert enough of their demand to competitors in other channels that a SSNIP would be unprofitable.

Oracle, 331 F. Supp. 2d at 1118.

14. Courts look to the “hypothetical monopolist test” as an analytical method for defining relevant markets. *FTC v. Penn State Hershey Med. Ctr.*, 838 F.3d 327, 338 (3d Cir. 2016); *FTC v. Staples II*, 190 F. Supp. 3d 100, 121-22 (D.D.C. 2016) (hereinafter “*Staples II*”). The test “queries whether a hypothetical monopolist who has control over the products in an alleged market could profitably raise prices on those products,”

typically using a small but significant and non-transitory increase in price (“SSNIP”) of 5-10%. *Staples II*, 190 F. Supp. 3d at 121-22; *see also Horizontal Merger Guidelines* §§ 4.1.1-4.1.3. If imposing a SSNIP would not divert enough sales to sources outside the candidate market to render the price increase unprofitable, then the candidate market passes the test and comprises a relevant product market. *See Staples II*, 190 F. Supp. 3d at 121-22; *CCC Holdings*, 605 F. Supp. 2d at 38 n.12. Courts frequently have relied on the *Horizontal Merger Guidelines* framework to assess how acquisitions impact competition. *See, e.g., Chicago Bridge & Iron Co. N.V. v. FTC*, 534 F.3d 410, 432 n.11 (5th Cir. 2008); *Heinz*, 246 F.3d at 716 n.9; *FTC v. Univ. Health Inc.*, 938 F.2d 1206, 1211 (11th Cir. 1991).

Response to Conclusion No. 14:

“If buyers would respond to the SSNIP by shifting to products produced outside the proposed geographic market, and this shift were sufficient to render the SSNIP unprofitable, then the proposed geographic market would be too narrow.” *Arch Coal*, 329 F. Supp. 2d at 123.

15. Complaint Counsel has established that the relevant product market for analyzing the Acquisition is chloride TiO₂. No product is reasonably interchangeable with chloride TiO₂ that would allow chloride TiO₂ customers to decrease their reliance on the product in sufficient quantities to render a SSNIP unprofitable. *See FTC v. Sysco*, 113 F. Supp. 3d 1, 33 (D.D.C. 2015). The evidence that Complaint Counsel introduced to establish chloride TiO₂ to be the relevant market included public disclosures of Respondent Tronox. *See SEC Rule 10b-5* (17 C.F.R. § 240.10b-5) (which forbids, among other things, the making of any “untrue statement of a material fact” or the omission of any material fact “necessary in order to make the statements made . . . not misleading.”).

Response to Conclusion No. 15:

The Complaint alleges a product market consisting only of TiO₂ produced using the chloride process. *See Administrative Complaint*, Docket No. 9377, December 5, 2017. However, the record shows that chloride-process TiO₂ and sulfate-process TiO₂ are reasonably substitutable for the vast majority of end uses. *See Respondents’ FOF ¶¶ 369-77*. About 80% of TiO₂ end products can be made with either the sulfate or chloride processes. *See Respondents’ FOF ¶ 369*. Testimony from Tronox and other TiO₂ producers confirms this. *See Respondents’ FOF ¶¶ 360-69*. In fact, Complaint Counsel’s expert admitted that “technically” sulfate and chloride TiO₂ “could be substituted in almost every coatings use.” *See Respondents’ FOF ¶ 377*.

Furthermore, the real-world commercial evidence indicates that TiO₂ customers can and do switch between chloride- and sulfate-process TiO₂. *See* Respondents’ FOF ¶¶ 383-393. Because of this, pricing for chloride- and sulfate-process TiO₂ are highly correlated. *See* Respondents’ FOF ¶¶ 419- 433. Testimony from a small number of TiO₂ customers and purchasers is not sufficient to establish a chloride-process TiO₂ market, as it does not answer the key question of whether customers would switch their purchases to sulfate-process TiO₂ in the face of a price increase for chloride-process TiO₂. That a small number of customers might not change their purchases in response to a SSNIP does not outweigh the significant evidence that shows marginal customers *can and do* substitute sulfate-process TiO₂ for chloride-process TiO₂ in response to even small changes in price. *See* Respondents’ FOF ¶¶ 383-395. The evidence at trial demonstrates that at a *sustained* price gap, competitors would enter the market and customers would reach beyond the market in order to offset the price gap. Therefore, the Court should conclude that Complaint Counsel’s alleged market for chloride-process TiO₂ fails because it has not met its burden of proving that a narrow market for chloride-process TiO₂—which excludes sulfate-process TiO₂—exists. *See Arch Coal*, 329 F. Supp. 2d at 122 (“The burden . . . is squarely on plaintiffs to establish that [the product at issue] is a separate relevant market); *SunGard Data Sys.*, 172 F. Supp. 2d at 182-83; *Oracle*, 331 F. Supp. 2d at 1172. The Court should instead conclude that the relevant market includes all TiO₂ of the rutile crystal structure, whether manufactured by the chloride process or the sulfate process.

16. For most customers in North America, sulfate TiO₂ is not an effective substitute for chloride TiO₂, because: 1) chloride TiO₂ provides distinct performance advantages over sulfate TiO₂ that are particularly important to North American customers; 2) due to these peculiar characteristics, North American customers cannot readily switch between sulfate and chloride TiO₂; and 3) even when sulfate TiO₂ is priced significantly less than chloride TiO₂, North American customers cannot use these products as substitutes. *See Horizontal Merger Guidelines* §4.1.3.

Response to Conclusion No. 16:

Respondents established that for most customers in North America, sulfate-process produced TiO₂ is an effective substitute for chloride-process produced TiO₂ because: 1) sulfate-process produced TiO₂ can *and does* provide the same performative characteristics as chloride-process produced TiO₂; 2.) North American customers can *and do* readily switch between sulfate-process produced and chloride-process produced TiO₂; and 3.) when sulfate-process produced TiO₂ is priced significantly less than chloride-process produced TiO₂, North American customers can *and do* use these products as substitutes. *See Horizontal Merger Guidelines* § 4.1.3; *see also* Respondents’ Reply to Complaint Counsel’s proposed Conclusion No. 15.

- i. The Relevant Geographic Market Is North America (United States and Canada)

17. “The ‘relevant geographic market’ identifies the geographic area in which the defendants compete in marketing their products or services.” *See FTC v. Cardinal Health, Inc.*, 12 F. Supp. 2d 34, 49 (D.D.C. 1998). The relevant geographic market must “correspond to the commercial realities of the industry” as determined by a “pragmatic, factual approach” to assessing the industry. *Brown Shoe*, 370 U.S. at 336.

Response to Conclusion No. 17:

Respondents have no specific response.

18. “The boundaries of the relevant geographic market, like the boundaries of the relevant product market, depend on reasonable interchangeability and cross-elasticity of demand.” *Polypore*, 150 FTC 586, *15 (2010) (citing *Brown Shoe*, 370 U.S. at 336). “Where suppliers can set prices based on customer location, and customers cannot avoid targeted price increase through arbitrage, suppliers may be able to exercise market power over customers located in a particular geographic region, even if a price increase to customers located in other geographic regions would be unprofitable.” *Polypore*, 150 FTC at *16 (citing *Horizontal Merger Guidelines* § 4.2.2).

Response to Conclusion No. 18:

Respondents have no specific response.

