

**UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION**

**COMMISSIONERS: Maureen Ohlhausen, Acting Chairman
 Terrell McSweeney**

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

REDACTED PUBLIC VERSION

COMPLAINT

Pursuant to the provisions of the Federal Trade Commission Act (“FTC Act”), and by virtue of the authority vested in it by the FTC Act, the Federal Trade Commission (“Commission”) having reason to believe that Respondents Tronox Limited (“Tronox”) and National Titanium Dioxide Company Limited (“Cristal”) have executed a merger agreement in violation of Section 5 of the FTC Act, 15 U.S.C. § 45, which if consummated would violate Section 7 of the Clayton Act, as amended, 15 U.S.C. § 18, and Section 5 of the FTC Act, and it appearing to the Commission that a proceeding by it in respect thereof would be in the public interest, hereby issues its complaint pursuant to Section 5(b) of the FTC Act, 15 U.S.C. § 45(b), and Section 11(b) of the Clayton Act, 15 U.S.C. § 21(b), stating its charges as follows:

I. NATURE OF THE CASE

1. Tronox’s proposed acquisition of Cristal (the “Acquisition”) would combine two of the three largest producers of titanium dioxide (“TiO₂”) manufactured through the chloride process (“chloride TiO₂”) in the United States and Canada (“North America”). TiO₂ is an industrial chemical primarily used as a pigment to provide white color and opacity for architectural paints, industrial and automotive coatings, plastics, and other products. TiO₂ is

manufactured using either the chloride process, which comprises the vast majority of TiO₂ produced and purchased in North America, or the sulfate process (“sulfate TiO₂”).

2. The U.S. Court of Appeals for the Third Circuit recently characterized the TiO₂ industry as an “oligopoly” that is “dominated by a handful of firms” with “substantial barriers to entry.” Absent injunctive relief, two firms, Tronox and The Chemours Company (“Chemours”), would control the vast majority of chloride TiO₂ sales to North American customers and more than 80 percent of overall North American chloride TiO₂ manufacturing capacity. The proposed Acquisition would substantially increase concentration in an already concentrated market and would result in post-Acquisition market concentration levels for the sale of chloride TiO₂ to North American customers that exceed those presumed likely to result in anticompetitive effects under both the Federal Trade Commission and U.S. Department of Justice Horizontal Merger Guidelines (“Merger Guidelines”) and the relevant case law.

3. The Acquisition would substantially lessen competition in the North American market for chloride TiO₂ in at least two ways. First, the Acquisition would increase the likelihood of coordination in an already vulnerable oligopoly market with an extensive history of price-fixing litigation and settlements. It removes one of only a few remaining competitors; consolidates the overwhelming majority of North American chloride TiO₂ sales and production capacity in the hands of two large and disciplined TiO₂ companies, Tronox and Chemours; and enhances market transparency among the competitors that remain. Second, by doubling the size of Tronox’s North American chloride TiO₂ business, the Acquisition would increase the incentive and ability of Tronox—a company long focused on reducing or restricting supply as a means of stabilizing or propping up TiO₂ prices—to discipline its output to influence North American chloride TiO₂ supply and increase prices.

4. Following the announcement of the Acquisition in February 2017, market participants and observers recognized the potential anticompetitive impact of the Acquisition. Industry publication *ICIS Chemical Business* observed that “Tronox’s proposed acquisition of Cristal is the latest example of market consolidation that should lead to more price discipline in titanium dioxide.” Indeed, Tronox acknowledges that the Acquisition will prove beneficial to its competitors and the industry as a whole. Shortly after the transaction was announced, Tronox’s then-CEO wrote to competitor Huntsman’s CEO stating that “I am very happy that we are able to put [the Acquisition] together since I think it will be very good for [Tronox’s] shareholders – and if today’s market reaction is an indication, for yours, and Chemour’s and Kronos’ too.” Other major TiO₂ producers similarly acknowledged in investor presentations that the Acquisition is likely to lead to increased supply constraints and higher prices.