19. As is true for defining a relevant product market, the principal economic analysis in defining a relevant geographic market is the hypothetical monopolist test. *See FTC v. Advocate Health Care Network*, 841 F.3d 460, 469 (7th Cir. 2016); *FTC v. Penn State Hershey Med. Ctr.*, 838 F.3d 327, 338 (3d Cir. 2016). In considering a targeted customer market, the hypothetical monopolist test analyzes whether a single firm controlling all the

supply into a region could profitably impose a SSNIP on customers within the region. *See Polypore*, 150 FTC at *16; *see also Advocate*, 841 F.3d at 469; *Whole Foods*, 548 F.3d 1048; *Horizontal Merger Guidelines* § 4.2.2. Unless customers within the region can arbitrage to render the SSNIP unprofitable, the targeted market passes the hypothetical monopolist test. *United States v. Bazaarvoice, Inc.*, No. 13-cv-133, 2014 U.S. Dist. Lexis 3284 (N.D. Cal. January 8, 2014) (citing economic testimony that customers could not arbitrage to defeat targeted price increase and assessing market shares in U.S.).

Response to Conclusion No. 19:

The hypothetical monopolist test fails if customers can defeat a proposed price increase. For example, “[i]f buyers would respond to the SSNIP by shifting to products produced *outside* the proposed geographic market, and this shift were sufficient to render the SSNIP unprofitable, then the proposed geographic market would be too narrow.” *Arch Coal*, 329 F. Supp. 2d at 123 (emphasis in original).

20. It can be appropriate to define a relevant market based on sales to a distinct category of customers – in this instance North American customers. *See Staples II*, 190 F. Supp. 3d at 122 (product market defined around targeted “large [business-to-business] customers”); *Sysco*, 113 F. Supp. at 38-48 (relevant targeted market for sales to “national customers”); *Spirit Airlines, Inc., v. Nw. Airlines, Inc.*, 431 F.3d 917, 933-95 (6th Cir. 2005); (target product market defined as “leisure or price-sensitive passengers” rather than all passengers). “A price increase for targeted customers may be profitable even if a price increase for every customer would not be profitable because too many other customers would substitute away. When discrimination is reasonably likely, the Agencies may evaluate competitive effects separately by type of customer.” *Guidelines* §§ 3, 4.1.4 (“If a hypothetical monopolist could profitably target a subset of customers for price increases, the Agencies may identify relevant markets defined around those targeted customers, to whom a hypothetical monopolist would profitably and separately impose at least a SSNIP”).

Response to Conclusion No. 20:

Complaint Counsel alleges the relevant geographic market is limited to the sale to “North American” customers (defined by Complaint Counsel only as “customers in the United States and Canada”). (RX1399.0007). Complaint Counsel’s economist, however, did not analyze whether TiO₂ is a global market, even though he admitted the transaction is a “worldwide merger.” FOF ¶ 330. The record establishes there is significant international trade of TiO₂. FOF

¶¶ 271-284. In addition, TiO₂ prices rise and fall together across geographic regions. FOF ¶¶ 306-325. There is a substantial amount of evidence that shows marginal customers can *and would* purchase TiO₂ from other places around the world in response to even small, sustained changes in price relative to the rest of the world.

21. Complaint Counsel has established that the appropriate geographic area within which to evaluate the probable competitive effects of the Acquisition is the United States and Canada (“North America”). Tronox, Cristal, and other suppliers compete to sell chloride TiO₂ to customers across North America. Suppliers set prices based on customer location, and North American customers do not, and could not, avoid a SSNIP through arbitrage. In particular, the cost of shipping and duties imposes an additional cost of at least 10% on any customer that would attempt arbitrage. *See Hornsby Oil Co. v. Champion Spark Plug Co.*, 714 F.2d. 1384, 1394 (5th Cir. 1983) (“Whether ascertaining the scope of a geographic market or submarket, however, such economic and physical barriers to expansion as transportation costs, delivery limitations and customer convenience and preference must be considered.”) Additionally, prices are set on a regional basis, and suppliers implement regional price announcements. *Monfort of Colorado v. Cargill*, 591 F. Supp. 683, 700 (D. Colo. 1983) (“region price differentials” demonstrate that relevant markets are “regional in scope”). Moreover, North American customers overwhelmingly consume chloride TiO₂ that is produced in North America.

Response to Conclusion No. 21:

Complaint Counsel has failed to establish that the appropriate geographic area within which to evaluate the competitive effects of the Acquisition is “North America” (defined by Complaint Counsel as “the United States and Canada”). Tronox, Cristal, and other suppliers compete to sell rutile TiO₂ to customers worldwide. Suppliers set prices through individual negotiations with customers, and North American customers use prices from around the globe when negotiating their purchasing contracts. North American customers could *and would* defeat a hypothetical SSNIP by engaging producers outside North America or by purchasing product outside North America and importing it—particularly because the cost of shipping TiO₂ is minimal. There is no regional price for TiO₂, and prices are not “set” regionally. North American customers consume a majority of TiO₂ produced through the chloride-process because historical idiosyncrasies caused North American producers to switch to chloride-process

production, and those North American producers have vigorously competed with sulfate-process TiO₂ producers in order to retain customers. This Court should conclude that Complaint Counsel failed to establish that the relevant geographic market consists of the United States and Canada; rather, the appropriate geographic market in which to analyze the effects of the merger is worldwide.

D. THE ACQUISITION IS PRESUMPTIVELY UNLAWFUL BASED ON MARKET SHARES AND MARKET CONCENTRATION THRESHOLDS

22. A merger that significantly increases market shares and concentration is presumptively unlawful under Section 7 of the Clayton Act. *See United States v. Baker Hughes Inc.*, 908 F.2d 981, 982-83 (D.C. Cir.1990). By showing that a transaction will lead to undue concentration in the market for a particular product in a particular geographic area, the government establishes a presumption that the transaction will substantially lessen competition. *See United States v. Citizens & Southern Nat'l Bank*, 422 U.S. 86, 120-22 (1975); *see also Heinz*, 246 F.3d at 715.

Response to Conclusion No. 22:

“[S]tatistics concerning market share and concentration are ‘not conclusive indicators of anticompetitive effects.’” *Arch Coal*, 329 F. Supp. 2d at 130 (quoting *Gen. Dynamics.*, 415 U.S.at 498). Market shares do not “as a matter of logic, necessarily give a proper picture of a company's future ability to compete.” *Gen. Dynamics.*, 415 U.S. at 501. “Evidence of market concentration simply provides a convenient starting point for a broader inquiry into future competitiveness.” *Baker Hughes*, 908 F.2d at 984. “That the government can establish a prima facie case through evidence on only one factor, market concentration, does not negate the breadth” of the competitive effects analysis. *Id.*

23. The Commission may rely on “the closest available approximation” of market shares when calculating concentration levels. *See FTC v. PPG Indus.*, 798 F. 2d 1500, 1505 (D.C. Cir. 1986). Indeed, the “FTC need not present market shares and HHI estimates with the precision of a NASA scientist.” *Sysco*, 113 F. Supp. 3d at 54 (market share estimates were reliable because they were the “closest available approximation”); *see also PPG Indus.*, 798 F.2d at 1505 (affirming finding of highly concentrated market based on comparison of market shares in a related market); *United States v. Bazaarvoice, Inc.*, No. 13-cv-133, 2014 U.S. Dist. LEXIS 3284, at *237 (N.D. Cal. Jan. 8, 2014)

(shares are imperfect but reveal the basic market structure); *cf. Brown Shoe*, 370 U.S. at 340-41 (“fair sample” of markets sufficient to evaluate the merger).

Response to Conclusion No. 23:

“Market concentration is a function of the number of firms in a market and their respective market shares.” *Sysco Corp.*, 113 F. Supp. 3d at 52 (citing Merger Guidelines § 5.3). Complaint Counsel has failed to meet its burden to show the relevant market is limited to chloride-process TiO₂ sold in the United States and Canada. When measured against a global market for rutile TiO₂, the proposed transaction does not raise any market-concentration concerns. *See* Respondents’ proposed Factual Findings ¶ 453. The FTC’s economic expert testified that he believes that calculating market shares on a global basis would result in concentration numbers that “would be lower” than those he calculated for his proposed North American market; the combined company would have a market share of 20.1 percent. *See* Respondents’ proposed Factual Findings ¶ 459. The market shares presented by Complaint Counsel are nowhere near “the closest available approximation” set forth by *FTC v. PPG Indus.*, 798 F. 2d 1500, 1505 (D.C. Cir. 1986).