5. New entry or expansion by existing producers would not be timely, likely, or sufficient to counteract the anticompetitive effects of the Acquisition. In public statements, Tronox and other market participants consistently confirm the Third Circuit’s conclusion that the TiO₂ industry is characterized by “substantial barriers to entry.” Proprietary technology and the massive investment required render de novo entry in the North American chloride TiO₂ market unlikely. As Tronox noted during an earnings call, “running TiO₂ plants is a capital-intensive undertaking” and mastering “complex, proprietary technology” remains a “major hurdle,” particularly for chloride TiO₂ plants. Expansion or repositioning by the remaining firms

sufficient to offset the Acquisition's anticompetitive effects is also unlikely. Over the last decade, more North American TiO₂ production capacity has been removed through plant and line closures than added by expansions. Nor are increases in TiO₂ imports or other adjustments in global TiO₂ trade flows likely to offset the anticompetitive effects of the Acquisition.

6. Respondents cannot show cognizable efficiencies that would offset the likely and substantial competitive harm from the Acquisition.

II. JURISDICTION AND VENUE

7. Respondents 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, and Section 1 of the Clayton Act, 15 U.S.C. § 12.

8. The Acquisition constitutes an acquisition subject to Section 7 of the Clayton Act, 15 U.S.C. § 18.

III. RESPONDENTS

9. Tronox is a publicly traded company incorporated in Australia and headquartered in Stamford, Connecticut. Tronox is a vertically integrated company that mines titanium ore and other minerals and manufactures and sells chloride TiO₂ pigment. In 2016, Tronox's TiO₂ business generated North American sales of approximately \$410 million. Tronox operates one TiO₂ pigment manufacturing plant in Hamilton, Mississippi, and two other plants in Botlek, the Netherlands, and Kwinana, Australia. All three plants produce exclusively chloride TiO₂. Tronox also operates titanium feedstock facilities, including mines and mineral processing plants, in South Africa and Australia that provide the raw materials needed to produce TiO₂ pigment.

10. TASNEE is a Saudi joint stock company headquartered in Riyadh, Saudi Arabia. It is the majority owner of Cristal and the ultimate parent entity of Cristal USA, Inc. TASNEE is the legal entity that filed, along with Tronox, a Premerger Notification and Report Form with the FTC and the Department of Justice for the Acquisition—pursuant to the Hart-Scott-Rodino Antitrust Improvement Act of 1976, 15 U.S.C. § 18a—and responded to the Request for Additional Information and Documentary Material from the FTC. Since a recent restructuring, TASNEE, through its Titanium Strategic Business Unit, has consistently supervised and intervened in the affairs of Cristal and Cristal USA.

11. Cristal, headquartered in Jeddah, Saudi Arabia, is a privately held company, owned 79% by TASNEE, 20% by Gulf Investment Corporation, and 1% by a private investor. Cristal USA is an agent and alter ego of Cristal. In 2016, Cristal, which produces and sells TiO₂, generated North American TiO₂ sales of approximately \$300 million. Cristal produces TiO₂ in Ashtabula, Ohio, and in the United Kingdom, Australia, Saudi Arabia, Brazil, China, and France. All of Cristal's TiO₂ production in North America, and 80% of its TiO₂ production overall, is chloride TiO₂. Cristal's remaining TiO₂ production is sulfate TiO₂. Cristal also owns titanium

feedstock facilities in Australia, Brazil, and Saudi Arabia. Cristal is a named party to the Acquisition agreement.

12. Cristal USA Inc., a Delaware corporation, operates a large chloride TiO₂ manufacturing complex in Ashtabula, Ohio, and a research facility outside Baltimore, Maryland. Cristal USA's management, including strategy, sales and marketing, is fully integrated into the management and operation of Cristal.

IV. THE ACQUISITION

13. 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.

V. BACKGROUND

A. Titanium Dioxide

14. TiO₂ is an essential pigment used to add whiteness, brightness, and opacity to paints, industrial and automotive coatings, plastics, and other specialty products. Primary customers include paint and coatings manufacturers and plastic producers, which account for approximately 60% and 25% of the TiO₂ consumed in North America, respectively. Paper and other specialty products, such as ink, food, cosmetics, and pharmaceuticals, use the remainder. For nearly all customers, there are no commercially reasonable substitutes for TiO₂.