24. Complaint Counsel introduced market share evidence based on sales revenues in the North American market for chloride TiO₂. “Revenues in the relevant market tend to be the best measure of attractiveness to customers, since they reflect the real-world ability of firms to surmount all of the obstacles necessary to offer products on terms and conditions that are attractive to customers.” *Horizontal Merger Guidelines*, §5.2.

Response to Conclusion No. 24:

It was inappropriate for Complaint Counsel to introduce market shares based on sales revenues in the “North American” market for chloride TiO₂, because the relevant market for analysis is worldwide sales of rutile TiO₂. *See* Respondents’ Replies to Complaint Counsel’s proposed Conclusions of Law ¶¶ 12-23.

25. Courts employ a statistical measure called the Herfindahl-Hirschman Index (HHI) to measure market concentration. *See, e.g., Heinz*, 246 F.3d at 716. This index calculates

market concentration by summing the squares of the individual market share of each market participant. *See Sysco*, 113 F. Supp. 3d at 52. Under the *Horizontal Merger Guidelines*, a merger is presumptively unlawful if it increases the HHI by more than 200 points and results in a post-merger HHI exceeding 2,500. *Merger Guidelines* § 5.3; *see also Heinz*, 246 F.3d at 716-17; *Sysco*, 113 F. Supp. 3d at 52; *Staples*, 970 F. Supp. at 1081-82.

Response to Conclusion No. 25:

Respondents have no specific response.

26. Evidence presented at the hearing indicates that Tronox's proposed acquisition of Cristal would increase the HHI in the market for North American chloride process TiO₂ by more than 600 points. It would result in a post-merger HHI in excess of 3,100 and a post-merger market share of greater than 30%. Therefore, the merger is presumed "likely to enhance market power," unless "rebutted by persuasive evidence." *See Heinz*, 246 F.3d at 716-17 (HHI increase of 510 points creates presumption of harm "by a wide margin").

Response to Conclusion No. 26:

It was inappropriate for Complaint Counsel to introduce market shares based on sales revenues in the "North American" market for chloride TiO₂, because the relevant market for analysis is worldwide sales of rutile TiO₂. *See Respondents' Replies to Complaint Counsel's proposed Conclusions of Law ¶¶ 12-23.*

27. The market shares and HHI levels here are comparable to the levels found to be unlawful by courts. In *FTC v. University Health, Inc.*, 938 F.2d 1206, 1219 (11th Cir. 1991), the court found that the FTC had "clearly established a *prima facie* case of anticompetitive effect" when it proved that a merger of two nonprofit hospitals would have reduced the number of competitors from five to four and resulted in a combined share of about 43 percent, an increase in HHI of over 630, and a post-merger HHI of 3200. *Univ. Health Inc.*, 938 F.2d at 1211 n.12, 1219. They far exceed levels that the Commission has found unlawful. *See Hosp. Corp. of Am. v. FTC*, 807 F. 2d. 1381 (7th Cir. 1986) (upholding Commission decision finding Section 7 violation where two acquisitions reduced number of competitors from 11 to 7, and increased the HHI to 2300); *In re The B.F. Goodrich Co.*, 1988 Lexis 16, at *66 (F.T.C. Mar. 15, 1988) (acquisition led to increase in HHI of 200-300 points, to just over 1600 at the highest, and Commission concluded that "the concentration data create a relatively strong presumption of anticompetitive effects").

Response to Conclusion No. 27:

It was inappropriate for Complaint Counsel to introduce market shares based on sales revenues in the “North American” market for chloride TiO₂, because the relevant market for analysis is worldwide sales of rutile TiO₂. *See* Respondents’ Replies to Complaint Counsel’s proposed Conclusions of Law ¶¶ 12-23. Nevertheless, the same conclusion would hold even if Complaint Counsel were able to prove the relevant market is limited to sales to customers in the United States. Section 5.2 of the Merger Guidelines explains that in a commodity market, market share should be calculated based on capacity readily available to serve the market. That capacity is global in this case, not limited to North America. *See* Respondents proposed Factual Findings ¶¶ 452-53. This principle recognizes that buyers would adjust their sources of supply in response to a price increase by the combined firm. Although Complaint Counsel’s economist made no effort to propose an alternative to the alleged North American market, he conceded that market concentration almost certainly would not be problematic in a global TiO₂ market. *See* Respondents’ proposed Factual Findings ¶¶ 455, 458 (Hill, Tr. 1946, 1948). The Court should conclude that Complaint Counsel’s calculation of market shares, even if they were the proper shares to calculate for this case, are not indicative of likely anticompetitive effects from the merger. Therefore, a presumption of anticompetitive effects based on market concentration does not satisfy Complaint Counsel’s burden of proof to establish a violation of Clayton Act Section 7.

E. THE ACQUISITION WOULD SUBSTANTIALLY LESSEN COMPETITION

28. Complaint Counsel has offered substantial evidence of anticompetitive effects resulting from the merger, any of which would independently mandate a finding against Respondent as a matter of law. The Acquisition violates Section 7 of the Clayton Act because “the effect of such acquisition may be substantially to lessen competition or to tend to create a monopoly.” 15 U.S.C. § 18.

Response to Conclusion No. 28:

“Analysis of the likely competitive effects of a merger requires [a determination] of . . . the transaction’s probable effect on competition in the relevant product and geographic markets.”

Arch Coal, 329 F. Supp. 2d at 117. “[A]ntitrust theory and speculation cannot trump facts, and . . . cases must be resolved on the basis of the record evidence relating to the market and its probable future.” *Id.* at 116-117. Therefore, Complaint Counsel cannot “simply [make] conclusory allegations that . . . the merger will significantly limit competition without any evidence.” *Advocacy Org. for Patients & Providers v. Mercy Health Servs.*, 987 F. Supp. 967, 974 (E.D. Mich. 1997). Rather, they must show “anticompetitive effects . . . that will result from the merger.” *Id.* Moreover, Complaint Counsel has the burden of presenting *reliable* economic data to prove its case, and Respondents have demonstrated that the data proffered by its economic expert is in fact unreliable. *See* Respondents’ proposed Factual Findings ¶¶ 609-737.

i. The Acquisition Increases the Likelihood of Coordination Among TiO₂ Competitors

29. Merger law “rests upon the theory that, where rivals are few, firms will be able to coordinate their behavior, either by overt collusion or implicit understanding, in order to restrict output and achieve profits above competitive levels.” *Heinz*, 246 F.3d at 715 (internal quotation marks omitted). Coordination includes conduct ranging from outright (unlawful) collusion, to tacit (lawful) coordination, to “parallel accommodating conduct,” which “includes situations in which each rival’s response to competitive moves made by others is individually rational... but nevertheless emboldens price increases and weakens competitive incentives to reduce prices.” *Horizontal Merger Guidelines*, § 7.0. “Tacit coordination is feared by antitrust policy even more than express collusion, for tacit coordination, even when observed, cannot easily be controlled directly by the antitrust laws. It is a central object of merger policy to obstruct the creation or reinforcement by merger of such oligopolistic market structures in which tacit coordination can occur.” *Heinz*, 246 F.3d at 725 (emphasis added) (quoting 4 Phillip E. Areeda, Herbert Hovenkamp & John L. Solow, *Antitrust Law* ¶901b2, at 9 (rev. ed. 1998)).