15. TiO₂ is produced from titanium-containing ore through one of two manufacturing processes that extract the TiO₂ from the ore: (1) the chloride process that uses chlorine; and (2) the sulfate process that uses sulfuric acid. The chloride process is environmentally cleaner but technically more difficult to master and operate. The chloride process also generally produces higher quality TiO₂ with a bluer tint, compared to a yellower tint for TiO₂ manufactured from the sulfate process. Chloride TiO₂ is also more durable than sulfate TiO₂. The vast majority of TiO₂ sold to and consumed by North American customers, as well as produced in North America, is chloride TiO₂.

16. TiO₂ can also have two different crystal structures—rutile and anatase. Each has very different physical characteristics and applications and are not substitutes for each other for any use relevant to this matter. References in this Complaint to TiO₂ are to rutile TiO₂.

17. TiO₂ is delivered to customers by rail or truck. In North America, customers purchase TiO₂ either in a slurry form or a bagged dry powder form. TiO₂ slurry is made by dispersing TiO₂ powder in water with other additives. TiO₂ slurry is then delivered by rail cars or tank trucks and pumped directly to customers' storage tanks, which simplifies handling and manufacturing. TiO₂ slurry demand is much higher in North America than in other regions. Large paint and coatings manufacturers in North America generally purchase the majority of their TiO₂ in a slurry form while smaller coatings producers and plastics producers typically purchase TiO₂ in a bagged dry powder form. North American slurry is entirely made from chloride TiO₂.

B. Market Participants and Industry Dynamics

18. The North American TiO₂ industry is an oligopoly dominated by five major producers: Tronox, Cristal, Chemours, Kronos, and Venator. These companies produce and sell TiO₂ both in North America and in other regions. All North American production is chloride TiO₂ with the exception of a small Kronos-owned sulfate TiO₂ plant in Canada.

19. Chemours, a DuPont spin-off, is currently the largest TiO₂ company in North America and globally. Chemours has two plants in the United States, one in DeLisle, Mississippi and the other in New Johnsonville, Tennessee. Chemours also has plants in Mexico and Asia. Chemours' plants produce only chloride TiO₂.

20. 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 Westlake, Louisiana. Kronos also operates a TiO₂ plant in Canada and four plants in Europe. Venator, a Huntsman spin-off, operates six TiO₂ plants in Europe and one plant in Asia. While Venator is the second largest TiO₂ company in the world by capacity, its presence in North America—limited to half of the output of the joint venture plant in Louisiana—is the smallest among the five major North American producers. Outside of the United States, Kronos and Venator produce both chloride TiO₂ (rutile) and sulfate TiO₂ (rutile and anatase).

21. Beyond the major North American TiO₂ producers, there are smaller regional manufacturers of TiO₂, primarily located in Eastern Europe and Asia. The TiO₂ produced by these fringe manufacturers is virtually all sulfate TiO₂, is generally lower quality than that manufactured by the five major TiO₂ companies, and is mostly sold in local or regional markets outside North America. Over the last decade, producers in China have increased their exports of TiO₂, primarily into markets in Asia, South America, Europe, and the Middle East. Almost all Chinese TiO₂ has been lower quality sulfate TiO₂, and very little has been exported to North America. Similarly, although a few Chinese manufacturers have recently begun producing chloride TiO₂, their production has been limited, and only a very small amount has been imported to North America.

22. Over the past several years, there have been several civil antitrust suits brought in the United States alleging price fixing by the five major TiO₂ companies. Most recently, the Third Circuit Court of Appeals concluded that “[t]here is little doubt that this highly concentrated market for a commodity-like product with no viable substitutes and substantial barriers to entry was conducive to price fixing.” The Court went on to state that the major TiO₂ companies have already engaged in anticompetitive conduct, noting that “the market was primed for anticompetitive interdependence and that it operated in that manner,” and that such “oligopolistic conscious parallelism is by nature anticompetitive.” In a separate proceeding, in 2013, a federal district court in Maryland denied summary judgment for defendants, holding that “[t]he record contains ample evidence for concluding that the Defendants agreed to raise prices and shared commercially sensitive information . . . to facilitate their conspiracy.” That litigation concluded with the defendants paying a significant settlement.

23. Given relatively inelastic demand for chloride TiO₂, the major North American TiO₂ producers recognize that by limiting the supply of chloride TiO₂ available in North America they are better able to stabilize or increase North American TiO₂ prices. Several of these companies have curtailed or restricted their North American chloride TiO₂ output over the past several years to prop up prices. Tronox publicly stated in an earnings call that it manages or restricts production to support higher TiO₂ pricing and believes that the other major producers have done the same. Tronox and major North American chloride TiO₂ producers have curtailed output by temporarily idling production lines, lowering production rates, or permanently closing plants. They have also allowed chloride TiO₂ inventory to build up, exported North American production, and slowed or delayed production increases in an effort to increase or maintain higher prices.

24. In recent years, Tronox and Chemours have been particularly disciplined about their North American sales and production of TiO₂. In 2015, Tronox reduced production at its Hamilton, Mississippi facility by temporarily shutting down a line, and Chemours closed its Edge Moor plant in Delaware and shut down a production line at its New Johnsonville, Tennessee plant.

VI. RELEVANT MARKETS

25. The sale of chloride TiO₂ to North American customers is a relevant market. A hypothetical monopolist for the sale of chloride TiO₂ to North American customers would find it profit-maximizing to impose at least a small but significant and non-transitory increase in price (“SSNIP”). Virtually all TiO₂ customers have no viable substitutes for TiO₂. While various products and technologies can be used to reduce the amount of TiO₂ used by small percentages, they have limited applications and can degrade product performance.

A. Relevant Product Markets

26. The sale of chloride TiO₂ is a relevant product market. TiO₂ produced through the chloride process comprises the vast majority of TiO₂ sold, consumed, and produced in North America. Most North American customers purchasing chloride TiO₂, including virtually all of the largest customers, strongly prefer and buy chloride TiO₂ for its distinct characteristics, including its brighter tint and improved coverage and durability. Tronox stated during an earnings call 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.” Cristal recognizes that [REDACTED]

27. In order to switch to sulfate TiO₂, North American customers currently purchasing chloride TiO₂, including almost all coatings and plastics manufacturers, would need to reformulate their product lines and complete extensive testing to qualify the sulfate TiO₂, a process that would be costly and could take several years to complete. Consequently, despite significantly higher chloride TiO₂ prices in recent years, North American customers switching away from chloride to sulfate TiO₂ has been limited. As Tronox’s then-CEO told investors, “95%-98%, or some very, very high number [is] chloride in North America,” and “that was true

when [chloride] prices were over \$4,000 per ton,” substantially higher than sulfate prices at that time.

28. In addition to the TiO₂ differences due to the manufacturing process, TiO₂ also has two distinct crystal forms—rutile and anatase—that also impart different product characteristics to the TiO₂ and make them suitable for different end uses. Rutile TiO₂’s crystal structure creates a pigment that is durable, opaque, bright, and very white. Given these characteristics, rutile TiO₂ is used in architectural paints, industrial and automotive coatings, and plastics. Rutile TiO₂ can be produced using either the chloride or sulfate process. Because all chloride TiO₂ has a rutile crystal form, rutile TiO₂ comprises the vast majority of the commercially available TiO₂ in North America. In contrast, anatase TiO₂ is softer and less abrasive than rutile TiO₂, and is used for certain specialty applications such as ink, food, cosmetics, and pharmaceuticals. Anatase TiO₂ can only be manufactured through the sulfate process. Because of these performance differences, North American customers purchasing rutile TiO₂ do not consider anatase TiO₂ to be a substitute for rutile TiO₂, nor does the supply of anatase TiO₂ constrain rutile TiO₂ prices. Accordingly, the sale of rutile TiO₂ also constitutes a relevant product market in which to consider the effects of the Acquisition.

29. The relevant competitive dynamics in the North American rutile TiO₂ market are substantially similar to those in the North American chloride TiO₂ market. As a result, the Acquisition’s harmful impact on competition in a rutile TiO₂ market would be substantially similar to the competitive harm likely to occur in the chloride TiO₂ market.

B. Relevant Geographic Market

30. The relevant geographic market in which to assess the Acquisition’s effects is the sale of the relevant products to North American customers. A hypothetical monopolist supplier of the relevant products to North American customers would find it profit-maximizing to impose at least a SSNIP.

31. Tronox and Cristal, like the other major North American TiO₂ producers, analyze the industry by geographic regions—consistently treating North America as its own region—and engage in price discrimination, including by setting different prices for each geographic region. This reflects the market reality that supply and demand dynamics vary by region. For example, Tronox noted during an earnings call that there are “different prices in the regional markets in which [Tronox] do[es] business.”