Response to Conclusion No. 29:

The government must “put forward sufficient evidence to show more than a theoretical ‘possibility’ of coordination.” *AT&T*, 310 F. Supp. 3d at 246. Because “Section 7 involves probabilities, not certainties or possibilities,” Complaint Counsel must show that it is not only possible, but more likely than not, that the merger will “enabl[e] or encourag[e] post-merger coordinated interaction among firms in the relevant market that harms [consumers].” *Baker*

Hughes, 908 F.2d at 984; *FTC v. OSF Healthcare Sys.*, 852 F. Supp. 2d 1069, 1086 (N.D. Ill.2012); *Oracle*, 331 F. Supp. 2d at 1109 (rejecting government claim where it had not proved that defendants “would likely engage in coordinated interaction”). Here, Complaint Counsel fell well short of its burden, having failed to offer any reliable evidence of post-merger coordination. Its expert, Dr. Hill, even admitted that his entire analysis of “coordination” does not even purport to find a type of coordination that would occur in the real world. See Respondents’ proposed Factual Findings ¶¶ 722-737. Coordination “describes the process, not in itself unlawful, by which firms in a concentrated market might in effect share monopoly power . . . by recognizing their shared economic interests and their interdependence with respect to price and output decisions.” *Brooke Grp Ltd v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993). Where the government asserts that coordinated effects will be likely posttransaction, the government must prove that such effects are probable. See *Baker Hughes*, 908 F.2d at 984; see also *Oracle*, 331 F. Supp. 2d at 1109 (rejecting Section 7 claim where government failed to prove that market participants “would likely engage in coordinated interaction” postmerger).

30. The evidence presented at the hearing indicates that the market for North American chloride TiO₂ is already highly concentrated, and the merger would significantly increase that concentration. High levels of concentration exacerbate the risk of coordination in the market. See *FTC v. Elders Grain, Inc.*, 898 F. 2d. 901, 905 (7th Cir. 1989) (acquisition from six to five makes it easier for leading members of the industry to collude on price and output); *FTC v. Univ. Health, Inc.*, 938 F.2d 1206, 1219 (11th Cir. 1991) (four remaining businesses could easily collude to raise price and decrease output without committing detectable violations of the Sherman Act).

Response to Conclusion No. 30:

Complaint Counsel’s coordination argument was focused on an abstract, theoretical possibility, and it presented no persuasive evidence at trial that coordination is likely to occur in this case. See Respondents Replies to Complaint Counsel’s proposed Conclusions of Law ¶¶ 31-32. Moreover, it is inappropriate for Complaint Counsel to analyze a “North American” market

for chloride TiO₂, because the relevant market for analysis is worldwide sales of rutile TiO₂.

See Respondents' Replies to Complaint Counsel's proposed Conclusions of Law ¶¶ 12-27.

Nevertheless, the same conclusion—the merger does not increase the likelihood of tacit coordination—holds true even if Complaint Counsel were able to prove the relevant market is limited to sales to customers in the United States.

31. In addition, the market for North American chloride TiO₂ is already vulnerable to, and shows a history of, coordination. Decisions in *Valspar Corp. v. E.I. du Pont de Nemours & Co.*, 873 F.3d 185 (3rd Cir. 2017) and *In Re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799 (D. Md. 2013), indicate likely previous coordination in the North American TiO₂ market. In *Valspar*, the Third Circuit stated: “There is no dispute that the [TiO₂] market was primed for anticompetitive interdependence and that it operated in that manner.” *Valspar*, 873 F.3d 185 at 197. Likewise, the District Court of Maryland held that “[t]he record contains ample evidence for concluding that the [d]efendants agreed to raise prices and shared commercially sensitive information . . . to facilitate their conspiracy.” *In re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799, 823 (2013).

Response to Conclusion No. 31:

Citations to *Valspar Corp. v. E.I. du Pont de Nemours & Co.*, 873 F.3d 185 (3rd Cir. 2017) and *In Re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799 (D. Md. 2013) are inappropriate and irrelevant. First, neither Respondent was a party in the *Valspar* decision, and Respondent Tronox was not a party to the *In Re Titanium Dioxide* litigation. Moreover, the passages on which Complaint Counsel relies are not *holdings* on coordinated effects in the TiO₂ industry. In *In re Titanium Dioxide*, Complaint Counsel's quoted language merely describes a disputed issue of material fact that precluded summary judgment. 959 F. Supp. 2d at 823. The decisions in *Valspar* specifically reject coordination, granting summary judgment in favor of DuPont and concluding that no reasonable jury could find “express collusion” in the industry. *Valspar Corp. v. E.I. Du Pont De Nemours*, 152 F. Supp. 3d 234, 248, 250, 252 (D. Del. 2016), *aff'd*, 873 F.3d 185. These courts were not even asked to rule on whether there was tacitly coordinated pricing or production among TiO₂ producers.

Complaint Counsel has quoted the *Valspar* decision—“There is no dispute that the [TiO₂] market was primed for anticompetitive interdependence and that it operated in that manner.”— out of context. This quotation misleads this Court in at least two respects. First, the *Valspar* court was merely observing that for purposes of granting *summary judgment* in favor of defendant DuPont, it must review the facts in the light most favorable to *Valspar*. *Valspar*, 873 F.3d at 190. No court made a factual finding that *Valspar*’s assertion was correct. Second, had the district court not granted summary judgment, defendants were prepared to show that the allegations were baseless; indeed, defendants argued that no overcharge existed at all (and they were merely not challenging the overcharge “for purposes of this [summary judgment] motion”). *Valspar*, 152 F. Supp. 3d at 243.

Complaint Counsel’s citation of these cases is also factually inapposite. The decisions concerned conduct beginning in 2001 and ending in 2013 involving a program developed through the Titanium Dioxide Manufacturers Association (“TDMA”), a European trade association. *Valspar*, 873 F.3d at 190. That program involved the blind aggregation of producer production, inventory, and sales volumes on a confidential basis, and the dissemination of the aggregated information. *Valspar*, 152 F. Supp. 3d at 238, 245. The plaintiffs alleged that this statistics program helped TiO₂ producers coordinate public price increase announcements. While the Third Circuit ultimately rejected the argument that this program was unlawful, it is worth noting that the program has not existed since 2013. *Valspar*, 873 F.3d at 190 (“*Valspar* claims the conspiracy ended in late 2013 when DuPont exited the TDMA.”)

32. As the Seventh Circuit explained in *FTC v. Elders Grain, Inc.*, “an acquisition which reduces the number of significant sellers in a market already highly concentrated and prone to collusion by reason of its history and circumstances is unlawful *in the absence of special circumstances*.” 868 F.2d 901, 906 (1989) (emphasis added). See *H&R Block*, 833 F. Supp. 2d at 54 (“highly persuasive historical act of cooperation” demonstrates that parties are capable of acting in concert); *In re Autoparts Antitrust Litigation*, 29 F. Supp.

3d 982 (E.D. Mich. 2014) (“the length of the conspiracy alleged and the existence of market conditions conducive to antitrust conduct” supports a cognizable danger of recurrent violation).

Response to Conclusion No. 32:

Complaint Counsel’s citation to *Elders Grain* is irrelevant because Complaint Counsel failed to proffer any evidence—much less *prove*—that the TiO₂ industry is “a market already highly concentrated and prone to collusion by reason of its history and circumstances.” *See* Respondents’ Reply to Complaint Counsel’s Proposed Conclusion ¶31.

33. Evidence presented at the hearing likewise demonstrates that the market for chloride TiO₂ sales to North American customers is transparent and that Tronox, Cristal, and other TiO₂ producers selling in North America have access to and use information regarding competitors’ pricing and supply proposals. The evidence also establishes that the suppliers recognize their interdependence in the market. These major suppliers likewise provide significant information related to pricing decisions, projections, production levels, capacity utilization, and TiO₂ inventories during regular earnings calls. Such regularly shared information makes competitive initiatives and decisions more transparent and predictable to other producers, and further serves to make the relevant market even more vulnerable to coordination. *See CCC Holdings*, 605 F. Supp. 2d at 61, 62, 65; *Merger Guidelines* § 7.2; *In re Delta/AirTran Baggage Fee Antitrust Litigation*, 733 F. Supp. 2d 1348, 1360 (N.D. Ga. 2010) (“Plaintiffs need not allege the existence of collusive communications in “smoke-filled rooms” in order to state a § 1 Sherman Act claim. Rather, such collusive communications can be based upon circumstantial evidence and can occur in speeches at industry conferences, announcements of future prices, statements on earnings calls, and in other public ways.”).

Response to Conclusion No. 33:

The Tronox-Cristal transaction does not increase the likelihood of coordinated effects in the TiO₂ industry because it decreases transparency in the market and increases the diversity of incentives in the relevant market, which do not suggest an increased likelihood of coordinated interaction among suppliers post-merger. The varied incentives and cost structures of suppliers in the TiO₂ industry, as well as the lack of transparency regarding actual pricing and output, render any potential effort to coordinate pricing or production behavior extremely difficult to conceive, monitor, and enforce. The evidence of what actually happens in the market is

inconsistent with coordination. Instead, by expanding capacity, lowering the costs of production and expansion, and increasing the extent of vertical integration, the proposed transaction creates even greater diversity in incentives and further reduces transparency in the cost structure and incentives of the post-transaction entity. *See* Respondents’ proposed Factual Findings ¶¶ 709-737.

i. The Acquisition Increases the Likelihood of a Unilateral Reduction in Chloride TiO₂ Output

34. The combined firm would have not only the means to hold back chloride TiO₂ from sales to North American customers, but also would have the incentive to suppress output unilaterally. *See United States v. Rockford Mem’l Corp.*, 717 F. Supp. 1251, 1279 (N.D. Ill. 1989), *aff’d*, 898 F.2d 1278 (7th Cir. 1990). Unlike coordinated effects, unilateral output suppression assumes no cooperation from competing suppliers.

Response to Conclusion No. 34:

The evidence demonstrates no incentive for the combined company to decrease production unilaterally. *See* Respondents’ proposed Factual Findings ¶¶ 730-734. “[O]rdinary course-of-business documents, including those generated by the defendants,” can be probative of whether a proposed merger is likely to result in competitive harm. But as with any other piece of documentary evidence, assessing the probative value of defendants’ own documents and statements requires an examination of the context, circumstances, and foundation of the proffered evidence.” *AT&T*, 310 F. Supp. 3d at 204. However, “a trial by slide deck leaves much to be desired!” *Id.* at 208. “[C]areful consideration should be given to to the views of individuals whose responsibilities, expertise, and experience relating to the issues in question provide particular indicia of reliability.” *Horizontal Merger Guidelines* § 2.2.1.

Complaint Counsel claims that the merged firm would reduce its output of TiO₂, but evidence shows exactly the opposite—the merged firm plans to *increase* its production after the transaction. *See* Respondents’ proposed Factual Findings ¶¶ 121-130. Complaint Counsel did

not present any credible testimony or data indicating that the merged firm planned to decrease its production of TiO₂ after the transaction. Furthermore, prior instances where Tronox has temporarily reduced its production were not attempts to influence price, but instead due to mechanical issues, regular maintenance, or weak market conditions and unsustainable financial positions. *See* Respondents' proposed Factual Findings ¶¶ 544-565. Furthermore, the commercial realities of TiO₂ production incentivize producers to run their plants "flat out." *See* Respondents' proposed Factual Findings ¶¶ 572-91. The Court should conclude that Complaint Counsel's failure to present any credible evidence of anticompetitive effects in its alleged relevant market is fatal to its case as to that alleged relevant market. *See Oracle*, 331 F. Supp. 2d at 1172.

35. The *Merger Guidelines* explain that "[a] unilateral output suppression strategy is more likely to be profitable when (1) the merged firm's market share is relatively high; (2) the share of the merged firm's output already committed for sale at prices unaffected by the output suppression is relatively low; (3) the margin on the suppressed output is relatively low; (4) the supply responses of rivals are relatively small; and (5) the market elasticity of demand is relatively low." *Merger Guidelines* §6.3. Evidence presented at the hearing indicates all of these conditions are met here.

Response to Conclusion No. 35:

Complaint Counsel's citation to this Merger Guideline is irrelevant because it has failed to establish any of the requisite foundational facts in order for it to apply. Complaint Counsel has failed to connect its blanket statement and citation to the Merger Guidelines to the factual record. *See also* Respondents' Reply to Complaint Counsel's proposed Conclusion of Law ¶34.

F. RESPONDENTS CANNOT REBUT THE STRONG PRESUMPTION OF ILLEGALITY OR COMPLAINT COUNSEL'S SHOWING OF LIKELY COMPETITIVE HARM

36. Respondents have the burden to rebut the presumption of illegality by "produc[ing] evidence that 'show[s] that the market-share statistics [give] an inaccurate account of the [merger's] probable effects on competition' in the relevant market." *Heinz*, 246 F.3d at 715 (alterations in original) (quoting *United States v. Citizens & S. Nat'l Bank*, 422 U.S. 86, 120 (1975)).

Response to Conclusion No. 36:

The burden to demonstrate Respondents' synergies only shifts to Respondents after Complaint Counsel has established an affirmative case that the merger would likely produce anticompetitive effects, which it has failed to do. Nevertheless, the transaction will result in verified, merger-specific synergies that will increase TiO₂ output, benefitting consumers. Complaint Counsel has not rebutted these synergies—because it cannot do so.

The proposed transaction is pro-competitive because it will expand output and make the parties' TiO₂ plants more competitive in an already competitive marketplace. *See* Respondents' proposed Factual Findings ¶¶ 100, 219-21. Combining the two companies' feedstock and TiO₂-producing capabilities will create greater vertical integration, leading to lower costs, expanded output, and lower pricing. *See* Respondents' proposed Factual Findings ¶¶ 101(b), 102, 219-20. The transaction presents important and procompetitive opportunities to increase production at Cristal's plants. *See* Respondents' proposed Factual Findings ¶¶ 131, 133, 161. Increasing output will allow the combined company to move "towards the lower cost end of the curve" which will "enable the merged entity to more effectively compete against Chemours and other low-cost producers like the Chinese." *See* Respondents' proposed Factual Findings ¶ 219.

The achieved synergies are "merger specific," i.e., they not would occur if the transaction was blocked. *See* Respondents' proposed Factual Findings ¶¶ 131, 133, 161. The planned enhanced output of TiO₂ production posttransaction at Yanbu is a merger-specific synergy that will benefit customers by increasing TiO₂ pigment available in the market. *See* Respondents' proposed Factual Findings ¶ 127. The proposed transaction therefore will enhance TiO₂ output by lending Tronox's particular expertise to the Yanbu plant, increasing that facility's production and succeeding where Cristal's many attempts at output enhancement have failed. Likewise,

Tronox will make the Jazan slagger operational. *See* Respondents’ proposed Factual Findings ¶¶ 115, 181-86, 193-94, 211.

In the event that the Court finds Complaint Counsel’s anticompetitive effects arguments persuasive, it should conclude that any anticompetitive effects are far outweighed by the pro-competitive synergies achieved by the proposed transaction.