32. When TiO₂ producers negotiate with a multinational customer, the customer’s prices typically vary by region. For example, a Tronox sales executive reacted to a customer’s attempt to leverage lower pricing in one region to obtain a price reduction in another by commenting that the customer [REDACTED]

33. Competitive conditions differ by region, and TiO₂ producers employ different pricing strategies for sales in the North American market than in other parts of the world. As a result, North American purchasers of TiO₂ face different prices and terms than other regions. Over the past several years, North American prices and margins have generally been higher and more stable than other regions.

34. Beyond pricing differences, North American purchasers of TiO₂ also have a number of distinct demand characteristics compared to TiO₂ purchasers in other regions. For example, most North American customers buy and strongly favor chloride TiO₂ for the vast majority of applications. In contrast, customer demand in other regions of the world is more split between sulfate and chloride. Shifting from chloride to sulfate TiO₂ is not commercially feasible for most North American customers. Notably, after acquiring a sulfate TiO₂ plant in 2000, Tronox's predecessor company closed it a few years later, specifically citing lack of North American demand for sulfate TiO₂. Another demand characteristic largely unique to North America is North American customers' preference for TiO₂ sold in slurry form. The vast majority of TiO₂ sold in slurry form is consumed in North America by the large North American paint and coatings manufacturers.

35. North American customers facing a SSNIP from a hypothetical monopolist supplier of the relevant products would not be able to defeat the price increase through arbitrage (*i.e.*, by purchasing TiO₂ outside of North America and shipping it to North America). Import duties, shipping and handling costs, and other logistical challenges would render such efforts both uneconomical and impractical.

36. Imported chloride or sulfate TiO₂ from China or other countries does not meaningfully constrain prices to North American customers. As Tronox noted during an earnings call in 2015, "[w]e do not see that exports from China or from Europe are playing a material role in the competitive balance in the North American market."

VII. MARKET STRUCTURE AND THE ACQUISITION'S PRESUMPTIVE ILLEGALITY

37. Post-Acquisition, each of the relevant markets would be highly concentrated and would become significantly more concentrated as a result of the Acquisition.

38. The federal antitrust agencies, consistent with the Merger Guidelines and courts, measure concentration using the Herfindahl-Hirschman Index ("HHI"). The HHI is calculated by totaling the squares of the market shares of each firm in the relevant market. 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.

39. In the market for the sale of chloride TiO₂ to North American customers (“North American chloride TiO₂ market”), the Acquisition would result in a post-Acquisition HHI exceeding 3,000, with an increase in the HHI of more than 700. Thus, the Acquisition would result in concentration that establishes a presumption of competitive harm in the North American chloride TiO₂ market.

40. In the market for the sale of rutile TiO₂ to North American customers (“North American rutile TiO₂ market”), the Acquisition would result in a post-Acquisition HHI exceeding 2,500, with an increase in the HHI of more than 550. Thus, the Acquisition would result in concentration that establishes a presumption of competitive harm in the North American rutile TiO₂ market.

41. Therefore, the Acquisition is presumptively unlawful under relevant case law and the Merger Guidelines.

VIII. ANTICOMPETITIVE EFFECTS

A. The Acquisition Would Increase the Likelihood of Anticompetitive Coordination

42. As the Third Circuit and the District Court in Maryland have observed, the TiO₂ industry is “primed for anticompetitive interdependence” and “a text book example of an industry susceptible to efforts to maintain supracompetitive prices.” This Acquisition would only exacerbate these market conditions, rendering anticompetitive coordination even more likely.

43. The North American chloride TiO₂ industry already has a number of characteristics that make it vulnerable to coordination. Those include a commodity-like product; a highly concentrated market with limited competitors; significant transparency into the competitive and strategic decisions of rival firms; customers with long-term, stable supplier relationships allowing for easy detection of deviations from past practices; low elasticity of demand; and a history of strong interdependent behavior. Given those characteristics, it is not surprising that the industry has a history of price fixing allegations and settlements. Allowing Tronox to acquire Cristal would enhance that vulnerability and substantially increase the likelihood of anticompetitive coordination by eliminating a large, independent competitor and by placing more than 80% of North American TiO₂ capacity in the hands of the two most disciplined competitors—Tronox and Chemours.