37. Respondents’ burden is heavy, given the strength of Complaint Counsel’s *prima facie* case. The stronger the *prima facie* case, the more evidence defendants must present to rebut the established presumption. *See Sysco*, 113 F. Supp. 3d at 23.

Response to Conclusion No. 37:

Complaint Counsel has failed to make out a *prima facie* case of anticompetitive effects. Nevertheless, even in cases where Complaint Counsel successfully makes out a *prima facie* case, “because the burden of persuasion ultimately lies with [Complaint Counsel], the burden to rebut must not be ‘unduly onerous.’” *United States v. Anthem, Inc.*, 855 F.3d 345, 350 (D.C. Cir. 2017) (quoting *Baker Hughes*, 908 F.2d at 991).

38. Respondents therefore needed to demonstrate “structural barriers,” unique to this industry, that are sufficient to defeat the “ordinary presumption of collusion” that attaches to a merger in a highly concentrated market. *Heinz*, 246 F.3d at 725.” Instead, however, the significant evidence of potential competitive harm presented at the hearing corroborates the competitive concerns that are at the core of the presumption.

Response to Conclusion No. 38:

Complaint Counsel has failed to offer evidence—much less *prove*—that this is a highly concentrated market. Nevertheless, the Tronox-Cristal transaction does not increase the likelihood of coordinated effects in the TiO₂ industry because it decreases transparency in the market and increases the diversity of incentives in the relevant market, which do not suggest an increased likelihood of coordinated interaction among suppliers post-merger. The varied incentives and cost structures of suppliers in the TiO₂ industry, as well as the lack of

transparency regarding actual pricing and output, render any potential effort to coordinate pricing or production behavior extremely difficult to conceive, monitor, and enforce. The evidence of what actually happens in the market is inconsistent with coordination. Instead, by expanding capacity, lowering the costs of production and expansion, and increasing the extent of vertical integration, the proposed transaction creates even greater diversity in incentives and further reduces transparency in the cost structure and incentives of the post-transaction entity. See Respondents' proposed Factual Findings ¶¶ 709-737.

i. Respondents Cannot Show That Entry or Expansion by Other Firms Will Counteract the Anticompetitive Effects of the Transaction

39. Respondents "carry the burden to show that ease of expansion is sufficient 'to fill the competitive void that will result if [defendants are] permitted to purchase' their acquisition target." *H&R Block*, 833 F. Supp. 2d at 73 (alterations in original) (quoting *Swedish Match*, 131 F. Supp. 2d at 169); see also *Staples*, 970 F. Supp. at 1086. Indeed, it is not enough that entry or expansion would replace "some of the competition" lost to the Merger. See *Swedish Match*, 131 F. Supp. 2d at 170 (emphasis added). Prospective "entry into the relevant market will alleviate concerns about adverse competitive effects only if such entry will deter or counteract any competitive effects of concern so the merger will not substantially harm customers." *Sysco*, 113 F. Supp. 3d at 80 (quoting *Merger Guidelines* § 9).

Response to Conclusion No. 39:

Respondents have carried their burden in demonstrating intense and growing competition from Chinese producers of TiO₂. To compete in this intense market, producers like Respondents must improve by lowering their cost position, and this transaction is a key aspect of Respondents' ability to remain competitive. See Respondents' proposed Factual Findings ¶¶ 24, 103, 463. The evidence shows that competition in the TiO₂ industry is fierce and that the ongoing threat of low-cost production from Chinese rivals threatens both Tronox and Cristal. See Respondents' proposed Factual Findings ¶¶ 386, 513, 463. The proposed transaction will allow the combined company to compete more effectively. See Respondents' proposed Factual Findings ¶ 21. Chinese expansion in the TiO₂ industry is real and unspeculative. The evidence

clearly shows that Chinese producers are significant and fierce competitors globally in the North American TiO₂ market and must be deemed, at least, to be “rapid entrants”— suppliers with “readily available ‘swing’ capacity currently used in adjacent markets that can easily and profitably be shifted to serve” North American customers. *See* Respondents’ proposed Factual Findings ¶¶ 23-25, 324, 467, 473, 480-87, 507, 516.

40. To meet their burden, Respondents must show that entry or expansion would be “timely, likely, and sufficient in its magnitude, character, and scope to deter or counteract the competitive effects of concern.” *H&R Block*, 833 F. Supp. 2d at 73 (quoting *Merger Guidelines* § 9); *see also CCC Holdings*, 605 F. Supp. 2d at 47.

Response to Conclusion No. 40:

If the Court is persuaded that anticompetitive effects exist, it should conclude that Respondents have met their burden to demonstrate that entry or expansion is “timely, likely, and sufficient in its magnitude, character, and scope to deter or counteract the competitive effects of concern.” *See* Respondents’ Reply to Complaint Counsel’s Proposed Conclusion of Law ¶39.

41. Evidence presented at the hearing indicates that entry by any new TiO₂ producer is unlikely. Moreover, expansion by producers based in China is unlikely to offset the competitive harms of the acquisition. Almost no chloride TiO₂ comes from China to the North American market. Indeed, the vast majority of production in China is sulfate TiO₂, which is outside the relevant market. “As with their other rebuttal arguments, Respondents bear the burden of demonstrating the ability of other distributors to ‘fill the competitive void’ that will result from the proposed merger.” *Sysco*, 113 F. Supp. 3d at 80). Respondents must show at least a “reasonable probability of sufficient entry.” *Chi. Bridge*, 534 F.3d at 430 n.10. *See also In re Chi. Bridge & Iron Co.*, 138 F.T.C. 1024, 1071 (2005) (“the mere fact that new entrants and fringe firms have an intent to compete does not necessarily mean that those firms are significant competitors capable of replacing lost competition”) And to the extent that uncertainty exists about potential future entry or expansion, “doubts are to be resolved *against* the transaction.” *FTC v. Elders Grain, Inc.*, 868 F.2d 901, 906 (7th Cir. 1989) (emphasis added) (citing *Phila. Nat’l Bank*, 374 U.S. at 362–63).

Response to Conclusion No. 41:

If the Court is persuaded that anticompetitive effects exist, it should conclude that Respondents have more than exceeded their burden to demonstrate that there is a “reasonable

probability of sufficient” entry of significant Chinese competition in the market—as the competition already exists and is rapidly growing. *See* Respondents’ Reply to Complaint Counsel’s Proposed Conclusion of Law ¶39.

i. Respondents’ Efficiencies Claims Do Not Rebut the Presumption of Illegality

42. Respondents bear the burden of proving cognizable efficiencies of a character and magnitude sufficient to ensure that the merger is not likely to be anticompetitive in any relevant market. *See H&R Block*, 833 F. Supp. 2d at 89; *Horizontal Merger Guidelines* § 10. Cognizable efficiencies must be merger-specific, verified, and not the result of anticompetitive reductions in output or service. *Horizontal Merger Guidelines* § 10. No court has ever relied on efficiencies to rescue an otherwise unlawful transaction. *See CCC Holdings*, 605 F. Supp. 2d at 72. Given the high market concentration levels in this case, Respondents need to present “proof of extraordinary efficiencies” to rebut the presumption of likely anticompetitive effects. *United States v. Aetna*, 240 F. Supp. 3d 1, 98 (D.D.C. 2017), *citing Heinz*, 246 F.3d at 72.

Response to Conclusion No. 42:

Respondents demonstrated throughout the trial that the proposed transaction’s substantial synergies are pro-competitive, will reduce fixed costs, are output-enhancing, are merger-specific, and were independently validated by a third-party. Complaint Counsel has failed to rebut the evidence on each of these facets related to the proposed transaction’s synergies. The Court should conclude that Respondents have established “proof of extraordinary efficiencies.” *See* Respondents’ Response to Complaint Counsel’s proposed Conclusion of Law ¶36; *see also* Respondents’ proposed Factual Findings ¶¶ 100-260.

43. Claimed efficiencies are not cognizable unless they are (1) “merger-specific,” and (2) “reasonably verifiable by an independent party.” *Staples II*, 190 F. Supp. 3d at 137 n. 15. Respondents must prove “merger-specificity and verifiability” of all claimed efficiencies. *Anthem*, 855 F.3d at 364; *see also Heinz*, 246 F.3d at 722.

Response to Conclusion No. 43:

Respondents demonstrated throughout the trial that the proposed transaction’s substantial synergies are pro-competitive, will reduce fixed costs, are output-enhancing, are merger-specific,

and were independently validated by a third-party. Complaint Counsel has failed to rebut the evidence on each of these facets related to the proposed transaction's synergies. The Court should conclude that Respondents have established that its efficiencies are merger-specific and are reasonably viable by an independent third-party. *See* Respondents' Response to Complaint Counsel's proposed Conclusion of Law ¶¶36; *see also* Respondents' proposed Factual Findings ¶¶ 131-217, 239-254.

44. Respondents have failed to demonstrate that their claimed efficiencies are merger-specific because significant portions of their claimed cost savings appear to be achievable independent of the merger. *H&R Block*, 833 F. Supp. 2d at 90. Furthermore, most of the claimed efficiencies are out-of-market efficiencies, as they relate to products, sales and operations outside of the relevant market. *See Horizontal Merger Guidelines* § 10 n.14.; *see also Phila. Nat'l Bank*, 374 U.S. 371 (1963) (rejecting claim anticompetitive merger would bring benefits outside the relevant market); *Anthem, Inc.*, 855 F.3d at 363-64 (rejecting savings claims that, among other "analytic flaws," were "unmoored from the actual market at issue").

Response to Conclusion No. 44:

The Court should conclude that Respondents have demonstrated that a substantial number of proposed transaction's efficiencies will be merger specific and will produce a procompetitive benefit in the global market of rutile TiO₂. *See* Respondents' Response to Complaint Counsel's proposed Conclusion of Law ¶¶36; *see also* Respondents' proposed Factual Findings ¶¶ 131-217

45. To be verifiable, the claimed efficiencies require "clear evidence showing that the merger will result in efficiencies that will offset the anticompetitive effects and ultimately benefit consumers." *Penn State Hershey*, 838 F.3d 327 at 350. It is incumbent upon Respondents "to substantiate efficiency claims" so that an independent party "can verify by reasonable means the likelihood and magnitude of each asserted efficiency . . . and why each would be merger specific." *Horizontal Merger Guidelines* § 10. Respondents have failed to substantiate their asserted efficiency claims because they rely heavily on assumptions and on the business judgment of Tronox executives, and as such, are not subject to reasonable verification. *See H&R Block*, 833 F. Supp. 2d at 91 ("While reliance on the estimation and judgment of experienced executives about costs may be perfectly sensible as a business matter, the lack of a verifiable method of factual analysis resulting in the cost estimates renders them not cognizable by the Court.")

Response to Conclusion No. 45:

Tronox and Cristal worked cooperatively and extensively to develop a “detailed synergy analysis” for the transaction synergies. In addition to the synergy analysis performed by Respondents and the broad due diligence performed internally at Tronox, Tronox hired KPMG as a third-party consultant in this case to evaluate the transaction and the synergies to be realized. KPMG engaged in an in-depth coordinated analysis with Tronox management to evaluate the potential synergies of the proposed acquisition. KPMG’s synergy assessment was relied upon and presented to banks in order to obtain financing for the transaction. KPMG assessed and pressure-tested the synergies, and it validated the synergies that Tronox had publicly communicated. KPMG drafted a comprehensive 120-page report containing its findings from the due diligence process that it undertook around January 2017 and “put their stamp of approval” on Tronox’s synergies. KPMG had a strong level of confidence that . . . Tronox could deliver these estimated synergies.

The Court should conclude that there is clear evidence showing that the merger will result in efficiencies that will offset any potential anticompetitive effects and ultimately will benefit consumers.

46. Further, Respondents must demonstrate that “the projected savings from the merger are enough to overcome the evidence showing that possibly greater benefits can be achieved by the public through existing, continued competition.” *United States v. Aetna*, 240 F. Supp. 3d 1, 98 (D.D.C. 2017), quoting *Sysco*, 113 F. Supp. 3d at 86.

Response to Conclusion No. 46:

The transaction will allow Tronox to vertically integrate and move toward the lower end of the industry cost curve, which will enable the merged entity to more effectively compete against Chemours and other low-cost producers like the Chinese, ultimately benefiting customers. The cost-saving efficiencies will also increase the incentives of the postmerger firm

to expand output and, as a result, cause an incentive to supply more to its customers. The \$200 million in cost savings will partly result from increasing the output of TiO₂. The transaction will also generate supply chain savings, which will allow Tronox to reduce the price it pays because of the scale of purchases it will be making, which will in turn allow the combined Tronox-Cristal to get a greater volume purchase discount than either company currently enjoys. Ultimately, a substantial portion of these savings will be passed on to customers. *See* Respondents' proposed Factual Findings ¶¶ 218-26. The Court should conclude that Respondents have demonstrated that the proposed transaction will generate substantial cost-saving efficiencies that are greater than any benefits achieved by the public absent the merger.

47. Here, Respondents have failed to demonstrate proof of cognizable extraordinary efficiencies sufficient to rebut evidence of probable anticompetitive effects. Nor have Respondents presented any evidence that the claimed efficiencies would benefit customers. *FTC v. Univ. Health, Inc.*, 938 F.2d 1206, 1223 (11th Cir. 1991); *CCC Holdings*, 605 F. Supp. 2d at 74.

Response to Conclusion No. 47:

The Court should conclude that Respondents have demonstrated proof of cognizable extraordinary efficiencies to rebut any evidence of anticompetitive effects and that these efficiencies will benefit customers.

G. REQUESTED RELIEF

48. Complaint Counsel met its burden of proof in support of Count I and Count II of the Complaint.

Response to Request 48:

Complaint Counsel has failed to meet its burden of proof to establish a Section 7 violation related to Counts I and II of the Complaint.

49. Once Complaint Counsel has established a violation of Section 7, "all doubts as to the remedy are to be resolved in its favor." *United States v. E.I. du Pont de Nemours & Co.*, 366 U.S. 316, 334 (1961).

Response to Request 49:

The Court should not resolve any questions of remedy in Complaint Counsel's favor because Complaint Counsel has failed to meet its burden of proof to establish a Section 7 violation related to Counts I and II of the Complaint.

50. The Commission has broad discretion to select a remedy so long as it bears a "reasonable relation to the unlawful practice found to exist." *Jacob Siegel Co. v. FTC*, 327 U.S. 608, 611-13 (1946).

Response to Request 50:

The Commission enjoys no discretion to select a remedy in this case because Complaint Counsel has failed to meet its burden of proof to establish a Section 7 violation related to Counts I and II of the Complaint.

51. The proper remedy is an Order prohibiting any transaction between Tronox and Cristal pursuant to the Transaction Agreement between Tronox and Cristal.

Response to Request 51:

Because Complaint Counsel has failed to meet its burden of proof to establish a Section 7 violation related to Counts I and II of the Complaint, the Court should conclude that the proposed transaction does not violate Section 7, and it should accordingly dismiss the complaint with prejudice.

52. The Order entered hereinafter is necessary and appropriate to remedy the violations of law found to exist.

Response to Request 52:

Because Complaint Counsel has failed to meet its burden of proof to establish a Section 7 violation related to Counts I and II, no order of remedy in favor of Complaint Counsel is necessary or appropriate, because there are no violation of law found to exist.