44. The major North American chloride TiO₂ companies have considerable visibility into their competitors’ businesses. Competitors track a wealth of information about each other—including plant-by-plant production capacities, costs, and strategic plans—by monitoring public statements such as earnings calls made by the other publicly traded TiO₂ companies, gathering competitive information from customers, and by relying on insight provided by Wall Street analysts and industry consulting firms such as TZ Minerals International Pty Ltd. (“TZMI”).

45. North American chloride TiO₂ companies also have a strong awareness of their competitors' pricing. They all issue customer pricing letters and several make public price announcements. Moreover, because many customers have "meet or release" clauses in their contracts, customers often relay competitors' customer-specific pricing information to their TiO₂ suppliers.

46. This transparency will only grow with the Acquisition. Today Cristal, unlike the other major North American TiO₂ companies, is not a publicly traded company and discloses less detail about its operations. By incorporating Cristal's entire TiO₂ production into Tronox, the Acquisition would not only eliminate an important competitor, it would also make information regarding Cristal's operations significantly more accessible to the remaining North American TiO₂ companies. Thus, the Acquisition would further enhance the likelihood for coordination by, among other aspects, increasing market transparency among the remaining competitors and making coordination easier to maintain.

47. Having competed against each other in an oligopolistic market environment for many years, the major North American TiO₂ companies have recognized their mutual interdependence and aligned incentives. Tronox, along with the other publicly traded North American TiO₂ producers, openly discuss these market dynamics during their public earnings calls. For example, during an earnings call in 2016, Tronox's then-CEO explained the industry's strategy to manage production to drive TiO₂ prices higher as follows: "I can tell you that . . . last year, Huntsman, . . . 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 reduced production and continues to maintain sales which is what we have all tried to do." By eliminating a key competitor, especially an opaque one like Cristal, the Acquisition will exacerbate the anticompetitive effects of this interdependence.

48. Parallel pricing behavior has been commonplace in the North American chloride TiO₂ market for years. The Third Circuit identified 31 separate instances of parallel price increase announcements over an eleven-year period, concluding that such "oligopolistic conscious parallelism is by nature anticompetitive." The District of Maryland described the pattern of parallel price increases in the TiO₂ industry as "pervasive."

49. Additionally, Tronox and Cristal engage in other types of parallel accommodating conduct among North American TiO₂ competitors, including refraining from competing aggressively to win a new contract or more business for fear of provoking a competitive response from a rival. As a Tronox sales executive instructed a subordinate when declining to bid on a potential account in 2016, [REDACTED]

[REDACTED] Likewise, Tronox's then-CEO explained during an earnings call in 2014 that "[Tronox] ha[s] not gained market share by trying to reduce price. We don't think that's the appropriate strategy going forward. Although obviously, we're competitors, so we compete where we have to. But it's not a price-driven market share accretion." [REDACTED]

[REDACTED] In a February 2016 presentation to Cristal, consulting firm McKinsey concluded that [REDACTED]

[REDACTED] The Acquisition is likely to increase the level of anticompetitive conscious parallelism in the North American chloride TiO₂ market, resulting in higher chloride TiO₂ prices for consumers.

B. The Acquisition Would Increase Tronox's Incentive and Ability to Curtail Output

50. Tronox has consistently acknowledged the tight link between North American chloride TiO₂ prices and North American production. In a 2015 earnings call, Tronox's then-CEO stated that "by managing our production, so that inventories get reduced to normal or below normal levels; and when that happens, prices will rise." Indeed, Tronox built its 2016 budget based on [REDACTED]

[REDACTED] And Tronox reaffirmed its commitment to this strategy even after agreeing to purchase Cristal, stating that [REDACTED]

[REDACTED] Allowing Tronox to acquire Cristal, thereby doubling its size in North America, will increase Tronox's incentive and ability to decrease or restrict output intended for North American customers, thus leading to higher prices.

51. Tronox has a history of seeking to support North American chloride TiO₂ prices by curtailing output in North America. These efforts include reducing production of both chloride TiO₂ pigment and titanium feedstock—the input material that Tronox also manufactures as a vertically integrated producer. Over the past several years, Tronox has closed titanium feedstock facilities and shut down TiO₂ pigment production lines. In 2015, Tronox's then-CEO publically stated that "[i]t is our view that an upward move in [TiO₂ 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." That year, Tronox cut its TiO₂ pigment production by approximately 15% and suspended operation of one of its titanium feedstock facilities.