Respectfully submitted,

Dated: September 10, 2018

/s/ Michael F. Williams, P.C.
Michael F. Williams, P.C.
Matthew J. Reilly, P.C.
Karen McCartan DeSantis
Andrew Pruitt
Megan Wold
KIRKLAND & ELLIS LLP
655 Fifteenth Street, N.W.
Suite 1200
Washington, D.C. 2005
(202) 879-5000
(202) 879-5200 (facsimile)
michael.williams@kirkland.com
matt.reilly@kirkland.com
karen.desantis@kirkland.com
andrew.pruitt@kirkland.com
megan.wold@kirkland.com

ATTORNEYS FOR TRONOX LIMITED

James L. Cooper
Peter J. Levitas
Ryan Z. Watts
ARNOLD & PORTER KAYE SCHOLER
LLP
601 Massachusetts Avenue, NW
Washington, D.C. 20001-3743
(202) 942-5000
(202) 942-5999 (facsimile)
james.cooper@arnoldporter.com
peter.levitas@arnoldporter.com
ryan.watts@arnoldporter.com

**ATTORNEYS FOR NATIONAL
INDUSTRIALIZATION COMPANY
(TASNEE), THE NATIONAL
TITANIUM DIOXIDE COMPANY
LIMITED (CRISTAL), AND CRISTAL
USA INC.**

CERTIFICATE OF SERVICE

I hereby certify that on September 10, 2018, I filed the foregoing document electronically using the FTC's E-Filing System, which will send notification of such filing to:

Donald S. Clark
Secretary
Federal Trade Commission
600 Pennsylvania Ave., NW, Rm. H-113
Washington, DC 20580
ElectronicFilings@ftc.gov

The Honorable D. Michael Chappell
Administrative Law Judge
Federal Trade Commission
600 Pennsylvania Ave., NW, Rm. H-110
Washington, DC 20580

I also certify that I caused the foregoing document to be served via email to:

Chuck Loughlin
Dominic Vote

James L. Cooper
Seth Wiener

Federal Trade Commission
600 Pennsylvania Ave. NW
Washington, DC 20580
cloughlin@ftc.gov
dvote@ftc.gov

Arnold & Porter Kaye Scholer LLP
601 Massachusetts Ave, NW
Washington DC 20001
james.cooper@arnoldporter.com
seth.wiener@arnoldporter.com
carlamaria.mata@arnoldporter.com

Counsel Supporting Complaint

Counsel for Respondents National Industrialization Company (TASNEE), The National Titanium Dioxide Company Limited (Cristal), and Cristal USA, Inc.

/s/ Michael F. Williams
Michael F. Williams

Counsel for Respondents Tronox Limited

CERTIFICATE FOR ELECTRONIC FILING

I certify that the electronic copy sent to the Secretary of the Commission is a true and correct copy of the paper original and that I possess a paper original of the signed document that is available for review by the parties and the adjudicator.

September 10, 2018

By: /s/ Michael F. Williams
Michael F. Williams

Notice of Electronic Service

I hereby certify that on September 11, 2018, I filed an electronic copy of the foregoing Respondents' Replies to Complaint Counsel's Post-Trial Proposed Findings of Fact & Concl. of Law - Redacted, with:

D. Michael Chappell
Chief Administrative Law Judge
600 Pennsylvania Ave., NW
Suite 110
Washington, DC, 20580

Donald Clark
600 Pennsylvania Ave., NW
Suite 172
Washington, DC, 20580

I hereby certify that on September 11, 2018, I served via E-Service an electronic copy of the foregoing Respondents' Replies to Complaint Counsel's Post-Trial Proposed Findings of Fact & Concl. of Law - Redacted, upon:

Seth Wiener
Arnold & Porter Kaye Scholer LLP
seth.wiener@apks.com
Respondent

Matthew Shultz
Arnold & Porter Kaye Scholer LLP
matthew.shultz@apks.com
Respondent

Albert Teng
Arnold & Porter Kaye Scholer LLP
albert.teng@apks.com
Respondent

Michael Williams
Kirkland & Ellis LLP
michael.williams@kirkland.com
Respondent

David Zott
Kirkland & Ellis LLP
dzott@kirkland.com
Respondent

Matt Reilly
Kirkland & Ellis LLP
matt.reilly@kirkland.com
Respondent

Andrew Pruitt
Kirkland & Ellis LLP
andrew.pruitt@kirkland.com
Respondent

Susan Davies
Kirkland & Ellis LLP
susan.davies@kirkland.com
Respondent

Michael Becker
Kirkland & Ellis LLP
mbecker@kirkland.com
Respondent

Karen McCartan DeSantis
Kirkland & Ellis LLP
kdesantis@kirkland.com
Respondent

Megan Wold
Kirkland & Ellis LLP
megan.wold@kirkland.com
Respondent

Michael DeRita
Kirkland & Ellis LLP
michael.derita@kirkland.com
Respondent

Charles Loughlin
Attorney
Federal Trade Commission
cloughlin@ftc.gov
Complaint

Cem Akleman
Attorney
Federal Trade Commission
cakleman@ftc.gov
Complaint

Thomas Brock
Attorney
Federal Trade Commission
TBrock@ftc.gov
Complaint

Krishna Cerilli
Attorney
Federal Trade Commission
kcerilli@ftc.gov
Complaint

Steven Dahm
Attorney
Federal Trade Commission
sdahm@ftc.gov
Complaint

E. Eric Elmore
Attorney
Federal Trade Commission
eelmore@ftc.gov
Complaint

Sean Hughto
Attorney

Federal Trade Commission
shughto@ftc.gov
Complaint

Joonsuk Lee
Attorney
Federal Trade Commission
jlee4@ftc.gov
Complaint

Meredith Levert
Attorney
Federal Trade Commission
mlevert@ftc.gov
Complaint

Jon Nathan
Attorney
Federal Trade Commission
jnathan@ftc.gov
Complaint

James Rhilinger
Attorney
Federal Trade Commission
jrhilinger@ftc.gov
Complaint

Blake Risenmay
Attorney
Federal Trade Commission
brisenmay@ftc.gov
Complaint

Kristian Rogers
Attorney
Federal Trade Commission
krogers@ftc.gov
Complaint

Z. Lily Rudy
Attorney
Federal Trade Commission
zrudy@ftc.gov
Complaint

Robert Tovsky
Attorney
Federal Trade Commission
rtovsky@ftc.gov
Complaint

Dominic Vote
Attorney
Federal Trade Commission
dvote@ftc.gov
Complaint

Cecelia Waldeck

Attorney
Federal Trade Commission
cwaldeck@ftc.gov
Complaint

Katherine Clemons
Associate
Arnold & Porter Kaye Scholer LLP
katherine.clemons@arnoldporter.com
Respondent

Eric D. Edmondson
Attorney
Federal Trade Commission
eedmondson@ftc.gov
Complaint

David Morris
Attorney
Federal Trade Commission
DMORRIS1@ftc.gov
Complaint

Zachary Avallone
Kirkland & Ellis LLP
zachary.avallone@kirkland.com
Respondent

Rohan Pai
Attorney
Federal Trade Commission
rpai@ftc.gov
Complaint

Rachel Hansen
Associate
Kirkland & Ellis LLP
rachel.hansen@kirkland.com
Respondent

Peggy D. Bayer Femenella
Attorney
Federal Trade Commission
pbayer@ftc.gov
Complaint

Grace Brier
Kirkland & Ellis LLP
grace.brier@kirkland.com
Respondent

Alicia Burns-Wright
Attorney
Federal Trade Commission
aburnswright@ftc.gov
Complaint

Janet Kim
Attorney

Federal Trade Commission
jkim3@ftc.gov
Complaint

Andrew Pruitt
Attorney