52. In addition to North American production cuts, Tronox and the other major North American chloride TiO₂ producers have also reduced North American supply in other ways in order to support the region's pricing. This includes temporarily building up inventory and increasing exports of North American production, despite lower prices abroad. Latin America is a common destination, and a 2015 Cristal report observed that [REDACTED]

53. The Acquisition would make Tronox the largest TiO₂ producer in the world and double its TiO₂ production capacity in North America. The combined firm, with its larger size, would have a stronger incentive to curtail output in order to support higher prices. Also, with more manufacturing facilities at its disposal, post-Acquisition Tronox would have more ability to increase North American chloride TiO₂ prices by curtailing its production.

54. Consistent with Merger Guidelines Section 6.3, this Acquisition is likely to incentivize the combined firm to engage in output curtailment because:

- the combined firm would have a relatively high market share (the merger doubles Tronox's North American market share);
- the combined firm would have relatively little output already committed at prices unaffected by the output curtailment (contract volume is allocated each year and prices are generally negotiated quarterly);
- the margin on the curtailed output would be relatively low (the margin on the lost chloride TiO₂ sales would be small relative to those retained);
- the supply responses of rivals would be relatively small (entry and expansion is slow, expensive, and unlikely); and
- the market elasticity of demand for chloride TiO₂ is low (chloride TiO₂ is an essential input for many products meaning that a small reduction in output results in a large price effect).

IX. LACK OF COUNTERVAILING FACTORS

55. Respondents cannot demonstrate that new entry or expansion by existing firms would be timely, likely, or sufficient to offset the anticompetitive effects of the Acquisition.

56. The TiO₂ industry is characterized by substantial barriers to entry. Building a new TiO₂ plant would take multiple years and a large capital investment, and is unlikely to occur in response to an increase in North American chloride TiO₂ prices post-Acquisition. Expansion or repositioning by the remaining firms that would defeat anticompetitive effects in the North American TiO₂ market is also unlikely. During the last decade, substantially more TiO₂ production capacity in North America has been taken out because of plant or line closures by Tronox, Cristal, and Chemours than added by expansions.

57. TiO₂ imports into North America, mostly sulfate TiO₂, manufactured by smaller TiO₂ companies, primarily from China, are limited and unlikely to provide a meaningful competitive restraint in the near future. In 2016, Chinese TiO₂ imports accounted for less than 1% of North American chloride TiO₂ sales and less than 8% of North American rutile TiO₂ sales. In their public statements, the major North American TiO₂ companies have repeatedly minimized the significance of the competitive threat posed by Chinese TiO₂ imports into North America. In 2016, Tronox stated that it does not view Chinese TiO₂ as a competitive alternative to its product because of the inferior quality of the Chinese imports. Moreover, because of increased environmental enforcement by the Chinese government over the last two years, many sulfate TiO₂ plants in China have been permanently or temporarily shut down. Those closures, coupled with rising domestic demand in China and elsewhere in Asia, have resulted in very tight TiO₂ supply in China and recent prices that are even higher than those in North America. As a

2016 Tronox document observes, [REDACTED]

Consequently, Chinese exports to North America are unlikely to increase substantially for the foreseeable future.

58. Respondents also cannot demonstrate cognizable efficiencies that would be sufficient to rebut the strong presumption and evidence that the Acquisition likely would substantially lessen competition in the North American chloride TiO₂ market and in the North American rutile TiO₂ market.

X. VIOLATION

Count I—Illegal Agreement

59. The allegations of Paragraphs 1 through 58 above are incorporated by reference as though fully set forth.

60. The Acquisition Agreement constitutes an unfair method of competition in violation of Section 5 of the FTC Act, as amended, 15 U.S.C. § 45.

Count II—Illegal Acquisition

61. The allegations of Paragraphs 1 through 58 above are incorporated by reference as though fully set forth.

62. The Acquisition, if consummated, may substantially lessen competition in the relevant markets in violation of Section 7 of the Clayton Act, as amended, 15 U.S.C. § 18, and is an unfair method of competition in violation of Section 5 of the FTC Act, as amended, 15 U.S.C. § 45.

NOTICE

Notice is hereby given to the Respondents that the eighth day of May, 2018, at 10 a.m., is hereby fixed as the time, and the Federal Trade Commission offices at 600 Pennsylvania Avenue, N.W., Room 532, Washington, D.C. 20580, as the place, when and where an evidentiary hearing will be had before an Administrative Law Judge of the Federal Trade Commission, on the charges set forth in this complaint, at which time and place you will have the right under the Federal Trade Commission Act and the Clayton Act to appear and show cause why an order should not be entered requiring you to cease and desist from the violations of law charged in the complaint.

You are notified that this administrative proceeding shall be conducted as though the Commission, in an ancillary proceeding, has also filed a complaint in a United States District Court, seeking relief pursuant to Section 13(b) of the Federal Trade Commission Act, 15 U.S.C. 53(b), as provided by Commission Rule 3.11(b)(4), 16 CFR 3.11(b)(4). You are also notified that the opportunity is afforded you to file with the Commission an answer to this complaint on

or before the fourteenth (14th) day after service of it upon you. An answer in which the allegations of the complaint are contested shall contain a concise statement of the facts constituting each ground of defense; and specific admission, denial, or explanation of each fact alleged in the complaint or, if you are without knowledge thereof, a statement to that effect. Allegations of the complaint not thus answered shall be deemed to have been admitted. If you elect not to contest the allegations of fact set forth in the complaint, the answer shall consist of a statement that you admit all of the material facts to be true. Such an answer shall constitute a waiver of hearings as to the facts alleged in the complaint and, together with the complaint, will provide a record basis on which the Commission shall issue a final decision containing appropriate findings and conclusions and a final order disposing of the proceeding. In such answer, you may, however, reserve the right to submit proposed findings and conclusions under Rule 3.46 of the Commission's Rules of Practice for Adjudicative Proceedings.

Failure to file an answer within the time above provided shall be deemed to constitute a waiver of your right to appear and to contest the allegations of the complaint and shall authorize the Commission, without further notice to you, to find the facts to be as alleged in the complaint and to enter a final decision containing appropriate findings and conclusions, and a final order disposing of the proceeding.

The Administrative Law Judge shall hold a prehearing scheduling conference not later than ten (10) days after the Respondents file their answers. Unless otherwise directed by the Administrative Law Judge, the scheduling conference and further proceedings will take place at the Federal Trade Commission, 600 Pennsylvania Avenue, N.W., Room 532, Washington, D.C. 20580. Rule 3.21(a) requires a meeting of the parties' counsel as early as practicable before the pre-hearing scheduling conference (but in any event no later than five (5) days after the Respondents file their answers). Rule 3.31(b) obligates counsel for each party, within five (5) days of receiving the Respondents' answers, to make certain initial disclosures without awaiting a discovery request.

NOTICE OF CONTEMPLATED RELIEF

Should the Commission conclude from the record developed in any adjudicative proceedings in this matter that the Merger challenged in this proceeding violates Section 5 of the Federal Trade Commission Act, as amended, and/or Section 7 of the Clayton Act, as amended, the Commission may order such relief against Respondents as is supported by the record and is necessary and appropriate, including, but not limited to:

1. If the Acquisition is consummated, divestiture or reconstitution of all associated and necessary assets, in a manner that restores two or more distinct and separate, viable and independent businesses in the relevant markets, with the ability to offer such products and services as Tronox and Cristal were offering and planning to offer prior to the Acquisition.
2. A prohibition against any transaction between Tronox and Cristal that combines their businesses in the relevant markets, except as may be approved by the Commission.

3. A requirement that, for a period of time, Tronox and Cristal provide prior notice to the Commission of acquisitions, mergers, consolidations, or any other combinations of their businesses in the relevant markets with any other company operating in the relevant markets.
4. A requirement to file periodic compliance reports with the Commission.
5. Any other relief appropriate to correct or remedy the anticompetitive effects of the transaction or to restore Cristal as a viable, independent competitor in the relevant markets.

IN WITNESS WHEREOF, the Federal Trade Commission has caused this complaint to be signed by its Secretary and its official seal to be hereto affixed, at Washington, D.C., this fifth day of December, 2017.

By the Commission.

Donald S. Clark
Secretary

SEAL: