PUBLIC

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

DOCKET NO. 9327

In the Matter of

POLYPORE INTERNATIONAL, INC.,
a corporation

Respondent.

INITIAL DECISION

D. Michael Chappell
Chief Administrative Law Judge

Date: March 1, 2010

APPEARANCES FOR THE PARTIES

Counsel Supporting the Complaint:

J. Robert Robertson
Kyle Chadwick
Catharine Moscatelli
Steven Dahm
Stephen Antonio
Joel Christie
Christian Woolley
Benjamin Gris
Morris Bloom
Robert S. Tovsky
FEDERAL TRADE COMMISSION
Bureau of Competition
600 Pennsylvania, Avenue, N.W.
Washington, DC 20580

Eric D. Edmondson
FEDERAL TRADE COMMISSION
Western Region
901 Market Street, Suite 570
San Francisco, CA 94103

Counsel for Respondent:

William L. Rikard, Jr.
Eric D. Welsh
Deborah L. Edney
Adam C. Shearer
Brian R. Weyhrich
Parker Poe Adams & Bernstein LLP
Three Wachovia Center
401 South Tryon Street, Suite 3000
Charlotte, NC 28202

John F. Graybeal
Melanie Black Dubis
Parker Poe Adams & Bernstein LLP
Wachovia Capitol Center
150 Fayetteville Street, Suite 1400
Raleigh, NC 27601

TABLE OF CONTENTS

I. INTRODUCTION

A. Summary of the Complaint and Answer

This case challenges a completed acquisition involving battery separator manufacturers.[1] The Complaint, issued on September 9, 2008 by the Federal Trade Commission ("FTC") against Polypore International, Inc. ("Polypore"), challenges the purchase by Daramic Acquisition Corporation ("Daramic" or "Respondent"), a business unit of Polypore, of 100% of the stock of Microporous Holding Corporation, the parent company of Microporous Products L.P. ("Microporous").

The Complaint charges that Daramic manufactures a broad range of high-performing battery separator membranes and that Microporous, before it was acquired by Daramic, manufactured rubber separators, polyethylene ("PE") rubber separators, and PE separators. Complaint ¶¶ 1, 2. The Complaint defines the relevant product area in which to analyze the transaction as separators for flooded lead-acid batteries in the following markets: (a) deep-cycle; (b) motive; (c) automotive; and (d) uninterruptible power supply stationary ("UPS"). Complaint ¶ 5. Alternatively, the Complaint alleges, "another market in which the transaction violates the antitrust laws is an all PE separator market." Complaint ¶ 6. The Complaint defines the relevant geographic area in which to analyze the effects of this transaction as North America. Complaint ¶ 14.

The Complaint charges that each of the relevant product markets is highly concentrated in North America and that the acquisition of Microporous by Daramic (the "acquisition") allows Daramic to exert market power. Complaint ¶¶ 18, 26. The Complaint includes three counts.

Count I, Illegal Acquisition, charges that the effect of the acquisition may be substantially to lessen competition or tend to create a monopoly in violation of Section 7 of the Clayton Act, 15 U.S.C. § 18, and Section 5 of the Federal Trade Commission Act

[1] A battery separator is the component of a battery that is placed between the battery's positive and negative plates in order to prevent electrical short circuits.

("FTC Act"), 15 U.S.C. § 45. Complaint ¶¶ 48, 49. The Complaint alleges that the acquisition and Daramic's conduct substantially lessened competition in the following ways: it eliminates competition between Daramic and Microporous; it removes Microporous from the deep-cycle, motive, and UPS markets; it creates a monopoly in deep-cycle, and motive markets and increases the level of concentration in the automotive market; it has lead and will lead to increased prices in the relevant markets; it increases Daramic's market power in the deep-cycle, motive, and automotive markets; it allows Daramic to unilaterally exercise its market power in the relevant markets; it removes a competitor in the automotive market; and it makes coordination more likely in the automotive market. Complaint ¶ 38.

Count II, Unfair Method of Competition, charges that Daramic has, through the acquisition, and the other conduct alleged in the Complaint, engaged in unfair methods of competition in or affecting commerce in violation of Section 5 of the FTC Act, 15 U.S.C. § 45. Complaint ¶¶ 50, 51. The Complaint alleges that Daramic entered into a joint marketing agreement in 2001 with Hollingsworth & Vose, a firm that manufactures absorbed-glass-mat battery separators, in order to prevent Hollingsworth & Vose from entering the PE separator market. Complaint ¶ 47.

Count III, Monopolization, charges that Daramic has, through the acquisition, and the other conduct alleged in the Complaint, engaged in unfair methods of competition in or affecting commerce in violation of Section 5 of the FTC Act, 15 U.S.C. § 45. Complaint ¶¶ 52, 53. The Complaint alleges that Daramic engaged in certain conduct to preclude or deter Microporous from expanding or otherwise achieving sufficient scale, and thereby destroy competition and increase Daramic's market dominance. Complaint ¶ 46.

In its Answer, filed on October 15, 2008, Respondent admits that on February 29, 2008, Daramic acquired 100% of the outstanding stock of Microporous for approximately $76 million, including assumed debt. Answer ¶ 4. Respondent denies the relevant product and geographic markets and allegations in the Complaint pertaining to actual and potential competition, entry, anticompetitive effects, monopolization, and unfair methods of competition. Answer ¶¶ 5-53. As an affirmative defense, Respondent avers that the acquisition is a procompetitive response to market dynamics and will result in substantial merger-specific efficiencies in the manufacture, distribution, and sale of battery separators that far outweigh any alleged anticompetitive effects. Answer, Second Affirmative Defense at p. 14.

B. Procedural History

The trial in this matter commenced on May 12, 2009 and concluded on June 12, 2009. Closing arguments were heard on August 20, 2009. Over 2,100 exhibits were admitted, 35 witnesses testified, either live or by deposition, and there are 5,590 pages of trial transcript. The parties' proposed findings of fact, replies to proposed findings of fact, post-trial briefs, and reply briefs total 2,329 pages. The parties' post-trial briefs and proposed findings of fact were filed on July 10, 2009, and their replies thereto were filed on July 31, 2009.

On September 2, 2009, Hollingsworth & Vose ("H&V") filed a motion seeking leave to intervene in this action for the limited purpose of opposing any order or remedy affecting its rights and, in particular, its contractual rights arising under the March 23, 2001 Cross Agency Agreement between H&V and Daramic (the "Cross Agency Agreement"). Neither party filed an opposition or objection. By Order dated September 23, 2009, H&V was permitted to intervene for the purpose of providing a brief and proposed findings of fact on the issue of how the proposed remedy might affect H&V's rights under the March 23, 2001 Cross Agency Agreement between H&V and Daramic. H&V filed proposed findings and a brief on remedies affecting its contractual rights on October 1, 2009. Complaint Counsel and Respondent each filed their replies on October 9, 2009.

On September 25, 2009, Respondent filed a Motion to Reopen the Hearing Record that included an evidence proffer, to which Complaint Counsel filed an opposition on October 1, 2009. By Order dated October 15, 2009, the record was reopened for the limited purpose of receiving the proffered evidence, as set forth in the October 15, 2009 Order. A hearing to receive the proffered evidence was held on

November 12, 2009. The November 12, 2009 hearing admitted an additional 63 exhibits to the record and added 330 transcript pages. The parties submitted post-hearing supplemental briefs, proposed findings of fact, and conclusions of law on November 17, 2009 and replies thereto on November 24, 2009.

Rule 3.51(a) of the Commission's Rules of Practice states that an Initial Decision shall be filed "within ninety (90) days after closing the hearing record pursuant to § 3.44(c) . . . or within such further time as the Commission may by order allow upon written request from the Administrative Law Judge." 16 C.F.R. § 3.51(a). The hearing record was originally closed, pursuant to Commission Rule 3.44(c), by Order dated June 22, 2009. Ninety days from the close of the record was September 21, 2009. By Order dated September 8, 2009, the Commission granted a sixty day extension, until November 20, 2009, for filing this Initial Decision. The record was then reopened and a hearing held to receive proffered evidence. The record was subsequently closed on November 23, 2009. Ninety days from that date is February 22, 2010.

Rule 3.51(a) of the Commission's Rules of Practice also states that an Initial Decision shall be filed within one year "after the issuance of the administrative complaint, except that the Administrative Law Judge may, upon a finding of extraordinary circumstances, extend the one-year deadline for a period of up to sixty (60) days." 16 C.F.R. § 3.51(a). The Complaint in this matter was issued on September 9, 2008. One year from the issuance of the Complaint is September 9, 2009. By Order dated September 8, 2009, the one-year deadline was extended for a period of up to sixty days, until November 9, 2009. The hearing record was reopened for the reception of further evidence and good cause was found to issue an additional sixty day extension, extending the time to file the Initial Decision until January 8, 2010. By Order dated January 7, 2010, the sixty day deadline was extended to coincide with the Rule 3.51(a) ninety day deadline, February 22, 2010.

C. Evidence

This Initial Decision is based on the exhibits properly admitted into evidence, the transcripts of testimony at trial, and the briefs and proposed findings of fact and conclusions of law, and the replies thereto, submitted by the parties and Intervenor Hollingsworth & Vose. Citations to specific numbered findings of fact in this Initial Decision are designated by "F."[2]

This Initial Decision is also based on a consideration of the whole record relevant to the issues and addresses the material issues of fact and law. Proposed findings of fact not included in this Initial Decision were rejected, either because they were not supported by the evidence or because they were not dispositive or material to the determination of the allegations of the Complaint or the defenses thereto. The Commission has held that Administrative Law Judges are not required to discuss the testimony of each witness or all exhibits that are presented during the administrative adjudication. *In re Amrep Corp.*, No. 9018, 102 F.T.C. 1362, 1670, 1983 FTC LEXIS 17, *566-67 (Nov. 2, 1983). Further, administrative adjudicators are "not required to make subordinate findings on every collateral contention advanced, but only upon those issues of fact, law, or discretion which are 'material.'" *Minneapolis & St. Louis Ry. Co. v. United States*, 361 U.S. 173, 193-94 (1959). *Accord Stauffer Labs., Inc. v. FTC*, 343 F.2d 75, 89 (9th Cir. 1965). *See also Borek Motor Sales, Inc. v. National Labor Relations Bd.*, 425 F.2d 677,

---

[2] References to the record are abbreviated as follows:

PX – Complaint Counsel's Exhibit
RX – Respondent's Exhibit
JX – Joint Exhibit
DX – Demonstrative Exhibit
Tr. – Transcript of testimony before the ALJ
Dep. – Transcript of Deposition
CCB – Complaint Counsel's Post-Trial Brief
CCRB – Complaint Counsel's Post-Trial Reply Brief
CCFF – Complaint Counsel's Proposed Findings of Fact
CCBROH - Complaint Counsel's Post-Trial Brief on Reopened Hearing
CCFFROH - Complaint Counsel's Proposed Findings of Fact on Reopened Hearing
CCRBROH – Complaint Counsel's Post-Trial Reply Brief on Reopened Hearing
RB – Respondent's Post-Trial Brief
RRB – Respondent's Reply Brief
RFF – Respondent's Proposed Findings of Fact
RBROH – Respondent's Post-Trial Brief on Reopened Hearing
RRBROH – Respondent's Reply Brief on Reopened Hearing
RFFROH – Respondent's Proposed Findings of Fact on Reopened Hearing

681 (7th Cir. 1970) (holding that it is adequate for the Board to indicate that it had considered each of the company's exceptions, even if only some of the exceptions were discussed, and stating that "[m]ore than that is not demanded by the [Administrative Procedure Act] and would place a severe burden upon the agency").

Under Commission Rule 3.51(c)(1), "[a]n initial decision shall be based on a consideration of the whole record relevant to the issues decided, and shall be supported by reliable and probative evidence." 16 C.F.R. § 3.51(c)(1); *see In re Chicago Bridge & Iron Co.*, No. 9300, 138 F.T.C. 1024, 1027 n.4, 2005 FTC LEXIS 215, at *3 n.4 (Jan. 6, 2005). Under the Administrative Procedure Act ("APA"), an ALJ may not issue an order "except on consideration of the whole record or those parts thereof cited by a party and supported by and in accordance with the reliable, probative, and substantial evidence." 5 U.S.C. § 556(d). All findings of fact in this Initial Decision are supported by reliable, probative, and substantial evidence.

Under the Commission's Rules of Practice, a party or a non-party may file a motion seeking *in camera* treatment for material, or portions thereof, offered into evidence. 16 C.F.R. § 3.45(b). The Administrative Law Judge may order that such material be placed *in camera* only after finding that its public disclosure will likely result in a clearly defined, serious injury to the entity requesting *in camera* treatment. 16 C.F.R. § 3.45(b). Pursuant to Commission Rule 3.45(b), several orders were issued granting *in camera* treatment to material that met the Commission's standards. In addition, when the parties sought to elicit testimony at trial that revealed information that had been granted *in camera* treatment, the hearing went into an *in camera* session.

Commission Rule 3.45(a) allows for the Administrative Law Judge "to grant *in camera* treatment for information at the time it is offered into evidence subject to a later determination by the [administrative] law judge or the Commission that public disclosure is required in the interests of facilitating public understanding of their subsequent decisions." *In re Bristol-Myers Co.*, Nos. 8917-19, 90 F.T.C. 455, 457, 1977 FTC LEXIS 25, at *6 (Nov. 11, 1977). As the Commission later reaffirmed in another leading case on *in camera* treatment, since "in some instances the ALJ or Commission cannot know that a certain piece of information may be critical to the public understanding of agency action until the Initial Decision or the Opinion of the Commission is issued, the Commission and the ALJs retain the power to reassess prior *in camera* rulings at the time of publication of decisions." *In re General Foods Corp.*, No. 9085, 95 F.T.C. 352, 356 n.7; 1980 FTC LEXIS 99, at *12 n.7 (March 10, 1980). Thus, in instances where a document or trial testimony had been given *in camera* treatment, but the portion of the material cited to in this Initial Decision does not require *in camera* treatment, such material is disclosed in the public version of this Initial Decision, pursuant to Commission Rule 3.45(a) (the ALJ "may disclose such *in camera* material to the extent necessary for the proper disposition of the proceeding"). Where *in camera* information is used in this Initial Decision, it is indicated in bold font and braces ("{ }") in the *in camera* version and is redacted from the public version of the Initial Decision, in accordance with 16 C.F.R. § 3.45(f).

D. Summary of Initial Decision

1. Merger claim (Count I)

Count I of the Complaint is supported by the record. Complaint Counsel has proved by a preponderance of the evidence that there is a reasonable probability that Respondent's acquisition of Microporous will substantially lessen competition in the deep-cycle, motive, UPS and SLI battery separator markets in North America. The statistical evidence presented demonstrates that the acquisition has significantly increased concentration in the already highly-concentrated deep-cycle, motive, and SLI markets. In the motive and deep-cycle markets, the acquisition amounts to a merger to monopoly. In the SLI market, the acquisition removed Microporous as a competitor, preserving a powerful duopoly. In the UPS market, the acquisition removed Microporous as a competitive constraint, thereby cementing Daramic's monopoly in that market.

Complaint Counsel has further demonstrated actual and reasonably probable unilateral and coordinated anticompetitive effects, reinforcing the statistical evidence. Evidence of post-acquisition price increases add to the strong presumption that a merger to monopoly in three markets, and from three to two competitors in the SLI market, will lead to anticompetitive effects. Moreover, Respondent's intent in acquiring Microporous, to eliminate a competitor and protect its market shares in the relevant markets, is further persuasive evidence that the probable effects of Daramic's acquisition are harmful to competition.

The evidence in support of Respondent's asserted defenses of entry, power buyers, efficiencies, and Microporous' financial condition prior to the merger, does not offset the preponderance of the evidence of reasonably likely anticompetitive effects, as proved by Complaint Counsel. Accordingly, Complaint Counsel has met its burden of proving that the effect of Daramic's acquisition of Microporous may be substantially to lessen competition in the deep-cycle, motive, UPS, and SLI separator markets in North America, in violation of Section 7 of the Clayton Act.

Section 11 of the Clayton Act directs the FTC to issue orders requiring a violator of Section 7 to divest itself of the assets acquired. Divestiture is the usual and proper remedy where a violation of Section 7 has been found. Respondent has failed to demonstrate that unusual circumstances exist to override the presumption that total divestiture of the acquired assets is the best means of restoring competition. Accordingly, the Order entered in this case requires total divesture, as well as necessary ancillary relief.

2. Unfair method of competition claim (Count II)

Complaint Counsel has proved the charge in Count II of the Complaint that Respondent engaged in an unfair method of competition in violation of Section 5 of the FTC Act. The evidence demonstrates that the non-compete provisions of Respondent's Cross Agency Agreement with H&V, pursuant to which Daramic promised not to sell AGM battery separators, and H&V promised not to sell PE battery separators, do constitute an unlawful market allocation in restraint of trade. Contrary to H&V's assertion, however, it is the mutual agreement embodied by both provisions that has been demonstrated to be unlawful, not just H&V's promise to refrain from competing in the PE market. Accordingly, the appropriate remedy is to preclude any continued performance of the non-compete agreement.

3. Monopolization claim (Count III)

Complaint Counsel has failed to prove the charge in Count III of the Complaint that Respondent engaged in monopolistic conduct, in violation of Section 5 of the FTC Act. Complaint Counsel has not demonstrated that Respondent had monopoly power or a dangerous probability of achieving monopoly power in the North American SLI battery separator market. In the North American deep-cycle, motive and UPS battery separator markets, Complaint Counsel did demonstrate that Respondent had monopoly power or a dangerous probability of achieving monopoly power. However, the conduct challenged by Complaint Counsel, including Daramic's contract negotiations with EnerSys; Daramic's "MP Plan"; Daramic's failure to submit a bid to supply 50% of Exide's separator requirements in response to Exide's 2007 RFP; and, Daramic's 2007 contract extension negotiations with Fiamm, a European automotive battery manufacturer, was not proved to constitute unlawful exclusionary conduct. Accordingly, Count III is dismissed.

II. FINDINGS OF FACT

A. Background

1. Polypore

1. Respondent Polypore International, Inc. ("Polypore") is a Delaware corporation headquartered in North Carolina. (PX2160 at 006, 024).

2. Polypore develops, manufactures, and markets specialized microporous membranes used in separation and filtration processes. Its products and technologies are used in two primary segments, energy storage and separation media. The energy storage business accounted for approximately 74% of Polypore's $610.5 million 2008 fiscal net sales. (PX2160 at 006, 028).

3. Polypore's separation media segment and its lithium ion electronics business segments are not at issue in this matter. (*See* Complaint ¶¶ 5, 6).

4. Daramic is the name of the business unit of Polypore that manufactures and sells separators for flooded lead-acid batteries. Daramic contributes about half of Polypore's revenue. (Hauswald, Tr. 661, 1159; Toth, Tr. 1386).

2. Microporous

5. At the time of the acquisition, defined in F. 9, Microporous Holding Corporation, the parent of Microporous L.P. ("Microporous") was a Delaware corporation. (PX0162 at 005, *in camera*).

6. The acquisition of Microporous included the acquisition of Microporous Products, GmbH, an Austrian registered company, which was a solely owned subsidiary of Microporous. (PX0162 at 005, 019-20, 062, *in camera*; PX0611 at 003; RX1227 at 089-91, *in camera*).

7. At the time of the acquisition, Microporous was a developer, manufacturer, and marketer of specialized rubber and polyethylene battery separators for use in flooded lead-acid batteries. (PX0131 at 008).

8. Microporous previously had done business in the battery separator industry under the company name Amerace.[3] (Gilchrist, Tr. 314).

3. Jurisdiction

9. On February 29, 2008, Daramic Acquisition Corporation, a subsidiary of Polypore, acquired 100% of the outstanding stock of Microporous Holdings Corporation, and the parent of Microporous, from Industrial Growth Partners II L.P. ("IGP") and other stockholders. (RX1589 at 003; PX0162 (Stock Purchase Agreement, *in camera*)) (the "acquisition").

10. With the acquisition, Respondent has three manufacturing facilities in the United States: Owensboro, Kentucky; Corydon, Indiana; and Piney Flats, Tennessee. In addition, Respondent owns PE separator manufacturing facilities in Feistritz, Austria; Prachinburi, Thailand; Tianjin, China; Bangalore, India; Selestat, France; and Potenza, Italy. (Hauswald, Tr. 711-13; PX0582 at 018).

11. Respondent is, and all times relevant herein has been, engaged in "commerce" as defined in Section 1 of the Clayton Act, as amended, 15 U.S.C. § 12, and is a corporation whose business is in or affects "commerce" as defined in Section 4 of the Federal Trade Commission Act, as amended, 15 U.S.C. § 44. (Complaint ¶ 3; Answer ¶ 3; RX1589 at 003).

4. The witnesses

12. Set forth below are the identities of the witnesses that testified in person at the hearing:

---

[3] The name "Amerace" is occasionally used in documents cited by the parties. In this Initial Decision, the name "Microporous" is substituted in brackets for "Amerace" for findings containing quotes from such documents.

Witnesses Related to Polypore/Daramic/Microporous

- George Brilmyer, former Director of Research & Development of Microporous
- Hans-Peter Gaugl, Managing Director Austrian Facility for Daramic Austria GmbH (also former Manager of Austrian facility for Microporous)
- Michael Gilchrist, former CEO and President of Microporous
- Michael Graff, Managing Director of Warburg Pincus (also Chairman of the Board of Directors of Polypore)
- Pierre Hauswald, General Manager and Vice President of Daramic
- Steven McDonald, Sales Manager, North America of Daramic (also former Director of Sales of Microporous)
- Tim Riney, Vice President of Finance of Daramic
- Sterling Tucker Roe, Vice President of Worldwide Sales and Marketing of Daramic
- Harry Seibert, Vice President and Business Director of Daramic
- Christopher Thuet, Business Director Asia-Pacific of Daramic
- Robert Toth, CEO and President of Polypore
- Larry Trevathan, Vice President Operations of Daramic (also former Vice President Operations of Microporous)
- John Kevin Whear, Vice President of Technology of Daramic

Witnesses Related to Battery or Battery Separator Manufacturers

- Larry Axt, Vice President of Global Procurement of EnerSys
- Arthur Balcerzak, Director of Purchasing for Crown Battery (as consultant)
- Norman Benjamin, President of Bulldog Battery Corporation
- Mitchell Bregman, Exide Technologies (former procurement council)
- Larry Burkert, Senior Procurement Manager of EnerSys

- John Craig, Chairman, CEO and President of EnerSys
- James Douglas, Executive Vice President of Douglas Battery Mfg. Co.
- John Gagge, Jr., Sr. Director Engineering and Quality Assurance for EnerSys
- Melvin Gillespie, Jr., Vice President of Global Procurement for Exide Technologies
- Richard Godber, CEO and President of Trojan Battery
- Rodger Hall, Global Vice President of Procurement for Johnson Controls Battery
- Dale Leister, Director Procurement Strategy & Supplier Dev., East Penn Battery Mfg. Co.
- Nawaz Qureshi, Vice President of Engineering and Technology of U.S. Battery Mfg. Co.
- Donald Wallace, Executive Vice President of Sales and Marketing of U.S. Battery Mfg. Co.
- Daniel Weerts, Vice President of Sales and Marketing of Entek Holding Company

Expert Witnesses

- Henry J. Kahwaty, Ph.D., Director of LECG (Respondent's expert witness)
- John Simpson, Ph.D., FTC Economist (FTC's expert witness)

5. Terminology

13. **AGM** – initials which refer to "absorbed glass mat" battery separators. The liquid in the battery is absorbed like a sponge into the glass mat part of the separator and there is no free liquid electrolyte. AGM batteries are sealed and do not need maintenance. (Godber, Tr. 147; Hauswald, Tr. 994-95; Qureshi, Tr. 2055-56).

14. **Aftermarket** – refers to the market for replacement batteries for products (in contrast to original equipment batteries). (Godber, Tr. 143-44; Gillespie, Tr. 2932).

15. **Antimony** – refers to an antimony alloy that is typically included in the composition of the positive plate of a battery used for deep-cycle applications.

Antimony is what makes the battery deep-cycle; if you do not have enough antimony, the cycle loses capacity. Flooded deep-cycle batteries use a high-antimony lead alloy grid and use high-density active material that takes longer to fall apart. The migration of antimony from the positive plate to the negative is called antimony poisoning. It is referred to as poisoning because antimony transfer will cause the premature death of the battery. The separator plays an important role in scavenging or tying up the antimony in the electrolyte, preventing it from going to the negative plate. The addition of rubber to a battery separator reduces the rate of antimony transfer. (Godber, Tr. 137-39, 149-50; Qureshi, Tr. 1995, 2001-02, 2004; PX1791 at 001; PX1124 at 001).

16. **Backweb Thickness** – a primary measurement of a battery separator that is the thickness of the substrate in space between membranes of a rib. Simply put, it is the thickness of the separator that is measured between the ribs. The backweb thickness serves to create a wall of insulation in the battery between plates. (Hauswald, Tr. 966-67, 979; Leister, Tr. 4044; Whear, Tr. 4685, 4688; PX0669, *in camera*).

17. **Battery Separators** – products of various composition that are placed between positively and negatively charged plates in batteries to prevent electrical short circuits while allowing ionic current to flow through the separators. (Gilchrist, Tr. 314; Hauswald, Tr. 968-69; Benjamin, Tr. 3504; Whear, Tr. 4665-66). Battery separators insulate the two plates from each other to prevent electrical shorts. (Gilchrist, Tr. 304-05; *see* Benjamin, Tr. 3504; *see also* PX0078 at 003, *in camera* (providing a diagram)). The separator material is microporous (*i.e.*, it contains very small holes) to allow the passage of electrical current. (Gilchrist, Tr. 304-05; *see* Benjamin, Tr. 3504).

18. **Black Scum** – refers to a dark-colored residue that can gather on the liquid surface inside a flooded lead-acid battery during usage. The black scum can result from the interaction of various chemicals and the oil component of a separator through a process of oxidation. (Hauswald, Tr. 1096-98; Brilmyer, Tr. 1834-35; Whear, Tr. 4708-09).

19. **Deep-cycle** – refers to certain end use applications for batteries where the batteries are placed in products having a lower amperage draw over a longer duration of time. These batteries are repeatedly discharged deeply to a low state of charge prior to recharging. Example applications include golf carts, floor scrubbers, scissor lifts, utilities, and marine boat applications. (Godber, Tr. 137-38; Gillespie, Tr. 2931; Whear, Tr. 4682, 4694; PX0319 at 007-08).

20. **Flooded Lead-Acid Battery** – a battery that contains an electrolyte liquid acid inside it up to a level above the positive and negative lead plates. Due to repeated charging and discharging, especially in deep-cycle applications, gas bubbles are formed and the liquid will tend to evaporate. The battery can be damaged if the water level is permitted to fall below the top of the battery plates. Therefore, the

battery will need to be watered at certain intervals (except in a sealed, no maintenance automotive battery). (Godber, Tr. 147; Brilmyer, Tr. 1841, 1854-55; Qureshi, Tr. 2053-54; Douglas, Tr. 4053; Whear, Tr. 4682).

21. **Enveloping** – instead of having the battery separator material cut into separate smaller "leaf" pieces, the battery manufacturer can purchase the material in roll form and itself fold the separator material around the plates of the batteries and seal it on the side (thus "enveloping" the plate like it is in a pouch). (Roe, Tr. 1748-49; Qureshi, Tr. 2036; PX1791 at 002). This process also can be referred to by a battery manufacturer as "sleeving." (Benjamin, Tr. 3508).

22. **Gel (Non-Flooded) Battery** – A type of sealed battery which, instead of having liquid lead-acid, like flooded batteries, these batteries have a silica gel that interacts with the positive and negative plates of the battery to allow for ionic transfer. Also called VRLA (valve-regulated lead-acid) or a recombination battery. (Godber, Tr. 147; Gaugl, Tr. 4557; Whear, Tr. 4681).

23. **Industrial Separators** – refers to separators for all industrial applications for batteries, including industrial motive power or industrial stationary batteries. (Roe, Tr. 1815; Whear, Tr. 4682-83).

24. **Leaf Separator** – refers to battery separator material that has been cut into pieces (*i.e.*, "leafs"), and many of these pieces will be stacked together in between plates and used in a single battery. (Roe, Tr. 1748-49; PX1791 at 002).

25. **Motive Power** – refers to an end use application of batteries for certain industrial products that move, such as forklifts and mine equipment. (Gilchrist, Tr. 306; Roe, Tr. 1197; Balcerzak, Tr. 4092; Whear, Tr. 4694).

26. **OE/OEM** – generally synonymous terms for original equipment or original equipment manufacturer. These types of batteries are installed as original equipment on a product (in contrast to batteries for the "aftermarket," which are replacement batteries). (Roe, Tr. 1762-63; Gillespie, Tr. 2932).

27. **Overall Thickness** – a primary measurement of a battery separator that measures the overall thickness of the product including the ribs (*e.g.*, thickness of substrate and height of ribs together). Overall thickness serves to provide the space between electrodes and makes a reservoir for the liquid. (Hauswald, Tr. 966-67, 979; Leister, Tr. 4044; Whear, Tr. 4688-89).

28. **PE Separators** – abbreviation for a polyethylene battery separator. Daramic's polyethylene battery separators are formulated from ultra high molecular weight polyethylene, as well as other ingredients such as silica and oil. (Toth, Tr. 1501, 1549; PX0582 at 041, 043). Certain PE separators include additional additives as well. (PX0582 at 043-50; PX0949 at 003-04, *in camera*).

29. **Profile** – profile refers to the specifications of a separator and includes the thickness of the backweb as well as the shape of the ribs, *i.e.*, whether they are vertical, diagonal, or S-shaped, along with the height and density of the ribs. Daramic offers a choice of approximately 80 profiles with its battery separators. (Whear, Tr. 4675-76).

30. **Reserve Power** – an end use application for batteries where the batteries are used to provide backup or reserve power to a system. (Gilchrist, Tr. 306; Axt. Tr. 2099; Douglas Tr. 4052-53).

31. **Ribs** – protrusions on the separator. The ribs, which vary in height, thickness or shape from separator to separator, help fix the physical spacing in the battery to make sure there is an appropriate amount of acid between the plates. The shapes and sizes of these ribs make up part of the "profile" of the separator. (Hauswald, Tr. 966-67; Whear, Tr. 4665-67, 4675-76; PX1791 at 002).

32. **SLI** – abbreviation refers to an end use application for batteries known as "starter, lighting, and ignition," which is generally synonymous with an automotive-type application for batteries. Examples of SLI batteries include those placed in automobiles, trucks, buses, boats, snowmobiles, jet skis, and recreational vehicles. (Brilmyer, Tr. 1831-32; Gillespie, Tr. 2930; Leister, Tr. 3976-77).

33. **Stationary** – refers to an end use application for a battery where the product is stationary, such as large backup batteries for telecommunications, emergency lighting, UPS, or other reserve power application. (Roe, Tr. 1736, 1816-17; Whear, Tr. 4692).

34. **Traction** – refers to an end use application for batteries in certain industrial products (*e.g.*, electric forklifts). The term is generally synonymous with "motive power" applications. "Motive power" is typically referred to in the United States, while "traction" is typically referred to globally. (Roe, Tr. 1250; Balcerzak, Tr. 4092).

35. **UPS** – refers to an end use application for batteries known as "uninterruptible power supply" or "uninterruptible power source" products. These are batteries for emergency power use in case of a power outage/stoppage. Examples include backup stationary batteries for computer systems, telecommunications systems, and cell phone towers. UPS batteries are generally considered to be a type of reserve power batteries. (Gilchrist, Tr. 306; Roe, Tr. 1736-37; Brilmyer, Tr. 1832-33; Douglas Tr. 4052-53).

36. **VRLA** – abbreviation refers to valve-regulated lead-acid battery. VRLA batteries are different from flooded lead-acid batteries because in VRLA batteries, an absorbed glass mat (AGM) absorbs the acid so that there is no free acid in the battery, while in a flooded lead-acid battery, the electrolyte of the liquid acid flows freely. (Douglas, Tr. 4053-54; Gilchrist, Tr. 366). A gel or recombination

battery is also a VRLA battery. (Gilchrist, Tr. 366; Douglas, Tr. 4052; Whear, Tr. 4681).

6. Daramic's products

37. Daramic, one of the four Polypore divisions, manufactures lead-acid battery separators for a variety of applications. (Hauswald, Tr. 965-66).

38. Prior to the acquisition of Microporous, Daramic had two manufacturing facilities in the United States and five manufacturing facilities abroad. (RX0814 at 003, *in camera*; Hauswald, Tr. 990). In the United States, Daramic's manufacturing facilities were located in Owensboro, Kentucky and Corydon, Indiana. (RX0814 at 010, *in camera*).

39. Prior to the acquisition, Daramic's five foreign manufacturing facilities were located in Selestat, France; Norderstadt, Germany; Potenza, Italy; Prachinburi, Thailand; and Tianjin, China. (RX0814 at 003, *in camera*; Hauswald, Tr. 990).

40. Prior to the acquisition, Daramic's facilities provided a production capacity of approximately {[redacted]} (RX0814 at 003, *in camera*). In 2007, {[redacted]} of this capacity was located in the United States at the Owensboro facility, and {[redacted]} of this capacity was located in the United States at the Corydon facility. (Hauswald, Tr. 918, *in camera*; RX0814 at 003, *in camera*).

41. Prior to the acquisition, Daramic's product line included the following:

> PE separators: Daramic Standard, Daramic HP, Daramic V, Daramic HD, Daramic HPR, Daramic HP-S, Daramic HPO, Daramic Duralife, Daramic W and Daramic CL. (PX0582 at 043-50; PX0949 at 003-04, *in camera*). Daramic HD ("HD") is a polyethylene battery separator made with a liquid latex additive for deep-cycle applications. (Hauswald, Tr. 671-72; PX0949 at 004, *in camera*; PX0319 at 007).
>
> Darak: a non-PE Daramic battery separator made with cross-linked phenolic resin for more porosity. The separator is made only in Germany and is typically used in gel-type batteries. (Hauswald, Tr. 989-90; Whear, Tr. 4681; PX0582 at 051).

42. Daramic's worldwide separator sales – including Darak – in 2007 were approximately {[redacted]} (RX1119, *in camera*). The total sales of Daramic's PE separators in 2007 for automotive applications were {[redacted]} (RX1119, *in camera*; RX1418, *in camera*). In 2007, sales of HD were {[redacted]} (RX1119, *in camera*; RX1418, *in camera*). Daramic's sales of PE separators for industrial applications during the same time period totaled {[redacted]} and sales of PE separators for specialty applications were {[redacted]

[redacted]} (RX1119, *in camera*; RX1418, *in camera*). Daramic does not track sales information specifically for golf-cart applications. (RX1119, *in camera*).

7. Microporous' products

43. Prior to the acquisition, Microporous manufactured battery separators at its facility in Piney Flats, Tennessee. (Gilchrist, Tr. 311; McDonald, Tr. 3791; PX1788 at 004).

44. At the time of the acquisition, Microporous also owned a facility in Feistritz, Austria, which housed two manufacturing lines. (Gilchrist, Tr. 332, 558; Gaugl, Tr. 4551; PX0078 at 012, *in camera*).

45. Microporous' product line included the following:

Ace-Sil – a hard rubber battery separator developed by Microporous (and now sold by Daramic) that is made from rubber silicon. This pure rubber product is very stiff and typically used in very high-end stationary applications such as telecommunications, backup power for nuclear plants, and military products. (Gilchrist, Tr. 300; Hauswald, Tr. 992; Roe, Tr. 1748; McDonald, Tr. 3786; RX1638 (physical product sample)).

Flex-Sil – a battery separator product developed by Microporous (and now sold by Daramic) that is made of pure rubber (no polyethylene) for use in deep-cycle applications such as golf carts, floor scrubbers and aerial lifts. The Flex-Sil product is sold only in "leaf" cut-piece form. (Roe, Tr. 1737, 1749; Hauswald, Tr. 992-93; McDonald, Tr. 3787; RX1639 (physical product sample)).

CellForce – a polyethylene battery separator developed by Microporous (and now sold by Daramic) that includes ground-up Ace-Sil rubber product as an additive in the polyethylene matrix of the separator to improve performance. (Gilchrist, Tr. 337-38, 340; Hauswald, Tr. 672-73, 993; RX1640 (physical product sample)).

46. Historical worldwide sales of Microporous' Ace-Sil, Flex-Sil, and CellForce products from 2003 until 2007 are provided in the following chart:

	2003	2004	2005	2006	2007
Ace-Sil	{[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Flex-Sil	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
CellForce	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]}

(RX1120, *in camera*; McDonald, Tr. 3855-57, *in camera*).

8. Entek

47. Entek International LLC, and its sister company Entek International Ltd., (hereafter "Entek") are owned and operated by Entek Holding Company (collectively, "Entek"). Entek sells battery separators from facilities in Lebanon, Oregon and from facilities in the United Kingdom. (Weerts, Tr. 4450-51; 4465-67, *in camera*).

48. Entek is principally a manufacturer of PE battery separators for SLI applications. (PX0088 at 001; Weerts, Tr. 4492, *in camera*).

9. The customers: battery manufacturers

a. Johnson Controls

49. Johnson Controls ("JCI") is the largest automotive battery manufacturing company in the world. (Hall, Tr. 2662-63; RX0034 at 012). JCI produced more than 120 million lead-acid batteries in 2008. (Hall, Tr. 2793; RX0034 at 004; RX1187 at 003). JCI has 36% of the global market share in the lead-acid automotive battery market. (RX0034 at 013).

50. JCI manufactures a small amount of golf cart batteries, which account for only 2 to 3% of its production. (Hall, Tr. 2665).

51. JCI is headquartered in Milwaukee, Wisconsin with plant locations worldwide, including North America, Europe, and China. (PX0965 at 11, *in camera*; Hauswald, Tr. 1086; Hall, Tr. 2665; PX0614).

b. Exide Technologies, Inc.

52. Exide Technologies, Inc. ("Exide") is a global battery manufacturer with facilities in North America, Europe and Asia. (Gillespie, Tr. 2957, 3093).

53. Exide ranks as either the largest or second largest battery manufacturer in the world, and its Salinas, Kansas facility is the largest battery plant in North America, making between 30,000 and 40,000 batteries per day. (Gillespie, Tr. 2930, 3052, *in camera*).

54. Exide's business is segmented into "Industrial" and "Transportation" units. The transportation unit is the majority of its business, and includes SLI batteries for cars, trucks, motorcycles, recreational vehicles, boats and other applications. The transportation division also includes batteries for deep-cycle applications, such as golf carts. Exide's industrial division is subdivided into motive power and network backup system batteries. (RX1186 at 006-07; Gillespie, Tr. 2930).

55. Exide sold almost $3.7 billion worth of batteries in fiscal 2008 and buys approximately $70 million worth of battery separators per year. (RX1186 at 027, 057; Gillespie, Tr. 2929).

c. EnerSys

56. EnerSys is a global manufacturer of industrial batteries, including motive power batteries, used mainly for forklifts, and reserve power batteries, for UPS battery backup, specialty battery backup, telecom and utilities. (Axt, Tr. 2097). EnerSys is the world's largest manufacturer of industrial batteries. (Axt, Tr. 2228).

57. EnerSys has manufacturing plants in the United States, Mexico, China and Europe. (Axt, Tr. 2227; RX1185 at 021). EnerSys manufactures motive power batteries in North America at facilities in Richmond, Kentucky; Ooltewah, Tennessee; and Monterrey, Mexico. It makes UPS batteries in North America at the Monterrey, Mexico plant and its facility in Hays, Kansas. (Axt, Tr. 2099-2100).

58. EnerSys has approximately a 38-40% share of the world's motive power battery sales. (Axt, Tr. 2227).

59. On January 14, 2010, EnerSys issued a press release announcing the purchase of certain assets and assumption of certain liabilities of the Douglas Battery Manufacturing Company. (January 27, 2010 Order on Respondent's Motion for Official Notice).

d. Trojan Battery Company

60. Trojan Battery Company ("Trojan Battery") manufactures and sells deep-cycle batteries primarily for golf carts, but also for marine, floor scrubber and aerial work platform applications. Trojan Battery is the largest manufacturer of golf cart batteries in the world. (Godber, Tr. 133-34, 274).

61. In 2007, Trojan Battery had annualized sales of {[redacted]} In 2008, those sales were {[redacted]} (Godber, Tr. 252-53, *in camera*).

62. Trojan Battery sells approximately 40% of its batteries to original equipment ("OE") manufacturers and sellers of new equipment and 60% to the aftermarket. Trojan Battery's OE sales are mostly domestic, which Trojan Battery defines as North America, with roughly 4% being sold internationally. In aftermarket sales, 35 to 38% of Trojan Battery's sales are domestic, with the remainder being international. (Godber, Tr. 144.)

63. Trojan Battery manufactures in two plants, one in California, and one in Georgia. (Godber, Tr. 253, *in camera*).

64. The largest percentage of Microporous' sales in 2003-2007 was to Trojan Battery. (RX1120, *in camera*; McDonald, Tr. 3854-57, *in camera*). In 2008, approximately {[redacted]} of sales of all Microporous products were to Trojan Battery, and {[redacted]} of all sales of its Flex-Sil product were to Trojan Battery. (RX1120, *in camera*; McDonald, Tr. 3854-57, *in camera*).

e. East Penn Battery Manufacturing Company

65. East Penn Battery Manufacturing Company ("East Penn Battery") is a lead-acid battery and wire and cable manufacturing company, with battery manufacturing facilities in Lyon Station, Pennsylvania, where the company is headquartered, and in Corydon, Iowa. East Penn Battery also has a battery assembly plant in China. East Penn's Battery annual sales revenue is approximately $1.25 billion. (Leister, Tr. 3968-69, 4030).

66. East Penn's Battery business is segmented into "Wire and Cable," "Automotive," and "Industrial" divisions. East Penn Battery includes in its automotive division both SLI batteries and deep-cycle batteries. East Penn Battery sells batteries for cars, trucks, boats, recreational vehicles, power sports vehicles (*e.g.*, "four-wheelers") and golf carts. The industrial division is separated into motive power batteries used in forklifts and other equipment, and stationary batteries used for backup power systems. (Leister, Tr. 3968-69, 3976-77).

f. Crown Battery Manufacturing Company

67. Crown Battery Manufacturing Company ("Crown Battery") manufactures SLI batteries for the automobile replacement market, trucks, and busses. It also manufactures deep-cycle batteries for sweeper/scrubbers, golf carts, and marine vehicles. Crown Battery includes these batteries in its SLI division, which comprises 50% of Crown Battery's business. The other 50% of Crown Battery's product line is what it calls motive power industrial, for forklifts and mine equipment. (Balcerzak, Tr. 4092).

68. Each year, Crown Battery manufactures between 800,000 and 1 million automotive batteries. (Balcerzak, Tr. 4092-93).

69. For its industrial division, Crown Battery does not measure output by batteries, but by plates. The industrial division averages approximately 120,000 plates per week, which converts into approximately 7,000 to 8,000 cells per week. (Balcerzak, Tr. 4093).

g. Douglas Battery Manufacturing Company

70. Douglas Battery Manufacturing Company ("Douglas Battery") is a battery manufacturer headquartered in Winston-Salem, North Carolina. It is family-owned and managed. (Douglas, Tr. 4048).

71. Douglas Battery produces material-handling batteries generally for forklifts; coal mining batteries, which are deep-cycle; and valve-regulated lead-acid ("VRLA") UPS batteries for telecom. (Douglas, Tr. 4047-48, 4052-54).

72. Until 2005, Douglas Battery also produced automotive batteries. (Douglas, Tr. 4048).

73. Douglas Battery purchases separators for both flooded lead-acid batteries and VRLA batteries. Douglas Battery uses AGM separators in its VRLA batteries. (Douglas, Tr. 4053-54).

h. U.S. Battery Manufacturing Company

74. U.S. Battery Manufacturing Company ("U.S. Battery") is headquartered in Corona, California. It has a manufacturing facility in Corona and one in South Augusta, Georgia. (Wallace, Tr. 1927, 1957).

75. U.S. Battery manufactures batteries predominantly for deep-cycle applications. U.S. Battery also manufactures specialty batteries and batteries used in military SLI applications. Approximately 80% of U.S. Battery's revenues are attributable to the sale of deep-cycle products. It manufactures between one and one-half million to two million deep-cycle units per year. (Wallace, Tr. 1927, 1930; Qureshi, Tr. 2075-76).

76. U.S. Battery's batteries are used in golf carts, floor scrubbers, aerial lifts, marine applications, long-haul trucks, recreational vehicles, wind and solar power applications, and reserve power applications. (Wallace, Tr. 1955-56; Qureshi, Tr. 2076-77).

77. U.S. Battery's 2008 revenues were in excess of $160 million. (Wallace, Tr. 1929-30).

i. Bulldog Battery Corporation

78. Bulldog Battery Corporation ("Bulldog Battery") manufactures flooded lead-acid batteries for motive power industrial applications. The batteries manufactured by Bulldog Battery are used primarily in forktruck (forklift) applications. (Benjamin, Tr. 3504).

79. Bulldog Battery has its sole manufacturing facility in Wabash, Indiana. (Benjamin, Tr. 3533).

80. Bulldog Battery is one of approximately five domestic motive power battery manufacturers. (Benjamin, Tr. 3537). Bulldog Battery comprises approximately 10% of the North American motive power market and considers its competition to

be EnerSys, Douglas Battery, East Penn Battery and Battery Builders. (Benjamin, Tr. 3507).

B. The Relevant Product Markets

1. Background: the separator industry for flooded lead-acid batteries as a whole

a. Flooded lead-acid battery separators in general

81. Battery separators are placed between each positive and negative plate in a battery, insulating the two plates from each other to prevent electrical shorts. (Gilchrist, Tr. 304-05; *see* Benjamin, Tr. 3504; *see also* PX0078 at 003, *in camera*) (providing a diagram). The separator material is microporous (*i.e.*, it contains very small holes) to allow the passage of electrical current. (Gilchrist, Tr. 304-05; *see* Benjamin, Tr. 3504).

82. A flooded lead-acid battery (or "flooded battery") contains an electrolyte of liquid acid. (Godber, Tr. 147; Douglas, Tr. 4053). When the battery is charged and discharged, gas bubbles are formed and the liquid tends to evaporate and then additional water must be added. (Godber, Tr. 147). Flooded batteries lose water continuously through such "gassing," and the battery can be damaged if the water level is permitted to fall below the top of the battery plates. (Brilmyer, Tr. 1854-55).

83. Flooded lead-acid batteries are different from valve-regulated lead-acid ("VRLA") batteries, which use an absorbed (or absorptive) glass mat ("AGM") separator. VRLA batteries are also referred to as AGM batteries. (Douglas, Tr. 4053-54; Godber, Tr. 366; *see* Wallace, Tr. 1978). In flooded batteries, the electrolyte of liquid acid flows freely. By contrast, in valve-regulated or AGM batteries, the glass mat absorbs the acid so there is no free acid in the battery. (Douglas, Tr. 4053-54; Godber, Tr. 466).

84. AGM or VRLA separators are more expensive than flooded lead-acid battery separators. (Gillespie, Tr. 2982).

b. Physical distinctions among flooded lead-acid battery separators

85. Battery separators are differentiated by various characteristics, including their base material (*e.g.*, polyethylene or rubber), rib spacing, backweb thickness, overall thickness, border areas, and finishing (delivered in rolls or cut into smaller flat sheets). (Gilchrist, Tr. 352, 365). Respondent's expert concedes that battery separators are, from an economist's perspective, "highly differentiated products." (Kahwaty, Tr. 5132-33).

86. Additives to the separator's base material, including surfactants, rubber, lignans, and various organic chemicals, serve functions such as improving oxidation resistance and reducing water loss. (Whear, Tr. 4667-68). Different types of battery separators may require different packages of additives. (Whear, Tr. 4667).

87. The properties that are desired in a separator are important determinants of the type of separator that is used in a specific application. (Leister, Tr. 4023-24). Electrical resistance and puncture resistance – certain properties of the separators – require greater or lesser emphasis, depending upon the specific application in which the separator is to be used. (Whear, Tr. 4782). The formula of the separator is set to meet the needs of the customer. (Whear, Tr. 4782).

88. Backweb thickness affects the separator's and the battery's performance. A separator with a thicker backweb tends to perform differently than a separator with a thinner backweb. (Leister, Tr. 4041-42). "[T]he thicker that backweb, the longer it's going to last, but you give a tradeoff to the performance on, say, the cranking capabilities of that battery. So you almost can't have that happen, you can't have a thinner backweb and a thicker backweb and have it perform exactly the same." (Leister, Tr. 4041-42). Backweb thickness also affects the separator's price. (Leister, Tr. 4043). A reduction in the separator's backweb thickness tends to reduce the price of the separator material and the cost of the battery. (Leister, Tr. 4043).

89. It is possible, but atypical, to use separators with the same backweb thickness in different applications. East Penn Battery, for example, does not use separators with the same backweb thickness in both motive and deep-cycle batteries. (Leister, Tr. 3982). There is also no overlap between the backweb thicknesses of the separators that East Penn Battery purchases for its industrial (motive and stationary) batteries and those that it purchases for its starter, lighter, and ignition ("SLI" or "automotive") batteries. (Leister, Tr. 3977, 4021).

90. If separators of the same backweb thickness were swapped from one application into another, the battery's performance, including its life, would probably be affected, because separators vary in electrochemical properties and other respects besides thickness. (Leister, Tr. 4023).

91. East Penn Battery might, for instance, have a very limited overlap in the backweb thicknesses of the separators for one of its deep-cycle batteries and for its SLI battery for an eighteen-wheeler truck. (Leister, Tr. 4022). Yet, if East Penn Battery were to take the separator for its eighteen-wheeler battery and place it instead in its deep-cycle battery, it would de-value the deep-cycle battery by shortening its life. (Leister, Tr. 4022-23; *see also* Whear, Tr. 4682-83 (discussing in general terms the impact on battery functionality of interchanging different types of polyethylene separators)).

c. End use applications for flooded lead-acid battery separators

92. A particular type of battery, made for a particular application in accordance with particular specifications for performance, often requires unique features or properties for the separator. Battery separator manufacturers, thus, make different separator products, each of which may be especially suited to a specific application or end use. (Gilchrist, Tr. 350-51; *see* Brilmyer, Tr. 1829, 1831).

93. Daramic categorizes its separator sales by broad categories of end uses or applications, such as automotive, industrial, and specialty. (Hauswald, Tr. 676-77; *see* PX0582 at 031 (noting "two primary business segments" of motive, including automotive and specialty, and industrial, including traction and stationary, applications)).

94. Daramic's different separator types are tailored to provide the particular functionality that is sought for particular applications. (*See* Whear, Tr. 4681-85).

95. Although there are some exceptions or overlaps, the following applications for flooded lead-acid batteries as a rule use different types of separators: deep-cycle, SLI or automotive, motive, and UPS applications. (*See* Gilchrist, Tr. 351-52).

96. Trojan Battery has never considered using motive power construction in its deep-cycle batteries. (Godber, Tr. 146). Deep-cycle batteries are much smaller than, and lack the space for all of the insulation in, motive batteries. (Godber, Tr. 146). Furthermore, the cost of all of that insulation would be too great, and the applications in which deep-cycle batteries are used do not require as long a battery life. (Godber, Tr. 146).

97. Interchanging one type of separator product for another might change the way the battery works and change the life of the battery. (Whear, Tr. 4683).

d. Sales and pricing by application for flooded lead-acid battery separators

98. PE separator manufacturers typically know the end use applications for the separators that they sell. (F. 99-113).

99. Entek generally knows the end use applications for the separators (predominantly SLI) that it sells. (Weerts, Tr. 4504, *in camera*).

100. Sales at Microporous were broken down by product and by application. (RX01120 at 001-03, *in camera*; McDonald, Tr. 3895-96, *in camera*).

101. Daramic keeps track of the sales of its separators by general categories, such as automotive, industrial, and specialty. It also keeps track of whether its separators are sold in the United States or abroad. (Hauswald, Tr. 676-77).

102. Daramic breaks down its sales by "market segments" that include deep-cycle, motive power, reserve power, and SLI. (PX0395 at 019, *in camera*; *see also* Burkert, Tr. 2336-37 (stating, based on his experience as a procurement manager, that Daramic "know[s]exactly where [its] battery separators are going)).

103. Daramic is aware of the end use applications for its separators. (F. 101-02). For example, prior to the acquisition, Daramic entered into an agreement with East Penn Battery under which East Penn Battery is required to buy {[redacted]} of its automotive separators and 90% of its industrial separators from Daramic. (Roe, Tr. 1354-55, *in camera*). To ensure that East Penn Battery is fulfilling its end of the agreement, Daramic has to be able to distinguish between the automotive and the motive separators that it sells to East Penn Battery. (Roe, Tr. 1355, *in camera*). Daramic could also in all likelihood determine whether its sales to East Penn Battery were for automotive or motive applications simply on the basis of the separators' backweb thickness. Its sales to East Penn Battery of motive separators specified a backweb thickness of 0.020 (200 microns, or .200 millimeters). (Leister, Tr. 3996).

104. Daramic's response to a bid request by Exide indicated product codes, product specifications, the plants from and to which the products would be shipped, and several of the specific applications in which Daramic's separators would be used. (Gillespie, Tr. 3013-16, *in camera*; PX1028 at, *e.g.*, 004, 009, 024, *in camera*).

105. Daramic is aware that certain backweb thicknesses are typically used in particular types of end use applications. (Roe, Tr. 1308). Customers often request a specific backweb thickness when they order separators from Daramic. (Roe, Tr. 1308-09). Daramic has data on the precise backweb thicknesses for all of its separator sales in its Advanced Forecasting System ("AFS") database. (Roe, Tr. 1309-10).

106. When EnerSys provides technical specifications to a separator manufacturer, those specifications convey the type of battery and may even specify the name of the battery. For instance, when EnerSys provided its specifications to {[redacted]} its drawings noted that it was requesting a DX separator with certain attributes. (Gagge, Tr. 2523, *in camera*).

107. Mr. Gagge at EnerSys is not aware of a single instance in which a separator supplier was unaware of the application in which its separator would be used. (Gagge, Tr. 2524, *in camera*). EnerSys indicates to its separator supplier the intended battery application so that the supplier can assist EnerSys in finding the right product for that application. (Gagge, Tr. 2524, *in camera*).

108. Daramic can determine the end use of the separators that it sells to EnerSys because EnerSys produces specific batteries at specific facilities. In Richmond, Kentucky, EnerSys manufactures a tubular-plate motive power battery. (Axt, Tr. 2099). In Ooltewah, Tennessee, it manufactures a flat-plate motive power battery. (Axt, Tr. 2099-100). In Monterrey, Mexico, it produces a flat-plate motive power battery, along with flooded telecom batteries for the Mexican market; and in Hays, Kansas, it produces flooded batteries for the telecom and UPS industries, in addition to battery backup for utilities. (Axt, Tr. 2099-100).

109. Separator suppliers work with their battery customers to try to ensure that the separator will work well with the other components of the battery and meet the needs of the end use application. (Gillespie, Tr. 2932).

110. In developing a new separator product, it is important to know the application for which the battery is intended. As Director of R&D at Microporous, Brilmyer insisted upon knowing the need that any new separator would fill and the application that it would serve before a separator project could become active. (Brilmyer, Tr. 1828). He explained that "you're trying to invent something to solve some problem and you have to know" the end use for the separator to do that. (Brilmyer, Tr. 1829).

111. Daramic tries to ascertain what its customer wants and to provide its customer with the appropriate separator for the specified application. (Whear, Tr. 4779).

112. Daramic actually suggests specific separators for specific applications, especially when its customers are transitioning from one type of material to another. (PX0913 (Whear, Dep. at 6), *in camera*). "[A]s we come up with new products, then we'll go in and we'll tell [the customer] where these products might best fit and how to utilize them." (PX0913 (Whear, Dep. at 6), *in camera*).

113. Most of Daramic's production is "order-based." (Gaugl, Tr. 4623). In other words, Daramic usually knows the customer for which it is producing a product. (Gaugl, Tr. 4623-24). Daramic rarely builds any inventory absent the name of a customer for that production. (Gaugl, Tr. 4624).

114. The average price of Daramic's SLI separators is \$0.70 per square meter. (Roe, Tr. 1313). Daramic does not sell any stationary (such as a UPS) separator for less than \$1.00 per square meter, even if the separator is supplied without a glass mat; most of its stationary separators are sold for more than \$2.00 per square meter. (Roe, Tr. 1315-16). Daramic HD separators, for deep-cycle applications, range in price from \$1.50 up to \$2.90 per square meter, depending on their configuration (*e.g.*, with or without glass mat, and whether in cut pieces or in a roll). (Roe, Tr. 1314-15). Daramic's motive power separators range in price from \$1.90 to \$3.00 per square meter. (Roe, Tr. 1315).

115. Separators for different end use applications return different gross margins for Daramic. (*See* RRFF No. 48). Daramic was, for example, in 2006, selling both motive power and stationary separators to C&D Battery ("C&D")1325-26, ; PX0806 at 002-03). Daramic knew at that time the breakdown in its sales, by dollar value and square meters, of motive power versus stationary separators to C&D. (PX0806 at 003). Daramic was earning a {[redacted]} gross margin on its sales of stationary separators, and a {[redacted]} gross margin on its sales of motive power separators, to that customer. (PX0806 at 003).

116. In April 2008, Daramic compared its average selling price, for both golf and industrial battery separators, for CellForce, a former Microporous product, and Daramic HD. (PX0395 at 040-41, *in camera*). Both CellForce and Daramic HD had a higher average selling price, and a higher apparent contribution margin (as measured by the percentage difference between the average selling price and the direct manufacturing cost), for golf than for industrial battery separators. (PX0395 at 040-41, *in camera*; Hauswald, Tr. 793-95, *in camera*). However, at least some of the higher apparent contribution margin, for both CellForce and Daramic HD, for golf than for industrial separators may reflect the cost of the glass mat that is typically added to the separator for golf cart, but not for industrial applications. (*See* Hauswald, Tr. 793-95, *in camera*).

117. Arbitrage of separators – in the sense of resale by customers charged lower prices to customers charged higher prices – is unlikely, because separators are for the most part differentiated products, manufactured with customer-specific designs. (F. 85, 92).

118. According to EnerSys, UPS separators that it purchased could not be resold to other battery manufacturers because those separators are "made for [EnerSys'] design" and "there is no other market for them." (Burkert, Tr. 2326). When EnerSys asked Daramic to take back some separators and resell them, EnerSys was informed that no other customer used that material, so it could not be resold. (PX1257 at 001; Burkert, Tr. 2328-30). When EnerSys tried to return motive separators to Daramic in 2004, Daramic responded, "If we had a place to sell them we would help. Every industrial motive power customer wants their specific size. For one reason or another company X believes they need a separator ½ [inch] taller than [the separator for] EnerSys." (PX1275 at 001).

119. During the 2008 strike at Daramic's Owensboro plant, EnerSys was able to find only one satisfactory alternative source for the separators it needed to keep its own plants running. (Burkert, Tr. 2330-33). EnerSys found these separators at the Feistritz plant that Microporous had built in Austria, but discovered that separators of that profile could only be used at EnerSys' Monterrey plant in Mexico. (Burkert, Tr. 2333). EnerSys also learned that the separators from Feistritz would cost approximately 20% more, given duties, freight, and other costs, than the separators from Owensboro. (Burkert, Tr. 2333-34).

e. Product markets in general for flooded lead-acid battery separators

120. Daramic recognizes separate markets or "market segments" for deep-cycle, motive power, reserve power, and SLI separators. In April 2008, following its acquisition of Microporous, Daramic held a "Strategic Planning Session: Products and Markets," which Messrs. Hauswald, Roe, and Gilchrist, among others, attended. (Gilchrist, Tr. 458-59, *in camera*; PX0395 at 002, *in camera*). The attendees analyzed Daramic's product offerings, competition, and product positioning in the following "market segments": deep-cycle, motive power, reserve power, and SLI separators. (Gilchrist Tr. 458-62, *in camera*; PX0395 at 019, *in camera*; *see, e.g.*, PX0395 at 023, 025-27, *in camera*, for further detail). Deep-cycle separators were considered part of a broader "specialty" market; motive and reserve power separators were considered part of a broader "industrial" market. (PX0395 at 019, *in camera*).

121. Complaint Counsel proffered Dr. John Simpson, an FTC employee for nineteen years, as an expert in antitrust economics and industrial organization. (Simpson, Tr. 3162-63). Dr. Simpson opined, correctly, that deep-cycle, motive, UPS, and SLI battery separators are each relevant product markets. (Simpson, Tr. 3170-71; PX0033 (Expert Report of John Simpson) at 007, *in camera* ("Simpson Report")).

122. Battery separators are for the most part differentiated products, made with customer-specific designs; this product differentiation limits the ability of battery manufacturers to switch to different battery separator products. (*See* F.117-19; *see also* Kahwaty, Tr. 5133-34, *in camera* (Respondent's expert conceding that with such "highly differentiated" products as battery separators, there are "potentially very complicated substitution patterns that could result" in response to a separator manufacturer's small but significant price increase)).

123. Dr. Simpson, based largely on "statements by the [separator] buyers that they had very little options to substitute," correctly concluded that the demand for the battery separators at issue was in general "very inelastic." (Simpson, Tr. 3414, *in camera*). Dr. Kahwaty, Respondent's expert, agreed that demand for one type of separator – those used in deep-cycle batteries – is "inelastic." (Kahwaty, Tr. 5317, *in camera*).

124. The demand for battery separators is inelastic. Thus, a price increase by the separator manufacturer would be profitable even if the manufacturer has a high contribution or profit margin. (Simpson, Tr. 3414, *in camera*). The manufacturer's higher price on the units it would continue to sell would more than offset the profit that it would lose from those relatively few customers who would not, at that higher price, buy the product. (PX033 (Simpson Report) at 006, *in camera*).

2. Separators for deep-cycle flooded lead-acid batteries are a relevant product market

125. Complaint Counsel alleges that separators for deep-cycle flooded lead-acid batteries ("deep-cycle battery separators" or "deep-cycle separators") are a relevant product market. (Complaint ¶ 5(a)).

126. Respondent denies that deep-cycle separators are a relevant product market. (Answer ¶ 5).

127. Based on the findings below, deep-cycle separators constitute a relevant product market. (F. 128-89).

a. Product characteristics

(i) General characteristics

128. In its business operations, Daramic uses the term "deep-cycle" to denote certain types of batteries that deeply discharge, such as those intended for golf carts, floor scrubbers, and scissor lifts. (Whear, Tr. 4764).

129. Important traits of a deep-cycle battery are its capacity and its life. (Godber, Tr. 138). A deep-cycle battery for an original equipment golf cart should last at least four years. (Godber, Tr. 138).

130. Both deep-cycle and motive batteries are cycling batteries. (Roe, Tr. 1197). One basis for differentiating deep-cycle batteries from motive power batteries is that deep-cycle batteries are typically more deeply discharged. (Roe, Tr. 1197).

131. Deep-cycle batteries are distinct from automotive SLI batteries. SLI batteries are used to start an engine, whereas deep-cycle batteries, for products like golf carts and floor-sweeping machines, are designed to run at lower amperage or current draw for a longer period of time. (Qureshi, Tr. 1994; Godber, Tr. 137-38).

132. The construction of a deep-cycle battery generally differs from that of other types of batteries, particularly automotive batteries. (Godber, Tr. 138). Deep-cycle batteries are made with thicker and more durable plates or grids, which can better withstand deep discharges and corrosion. (Godber, Tr. 138; Qureshi, Tr. 1997-98). The active material for the positive plate is also made with a different formula in a deep-cycle battery. (Godber, Tr. 138). It is high-density active material that takes longer to fall apart. (Qureshi, Tr. 1995).

133. Deep-cycle batteries typically use a lead alloy grid with relatively high antimony content. (Godber, Tr. 138-39; Quershi, Tr. 1995). At U.S. Battery, the positive grid for a deep-cycle battery has an antimony content of 5%; the negative grid has an antimony content of 2.75%. (Qureshi, Tr. 1998). The grid for an SLI battery

generally has much lower antimony content than the grid for a deep-cycle battery, or no antimony content at all. (Qureshi, Tr. 1995-96).

134. U.S. Battery uses "leaf" separators, assembling the plates and the separators by hand, for all of its deep-cycle batteries. (Qureshi, Tr. 2035-36). U.S. Battery does have an "enveloping" machine that it could use to automatically assemble "envelope" separators, which come in a roll and are normally made of polyethylene, and plates. (Qureshi, Tr. 2036). U.S. Battery has, however, determined through testing and experimentation that enveloped separators do not work well in deep-cycle batteries, "[b]ecause the shed material falls to the bottom and creates punctures and the shed material rises to the top and prematurely creates internal shorts against the strap." (Qureshi, Tr. 2035).

135. In a deep-cycle battery, lead and lead oxide are the most expensive components. (Qureshi, Tr. 1993). The separator is the next most expensive component. (Qureshi, Tr. 1993).

(ii) Antimony's functions and "antimony poisoning"

136. Antimony plays important functions in deep-cycle batteries. (Quershi, Tr. 2001). Antimony hardens and strengthens the lead or lead alloy to make it easier to handle and assemble. (Qureshi, Tr. 2001). Antimony also helps in casting the plate or grid. (Godber, Tr. 139). Antimony enlarges the grid by increasing the flow of the molten lead that is poured into the mold for the grid. (Godber, Tr. 139).

137. Importantly, antimony enables better adhesion to the grid of the battery's active material or paste, which enhances conductivity and battery performance. (Godber, Tr. 139; PX1791 at 001). Antimony is what makes a battery a deep-cycle battery; with insufficient antimony, the battery's cycle of charges and discharges would lose capacity. (Qureshi, Tr. 2001-02, 2006).

138. Traces of antimony are released when the lead alloy grid of a deep-cycle battery corrodes. (Qureshi, Tr. 2002; PX1791 at 001). If the antimony migrates from the positive to the negative plate, and "plates" or deposits onto the negative plate, "antimony poison" or "antimony poisoning" occurs. (Godber, Tr. 139; Qureshi, Tr. 2002).

139. Antimony poisoning causes the voltage of the battery to drop. (Godber, Tr. 139-40). The charger must, accordingly, charge longer, creating more gas and more heat, and, thus, greater water loss and corrosion. (Godber, Tr. 139-40). Excessive gassing as a result of antimony on the negative plate weakens the battery and shortens its life. (Qureshi, Tr. 2002-03). The water loss that excessive gassing causes also requires the battery user to water the battery more often. (Qureshi, Tr. 2002-03).

140. Battery separators that are made of rubber, or that contain a rubber additive, reduce antimony poisoning in deep-cycle batteries. (PX1791 at 001; PX0798 at 001, 004; Godber, Tr. 140, 149-50; *see* PX0913 (Whear, Dep. at 052), *in camera*). Rubber-based separators work best at protecting against antimony transfer and antimony poisoning. (Godber, Tr. 149-50).

141. Daramic offers multiple separator products – Flex-Sil, HD, and CellForce – that are designed for deep-cycle applications such as golf carts and that have the "rubber effect" to combat antimony transfer. (PX1791 at 001; Hauswald, Tr. 663-64).

142. To reduce antimony transfer, East Penn Battery uses Daramic HD separators in its golf cart and floor scrubber batteries. (Leister, Tr. 4038-39). East Penn Battery also uses straight PE separators for these and other deep-cycle applications. (Leister, Tr. 3978-79). Another customer, JCI, is also aware that golf cart batteries require a separator with a low antimony transfer formulation. (PX1514, *in camera*).

(iii) Pure rubber (Flex-Sil), hybrid rubber/polyethylene (CellForce and Daramic HD), and pure polyethylene separators

143. In products like Flex-Sil, the separator is made of natural rubber. (Hauswald, Tr. 664; PX1791 at 001). Flex-Sil includes rubber in a solid form, which makes up about 40% of the separator's content. (Hauswald, Tr. 672-73).

144. Microporous developed another separator product, CellForce, in the late 1990's for motive power, golf cart, and other applications. (PX0920 (Gilchrist, IHT at 38-39), *in camera*).

145. Daramic introduced its first deep-cycle separator, Daramic DC ("Daramic DC" or "DC"), in 2002. "DC was specifically targeted as an alternative to the rubber separator (Flex-Sil) [that was] being used [in] golf cart and floor scrubber batteries." (PX0319 at 003). Daramic introduced Daramic HD ("Daramic HD" or "HD"), a separator that it considered to be an improvement on DC, in 2005. (PX0319 at 003). HD was targeted at the same market as Microporous' Flex-Sil, for deep-cycle applications. (PX0316 at 002).

146. In Daramic HD and in CellForce, the separator is made from PE for increased strength and incorporates a rubber additive. (Hauswald, Tr. 664; PX1791 at 001).

147. Daramic HD includes rubber in the form of latex, which is added in a liquid form. (Hauswald, Tr. 671-72). Because Daramic HD contains uncrosslinked rubber material, all of the material is available to retard antimony poisoning. (PX0675 at 013). Daramic HD performs comparably in life-cycle testing to a rubber

separator, in a way that a straight PE separator cannot. (Whear, Tr. 4805-06; PX0582 at 046; PX0798 at 003-04; *see* PX1744 at 004, *in camera*).

148. The CellForce separator includes rubber in the form of ground-up Ace-Sil, which is added in a powder form. (Gilchrist, Tr. 312; Hauswald, Tr. 672).

149. Daramic HD is available for deep-cycle applications in backweb thicknesses of 13 and 15 mils, and, as of 2009, 12 mils. (Whear, Tr. 4805-06; PX0582 at 046; Roe, Tr. 1311-12).

150. Separators that are made of pure polyethylene are not able to suppress antimony poisoning. (Gilchrist, Tr. 365; Qureshi, Tr. 2005; *see* Quershi, Tr. 2003-05). Pure PE separators do not perform as well as separators that are made of rubber, or that incorporate a rubber additive, in deep-cycle applications. (Hauswald, Tr. 666; *see also* PX1124 at 001 (noting two to three times more cycles for rubber than for PE separators)).

151. In deep-cycle batteries, the grid of the separator expands and contracts when the battery cycles through charges and discharges. (Gilchrist, Tr. 365). Because antimony, which aids in this process of expanding and contracting, is used in the grid in deep-cycle batteries, the separator should inhibit antimony poisoning. (Gilchrist, Tr. 365). Rubber-based separators inhibit antimony poisoning quite well. (Gilchrist, Tr. 365).

152. While it is physically possible to use a typical car battery separator in a deep-cycle application, the battery life would be extremely short. (Godber, Tr. 151). Use of a PE separator in a deep-cycle product would drastically reduce the life of the battery to about 20% of its life when Trojan Battery's rubber-based separators are used. (Godber, Tr. 151-52). Trojan Battery has tested straight PE separators in its deep-cycle products "off and on, and they just don't last." (Godber, Tr. 151).

153. A pure polyethylene separator provides substantially fewer cycles, less than half of what U.S. Battery expects from its separators, than a deep-cycle separator. (Qureshi, Tr. 2005). U.S. Battery expects a deep-cycle battery for a typical golf cart use to go at least 600 or more cycles, with each cycle defined as a charge/discharge. (Qureshi, Tr. 2005-06). A pure polyethylene separator "would last perhaps 150 to 300 cycles." (Qureshi, Tr. 2005).

154. Exide does not use straight PE separators in deep-cycle batteries because straight PE separators do not meet its performance criteria. (Gillespie, Tr. 2933). In negotiations with Daramic and Microporous, Exide never indicated that it would switch to a straight PE separator for golf cart or floor scrubber batteries. (Gillespie, Tr. 2933). A straight PE separator in a deep-cycle battery would reduce the battery's quality and reliability and harm Exide's reputation. (Gillespie, Tr. 2933-34).

155. Trojan Battery has never stated an intent to purchase straight polyethylene separators in an effort to constrain the prices that it pays for deep-cycle separators. (Godber, Tr. 155). Mr. Godber, of Trojan Battery, cannot recall any instance in which Trojan Battery successfully used the possibility of purchasing PE separators as leverage in its price negotiations with Microporous. (Godber, Tr. 223).

156. All of Daramic's separator products for golf cart and other deep-cycle applications function in a similar way, and offer performance that is different than, and superior to, the performance of pure PE separators in those applications. (Hauswald, Tr. 664, 666; PX1791 at 001).

(iv) Alternative technologies

157. A separator made of PVC or silica poses "[n]o serious [competitive] threat in the flooded deep-cycle battery market" because it does not suppress antimony poisoning. (PX0319 at 007-08; *see also* Gagge, Tr. 2520-21, *in camera*) (noting "issues" or risks with PVC separators, particularly at elevated temperatures).

158. Exide will not use PVC in its deep-cycle golf cart or floor scrubber batteries. PVC separators do not work well in those applications because PVC is very brittle and may leach chlorine. (Gillespie, Tr. 3042, *in camera*).

159. Sealed batteries using AGM separators do not perform well in golf cart or floor scrubber applications. (Roe, Tr. 1208; Gilchrist, Tr. 366). AGM does not work well in deep-cycle batteries, where its use can cause the shedding of lead particles that could penetrate an AGM separator. (PX0433 at 002; PX0911 (Roe, Dep. at 118-20), *in camera*). H&V does not foresee wide-scale use of AGM in golf cart applications for many, many years. (PX0433 at 002).

160. Sealed batteries, with separators composed of silica gel or AGM, last only about 50 to 75% as long as good flooded lead-acid batteries in a deep-cycle application. (Godber, Tr. 147-48). In other words, flooded deep-cycle batteries have 25 to 50% longer life than sealed deep-cycle batteries. (Godber, Tr. 149). Sealed batteries are also more expensive than flooded batteries. AGM batteries cost around 30% more, and gel batteries cost around 50% more, than flooded batteries in a similar application. (Godber, Tr. 149).

161. Sealed batteries may be used for a deep-cycle application in a location, such as an airport or a hospital, where the use of a flooded battery may be prohibited. (Godber, Tr. 148). Trojan Battery does not produce sealed batteries, but buys some for resale. (Godber, Tr. 148). Approximately 1% of the batteries Trojan Battery sells are sealed. (Godber, Tr. 148).

b. End use applications

162. The primary end use application for deep-cycle batteries is in golf carts, but deep-cycle batteries also are used in floor scrubbers and other applications. (Gilchrist, Tr. 305; Godber, Tr. 143; Gillespie, Tr. 2931; Wallace, Tr. 1955-56). The biggest end use applications for Trojan Battery are in golf carts, floor scrubbers, and then scissor lifts and boom lifts. (Godber, Tr. 143).

163. Daramic markets Flex-Sil, CellForce, and Daramic HD for golf cart batteries. (PX1791 at 001).

164. Even though Exide does not currently use Daramic HD in its original equipment ("OE") deep-cycle batteries, Exide expects to qualify Daramic HD for use in all of its deep-cycle batteries, including those that go into original equipment. (Gillespie, Tr. 3091).

165. An estimated 14 to 15% of deep-cycle batteries are sold to OE manufacturers; the balance is sold in the aftermarket. (Gilchrist, Tr. 357-58, 608-09). Trojan Battery, the largest manufacturer of golf cart batteries in the world, sells 40% of those batteries in the OE market and 60% in the aftermarket. (Godber, Tr. 274, 278).

166. Exide sells golf cart batteries in both the OE and the aftermarket. (Gillespie, Tr. 2932). Approximately 90% of the golf cart batteries that Exide sells are sold in the aftermarket, with the remainder going to the OE market. (Gillespie, Tr. 2932).

c. Responsiveness of demand and supply to changes in price and product availability

(i) No switching to separators that do not include rubber in response to post-acquisition price increases on deep-cycle separators

167. Since Daramic's acquisition of Microporous, U.S. Battery has "nowhere to go but to the single source," Daramic, for its deep-cycle flooded battery separators. (Wallace, Tr. 1951).

168. U.S. Battery has over the years sought out alternative suppliers for its deep-cycle separator needs, but has found no alternative supplier for flooded deep-cycle batteries. (Wallace, Tr. 1943-44). At one point within the past three years, U.S. Battery sought to persuade Entek to supply these separators, but Entek has not entered the deep-cycle separator market. (Wallace, Tr. 1943-44, 1950-51). U.S. Battery does intend, however, to soon import to its plants in North America an AGM deep-cycle separator that is made in China. (Wallace, Tr. 1975-76).

169. Over the past year, U.S. Battery designed two new product lines, US 27DC and US 31DC, for which it planned to use Daramic HD separators. (Wallace, Tr. 1948-49). Daramic did not then indicate that it would not be able to supply the HD separators U.S. Battery specified. (Wallace, Tr. 1949-50). U.S. Battery later received word from Daramic that neither Daramic HD nor CellForce was available in the specified size. (Wallace, Tr. 1948-49). Daramic found that it did not have the tooling to make such a thin separator for its HD or its CellForce product. (McDonald, Tr. 3823-24). Daramic informed U.S. Battery that it could only supply its Flex-Sil separator, which costs around twice as much as its HD separator, for the two new battery lines. (Wallace, Tr. 1948-50).

170. Following the acquisition, Daramic increased prices on Flex-Sil, CellForce, and HD. (Roe, Tr. 1218). Despite these price increases, Daramic has not lost any deep-cycle business to any competitor anywhere in the world. (Roe, Tr. 1217-18). In addition, Daramic's post-acquisition price increases on deep-cycle separators have not caused any customer to switch from a rubber or hybrid rubber/PE separator to a straight PE separator for use in a deep-cycle battery. (Roe, Tr. 1218).

171. East Penn Battery purchases HD from Daramic for use in its golf cart batteries under a contract entered into in late 2007 or early 2008. (Roe, Tr. 1220-21; RX01519, *in camera*). East Penn Battery continued to purchase HD for its golf cart batteries, and did not switch to a straight PE product, despite the 5% price increase on Daramic HD separators in 2009. (Roe, Tr. 1222-23).

(ii) No switching to separators that do not include rubber in response to the limited supply of Daramic HD due to a strike

172. HD supply was limited during the 2008 strike at Daramic's Owensboro plant. (Roe, Tr. 1219). Despite the limited availability of HD during that strike, no customers switched from HD to a straight PE product for use in a deep-cycle application. (Roe, Tr. 1219).

173. The Owensboro strike limited the availability of Daramic HD to Exide. (Roe, Tr. 1223). The HD shortage forced Exide to purchase Flex-Sil as the only available alternative for its deep-cycle battery application. (Roe, Tr. 1223). Only by purchasing Flex-Sil was Exide able to avoid a supply interruption during the strike. (RX01260). In purchasing Flex-Sil in place of HD during the strike, Exide not only paid a premium for Flex-Sil, but also had to forego a credit that it was otherwise due under its contract with Daramic. (Roe, Tr. 1223-24; RX01260).

d. Expert analysis

174. Dr. Simpson, Complaint Counsel's expert economist, correctly concluded that deep-cycle battery separators are a relevant product market. (Simpson, Tr. 3170-71; PX0033 (Simpson Report) at 012, *in camera*). In reaching this conclusion, Dr. Simpson observed: (1) "both producers and customers note that rubber or PE/rubber deep-cycle battery separators meet a unique need that other battery separators cannot meet"; (2) "customers indicate that they would not switch to other battery separators" in response to a 5% price increase for deep-cycle separators; and (3) "company documents analyze competition in the context of a market for deep-cycle battery separators." (PX0033 (Simpson Report) at 012, *in camera*).

175. Respondent's economic expert, Dr. Henry J. Kahwaty, describes demand for separators in the golf cart and floor scrubber market as "inelastic." (Kahwaty, Tr. 5317, *in camera*).

176. Dr. Simpson estimated the "critical loss" for each of the following types of battery separators: deep-cycle, motive, UPS, and SLI. (PX0033 (Simpson Report) at 005-06 & nn.6-8, *in camera*). He defined the critical loss as the largest amount of sales that a hypothetical monopolist of each type of separator could lose before a price increase of 5 to 10% would become unprofitable. (PX0033 (Simpson Report) at 006, *in camera*).

177. The contribution margin for deep-cycle, motive, UPS, and SLI battery separators "does not appear to be higher than roughly {[redacted]} (PX0033 (Simpson Report) at 006 & nn.6-7, *in camera*). At a contribution margin of {[redacted]} or less, a hypothetical monopolist of each of these types of battery separators could profitably impose a 5% price increase, as long as it would then lose less than {[redacted]} of its sales; it could profitably impose a 10% price increase, as long as it would then lose less than {[redacted]} of its sales. (PX0033 (Simpson Report) at 006 & n. 8, 007, *in camera*).

178. A hypothetical monopolist of each type of battery separator – deep-cycle, motive, UPS, and SLI – would "lose essentially no sales" to other products if it raised its price by 5 to 10%. (PX0033 (Simpson Report) at 006-07, *in camera*).

179. In support of his conclusion that deep-cycle battery separators are a relevant product market, Dr. Simpson correctly determined, for the deep-cycle batteries that are used in golf carts and floor scrubbers, battery manufacturers would not switch to products other than Flex-Sil, CellForce, or Daramic HD, even with a 5% increase in their price, because there are no close substitutes for those three products. (PX0033 (Simpson Report) at 012, *in camera*; Simpson, Tr. 3172. *See generally* Simpson, Tr. 3169-72 (describing market definition as a process of identifying close substitutes)).

e. "Practical indicia": distinctive characteristics and uses, as well as industry recognition of a separate market

180. Deep-cycle batteries, and deep-cycle battery separators, have distinctive characteristics and distinctive uses or functions. (F. 128-156, 162-166).

181. A Daramic document refers to a "[d]eep-cycle battery market" consisting of golf cart, floor scrubber, and some marine batteries. (PX0263 at 004, *in camera*). Daramic's head of sales and marketing defines deep-cycle as "the golf cart/floor scrubber type" of battery. (PX0922 (Roe, IHT at 54), *in camera*).

182. A Microporous management presentation refers to a "deep-cycle electric golf car and scrubber market." (PX0131 at 040). It also refers to "a golf car and scrubber market segment" or "golf and scrubber market" within a broader specialty battery separator market. (PX0131 at 029). Mr. Gilchrist, the former CEO and President of Microporous, states that "[t]he way Microporous characterized deep-cycle, it was predominantly golf car and scrubber, sweeper/scrubber." (Gilchrist, Tr. 305).

183. Daramic recognizes a market, or a "market segment" or sub-segment that is part of a broader "specialty" market, for deep-cycle battery separators. (PX0395 at 019, *in camera*). Daramic considered "[m]arket segment offerings and competition" in specialty separators at its "Strategic Planning Session: Products and Markets" in April 2008. (PX0395 at 027, *in camera*). It separately analyzed "[m]arket segments and current [product] positioning," listing no product overlap, in the "Deep Cycle / Golf Car (including scrubber and marine)," "Marine – Starting: part of SLI?," and "Military" market segments or sub-segments. (PX0395 at 033, *in camera*).

184. In a document entitled "Heavy Duty (Deep-Cycle) Strategy - 2006," Daramic recognized only Microporous as a competitor. (PX0319 at 007). This document noted that Entek had left that market, and that the standard PE separator that Entek had supplied for golf carts would "either switch to HDDC, Rubber or Cellforce." (PX0319 at 007). Amer-Sil's PVC separator was deemed "[n]o serious threat in the flooded deep-cycle battery market as it does not [provide] antimony suppression." (PX0319 at 007).

185. Daramic "aggressively pursue[d]" the "golf cart/deep cycle battery market." (PX1071 at 001-02; *see also* PX0736 at 002 (indicating as a "Goal and Objective" greatly increased sales for deep-cycle batteries of Daramic HD)).

186. As President of Microporous, Mr. Gilchrist calculated deep-cycle market shares of 96% for Microporous and 4% for Daramic. (PX0078 at 007, *in camera*). Mr. Gilchrist identified Daramic HD and its precursor, Daramic DC, as the only products that competed with Microporous' Flex-Sil and CellForce in golf cart and floor scrubber applications. (PX0920 (Gilchrist, IHT at 35, 39), *in camera*).

187. A Microporous document, which describes a "golf, scrubber separator market," calculates the market shares in 2006 of the two competitors that it identifies in this market: Microporous, with a 98% share, and Daramic, with a 2% share. (PX0506 at 001-02, *in camera*). To quote another Microporous document, Microporous "dominate[s] the golf . . . market[]." (PX1124 at 001).

188. U.S. Battery presents itself as the leading manufacturer worldwide of deep-cycle batteries. (Wallace, Tr. 1955). U.S. Battery has purchased the separators for its deep-cycle batteries only from Microporous and Daramic. (Wallace, Tr. 1958).

189. Prior to the acquisition, Exide sent out a request for proposal (or "RFP") for all of its polyethylene requirements to the top separator manufacturers around the globe. (Gillespie, Tr. 2962-63, 2967). Only Daramic and Microporous bid in response to this RFP to sell separators to Exide for golf cart batteries. (Gillespie, Tr. 2967).

3. Separators for motive flooded lead-acid batteries are a relevant product market

190. Complaint Counsel alleges that separators for motive flooded lead-acid batteries ("motive battery separators" or "motive separators") are a relevant product market. (Complaint ¶ 5(b)). Motive batteries and their separators are also referred to as "traction" or "industrial traction" batteries and separators. (*See* Godber, Tr. 141-42).

191. Respondent denies that motive separators are a relevant product market. (Answer ¶ 5).

192. Based on the findings below, motive separators constitute a relevant product market. (F. 193-220).

a. Product characteristics

(i) Size and construction

193. Motive batteries are typically very large; they can, thus, serve as counterweights in industrial vehicles (especially material-handling equipment) to help to make those vehicles stable. (PX2110 at 034-35). Motive batteries are, as a rule, much larger than deep-cycle batteries and their construction is much more robust. Motive batteries use a steel tray rather than plastic and glass mat is wrapped around the plate. (Godber, Tr. 142).

194. Motive batteries must be able to withstand at least five years of use, as that is the typical warranty on a forklift battery. (Godber, Tr. 142). Motive batteries, like deep-cycle batteries, tend to corrode, but motive batteries take longer to corrode because their grids are much thicker. (Godber, Tr. 142). In addition, the positive plates in these batteries are surrounded with a great deal of insulation to keep the

active material from seeping out and creating an electrical short. (Godber, Tr. 142). The insulation that is used in motive batteries is very expensive and is not a cost-effective option for deep-cycle batteries. (Godber, Tr. 142-43).

195. Motive separators generally have thicker backwebs than other separators, particularly SLI separators. (Hauswald, Tr. 708-09). Daramic has, for this reason, allocated a particular part of its plant capacity to motive separators. (Hauswald, Tr. 708-09).

196. A Daramic marketing flyer distinguishes motive from SLI ("starter") separators as follows:

> [T]he requirements for traction batteries in respect of mechanical properties and chemical stability are considerably higher than for starter battery separators. This is due to the fact that a fork lift battery is typically operated for about 40,000-50,000 hours in charge-discharge service whereas a starter battery only for 2,000 hours. The requirements as to electrical resistance are lower because of the typically low current densities for traction batteries. These differences are reflected in the design of the modern traction battery separator material.

(PX1790 at 001).

(ii) Formulations

197. For traction (motive) batteries, Daramic sells a product called Daramic Industrial CL. (Hauswald, Tr. 681). While Daramic CL was specifically designed for motive applications, it is also used in stationary applications. (Roe, Tr. 1327; Whear, Tr. 4784-85). Daramic CL is a standard PE separator. The CL stands for clean oil and signifies the use of clean oil as an ingredient. (Roe, Tr. 1327).

198. CellForce is a PE-based separator that includes rubber in the form of ground-up Ace-Sil. (Gilchrist, Tr. 312; Hauswald, Tr. 672). Prior to the acquisition, Microporous sold its CellForce product in the motive market. (Gilchrist, Tr. 300-01, 385).

199. Daramic HD was sold to certain traction customers, "pri[m]arily as a defensive move against [Microporous'] CellForce." (PX0316 at 002).

(iii) PVC as an alternative technology

200. Battery manufacturers in North America have shied away from using PVC separators due to certain disadvantages of PVC as compared to PE. (*See* PX1790 at 001-02; *see also* PX0916 (Dauwe, Dep. at 22), *in camera*) (comparing PVC to PE separators). While PVC has greater resistance to oxidation, it has lower electrical resistance, {[redacted]

[redacted]} than PE. (PX0916 (Dauwe, Dep. at 22), *in camera*). Due to its stiffness and brittleness, PVC, unlike PE, cannot be used in industrial applications in which the separator is sleeved or enveloped. (PX0916 (Dauwe, Dep. at 22-23), *in camera*).

201. The use of PVC separators is also associated {[redacted]} (PX0916 (Dauwe, Dep. at 125-28), *in camera*). {[redacted]} (PX0916 (Dauwe, Dep. at 125-28), *in camera*). One battery manufacturer, {[redacted]} (PX0916 (Dauwe, Dep. at 88, 122), *in camera*). {[redacted]} (PX0916 (Dauwe, Dep. at 158), *in camera*).

202. A Daramic document details the problems with microporous (extruded) and sintered (formed into a mass by heating) PVC separators. (PX1790 at 002). It states that microporous PVC lacks the flexibility and strength of a PE separator, is harder to form into envelopes or sleeves, generates harmful substances (chloride ions), and is generally very expensive, and that "sintered PVC separators will not meet the demanding performance and cycle life applications" of motive power. (PX1790 at 002).

203. The vast majority of demand for motive power is limited to two regions: North America and Europe. (Gilchrist, Tr. 399). EnerSys uses some PVC separators, manufactured by Amer-Sil, for certain light-duty motive applications (of 115 amperes per hour and below) in Europe; EnerSys does not use, or approve the use of, PVC separators for its batteries in North America, where the applications are more heavy-duty. (Axt, Tr. 2307, *in camera*). "[I]n Europe there are certain applications where [EnerSys] would allow the use of PVC; however, [EnerSys has] not used it as a backup or as a replacement" for PE in North America. (Gagge, Tr. 2512, *in camera*).

b. End use applications

204. Motive batteries are used primarily in forklift trucks. (Gilchrist, Tr. 306-307; Axt, Tr. 2097; Hauswald, Tr. 708; Godber Tr. 142). Motive batteries must provide low, steady power over a much longer period of time than lighter duty deep-cycle batteries. (PX0319 at 008).

c. Responsiveness of demand and supply to changes in price and product availability

205. Daramic is currently seeking a price increase "in the vicinity" of {[redacted]} from EnerSys. (Craig, Tr. 2552, *in camera*). For EnerSys' motive purchases, Daramic is, more specifically, seeking a {[redacted]} price increase on PE and a {[redacted]} price increase on CellForce separators. (*See* Axt, Tr. 2212, *in camera*; RX0564 at 001).

206. EnerSys indicated that Daramic threatened to cut EnerSys off if EnerSys did not pay a {[redacted]} higher price for its motive separators, EnerSys would have no choice but to pay the higher price, because it has no alternative source to Daramic for industrial PE or PE-based separators. (Craig, Tr. 2567, *in camera*).

207. After Daramic declared force majeure in 2006, EnerSys established a team to search worldwide for an alternative source of supply for industrial PE separators. (Axt, Tr. 2216, *in camera*). EnerSys was unable to find an alternative supplier that currently makes motive separators anywhere in the world. (Axt, Tr. 2216-18, 2220, *in camera*).

208. EnerSys stated that if it had to pay {[redacted]} more for its UPS separators, neither it nor its customers would switch to alternative technologies for motive batteries. (*See* Craig, Tr. 2552-53, *in camera*). There is no alternative separator technology to which EnerSys could switch. (Axt, Tr. 2220, *in camera*. *See generally* Axt, Tr. 2216-20, *in camera* (noting only two suppliers, both in China, as possible alternatives to Daramic for PE industrial separators in the future)).

209. When EnerSys used Amer-Sil's PVC separators in Europe during Daramic's declared force majeure in 2006, the PVC separators from Amer-Sil were approximately 20% more expensive than the PE separators from Daramic. (Axt, Tr. 2101-02).

210. Prior to the acquisition, Exide searched worldwide for alternative suppliers to Daramic for industrial or motive separators. (Gillespie, Tr. 2966-67). For the United States market, Exide received responses to its RFP with respect to motive separators only from Daramic and Microporous. (*See* Gillespie, Tr. 2967-68). Exide did receive a response to its RFP from Amer-Sil, but Amer-Sil had limited capacity, did not quote for the United States market, and appeared to be "a small player only for Europe[an] application[s]." (Gillespie, Tr. 2967).

211. EnerSys reports that a {[redacted]} price increase for motive separators "would not change the dynamics of the market." (Craig, Tr. 2552-53, *in camera*). It would decrease the battery manufacturer's margins, but it would have very little to no impact on the price of the motive battery itself. (Craig, Tr. 2552-53, *in camera*).

212. It costs EnerSys about {[redacted]} to make a UPS battery like the one depicted in demonstrative exhibit PX3002. (Craig, Tr. 2553-54, *in camera*). The cost of the separator is {[redacted]} of the cost of the battery. (Craig, Tr. 2553, *in camera*). EnerSys might sell this battery for {[redacted]} (Craig, Tr. 2553, *in camera*). For ease of calculation, taking a separator cost of {[redacted]} of the battery's total cost, the

cost of the separator in the {[redacted]} battery would be {[redacted]}; a {[redacted]} increase in the separator cost would add {[redacted]} (Craig, Tr. 2554, *in camera*). If EnerSys were to pass this cost increase on to its customers for a {[redacted]} battery, the price of the battery would increase by only {[redacted]} (Craig, Tr. 2554, *in camera*). The numbers for a motive battery like the one depicted in PX3003 are different, but the impact of a {[redacted]} increase in motive separator prices on motive battery prices would be the same. (Craig, Tr. 2554, *in camera*).

213. In the face of a {[redacted]} price increase for motive separators, EnerSys would simply reduce its own profit margin rather than pass along the increase to its customers, which would hurt customer relations by giving them the impression that EnerSys was "nickel-and-diming" them. (Craig, Tr. 2553-54, *in camera*).

d. Expert analysis

214. Dr. Simpson correctly concluded that motive battery separators are a relevant product market. (Simpson, Tr. 3170-71; PX0033 (Simpson Report) at 014-15, *in camera*). In support of this conclusion, Dr. Simpson observed: (1) motive separators have different characteristics than deep-cycle and automotive separators, with both customers and producers noting that motive separators fill a unique need; (2) a 5 to 10% price increase by a hypothetical monopolist of motive separators "would prompt very little shifting, at most, to other products"; and (3) a motive separator market is a context in which Daramic and Microporous documents analyze competition. (PX0033 (Simpson Report) at 014-15, *in camera*).

e. "Practical indicia": distinctive characteristics and uses, as well as industry recognition of a separate market

215. Motive batteries, and motive battery separators, have distinctive characteristics and distinctive uses or functions. (F. 193-96, 204).

216. Daramic's documents analyze a "market," or a "market segment" as part of a broader "industrial" market, for motive battery separators. (PX0072 at 020; PX0185 at 006; PX0131 at 030-31, 035, 062-65; PX0395 at 025, *in camera*; PX0506 at 001-02, 004-05, *in camera*; *see also* PX0080 at 021, *in camera*) (referring to "industrial markets"). Daramic evaluated "[m]arket segment offerings and competition" and "[m]arket segments and current [product] positioning" in motive power at its "Strategic Planning Session: Products and Markets" in April 2008. (PX0395 at 025, 032, *in camera*).

217. At Microporous' January 11, 2006 Board of Directors' meeting, a sales and marketing presentation referred to motive, deep-cycle, and SLI markets, among others. (PX0402 at 012, *in camera*).

218. Microporous' former owners wrote: "CellForce product is being quickly adopted . . . by the motive power market." (PX1124 at 002).

219. As President of Microporous, Mr. Gilchrist calculated global motive power market shares of 74% for Daramic, 20% for Microporous, and 6% for Amer-Sil. (PX0078 at 007, *in camera*). As Mr. Gilchrist later put it, "Within motive power, the primary competitor [to Microporous] was Daramic . . . ." (PX0920 (Gilchrist, IHT at 39), *in camera*).

220. According to another Microporous document, Microporous accounted for 9% of sales volume in the "U.S. Motive Power Market," and 33% of sales volume in the "European Motive Power Market," in 2005. (PX0072 at 024). The latter document identified only Daramic, with a market share of 91%, as a competitor to Microporous in the United States motive power market. (PX0072 at 024). In the European motive power market, this document identified only two competitors to Microporous: Daramic, with a market share of 58%, and Amer-Sil, with a market share of 9%. (PX0072 at 024).

4. Separators for UPS flooded lead-acid batteries are a relevant product market

221. Complaint Counsel alleges that separators for uninterruptable power supply ("UPS") flooded lead-acid batteries ("UPS battery separators" or "UPS separators") are a relevant product market. (Complaint ¶ 5(d)).

222. Respondent denies that flooded UPS separators are a relevant product market. (Answer ¶ 5).

223. Based on the findings below, separators for flooded UPS batteries constitute a relevant product market. (F. 224-45).

a. Product characteristics

224. UPS batteries are a type of reserve power battery for stationary products. (Gilchrist, Tr. 306). Classic reserve power batteries generate a lower current over a longer period of time than UPS batteries, which generate a higher current over a shorter period of time. (Gilchrist, Tr. 306).

225. UPS batteries provide standby power in the event of a power shortage or failure. (Brilmyer, Tr. 1832; Roe, Tr. 1736). UPS batteries are designed to provide a short burst of power, typically of between five to thirty minutes in duration. (Brilmyer, Tr. 1832-33). These batteries need to be very dependable and generally last between fifteen and twenty years. (Brilmyer, Tr. 1832-33).

226. UPS batteries have thick plates. (Brilmyer, Tr. 1832-33). They also tend to be built with a clear case, which facilitates inspection by maintenance personnel of the battery's acid level. (Brilmyer, Tr. 1832-33).

227. UPS battery separators are typically made of microporous polyethylene. (Brilmyer, Tr. 1833). Separators for these stationary, including UPS, battery applications have lower residual oil content as a rule than separators for other applications to reduce the problem of "black scum." (Whear, Tr. 4713-14).

228. Black scum is more than a cosmetic problem. It interferes with the maintenance of a flooded UPS battery, in which the case of the battery is clear, by obscuring the indicators for the acid level in the battery and by making it harder to detect the formation of lead sulfate on the surface of the plates. (Brilmyer, Tr. 1852-55).

229. Black scum is a problem in UPS and other battery applications in which an automatic watering system is used. (Brilmyer, Tr. 1852). In the presence of black scum, a valve for the watering system could get stuck; the battery could then overfill "and make a mess, get[ting] acid all over the floor." (Brilmyer, Tr. 1852-53).

230. Daramic has sought to understand and remedy the black scum problem since the early 1990's. (Whear, Tr. 4710-14). During its early test work, Daramic discovered and obtained a patent on a type of oil, which it called "clean oil," that reduced the black scum problem. (Whear, Tr. 4710-11). Daramic later took steps to optimize the ratio of virgin oil to recycled oil, and to leave more residual oil in its stationary separators; these steps, too, helped to reduce the black scum problem. (Whear, Tr. 4711-14). None of these steps has, however, succeeded in eliminating black scum. (*See* Whear, Tr. 4714).

231. Not all PE separator products are well-suited for UPS battery applications. For instance, "HP is a PE product made by Daramic, not for UPS products. It's a high puncture resistance product made for the automotive industry." (Brilmyer, Tr. 1915).

232. Use of the Daramic HP separator in a flooded UPS battery would lead to a greater black scum issue than the use of Daramic CL. (Brilmyer, Tr. 1922). Daramic CL was specifically designed for industrial applications where black scum is a problem. (*See* Brilmyer, Tr. 1834).

233. Daramic's (and formerly Microporous') CellForce, which includes rubber in the form of ground-up Ace-Sil, can be used in flooded UPS batteries. (Gilchrist, Tr. 307-08, 312, 397-98; Hauswald, Tr. 672). In an April 2008 "Strategic Planning Session" document, Daramic lists CellForce under a motive power "[m]arket segment," but cites "broad applicability" for CellForce's end uses, including UPS applications. (PX0395 at 032, *in camera*).

234. Daramic's Darak separator is made from cross-linked phenolic resin. (Whear, Tr. 4679-80). It is a unique product, inasmuch as it is not PE-based and contains no oil; it is stiff and very chemically stable, with low electrical resistance. (Brilmyer, Tr. 1911-12). Darak is produced in Germany and around 75% of its production is used in gel, as opposed to flooded, batteries. (Hauswald, Tr. 990). Darak can be used in flooded UPS batteries and might solve the black scum problem, but it is at least twice as expensive as the PE-based material used today. (Axt, Tr. 2102-04).

b. End use applications

235. UPS batteries provide backup power for products or facilities that include computers, computer systems, telecommunications networks, and data centers. (Brilmyer, Tr. 1832; Roe, Tr. 1736-37; Axt, Tr. 2099).

c. Responsiveness of demand and supply to changes in price and product availability

236. Daramic is seeking price increases from EnerSys of {[redacted]} on PE, {[redacted]} on CellForce, and {[redacted]} on Darak separators. (Axt, Tr. 2212, *in camera*; RX0564 at 001).

237. If Daramic threatened to cut EnerSys off if it did not pay a {[redacted]} higher price for its UPS separators, EnerSys would have no choice but to pay the higher price because it has no alternative source to Daramic. (Craig, Tr. 2567, *in camera*).

238. After Daramic declared force majeure in 2006, EnerSys established a team to search worldwide for an alternative source of supply for industrial PE separators. (Axt, Tr. 2216, *in camera*). EnerSys was unable to find an alternative supplier that currently makes UPS separators anywhere in the world. (Axt, Tr. 2216-18, 2220, *in camera*).

239. If EnerSys has to pay {[redacted]} more for its UPS separators, neither it nor its customers would switch to alternative technologies for UPS batteries, because there is no alternative separator technology to which it could switch. (Craig, Tr. 2552-53, *in camera*; Axt, Tr. 2219-20, *in camera*).

240. A {[redacted]} price increase for UPS separators "would not change the dynamics of the market." (Craig, Tr. 2552-53, *in camera*). It would decrease the battery manufacturer's margins, but it would have very little to no impact on the price of the UPS battery itself. (Craig, Tr. 2552-53, *in camera*).

241. A {[redacted]} increase in the price of a UPS battery separator would yield only a slight increase in the price of the battery as a whole. EnerSys would simply absorb such a separator price increase rather than pass it along to its customers, and thereby risk harm to customer relations. (Craig. Tr. 2553-54, *in camera*).

d. Expert analysis

242. Dr. Simpson correctly concluded that UPS battery separators are a relevant product market. (Simpson, Tr. 3170-71; PX0033 (Simpson Report) at 016, *in camera*). He adduced the following in support of this conclusion: (1) statements by market participants that UPS separators meet a unique need, (2) EnerSys' indication that it would not switch to other types of separators in response to a {[redacted]} price increase for UPS separators, and (3) Microporous documents that analyzed competition in the context of a UPS separator market. (PX0033 (Simpson Report) at 016, *in camera*).

e. "Practical indicia": distinctive characteristics and uses, as well as industry recognition of a separate market

243. UPS batteries and UPS separators have distinctive characteristics and properties. (F. 224-30, 235, 243).

244. Microporous had a "strategic plan" to enter the "UPS market." (PX0402 at 022, *in camera*; *see also* PX0135 at 002, *in camera* (discussing "Project LENO – Darak Replacement"; PX0140, *in camera*) (also discussing "Project LENO")). Microporous identified only Daramic as its competition in the "reserve power" market, and saw better growth opportunities for itself, by taking sales away from Daramic, in the UPS market than in the broader reserve power "market" into which UPS fit. (*See* PX0078 at 016, 028, *in camera*).

245. Daramic recognizes a "market segment" in "reserve power." (PX0395 at 019, *in camera*). Daramic assessed "[m]arket segment offerings and competition" in reserve power at its "Strategic Planning Session: Products and Markets" in April 2008. (PX0395 at 026, *in camera*).

5. Separators for SLI flooded lead-acid batteries are a relevant product market

246. Automotive flooded lead-acid batteries provide starter, lighter, and ignition ("SLI") power. (Complaint ¶ 10; Answer ¶ 10). Complaint Counsel alleges that the separators for these batteries ("automotive separators" or "SLI separators") are a relevant product market. (Complaint ¶ 5(c)).

247. Respondent denies that SLI separators are a relevant product market. (Answer ¶ 5).

248. Based on the findings below, SLI separators constitute a relevant product market. (F. 249-70).

a. Product characteristics

249. SLI separators must have relatively low electrical resistance to allow for the surge in current that is needed to, for example, start a car. (PX0913 (Whear, Dep. at 13, 16), *in camera*); *see* Whear, Tr. 4682).

250. SLI separators must also be very thin. (Brilmyer, Tr. 1831). A very high percentage – perhaps 90% – of the automotive separators that are produced in North America, and virtually all – by one measure, over 99% – of the automotive separators that Daramic sells, have a backweb thickness of between six and ten mils (150 to 250 microns, or .150 to .250 millimeters). (Whear, Tr. 4762; Hauswald, Tr. 678-79; Roe, Tr. 1310-13). The typical backweb thickness of the automotive separators that are used in the United States is .15 millimeter. (PX0907 (Kung, Dep. at 75), *in camera*).

251. The backweb thickness of SLI separators has been reduced in recent years to lower the separators' cost. (Leister, Tr. 4024).

252. Puncture resistance and mechanical strength are particularly important properties for SLI separators. (Brilmyer, Tr. 1829). The battery would soon fail if the thin membrane of an SLI separator were punctured during automotive assembly or other processes. (PX0913 (Whear, Dep. at 14-16), *in camera*).

(i) Formulations

253. Daramic HP represents the majority of Daramic's sales of automotive separators. (Whear, Tr. 4805). Daramic HP is made from polyethylene, amorphous silica, and specially formulated oil. (PX0582 at 044). The typical backweb thickness of this separator is from 150 to 200 microns, or from .150 to .200 millimeters. (Whear, Tr. 4805; PX0582 at 044).

254. Daramic HP replaced, for the most part, Daramic Standard. (Whear, Tr. 4805). Daramic Standard is formulated from polyethylene, silica, and oil. (PX0582 at 043). Daramic Standard's typical backweb thickness is from 200 to 250 microns. (PX0582 at 043). Daramic Standard might be sold at a backweb thickness of 150 microns, but that would be atypical. (Whear, Tr. 4803-04).

255. Daramic Standard is not normally advertised to the SLI market, due in part to a concern that at the separator thickness that prevails in that market, Daramic Standard would have inadequate puncture resistance. (Whear, Tr. 4803-04).

256. The goal in developing Daramic HP was to provide a product with substantially greater puncture and oxidation resistance than Daramic Standard. (PX0913 (Whear, Dep. at 26), *in camera*). With HP, Daramic could offer the thinner and less expensive product that competitors were seeking to bring to market and that customers wanted, while maintaining the puncture and oxidation resistance of a

thicker separator like Daramic Standard. (PX0913 (Whear, Dep. at 29-30), *in camera*). Daramic HP also yields better electrical performance (greater electrical capacity) in the battery than Daramic Standard, because the amount of electrolyte in Daramic HP is higher and its electrical resistance is normally lower. (PX0913 (Whear, Dep. at 29), *in camera*).

(ii) Alternative technologies

257. CellForce, which includes rubber in the form of ground-up Ace-Sil, could potentially be used in SLI batteries, and was tested by JCI in Europe for this application. (Hauswald, Tr. 672; Gilchrist, Tr. 312, 440-41, *in camera*). CellForce would have certain advantages in SLI batteries because it inhibits acid stratification and may permit the battery manufacturer to remove some lead from the battery, and thereby reduce cost. (Gilchrist, Tr. 440-41, *in camera*).

258. Daramic's Strategy Audit states as part of its "industry summary" of the flooded lead-acid battery separator business that there are "[n]o substitutes for PE separators on the horizon." (PX0265 at 004, *in camera*).

b. End use applications

259. The term "SLI" is basically synonymous with "automotive." (Brilmyer, Tr. 1831; Gilchrist, Tr. 307).

260. SLI batteries are not only used in automobiles, but are also used in other motorized vehicles. (Leister, Tr. 3976-77).

261. SLI represents the largest segment of the battery separator market, accounting for approximately three-quarters of battery separator sales in 2005. (PX0131 at 032).

c. Responsiveness of supply to changes in demand or price

262. Mr. Kung of BFR, who has considerable technical and managerial experience in battery separator production, (*see* PX0907 (Kung, Dep. at 13-24, 26-27, 36-37, 42, 54, 59-61), *in camera*), knows of only three companies in the world – Daramic, Entek, and BFR in China – that produce automotive PE separators as thin as the .15 millimeter that is standard in the United States industry. (PX0907 (Kung, Dep. at 75, 79-80), *in camera*).

263. A manufacturer that has not been producing an automotive PE separator as thin as .15 millimeter would find it very difficult to decrease the thickness of its separator. (PX0907 (Kung, Dep. at 78-79), *in camera*). A reduction in the thickness of an automotive PE separator from .25 or .2 to .15 millimeter would involve a "different technology, different process condition[s and] different equipment," as well as greater engineering capability. (PX0907 (Kung, Dep. at 78-79), *in camera*).

264. Prior to the acquisition, Exide conducted an extensive global search for alternative suppliers to Daramic for automotive separators. (Gillespie, Tr. 2962). As part of this search, Exide sent out an RFP to Daramic, Entek, Nippon Sheet Glass (or "NSG"), Amer-Sil, and Microporous. (Gillespie, Tr. 2962-63). Exide received bids for its automotive separator requirements only from Daramic, Entek, and Microporous. (*See* Gillespie, Tr. 2962-68).

d. Expert analysis

265. Dr. Simpson correctly concluded that SLI battery separators are a relevant product market. (Simpson, Tr. 3170-71; PX0033 (Simpson Report) at 017-18, *in camera*). In reaching this conclusion, Dr. Simpson noted the following: (1) both customers and producers indicate that PE SLI separators, for which there are no foreseeable substitutes, "meet a unique need"; (2) customers state that they would not switch to other separators in response to a 5% price increase for SLI separators; and (3) company documents analyze competition in the context of an SLI separator market. (PX0033 (Simpson Report) at 017-18, *in camera*).

e. "Practical indicia": distinctive characteristics and uses, as well as industry recognition of a separate market

266. SLI batteries, and SLI battery separators, have distinctive characteristics and distinctive uses or functions. (F. 114, 131-33, 152-54, 195-96, 231-32, 250-53, 257, 262-64).

267. SLI separators have distinct and relatively low prices. (*See* F. 114). Their low prices relative to other types of separators reflect, in part, their relative thinness and, as a result, their use of less raw material. (*See* F. 250-51).

268. Daramic's documents analyze a "market," or a "market segment" of the battery separator market, for SLI battery separators. (PX0080 at 060, *in camera*; PX0088 at 001; PX0131 at 031-32; PX0395 at 019, *in camera* (referring to both "[a]utomotive SLI" and SLI); PX0402 at 012, *in camera*; PX0506 at 001-02, 006-08, *in camera*). Daramic analyzed "[m]arket segment offerings and competition" in SLI and "[m]arket segments and current [product] positioning" in "[a]utomotive SLI" at its "Strategic Planning Session: Products and Markets" in April 2008. (PX0395 at 023, 031, *in camera*).

269. Mr. Whear, Daramic's Vice President of Technology, acknowledged that at the time Daramic HP was developed, in the mid-1990's, Daramic's "competitors [in SLI] at the time were two, Entek and a company called Evanite." (PX0913 (Whear, Dep. at 32), *in camera*).

270. As President of Microporous, Mr. Gilchrist identified "[t]hree primary market segments in [the] lead-acid battery industry": automotive, specialty, and industrial. (PX0078 at 005, *in camera*).

C. The Relevant Geographic Market

1. Price discrimination based on geography

271. Dr. Simpson correctly concluded that North America is the relevant geographic market within which the acquisition should be analyzed. (Simpson, Tr. 3183; PX0033 (Simpson Report) at 005 & n.5, 006-07, *in camera*).

272. The bases for Dr. Simpson's conclusion with respect to the geographic market include the ability of manufacturers of deep-cycle, motive, UPS, and SLI battery separators to set different prices for different geographic regions around the world and, in this sense, to price discriminate based on geography. (Simpson, Tr. 3183; PX0033 (Simpson Report) at 005 n.5, *in camera*; PX2251 (Rebuttal Expert Report of John Simpson) (hereinafter "Simpson Rebuttal") at 005, *in camera*).

273. Dr. Simpson considered, as the Merger Guidelines suggest, geographic markets that consist of particular locations of buyers for which a hypothetical monopolist could profitably and separately (through price discrimination based on geography) impose a small but significant and nontransitory increase in price. (Simpson, Tr. 3183; PX0033 (Simpson Report) at 005 n.5, *in camera*; Simpson Rebuttal at 005, *in camera*); Merger Guidelines § 1.22). A hypothetical monopolist could impose such a price increase on buyers of deep-cycle, motive, UPS, and SLI separators in North America. (Simpson, Tr. 3183; PX0033 (Simpson Report) at 005 & n.5, 006-07, *in camera*; Simpson Rebuttal at 005, *in camera*).

274. Arbitrage, which might defeat any price discrimination, is discouraged by a number of factors, including manufacturers' direct shipments to customers' plants; freight and other costs of importation; and the preference of some customers for local supply. (PX0920 (Gilchrist IHT at 64-65), *in camera*; Simpson Rebuttal at 005, *in camera*; PX0033 (Simpson Report) at 005 n.5 & 006-07, *in camera*; F. 284, 286-310). Arbitrage is also less likely because separators are, for the most part, differentiated products, made with customer-specific designs. (F. 117; *see generally* F. 85, 92.).

2. Different prices for Daramic in different geographic regions

275. Daramic's pricing of separators typically differs from one customer to another and from one geographic region to another. (Roe, Tr. 1317). Daramic charges different prices in North America than it does in Europe or Asia. (Riney, Tr. 4958, *in camera*). The different prices that Daramic charges in different regions reflect, in part, costs of production that vary from region to region. (Riney, Tr. 4958-59, *in camera*; Roe, Tr. 1317).

276. Daramic's market price in each region is based, in part, on the competitive landscape in that region. (PX0922 (Roe, IHT at 26-28), *in camera*; Roe, Tr. 1317-18).

277. EnerSys has negotiated, and has been charged, different prices by Daramic in different parts of the world. In late 2005, Daramic and EnerSys negotiated an energy surcharge that would {[redacted]} (Axt, Tr. 2137-38, *in camera*; RX0582 at 001-02, *in camera*; RX0584 at 001-02, *in camera*).

278. Exide pays Daramic different prices for the same separator that it buys in different parts of the world. (Gillespie, Tr. 2998, 3060-62, *in camera*). "There are three different price structures," for Asia Pacific, Europe, and North America. "Each of those prices [is] set independently." (Gillespie, Tr. 3061, *in camera*).

279. In negotiations with Exide in April 2009, Daramic proposed different prices in North America than in Europe and Asia for its polyethylene separators. (PX2296 at 002, 005-06, 019, *in camera*). Its prices for those regions, "based on individual part numbers purchased by each Exide Technologies plant location(s)," are difficult to compare because of unspecified or unique part numbers, different currencies, different delivery terms, and consigned inventory for the European manufacturing plants only. (PX2296 at 003-06, *in camera*).

280. The average price per square meter of Daramic's SLI separators is around $.70 in North America, compared to around $1.00 in Europe at present exchange rates. (Roe, Tr. 1313-14). This price differential is, in part, explained, by the typically thicker backweb of SLI separators used in Europe. (Roe, Tr. 1313).

3. The attributes of a "world-class" separator supplier

281. Only a few "world-class" separator manufacturers are capable of supplying the separators that Exide needs. (Gillespie, Tr. 2955-58).

282. A separator manufacturer must have the following attributes to be a viable option for Exide: (a) the ability to provide a quality product that meets Exide's specifications on a consistent, reliable basis; (b) the technology to be able to provide for Exide's current and future needs; (c) the requisite infrastructure, management team, and wherewithal; (d) sufficient capital to invest in equipment and R&D; (e) the logistical ability to supply Exide's facilities on a global basis; (f) pricing to meet Exide's commercial needs and to yield year-over-year reductions in Exide's total costs; (g) the ability to improve its own processes and methodologies, and to realize efficiencies, to provide mutual gains to both Exide and itself; and (h) the engineering and technological knowledge to supply the right separator, to develop an improved separator, and to communicate this knowledge to the customer. (Gillespie, Tr. 2956-58).

4. Supply from North American plants to North American customers

283. At present, all of the polyethylene SLI separators for Exide's North American plants come from Daramic's United States plants. The sole Daramic product that Exide imports to the United States is Darak, which is manufactured only in Germany. (Gillespie, Tr. 3036-37, *in camera*).

284. All of the battery manufacturers in North America that purchase polyethylene SLI separators from Daramic receive those separators from Daramic's plants in the United States. (Hauswald, Tr. 716-17).

285. Exide is considering Entek as an alternative source of supply to Daramic for SLI separators. The communications between Exide and Entek on this subject have centered around supply for Exide's North American battery plants from Entek's plant in the United States, and supply for Exide's European plants from Entek's plant in the United Kingdom. (Gillespie, Tr. 3037, *in camera*).

5. The advantages of local supply

286. It is advantageous for a separator manufacturer to offer its customers a local source of supply. (RX1498 at 001, *in camera*; PX0582 at 018).

287. One advantage of local separator supply is a reduced risk to the customer of supply chain disruption. (Hauswald, Tr. 724-25).

288. The shipment of separators to a customer overseas entails greater freight, warehousing, inventory, and other costs than less distant supply. (Gilchrist, Tr. 595-96, 599). Microporous exported 75% of the CellForce separators that it produced at Piney Flats to Hawker/EnerSys facilities in Europe. (Gilchrist, Tr. 345). Microporous shipped these separators to Hawker/EnerSys in containers, at a freight cost of several thousand dollars per container. (Gilchrist, Tr. 599). It typically took from eighteen to twenty-one days for these shipments to reach Europe. (Gilchrist, Tr. 595). With such a long supply chain, the customer had to hold and warehouse additional inventories as reserve stock. (Gilchrist, Tr. 595, 599).

289. Ocean transport is the most economical mode for shipping separators across the ocean. (Hauswald, Tr. 723). It would take six to eight weeks for separators from China to arrive in the United States by ship. (Hauswald, Tr. 722-23).

290. With a shorter supply chain, the battery manufacturer has increased flexibility in ordering separators for its production lines. The battery manufacturer could, for instance, order separators several days, rather than one month, before using them on its production lines. (Gilchrist, Tr. 595-96).

291. A local supplier can also respond more quickly to any technical and quality issues that the battery manufacturer may have with its separators. (Gilchrist, Tr. 595; PX0919 (Riney, IHT at 429), *in camera*).

292. Local or regional supply, from multiple plant locations around the world, is a factor that Daramic uses as a selling point. (Roe, Tr. 1318-19). For example, in a letter in 2003 to JCI, Daramic raised the possibility of building a new plant in Brazil that could supply JCI's Brazilian battery manufacturing plant on a local basis. (RX1188 at 001; Roe, Tr. 1321). According to Daramic, the new separator plant that it proposed offered several advantages to JCI. These included a reduction in the then-high import duties that JCI had to pay in Brazil, as well as, in its Brazilian plant's lead-times for product and need-to-carry inventory. (Roe, Tr. 1321-22; RX1188 at 003).

293. Local separator supply, as opposed to supply from a more distant location, might yield not only tangible cost savings for a battery manufacturer, but benefits from readier access to, and more frequent interactions with, Daramic's sales and technical support personnel. (Roe, Tr. 1322-24; RX1188 at 003).

294. JCI's Brazilian affiliate, Enertec, recognized the advantage of local separator supply. (PX0652 at 001; PX0653 at 001). In 2003, Entertec offered to sell land near its Sorocaba, Brazil facility to Daramic at a price that represented, in Daramic's view, a deep discount from the land's market value. (PX0652 at 001; PX0653 at 001). "Enertec is not selling us land for the money; they are looking for a Brazil supplier." (PX0652 at 001). "[T]hey understand the advantage of a lower landed cost by having a battery separator plant near." (PX0653 at 001).

295. During the time period of 2004 through 2007, JCI sought to develop new suppliers in Asia that were capable of PE SLI manufacturing. (Hall, Tr. 2702). JCI's goal was "to introduce some competition in the region," and to "provide[] regional competitiveness." (Hall, Tr. 2702; PX1509 at 009, *in camera*; Hall, Tr. 2878, *in camera*). {[redacted]} (Hall, Tr. 2856, *in camera*).

296. JCI's global separator strategy describes local supply in certain cases as an "[a]dvantage for both service and cost." (PX1522 at 004, *in camera*). At the same time, JCI saw that "[c]onsolidation and scale of [separator] manufacturing facilities" enabled "maximum leverage of tooling" and other efficiencies. (PX1522 at 003, *in camera*). JCI recognized that "Entek has global economic range through its production facilities in the US and UK." (PX1522 at 003, *in camera*; Hall, Tr. 2816-19, *in camera*; Hauswald, Tr. 1044-45 (acknowledging that Entek, with only two plants (one in Oregon and one in England), supplies not only JCI and East Penn Battery in the Eastern United States, but several different customers in Asia)).

297. EnerSys prefers to have its suppliers close to, or at least in the same geographic region as, its largest battery manufacturing plants. (Axt, Tr. 2108). As a large battery manufacturer in both North America and Europe, EnerSys would like to have both a North American and a "pan-European" "local supply base." (Axt, Tr. 2108). As part of its supply base, EnerSys would prefer to have a separator supplier with plants in both North America and Europe. (Burkert, Tr. 2385; RX0224). A separator supplier with two plants in North America and none in Europe would be less desirable to EnerSys. (Burkert, Tr. 2386).

298. With suppliers that are closer to its plants, EnerSys can lower its costs and worry less about supply interruptions. (Burkert, Tr. 2467). Local supply, as compared to supply from overseas, would reduce EnerSys' shipping costs, freight forwarding fees, import duties, and inventory-carrying and logistical costs. (Axt, Tr. 2109, 2130). It would ensure more timely supply and dramatically shorten lead-times for delivery by eliminating, in the case of shipments across the Atlantic, three weeks on the ocean. (Axt, Tr. 2130).

299. Prior to the opening of Microporous' plant in Austria, EnerSys purchased CellForce separators for its {[redacted]} as well as its {[redacted]} from Microporous' plant in Tennessee. (PX1200 at 002, *in camera*; Axt, Tr. 2141-42, *in camera*). Supplying these affiliates by ocean freight was "a big concern" to EnerSys because of the time that it took and the added inventory that EnerSys thus had to carry at its factories. (Axt, Tr. 2142, *in camera*).

300. Microporous and EnerSys signed a Memorandum of Understanding ("MOU") on February 10, 2006. (PX1200 at 001, *in camera*). EnerSys stresses in this document the importance of less distant separator supply for {[redacted]} (PX1200 at 002, *in camera*). The MOU states:

> {[redacted]}

(PX1200 at 002-03, *in camera*).

301. The "primary intent" of Microporous' expansion into Europe (*see generally* 769-86) was to supply customers with European manufacturing plants from Microporous' plant in Europe. (Trevathan, Tr. 3709). Reduced shipping and logistical costs, shortened lead-times, and customers' preference for less distant supply were factors in Microporous' decision to expand into Europe. (Trevathan, Tr. 3709).

302. After Microporous opened its Feistritz facility, Hawker/EnerSys no longer had to pay ocean shipping costs of several thousand dollars per container to import CellForce separators from Piney Flats. (Gilchrist, Tr. 599). EnerSys could then economize on warehouse space in Europe, and Microporous could economize on consigned stock. (Gilchrist, Tr. 599).

303. East Penn Battery suggested on multiple occasions that Entek operate a plant on the East Coast that could provide local (or less distant) separator supply to East Penn Battery. (Leister, Tr. 4020-21). East Penn Battery was told that Entek would take its suggestions under advisement. (Leister, Tr. 4020-21). East Penn Battery understood this to mean that Entek was not going to move forward with establishing a manufacturing operation on the East Coast. (Leister, Tr. 4020-21).

304. With Entek out of the picture for local supply, East Penn Battery turned towards Microporous. (Leister, Tr. 4021). East Penn Battery initiated conversations with Microporous about supplying it with PE SLI separators. (Leister, Tr. 4006-07; PX0141). East Penn Battery was looking for an alternate source of supply, on the East Coast, with the aim of obtaining better service and reducing the lead-times, freight charges, and inventory carrying costs that were associated with the shipment of SLI separators from Entek's West Coast facility to East Penn's Battery plant in Lyon Station, Pennsylvania. (Leister, Tr. 4007-09).

305. Local (or less distant) supply would also have facilitated meetings on a regular basis with the separator supplier's sales representatives and engineers. (Leister, Tr. 4026). Such meetings and communications are important to East Penn Battery, and are a factor in its evaluations and rankings of suppliers. (Leister, Tr. 3986-87, 4026).

306. East Penn Battery is not currently considering PE separator purchases from Anpei or any other Asian supplier. (Leister, Tr. 4035-36). Separator supply from Asia would, in East Penn's Battery view, pose an even greater logistical challenge than separator supply from Entek in Oregon. (Leister, Tr. 4035).

307. Entek changed the location at which it produced industrial PE separators from Oregon to the United Kingdom in the early 2000's. (Balcerzak, Tr. 4097, 4128). The quality of its product deteriorated such that Crown Battery disqualified Entek's separators for use in Crown Battery's industrial batteries. (Balcerzak, Tr. 4097).

308. Crown Battery "like[s] to run [its] inventories very lean" and seeks just-in-time delivery of its separator supplies. (Balcerzak, Tr. 4129-30). Shipment of material from overseas would make it more difficult to maintain just-in-time production methods. (Balcerzak, Tr. 4130).

309. Douglas Battery has a preference for local supply because it saves time, reduces travel, facilitates just-in-time production, and enables the supplier to respond more quickly to any concerns with its separators. (Douglas, Tr. 4080). If the domestic price of motive separators were to increase by 5%, Douglas Battery would still not look for offshore separator supply. (Douglas, Tr. 4082). "[T]here would have to be compelling reasons to do that" in view of that battery manufacturer's preference for local supply. (Douglas, Tr. 4082).

310. One of the explicit rationales for Daramic's Rama III project – a new PE separator production line in 2007 to 2008 at its Prachin Buri, Thailand plant – was "Asia market growth." (PX0640 at 001, 003). The only other locations that Daramic appears to have considered for this expansion of capacity to serve the growing Asian market were also in Asia, and specifically in China. (PX0924 (Jensen, Dep. at 72), *in camera*).

6. International trade in battery separators

a. Shipments by Daramic

311. Daramic has not shipped separators from either of its Asian manufacturing plants to its customers in North America. (Roe, Tr. 1233-34). Daramic did not even ship separators from its Asian plants to its North American customers during the 2008 strike at its Owensboro plant. (Roe, Tr. 1234).

312. In March 2008, Daramic calculated a freight cost ranging {[redacted]} per square meter, on top of a total direct manufacturing cost of {[redacted]} per square meter, to ship the largest size of CellForce from the Piney Flats plant in Tennessee, to EnerSys in Europe. (PX0782 at 002, *in camera*; PX0912 (Riney, Dep. at 240), *in camera*).

313. During the strike at Daramic's Owensboro plant in 2008, EnerSys was able to obtain from Daramic's Feistritz, Austria facility separators that EnerSys' plant in Monterrey, Mexico could use. (PX1285; Burkert, Tr. 2333). EnerSys projected it would cost around $25,000 by air or $2,000 by ship to deliver 100,000 feet, of separators from Feistritz to Monterrey. (PX1285). Delivery by ship was estimated to take about 25 days. (PX1285). EnerSys' costs for its manufacturing operation in Monterrey, factoring in duties, freight, and currency conversion charges, were approximately 20% more to replace separators from Daramic's Owensboro plant during the 2008 strike, with separators from Daramic's Feistritz plant. (Burkert, Tr. 2333-34).

b. International shipments, and potential shipments, by BFR

(i) Barriers to separator exports from China

314. Freight charges and, in a number of countries, import duties, add to the price of separators that are sold abroad. (Hall, Tr. 2721-22).

315. BFR, like other producers in China, faces other barriers to the export of its separators. (PX1522 at 005, *in camera*; F. 320-23).

316. Lead-acid battery separators that are exported from China incur a value-added tax ("VAT"). (Thuet, Tr. 4352-53, *in camera*, 4404-05). While this VAT could be repealed or modified, it has been in place for years. (Thuet, Tr. 4353, 4405). The Chinese VAT on separator exports, including Daramic's from its Tianjin facility as well as BFR's, is a non-recoverable charge of 12%. (Thuet, Tr. 4404-05; Hall, Tr. 2717).

317. The Chinese VAT raises the costs of separators that are exported relative to separators that are sold in China. (Thuet, Tr. 4405; Hall, Tr. 2717). The Chinese VAT, thus, discourages the production in China of separators for export. (PX0871 at 002, *in camera* (with Daramic's Mr. Thuet cautioning, "We should really consider twice when speaking about exporting [material from our Tianjin plant in China] until we have found a solution to overpass this issue [of the VAT]."')). The Chinese VAT erects an "economic export barrier," that reduces the competitiveness of separators produced in China relative to separators produced in countries without a VAT, or without so high a VAT. (PX1522 at 005, *in camera*). The non-recoverable VAT would have added the equivalent of {[redacted]} (PX1522 at 005, *in camera*; Hall, Tr. 2723-27, *in camera*).

318. The 12% Chinese VAT could, however, be reduced by up to one-third, to an effective rate of 8%, if "bonded manufacturing" facilities were set up and the applicable regulations followed. (Hall, Tr. 2846-47, 2894, *in camera*). With bonded manufacturing, "a very defined, separated and controlled manufacturing space and material storage space" would have to be set up; "all the material in and out of that part of the plant" would have to be tracked; and a "duty book" would have to be maintained. (Hall, Tr. 2846-47, *in camera*).

319. The foreign exchange value of the Chinese currency, the renminbi ("RMB"), represents a barrier to BFR's exports from China. (PX1522 at 005, *in camera*; Hall, Tr. 2717-18). The RMB strengthened against the United States dollar and other currencies after China ceased to maintain a fixed "peg" to the dollar. (Hall, Tr. 2718-19). That strengthening of the foreign exchange value of the Chinese currency made BFR's separators more expensive to purchasers outside of China

than they would have been before the RMB was "unpegged" from the United States dollar in 2005. (Hall, Tr. 2718-19; PX1522 at 005, *in camera* ({[redacted]})).

(ii) Higher overall costs for BFR than for Daramic and Entek

320. BFR appears to have higher overall costs than Daramic and Entek. (Hall, Tr. 2734-35, *in camera*; PX1522 at 005, *in camera*; F. 324-31).

321. It is the view of Mr. Kung, a principal of BFR with considerable experience in separator production, that economies of scale are the major source of Daramic's cost advantage vis-à-vis BFR. (F. 262, 445, PX0907 (Kung, Dep. at 189), *in camera*). Daramic's larger production lines are more efficient than BFR's smaller lines. (PX0907 (Kung, Dep. at 187, 189), *in camera*). In Mr. Kung's words: "The major issue [in comparative cost] is per unit time. Daramic is mass production. They can produce a lot of material per hour or per day. Their machine is very big." (PX0907 (Kung, Dep. at 189), *in camera*).

322. Entek, as well as Daramic, has cost advantages in the United States relative to BFR in China, not only as a result of economies of larger-scale production but also as a result of less distant sources of raw material and better prices for the greater volumes of raw material that Entek and Daramic buy. (PX0907 (Kung, Dep. at 172-73), *in camera*).

323. Mr. Hall, {[redacted]} performed a benchmarking analysis that compared Daramic's, Entek's, and BFR's costs of producing a battery separator. (Hall, Tr. 2716, 2724, *in camera*). {[redacted]} (Hall, Tr. 2716, 2724, *in camera*). The analysis did not purport to provide "definitive number[s]" but rather "guidelines" in conducting business. (Hall, Tr. 2732, *in camera*).

324. In Mr. Hall's benchmarking analysis, one square meter of a single size of separator was used as the standard or benchmark: {[redacted]} (Hall, Tr. 2725, *in camera*). This is the predominant size of separator that JCI uses in its batteries on a global basis. (Hall, Tr. 2725, *in camera*). Mr. Hall used cost data from 2007, because that was the year for which he had the best information for all three suppliers. (Hall, Tr. 2725-26, *in camera*). The cost data that he used were costs "across the business" for each of the three separator suppliers, rather than costs on a per product basis. (Hall, Tr. 2847-48, *in camera*).

325. Mr. Hall's benchmarking analysis examined "material" costs – the costs of the separator's component raw materials (chiefly polyethylene, oil, and silica) – as well as "conversion," sales, general, and administrative costs. (Hall, Tr. 2726, *in camera*; PX1522 at 005, *in camera*). The "conversion" costs are the manufacturing (including "fixed overhead," energy, and labor) costs. (Hall, Tr. 2726, *in camera*). Because so much of the manufacturing process is automated, labor is not a large component of separator manufacturing or conversion costs. (Hall, Tr. 2727-28, *in camera*).

326. Mr. Hall obtained data for his benchmarking analysis from multiple sources, including discussions with all three suppliers regarding their costs for the materials in a separator. (Hall, Tr. 2724-25, *in camera*). {[redacted]} (Hall, Tr. 2847, *in camera*). Provisions in JCI's contract with Daramic from 2004 through 2008 gave Mr. Hall "a window into" the prices that Daramic was paying for specific materials. (Hall, Tr. 2730, *in camera*). Since Entek uses the same, or mostly the same, suppliers as Daramic, but buys in smaller volumes than Daramic, Mr. Hall assumed that Entek's prices for materials were close to, but not quite as good as, Daramic's. (Hall, Tr. 2730-31, *in camera*).

327. In determining Entek's conversion or manufacturing costs, Mr. Hall used information from {[redacted]} (Hall, Tr. 2731, *in camera*). That information specified the total or overall costs of Entek's separators and not simply the prices that Entek {[redacted]} (Hall, Tr. 2731, *in camera*). Mr. Hall subtracted Entek's estimated costs for materials from its overall costs to arrive at its conversion or manufacturing costs. (Hall, Tr. 2731, *in camera*). Since Daramic has greater "scale" than Entek – as illustrated by Daramic's multiple, versus Entek's only two, manufacturing plants – Mr. Hall projected slightly higher manufacturing costs for Daramic than for Entek. (Hall, Tr. 2732, *in camera*).

328. Mr. Hall's benchmarking analysis yielded the following costs for the materials that Daramic, Entek, and BFR each needed to produce one square meter of {[redacted]} backweb separator in 2007: {[redacted]} for Daramic, {[redacted]} for Entek, and {[redacted]} for BFR. (PX1522 at 005, *in camera*). The somewhat higher costs that BFR pays for materials than Daramic and Entek may, in part, reflect the smaller volume that BFR purchases and the lesser leverage that it has with its suppliers. (Hall, Tr. 2727).

329. Mr. Hall's benchmarking analysis derived, for the same three companies (Daramic, Entek, and BFR), the following manufacturing or conversion costs, plus sales, general, and administrative costs, for one square meter of {[redacted]} backweb separator in 2007: {[redacted]} for Daramic, {[redacted]} for Entek, and {[redacted]} for BFR. (PX1522 at 005, *in camera*). The significantly higher manufacturing costs, plus sales, general, and administrative costs, for BFR than

for Daramic and Entek are ascribed by Mr. Hall primarily to the latter two companies' greater economies of scale – in other words, to the efficiencies that they can realize from their higher volumes of production. (Hall, Tr. 2733-34, *in camera*).

330. Mr. Hall's benchmarking analysis arrived at the following total costs to produce one square meter of a {[redacted]} backweb separator in 2007: {[redacted]} for Daramic, {[redacted]} for Entek, and {[redacted]} for BFR. (PX1522 at 005, *in camera*; Hall, Tr. 2734-35, *in camera*). As these data indicate, "BFR is disadvantaged" on a cost basis versus its "competitors due to [its] current scale." (PX1522 at 005, *in camera*). For any exports to North America, BFR would be further disadvantaged by freight charges and by the non-recoverable VAT. (PX1522 at 005, *in camera*; F. 316, 318-20).

331. {[redacted]} (Hall, Tr. 2844-45, *in camera*; PX1522 at 005, *in camera*). {[redacted]} (PX1522 at 005, *in camera*) (emphasis added). {[redacted]} (PX1522 at 005, *in camera*).

(iii) BFR's competitiveness in North America

332. BFR cannot, at present, sell separators in North America at competitive prices, because it has higher costs than its competitors. (Hall, Tr. 2746-47, *in camera*).

333. Daramic has never competed with BFR for business in North America. (Roe, Tr. 1807). Daramic competes with BFR only in China. (PX0907 (Kung, Dep. at 296-98), *in camera*).

334. Mr. Hall of JCI is not aware of any customers of BFR in North America. (Hall, Tr. 2745, *in camera*).

335. BFR cannot compete on price with Daramic and Entek in selling PE separators to customers in the United States. (PX0907 (Kung, Dep. at 172), *in camera*). In this country, the delivered price of a separator from BFR would be significantly higher, and might be {[redacted]} more, than the price of a separator from Daramic or Entek. (PX0907 (Kung, Dep. at 172), *in camera*). In Mr. Kung's words, "[D]efinitely I know one thing for sure, we [BFR] cannot compete against local producer[s] here." (PX0907 (Kung, Dep. at 172), *in camera*).

336. There are three additional explanations for BFR's lack of separator sales to customers in North America. (PX0907 (Kung, Dep. at 176-77), *in camera*).

First, BFR can sell at higher prices in Asia than in North America, where there is greater competition. It is, thus, more profitable, at constant manufacturing costs, for BFR to sell in Asia. (PX0907 (Kung, Dep. at 176-77), *in camera*). Second, BFR does not have enough English-speaking staff to service the North American market. (PX0907 (Kung, Dep. at 176-77), *in camera*). Third, {[redacted]} (PX0907 (Kung, Dep. at 186-87), *in camera*).

337. The average price at which BFR sells its separators in China is {[redacted]} per square meter in 2009. (Hall, Tr. 2745, *in camera*). By comparison, the global average price at which Entek sells its separators to JCI is {[redacted]} per square meter. (Hall, Tr. 2745, *in camera*).

338. BFR and the other Asian separator manufacturers are smaller in size and higher in cost than Entek or Daramic. It is, accordingly, more feasible for the Asian separator manufacturers, including BFR, to supply product to Asia, where there is less competition, than to North America. (Hall, Tr. 2746, *in camera*).

339. {[redacted]} (Hall, Tr. 2745, *in camera*). {[redacted]} (Hall, Tr. 2745-46, *in camera*). {[redacted]} (Hall, Tr. 2746, *in camera*).

340. In its search for alternative sources of PE industrial – specifically, motive and UPS – separators, EnerSys identified two companies in Asia, {[redacted]} which both make only automotive separators at present. (Axt, Tr. 2216-17, *in camera*). EnerSys is starting to work with these companies with the hope that one of them might someday serve as a second source to Daramic for PE industrial separators. (Axt, Tr. 2217-19, *in camera*).

341. According to EnerSys, the "pricing out of Asia would still be higher than the proposed Daramic increase that's on the table today." (Axt, Tr. 2220, *in camera*). {[redacted]} (Axt, Tr. 2217, *in camera*; Burkert, Tr. 2365, *in camera*). {[redacted]} (Axt, Tr. 2217, *in camera*; Burkert, Tr. 2365, *in camera*). {[redacted]} (Axt, Tr. 2217-18, *in camera*).

342. {[redacted]} price quote to EnerSys for PE separator samples in October 2007 was "substantially higher," even excluding freight costs, than Daramic's price for that separator profile at that time. (PX1248 at 001, *in camera*).

343. BFR has no intention of selling PE separators in North America. (PX0907 (Kung, Dep. at 186-87), *in camera*).

344. {[redacted]} (Hall, Tr. 2879, *in camera*).

c. Other foreign separator suppliers' competitiveness in North America

345. Separator manufacturers other than Daramic and Entek, including Amer-Sil in Luxembourg and firms in China and India, are predominantly local or regional, rather than global, suppliers. (Gilchrist, Tr. 307-08).

346. As Vice President of Sales and Marketing at Daramic, Mr. Roe is responsible for competitive intelligence – knowledge of the competitive landscape in which Daramic operates. (Roe, Tr. 1193-94). Mr. Roe is not aware of any instance, either before or after Daramic's acquisition of Microporous, in which an Asian producer has supplied a North American battery manufacturer with a PE, PE-rubber hybrid, or a pure rubber separator for a flooded lead-acid application. (Roe, Tr. 1236-37). Mr. Thuet, the business director for the Asia Pacific region at Daramic, is also not aware of any instance in which Daramic has faced competition in North America for PE separators for automotive, motive, stationary, or deep-cycle applications. (Thuet, Tr. 4319, 4381-82). Daramic, which collects information and compiles data on its competitors' sales, has not to date recorded sales for Asian separator suppliers in North America. (Seibert, Tr. 4266-67, *in camera*).

347. Daramic acknowledges competition with Asian separator suppliers outside of North America, not only in Asia, but also in Europe, with {[redacted]} and in South America with {[redacted]} (Seibert, Tr. 4165, *in camera*). According to Polypore's CEO, the Asian separator suppliers are not making sales in North America because their profit margins would not be high enough here. (Toth, Tr. 1404).

348. Microporous did not regard the Asian separator suppliers as competitive threats in the automotive separator business in North America. (Gilchrist, Tr. 308).

349. Mr. Weerts, of Entek, is aware of no separator imports from Asia into North America. (Weerts, Tr. 4500, *in camera*). Transportation costs and customs duties make it more difficult for Asian separator suppliers to be cost-competitive in North America. (Weerts, Tr. 4502-03, *in camera*). Entek has not had to adjust its prices in North America in response to any competition from separator suppliers in Asia. (Weerts, Tr. 4501, *in camera*).

350. Amer-Sil does not currently have any separator customers in North America. (PX0916 (Dauwe, Dep. at 40), *in camera*). During 2008, Amer-Sil made no sales to customers in North America as of mid-November. (PX0916 (Dauwe, Dep. at

35), *in camera*). Prior to 2008, Amer-Sil had some sales of separators in North America. (PX0916 (Dauwe, Dep. at 29-34), *in camera*). {[redacted]} (RX1606 at 001; (RX1607 at 001; RX1608 at 001, 004; PX0916 (Dauwe, Dep. at 29-34), *in camera*).

351. The decline in Amer-Sil's separator sales in North America reflects in part North American customers' reluctance to use PVC in their batteries. (*See* F. 157-58, 200-03). {[redacted]} (Gagge, Tr. 2512, 2520-21, *in camera*).

352. Amer-Sil's sales in North America from 2005 through 2007 were, moreover, separators for gel, rather than flooded lead-acid, batteries. (PX0916 (Dauwe, Dep. at 152), *in camera*).

353. Amer-Sil has no current plans to sell separators for flooded lead-acid batteries in North America. (PX0916 (Dauwe, Dep. at 152), *in camera*).

354. Daramic is seeking a separator price increase of approximately {[redacted]} from EnerSys. (Craig, Tr. 2552, *in camera*). Any such price increase for separators would not prompt EnerSys to switch to a different battery technology and would have "very little to no impact on the price to [EnerSys'] customers." (Craig, Tr. 2552-53, *in camera*). Separator costs are only a small proportion of total battery costs, and EnerSys would absorb such a small price increase, rather than pass it along, to maintain good customer relations. (Craig, Tr. 2553-54, *in camera*).

355. EnerSys would not respond to a hypothetical {[redacted]} price increase by Daramic in North America by importing motive or UPS separators from another supplier in another region, as "[t]here's only one source available to [EnerSys]." (Craig, Tr. 2567, *in camera*). EnerSys does not import motive or UPS flooded lead-acid batteries into North America, because it would not be cost-effective to pay for the freight, duty, and handling costs on such larger batteries and would not begin to import motive or UPS flooded batteries in response to a hypothetical {[redacted]} increase in Daramic's separator prices in North America alone. (Craig, Tr. 2549-53).

7. Respondent's expert analysis

356. Respondent's economic expert, Dr. Henry J. Kahwaty, a director of LECG, (Kahwaty, Tr. 5062), concluded that the relevant geographic market in which the acquisition should be analyzed is global. (Kahwaty, Tr. 5158, 5172-73, *in camera*; RX0945 (Expert Report of Henry J. Kahwaty, Ph.D) at 49-58, *in camera* ("Kahwaty Report")).

357. Among the bases for Dr. Kahwaty's conclusion that the geographic market is global is the substantial international trade that takes place in battery separators. (Kahwaty, Tr. 5161-63, *in camera*). Dr. Kahwaty states that Daramic exports around {[redacted]} while Entek exports around {[redacted]} of its North American production. (Kahwaty Report at 51, *in camera*). However, the export data to which Dr. Kahwaty alludes cannot be confirmed by the documents cited by Dr. Kahwaty and Respondent.

358. Dr. Kahwaty found an average contribution margin of {[redacted]} on the PE separators that Daramic produces at its four plants in North America. (Kahwaty Report at 51, *in camera*). At this contribution margin, the critical loss is {[redacted]} (Kahwaty Report at 51, *in camera*). Absent an ability to price discriminate, a hypothetical monopolist in North America could, based on these data, profitably impose a 5% price increase, only if it would then lose less than {[redacted]} of its sales to producers in other regions. (Kahwaty Report at 50-51, *in camera*). Dr. Kahawaty concluded that "given the extent of exports, which are substantial and in particular substantially larger than the critical loss, that price increase [of 5%] would not be profitable," (Kahwaty, Tr. 5160, *in camera*), and that a geographic market confined to North America would be too narrow. (Kahwaty Report at 52, *in camera*).

359. Dr. Kahwaty considered Asian producers as the "next best substitute" for North American producers. (Kahwaty, Tr. 5161, *in camera*; Kahwaty Report at 52, *in camera*).

360. Dr. Kahwaty disagreed with Dr. Simpson's evaluation that battery separator manufacturers can price discriminate based on geography, and maintain different prices in North America than in other parts of the world. (Kahwaty, Tr. 5163-65, *in camera*). According to Dr. Kahwaty, international price discrimination in separator sales would be defeated by arbitrage. (Kahwaty, Tr. 5165-68, *in camera*). Dr. Kahwaty was not able, however, to cite to any specific examples of international arbitrage in separator sales other than an intracorporate Daramic transaction. (Kahwaty, Tr. 5363-64, *in camera*). His conclusion with respect to arbitrage was based, rather, on his expectations of what would happen in response to a hypothetical price increase of 5% by separator suppliers in North America, given his assumptions about costs and prices in, and transportation costs between, different markets. (Kahwaty, Tr. 5164-70, *in camera*).

361. In analyzing the relevant geographic market and reaching the conclusion that arbitrage would defeat any international price discrimination, Dr. Kahwaty compared Daramic's estimated marginal or variable production costs, for automotive separators with an eight mil backweb, at its North American plants with its comparable costs at its Prachinburi plant in Thailand and its Tianjin plant in China. (Kahwaty, Tr. 5168-70, *in camera*; Kahwaty Report at 55 & nn.188-89, 177, *in camera*). Dr. Kahwaty calculated higher variable production costs for Daramic of {[redacted]} in North America versus

{[redacted]} in Thailand. (Kahwaty Report at 55, 177 & n.189, *in camera*); Kahwaty, Tr. 5168-69, *in camera*). The comparable costs for Daramic in China, at its Tianjin plant, were, he stated, {[redacted]} (Kahwaty Report at 177, *in camera*; Kahwaty, Tr. 5168, *in camera*).

362. Dr. Kahwaty added transportation costs of {[redacted]} per square meter from Thailand to North America. (Kahwaty, Tr. 5166, 5169-70, *in camera*). These added costs, according to his report, were based on Daramic's shipping quotes and duties from its Prachinburi to its Owensboro, Kentucky plant. (Kahwaty Report at 177, *in camera*). Dr. Kahwaty estimated higher delivered costs from China to North America, based on Daramic's shipping quotes and duties of {[redacted]} along with a VAT of {[redacted]} from Tianjin to Owensboro. (Kahwaty Report at 177, *in camera*).

363. Dr. Kahwaty compared, for automotive separators with an eight mil backweb, the "realistic" delivered costs in North America from Daramic's larger-scale Asian plant, in Prachinburi, Thailand, {[redacted]} to Daramic's average prices in North America, plus a hypothetical 5% increase {[redacted]} (Kahwaty Report at 177, *in camera*; Kahwaty, Tr. 5168-70, *in camera*). He concluded, based on these data, that there is "a substantial margin to enable product to be produced in Asia and shipped into North America" to defeat a price increase of 5%, and a fortiori of 10%, by a hypothetical monopolist in North America. (Kahwaty, Tr. 5168-70, *in camera*).

364. Dr. Kahwaty pointed to testimony by Mr. Thuet of Daramic as further support for his conclusions that international price discrimination would be defeated by arbitrage and that the relevant geographic market is global. (Kahwaty, Tr. 5165-68, *in camera*). Mr. Thuet had testified that the cost of producing separators was lower at Daramic's plant in Thailand, and even at Daramic's plant in China, than at its plant in Corydon, Indiana. (Thuet, Tr. 4422-23, *in camera*). SLI separators in roll form would, according to Mr. Thuet, cost {[redacted]} more to produce at Daramic's plant in Corydon, Iowa than at its plant in Tianjin. (Thuet, Tr. 4434-35, *in camera*; *see also* Thuet, Tr. 4423-24, 4433-34, *in camera* (attributing the higher average prices of SLI separators in Tianjin than in Corydon to the different product mix, with most of the product sold in envelopes and cut pieces, in China)).

365. Dr. Kahwaty did not attempt to reconcile the finding in his report that variable production costs are {[redacted]} higher for Daramic in China than in North America, (*see* F. 361), with Mr. Thuet's statement that production costs are instead {[redacted]} higher for Daramic in North America than in China. (*See* F. 364).

366. Dr. Kahwaty concluded: "It's very difficult looking at the data to understand how it is that cost in Asia could be so high that [Asian producers] can't profitably compete in North America." (Kahwaty, Tr. 5170, *in camera*). Dr. Kahwaty

admitted, however, that he did not analyze cost or price information for any separator producer in Asia other than Daramic. (Kahwaty, Tr. 5364-65, 5368, *in camera*). He also indicated that he was not aware of any shipments, other than certain Daramic shipments from its plant in China to its plant in Kentucky, from any Asian separator plant to any battery manufacturer in North America. (Kahwaty, Tr. 5369-70, *in camera*).

367. Dr. Kahwaty acknowledges that "there would be benefits of local supply," such as "reduced logistics concerns, . . . avoidance of potential supply disruption from longer logistics lines and things like that." (Kahwaty,Tr. 5171, *in camera*). Warehousing of a one to three month stock of goods from abroad can, he argues, "provide the same benefits" as local supply. (Kahwaty,Tr. 5171, *in camera*). Warehousing would, however, impose additional costs – including handling, storage, and the opportunity cost of allocating resources to purchase or supply the warehoused stock itself – on the supplier, the customer, or both. (Kahwaty, Tr. 5171-72, 5377-80, *in camera*).

368. Types of costs that the warehousing of separators entails include: incremental freight, from double-handling the material in and out of the warehouse; warehousing fees; scrap and damage from things sitting around; and cash tied up in inventory. (Gillespie, Tr. 5830-31, *in camera*).

369. Dr. Kahwaty observed that Asia has historically been "capacity-poor" in separator production but is now so "capacity-rich" that it actually has excess capacity. (Kahwaty, Tr. 5372, 5545, *in camera*). The expansion in Asian capacity could, he opined, have "a general effect" on separator prices in North America. (Kahwaty, Tr. 5377, *in camera*). Dr. Kahwaty has, though, seen nothing to date showing any effect on separator prices in North America from expansions of productive capacity in Asia. (Kahwaty, Tr. 5377, *in camera*).

370. Dr. Kahwaty indicated that he was not aware of any tariff or nontariff barriers to battery separator imports into North America. (Kahwaty, Tr. 5544, *in camera*). There are, however, such trade barriers. EnerSys paid a duty of around 6.5% in 2008, when it had to import separators from Austria into Mexico. (Burkert, Tr. 2402). There is a duty of 3%, Mr. Weerts thought, on separator imports into the United States. (Weerts, Tr. 4503, *in camera*). Mexico imposes a duty, Mr. Hall believed, on separator imports from China. (Hall, Tr. 2722).

D. Market participants and market shares

1. Deep-cycle separator market

a. Market participants

371. Prior to the acquisition, Daramic and Microporous were the only participants in the deep-cycle battery separator market in North America. (F. 372-83, 442).

372. Prior to the acquisition, Microporous participated in the North American deep-cycle market with its CellForce and Flex-Sil products. (Gilchrist, Tr. 300-01).

373. Prior to the acquisition, Daramic participated in the North American deep-cycle market with its HD product. (Gilchrist, Tr. 343; Leister, Tr. 3978-79; Godber, Tr. 271-72; Gillespie, Tr. 2932; Wallace, Tr. 1938, 1946; PX0319 at 007).

374. Prior to the acquisition, the only competitors in the world for the sale of battery separators for deep-cycle applications were Daramic and Microporous. (Godber, Tr. 153-54; Gilchrist, Tr. 305, 343; Wallace, Tr. 1931, 1943; Hauswald, Tr. 674-75; McDonald, Tr. 3948).

375. Prior to the acquisition, Daramic and Microporous competed for the sale of separators that went into golf cart batteries. (Hauswald, Tr. 653-54).

376. U.S. Battery, which primarily manufactures deep-cycle batteries, bought separators for its deep-cycle flooded batteries from only Daramic and Microporous prior to the acquisition. U.S. Battery is not aware of any other suppliers of separators for deep-cycle flooded batteries. (Wallace, Tr. 1942-43, 1945).

377. Crown Battery uses PE separators with a fiberglass mat for its deep-cycle batteries made for floor scrubbers and did use Microporous' Flex-Sil for its golf cart batteries. (Balcerzak, Tr. 4093-95).

378. East Penn Battery does not know whether Entek currently sells deep-cycle separators. East Penn Battery did purchase some deep-cycle separators from Entek in the past, but stopped buying those separators at least three years ago. At that time, East Penn Battery was paying Entek higher prices for deep-cycle separators than East Penn Battery is currently paying to Daramic for HD separators. (Leister, Tr. 3985, 4041).

379. JCI is not aware of any separator manufacturer other than Daramic that can supply a deep-cycle battery separator that will work in JCI's batteries. (Hall, Tr. 2705).

380. Trojan Battery used only Flex-Sil and CellForce prior to the acquisition and considers Daramic and Microporous to be the only competitors in the deep-cycle market. (Godber, Tr. 153). Trojan Battery is not aware of any separator manufacturer other than Daramic that can supply a deep-cycle battery separator. (Godber, Tr. 289).

381. Trojan Battery did not approach Entek as a potential supplier of deep-cycle battery separators because Trojan Battery had previously tested Entek separators for golf applications in the mid-1990's and was not satisfied with the

performance. The technology that Entek had available then is the same as what Entek has today. Since the mid-1990's, Entek has not approached Trojan Battery for its deep-cycle business. (Godber, Tr. 289-90).

382. Entek's sales are almost entirely of SLI separators, with less than one percent of Entek's sales made up of non-SLI separators. (PX1833 at 004, *in camera*; Weerts, Tr. 4504, *in camera*).

383. Entek is not a participant in the deep-cycle market because it has no sales and is not an uncommitted entrant under the Merger Guidelines. (Simpson, Tr. 3461-62, *in camera*).

b. Market shares and HHI

384. Daramic's acquisition of Microporous increased the HHI by 1,891 points to 10,000 in the deep-cycle market. The 2007 data understates the competition between Microporous and Daramic in this market because the firm with the smaller share, Daramic, was in the process of gaining market share, as demonstrated by the chart set forth in F. 385. (Simpson, Tr. 3184-85; 3438, *in camera*; PX0033 (Simpson Report) at 040, 042, *in camera*).

385. Market shares and HHI calculations for the deep-cycle battery separators in North America from 2005 to 2007 are:

		Sales	Shares		
2007	Microporous	{[redacted]}	89.4	change in HHI	1891
	Daramic	{[redacted]}	10.6	post-merger HHI	10000
2006	Microporous	{[redacted]}	92.5	change in HHI	1395
	Daramic	{[redacted]}	7.5	post-merger HHI	10000
2005	Microporous	{[redacted]}	96.2	change in HHI	733
	Daramic	{[redacted]}	3.8	post-merger HHI	10000

(PX0949 at 190-214, *in camera*; PX0949 at 224-33, *in camera*; PX0033 (Simpson Report) at 40, *in camera*).

2. Motive separator market

a. Market participants

386. At the time of the acquisition, Daramic and Microporous were the only market participants in the motive battery separator market in North America. (Gilchrist, Tr. 306-07, 422; PX0078 at 007, *in camera*; *see also* PX0033 (Simpson Report) at 15, *in camera*).

387. Prior to the acquisition, Microporous participated in the North American motive market with its CellForce product. (Gilchrist, Tr. 300-01).

388. Prior to the acquisition, Microporous participated in the North American motive market by selling industrial PE separators to East Penn Battery for motive applications. (Leister, Tr. 3999-4000, *in camera*).

389. Prior to the acquisition, East Penn Battery had been purchasing approximately 10 percent of its industrial PE separators from Microporous, even though Microporous' product was higher priced than Daramic's. (Leister, Tr. 4005, *in camera*).

390. Prior to the acquisition, in a contract dated January 2, 2007, and amended in August 2007, Microporous and EnerSys entered into a contract pursuant to which Microporous would supply EnerSys with motive power battery separator requirements from Microporous' Piney Flats plant and, once constructed, from Microporous' planned facility in Europe. The amendment obligated Microporous to add an additional industrial PE line at Piney Flats by June 2009, in exchange for EnerSys committing to additional purchases from Microporous. (RX0207).

391. Prior to the acquisition, Daramic participated in the North American motive market with its Daramic CL and HD products. (PX0211 at 001, *in camera*; Benjamin, Tr. 3503-04).

392. At the time of the acquisition, Entek was not a participant in the North American motive separator market. (Balcerzak, Tr. 4097; Seibert, Tr. 4174, *in camera*).

393. Neither of Entek's manufacturing facilities currently produces motive power separators. PX1833 at 008, *in camera.*

394. Entek was unable to supply Crown Battery with industrial PE separators during the Owensboro strike (*see* F. 952) because Entek did not possess the proper tooling needed to make Crown Battery's required profile. (Balcerzak, Tr. 4100-01).

395. When Entek had an opportunity in 2007 to provide a quote to Douglas Battery for motive power separators, Entek understood that it did not have the equipment, and that the prices would not provide sufficient margin to justify the business. (PX1810, *in camera*).

396. When Entek was approached by Bulldog Battery about manufacturing motive separators, Entek told Bulldog Battery it was not interested in the motive market. (Benjamin, Tr. 3520).

397. When Entek received an RFP from Exide in 2007, Entek no-bid on the industrial volume, in part because Entek did not have the capacity; production would require retooling; and Entek believed it could not be competitive on pricing. (Weerts, Tr. 4484, 4507, *in camera*; PX1815 at 001, *in camera*).

398. In recent years, Entek has pursued a strategy of {[redacted]} (Weerts, Tr. 4503, *in camera*; RX0114 at 008, *in camera*). {[redacted]} (Weerts, Tr. 4503-04, *in camera*). {[redacted]} (RX0114 at 008, *in camera*).

399. In today's marketplace, Entek would be willing to supply Exide with industrial product if {[redacted]} However, at present no agreement has been reached with Exide. (Weerts, Tr. 4489-89, *in camera*).

400. {[redacted]} (PX1833 at 008, *in camera*).

401. Calender rolls cost approximately $20,000 to $50,000 a piece. The lead-time from order to delivery of a calender roll takes approximately 12 to 14 weeks. (Gaugl, Tr. 4553-54).

402. Completion of Exide's {[redacted]} (Gillespie, Tr. 3038-39, *in camera*). Exide is also concerned {[redacted]} (Gillespie, Tr. 3129, 3134-35, *in camera*; PX1092 at 001).

403. Entek is not a participant in the motive market. It has no sales and is not an uncommitted entrant under the Merger Guidelines. (Simpson, Tr. 3461-62, *in camera*).

b. Market shares and HHI

404. According to the executive presentation to the Microporous Board in 2007, Microporous' strategic plan was to increase its share of the United States motive power market from 8% in 2007 to 20% in 2008 to 58% in 2009 through its contracts with EnerSys, as well as with Crown Battery, and through C&D's readiness to switch to CellForce. (PX0080 at 058-59, *in camera*).

405. Microporous anticipated that, by the end of 2009, new sales of CellForce to manufacturers of motive batteries would increase its United States share of the motive market segment to 45 to 50%. (Gilchrist, Tr. 398-99).

406. In considering the strategic implications of an acquisition by Daramic, Microporous calculated that, as a result of the acquisition, Daramic would have more than 97% of the industrial markets for motive power separators worldwide; Amer-Sil in Luxembourg would be the only remaining competitor globally. (PX0076 at 002; Gilchrist, Tr. 422).

407. Crown Battery has only one option for its industrial separator supply, after the acquisition of Microporous by Daramic. (Balcerzak, Tr. 4128).

408. When EnerSys' contract with Daramic expires, EnerSys will continue to purchase separators from Daramic because it has no other choice. (Craig, Tr. 2611).

409. Daramic's acquisition of Microporous increased the HHI by 1,663 points to 10,000 in the motive market, as shown by the chart set forth in F. 410. (Simpson, Tr. 3185; PX0033 (Simpson Report) at 042, *in camera*).

410. Sales data from 2007 show that the change in HHI and the post-merger HHI for the motive market far exceeds the thresholds listed in the Merger Guidelines. (Simpson, Tr. 3184-85). The 2006-2007 market shares and HHI calculations for motive battery separators in North America are:

		Sales	Shares		
2007	Microporous	{[redacted]}	9.2	change in HHI	1663
	Daramic	{[redacted]}	91.8	post-merger HHI	10000

2006	Microporous	{[redacted]}	10.0	change in HHI	1800
	Daramic	{[redacted]}	90.0	post-merger HHI	10000

(Simpson, Tr. 3185; PX0033 (Simpson Report) at 042, *in camera*).

3. UPS separator market

a. Market participants

411. Prior to the acquisition, Daramic participated in the North American battery separator market for flooded lead-acid UPS batteries with its Daramic CL product. (Burkert, Tr. 2318; Hauswald Tr. 988).

412. Daramic's Darak separator is used in batteries for industrial stationary applications and submarines. Darak can be used in a flooded lead-acid battery or

in a valve regulated lead-acid (VRLA) battery (also known as a gel or recombination battery). (PX0949 at 004, *in camera*; Whear, Tr. 4681).

413. Daramic's Darak separator is a polymeric battery separator that is stiff, very chemically stable, and contains no oil. It is not a PE separator product. (PX0949 at 004, *in camera*; Brilmyer, Tr. 1864, 1911).

414. Darak is substantially more expensive than Daramic's PE separators. (Brilmyer, Tr. 1865; Burkert, Tr. 2322).

415. Microporous' CellForce, a PE-based separator with a rubber additive (Ace-Sil dust) can be used in UPS batteries. (Gilchrist, Tr. 307-08, 312, 397-98; Hauswald, Tr. 672).

416. Prior to the acquisition, Microporous sold CellForce separators to C&D for its gel-based VRLA batteries. (Gilchrist, Tr. 398; PX2110 at 006).

417. Prior to the acquisition, Microporous embarked on Project LENO, a component of which was the development of a new product, white PE, to compete with Daramic's battery separators in the UPS flooded lead-acid market. Microporous had been working with EnerSys to bring to market a separator to resolve the black scum problem EnerSys had with its UPS batteries. (F. 617-21).

418. Prior to the acquisition, Microporous invested resources to develop the white PE product for UPS batteries and had provided samples to EnerSys for testing. (F. 623).

419. Microporous expected to generate revenues from UPS separators by the end of 2008 or early 2009. (Brilmyer, Tr. 1857-58, 1881, *in camera*; *see also* F. 624, 626-28).

420. With Project LENO, Microporous would likely have been in the market within one year without the additional expenditure of sunk costs of entry. (F. 417-19).

421. Prior to the acquisition, Entek had made small quantities of PE separators for use in industrial applications, such as stationary, emergency lighting, military and aircraft applications. (Weerts, Tr. 4492-93, *in camera*; PX1833 at 004, *in camera*). However, Entek does not intend to increase these sales and has not been competing in the UPS battery separator market for years. (Gillespie, Tr. 3037; *see also* PX0033 (Simpson Report) at 17, *in camera*).

b. Market shares

422. As of today, other than Daramic, there is no company in the world that makes a separator that can be used in EnerSys' UPS batteries. (Axt, Tr. 2101). In a global

search for UPS separators, EnerSys was unable to find any other company currently making a UPS separator. (Axt, Tr. 2216-17, *in camera*).

423. By combining Daramic, the dominant incumbent supplier of UPS battery separators, with Microporous, which was working to enter this market, Daramic's acquisition of Microporous left Daramic as the only effective competitor in this market. (PX0033 (Simpson Report) at 17, *in camera*; Gillespie, Tr. 3041, *in camera*)).

424. Simpson did not calculate HHI for the UPS market. His reasons, according to his report were: Microporous had no sales of UPS battery separators in 2006 or 2007; although Entek may have had some limited sales of UPS separators during this period, the data is insufficient to calculate these sales; and, thus, a calculation of market shares and HHI would not provide any additional information. (PX0033 (Simpson Report) at 17 n.16, *in camera*).

4. SLI separator market

a. Market participants

425. Prior to the acquisition, Daramic, Entek and Microporous were the only participants in the SLI battery separator market in North America. (PX0033 (Simpson Report) at 18, *in camera*; F. 426-37; *see also* F. 638).

426. Prior to the acquisition, the North American SLI battery separator market was supplied principally by Daramic and Entek. (PX0264 at 003; PX0088 at 001; *see also* Hall, Tr. 2873-74, *in camera*; Leister, Tr. 3984).

427. Prior to the acquisition, Daramic participated in the North American SLI market with its Daramic HP product. (PX0949 at 003, *in camera*; PX0669 at 003, *in camera*). Additional Daramic products, such as Daramic Standard, Daramic V, Daramic HP-S, Daramic HPR, Daramic HPO, and Daramic Duralife can also be used in SLI applications. (PX0949 at 003, *in camera*).

428. Prior to the acquisition, Entek was principally a producer of SLI separators and participated in the North American SLI market from its West Coast facility with its RhinoHide product. (Weerts, Tr. 4492, 4510, *in camera*; Gilchrist, Tr. 408, 463).

429. Prior to the acquisition, Microporous had the capability of manufacturing separators for SLI applications. (F. 430, 778).

430. Microporous' production line that manufactures CellForce is also capable of producing straight PE, which is used for SLI battery separators, because CellForce is a PE based product, with Ace-Sil dust added. (Gilchrist, Tr. 311-12). Depending on the type of calender rolls attached to the line, its manufacturing line

can produce separators for either SLI applications or industrial applications. (Gilchrist, Tr. 562-63, 569-70).

431. Prior to the acquisition, Microporous' expansion plan included building production lines which could produce either CellForce separators or plain polyethylene separators that could be used for SLI or industrial battery separators. (F. 772-78).

432. Prior to the acquisition, Microporous was marketing PE separators for SLI applications and had endeavored to sell such separators to JCI, Exide, and East Penn Battery. (F. 639-41, 684-91, 694-722).

433. A Microporous document titled "Overview of Battery Separator Industry, September 2007" states: "Microporous Products, at the invitation of [JCI, Exide, and East Penn] seeks to become a supplier to the domestic U.S. automotive industry and help the above manufacturers create a more competitive environment." (PX0088 at 001-02).

434. Prior to the acquisition, Microporous considered Entek and Daramic to be its competitors for the sale of separators for the SLI market. (Gilchrist, Tr. 308; PX0078 at 007, *in camera*).

435. Prior to the acquisition, Daramic perceived Microporous to be a threat to Daramic in the SLI market. A 2007 Daramic document, Daramic's Strategy Audit, states "There is currently not a lot of rivalry among competitors, but this could increase in future due to Asia and uncertainties with current competitors (Entek, [Microporous])." "Battery manufacturers lack purchasing power despite their scale due to limited number of suppliers." (PX0265 at 004, 008, *in camera*). In comments on an earlier draft of this Strategy Audit, Tucker Roe of Daramic stated: "I would say that over the past years there has not been an aggressive rivalry among competitors but this has changed when Microporous Products entered the market and more recently seen by Entek." (PX0482 at 002).

436. Prior to the acquisition, Entek considered Microporous a threat to its SLI business. (Weerts, Tr. 4517, *in camera*). Entek understood that Microporous was seeking to supply JCI's SLI business and had in fact made SLI separators for JCI. (Weerts, Tr. 4517, *in camera*). In 2006, Entek feared that Microporous would receive the support of JCI to become a third SLI competitor and thereby change the competitive landscape. (PX1832 at 026-27, *in camera*).

437. After the acquisition, the only participants in SLI separator market in North America are Daramic and Entek. (Balcerzak, Tr. 4128; Hall, Tr. 2873-74, *in camera*; Leister, Tr. 3984).

b. Market shares and HHI

438. Market share charts created by Daramic assign the following shares of SLI sales in North America in 2006: Microporous, 4%; Entek, 49%; and Daramic, 47%. (PX0264 at 003).

439. The 2006-2007 market shares and HHI calculations for SLI battery separators in North America are:

		Sales	Shares		
2007	Entek	{[redacted]}	51.6	change in HHI	0
	Daramic	{[redacted]}	48.4	post-merger HHI	5005
2006	Entek	{[redacted]}	53.0	change in HHI	0
	Daramic	{[redacted]}	47.0	post-merger HHI	5018

(PX0949 at 190-14, *in camera*; PX1833 at 13-65, *in camera*; PX0033 (Simpson Report) at 41, *in camera*).

440. Actual 2007 sales data would not capture Microporous' competitive significance in the SLI market because Microporous was in the process of expanding further into the market. (Simpson, Tr. 3439, *in camera*).

441. A Microporous document from 2007 predicted future market shares for 2010 in a North American SLI battery separator market for Entek, Daramic, and Microporous. Microporous projected a 6% share by 2010, based upon projected sales to Exide. (PX0080 at 060; Simpson, Tr. 3439, *in camera*).

5. Suppliers outside of North America are not market participants in North America

442. Suppliers outside of North America are not participants in the North America SLI market. (F. 443-51).

443. Amer-Sil operates a plant facility in Luxembourg that produces PVC-based separators for motive batteries. (PX0916 (Dauwe, Dep. at 15), *in camera*; Gilchrist, Tr. 306-307; PX0078, *in camera*). Amer-Sil produces PVC separators for lead-acid batteries and does not produce PE separators. (PX0916 (Dauwe, Dep. at 14), *in camera*). Amer-Sil's PVC separators are used in European flooded motive and stationary batteries, but are not used in automotive batteries. (PX0916 (Dauwe, Dep. at 18-19), *in camera*).

444. There are suppliers in India, China, Indonesia and Korea that produce separators for local customers. They include Anpei and BFR, Chinese manufacturers of SLI separators, Separindo, an Indonesian manufacturer of SLI and industrial separators, owned by Korindo, and Sebang (formerly Global Industrial), a Korean

manufacturer of SLI and industrial separators. (Gilchrist, Tr. 307-08, 424, 430; PX0905 (Gaugl, Dep. at 10), *in camera*; Burkert, Tr. 2359, *in camera*). Other Asian battery separator manufacturers include Baotou and Epoch in China and Nippon Sheet Glass (NSG) in Japan. (PX0275 at 020, *in camera*)

445. BFR, a Chinese entity, was founded in 2000 {[redacted]} (Hall, Tr. 2715-16, 2740, *in camera*; RX0050 at 004, *in camera*). {[redacted]} The resulting three-party joint venture continued to be called BFR. (Hall, Tr. 2716). {[redacted]} (Hall, Tr. 2741, *in camera*). {[redacted]} (Hall, Tr. 2740, *in camera*). {[redacted]} (Hall, Tr. 2836, *in camera*). Unanimous BFR Board approval is required for {[redacted]} (Hall, Tr. 2826, *in camera*).

446. BFR's separator production, which consists of PE automotive separators only, goes predominantly to customers in Asia. (PX0907 (Kung, Dep. at 85-86), *in camera*; *see also* RX0050 at 011). {[redacted]} (PX0907 (Kung, Dep. at 90), *in camera*).

447. BFR is not considered a market participant in any of the four North American product markets in this case. (Simpson, Tr. 3462, *in camera*).

448. Dr. Simpson considered Asian suppliers but correctly did not consider any to be market participants in any of the four North American markets at issue. (PX0033 (Simpson Report) at 012, 015-16, 018, 140-42, *in camera*).

449. Entek is not aware of any Asian battery separator manufacturers selling products into North America. Entek has not had to adjust its prices in North America due to perceived competition from Asian battery separator suppliers. The pricing of separators being sold in Asia has not had any effect on the prices of Entek's separators being sold in North America. (Weerts, Tr. 4500, 4512 *in camera*).

450. Daramic has not seen instances of Asian PE battery separator manufacturers selling separators for any type of flooded applications to customers in North America. (Thuet, Tr. 4379-80; Roe, Tr. 1236-37). Dr. Kahwaty confirmed that pre-acquisition, no Asian battery separator producer has sold flooded lead-acid separators in North America. (Kahwaty, Tr. 5343, *in camera*).

451. Daramic does not consider itself as competing with Asian separator manufacturers for battery separator sales in the North American market. (Seibert, Tr. 4165, *in camera*; Thuet, Tr. 4381-82). Daramic has not made price concessions to customers in North America due to competition from any Asian battery separator manufacturer. (Roe, Tr. 181).

E. Competitive Effects

1. In three of four markets, Daramic and Microporous were closest competitors

a. In the deep-cycle market, Daramic was Microporous' only competitive constraint

(i) Product competition

452. When Microporous instituted new rubber cost pass-through agreements, Daramic analyzed the effect of rubber price increases on Flex-Sil versus HD in an effort to gauge the impact of rubber prices on the prices of the two competing products. (PX0948; Whear, Tr. 4785-86).

453. Before the acquisition, Daramic's pricing for HD was lower than Microporous' pricing for CellForce and Flex-Sil. (Gilchrist, Tr. 467, *in camera*).

454. None of the Asian battery separator manufacturers are producing a deep-cycle separator containing an antimony suppression additive. (Thuet, Tr. 4396; *see* F. 140-42).

455. Exide believes that following Daramic's acquisition of Microporous, Exide no longer has the same leverage for the purchase of deep-cycle battery separators that it had prior to the acquisition, because now there is only one provider of deep-cycle separators for Exide to negotiate with. (Gillespie, Tr. 2953-54).

456. Prior to Daramic's acquisition of Microporous, in addition to offering competitive prices on HD separators, Daramic offered {[redacted]} (Gillespie, Tr. 2995-97, *in camera*). {[redacted]} (Gillespie, Tr. 2997, *in camera*).

(a) Daramic's DC's competition with Microporous' Flex-Sil

457. Daramic spent many years trying to develop a battery separator that would work well in deep-cycle applications. (PX0433 at 001). Daramic made repeated attempts to develop a product to compete with Microporous' Flex-Sil separators in the deep-cycle market. (PX0433 at 001).

458. Daramic first developed a separator known as Daramic DC, a separator for deep-cycle batteries manufactured by combining PE with a {[redacted]

[redacted]} intended to suppress antimony transfer and water loss in deep-cycle batteries. (PX0911 (Roe, Dep. at 69-70), *in camera*).

459. Daramic DC was Daramic's original deep-cycle separator introduced to the market in 2002. (PX0319 at 003).

460. Daramic DC was specifically designed for the golf cart application. (Whear, Tr. 4776).

461. Daramic began testing Daramic HD, as a replacement for Daramic DC, in 2003. (PX0949 at 019 (Response to CID Request No. 8, *in camera*)).

462. Daramic's early work with U.S. Battery ultimately led to development and sales of Daramic DC. (Qureshi, Tr. 2020). U.S. Battery and Daramic tested Daramic DC and found it to be quite acceptable. (Qureshi, Tr. 2020). The product was commercialized in about 2002. (Qureshi, Tr. 2021). U.S. Battery began purchasing Daramic DC in approximately 2003. (Qureshi, Tr. 2021). At the time U.S. Battery began purchasing Daramic DC, its price was much lower than the price of the Microporous' Flex-Sil product. (Qureshi, Tr. 2021).

463. U.S. Battery first used Daramic DC in a new economy line golf cart battery, the US 1800. (Qureshi, Tr. 2021; McDonald, Tr. 3946-47).

464. Microporous responded to Daramic's introduction of the DC separator by offering to lower the price of its Flex-Sil separator for use in the US 1800 battery to be closer to the price of the Daramic DC. (Qureshi, Tr. 2023; PX1764 at 002; McDonald, Tr. 3947). Once Microporous lowered the price of Flex-Sil for the US 1800 battery, U.S. Battery approved and began purchasing both Flex-Sil and Daramic DC for use in the US 1800. (Qureshi, Tr. 2024).

465. According to U.S. Battery, there were no noticeable or functional differences between the US 1800 batteries with the Daramic DC separator and US 1800 batteries with the Flex-Sil separator. (Qureshi, Tr. 2025).

466. U.S. Battery expanded the use of Daramic DC to ten different types of deep-cycle batteries that it produced that were all previously using Flex-Sil. (Qureshi, Tr. 2025). The warranties on the batteries that incorporated Daramic DC in place of Flex-Sil carried U.S. Battery's normal one-year warranty. (Qureshi, Tr. 2026). U.S. Battery also used Daramic DC in its economy line batteries that carry a six month warranty. (Qureshi, Tr. 2026). These economy line batteries also contain fewer lead plates to reduce their cost. (Qureshi, Tr. 2027). Less lead plates will lessen the product life. (Qureshi, Tr. 2027). The length of the warranty U.S. Battery puts on its batteries is related more to the number of plates in the battery than the type of separator the battery is using. (Qureshi, Tr. 2085).

467. In a November 9, 2005 Daramic Trip Report to U.S. Battery, Daramic concludes that U.S. Battery's owner, Jon Anderson, "appreciates that we developed a competing product for rubber . . . . Jon sees their benefit as having two suppliers in order to manage costs while maintaining product performance. Meanwhile, we benefit by continuing to gain incremental volume (and taking it away from Microporous Products) in a market where we are relatively new entrants." (PX0557 at 003). The November 9, 2005 trip report confirms that U.S. Battery communicated to Daramic its interest in incorporating more Daramic HD into its higher quality batteries and that Daramic was interested in supplying more product to U.S. Battery. (Qureshi, Tr. 2029-30; PX0557 at 003).

468. Beginning in 2003, U.S. Battery began manufacturing deep-cycle batteries with Daramic's DC separator in place of Flex-Sil. (Wallace, Tr. 1945). Prior to purchasing Daramic's separator, U.S. Battery was buying only Flex-Sil for its deep-cycle batteries. (Wallace, Tr. 1945-46).

469. U.S. Battery began using Daramic DC before it switched to Daramic HD and as U.S. Battery became more confident with the performance of Daramic's new separators it began to use them in additional battery lines. (Whear, Tr. 4840, *in camera*).

(b) Microporous responded to competition

470. When Microporous found out that U.S. Battery was buying Daramic's DC separator for its deep-cycle batteries, Microporous lowered its pricing on Flex-Sil separators. (Wallace, Tr. 1945-46).

471. Daramic documents reflect the competition by Microporous in the deep-cycle market, stating, *e.g.*, that in this market, "Microporous is attacking with price." (PX0023 at 004, *in camera*).

(c) Daramic improved product and introduced Daramic HD

472. Daramic developed the HD separators to replace its DC separators. (Roe, Tr. 1196). Daramic HD separators are manufactured by combining PE with a latex rubber additive. (Hauswald, Tr. 699-700). HD separators provide improved performance over the DC separators. (Roe, Tr. 1196; PX0911 (Roe, Dep. at 69-70), *in camera*). HD separators provide better antimony suppression and less water loss in deep-cycle batteries than the old DC separators. (Roe, Tr. 1196). HD separators also provide improved end-of-charge performance over time than standard PE separators. (PX0423 at 002).

473. U.S. Battery tested the Daramic HD product and the Microporous Flex-Sil product side by side and determined the two "are very comparable." (Qureshi, Tr. 2033). The main advantage of HD over Flex-Sil is its cost. (Qureshi, Tr. 2033).

474. Exide had tested previous versions of Daramic separators for deep-cycle batteries and none of the versions prior to HD had passed Exide testing. (Gillespie, Tr. 2937).

475. Daramic HD was developed to compete in the deep-cycle market. (Roe, Tr. 1195-96; PX0911 (Roe, Dep. at 56), *in camera*; PX1791; PX1744 at 004, *in camera*; PX1071; PX0222 at 001, *in camera*).

476. Daramic HD's first commercial sales took place in 2005. (Roe, Tr. 1209).

477. Sales and volume of HD separators increased in 2006 and 2007. (Seibert, Tr. 4308-09, *in camera*). Daramic's strategy was to grow sales of HD separators in deep-cycle applications, which includes golf carts and floor scrubbers. (Seibert, Tr. 4309-10, *in camera*).

478. Daramic sought to convert customers of rubber separators to Daramic HD separators. (PX0321; Seibert, Tr. 4311, *in camera*). Microporous was the rubber separator producer that Daramic was trying to take customers away from. (Seibert, Tr. 4311-12, *in camera*).

479. In order to grow sales of HD, Daramic targeted large deep-cycle producers like Trojan Battery, Exide, and U.S. Battery. (PX0321 at 002; PX0904 (Seibert, Dep. at 65), *in camera*).

480. U.S. Battery began to indicate that it wanted to switch from Daramic DC to the improved Daramic HD in 2005. (PX0557; Whear, Tr. 4812, *in camera*). U.S. Battery also indicated a desire to switch four of its new product lines away from Flex-Sil to Daramic HD during 2005 as well. (PX0557 at 002; Whear, Tr. 4812, *in camera*).

481. Because Daramic felt that HD performed better than rubber separators such as Flex-Sil, and PE based separators with rubber additives, such as CellForce and Daramic DC, Daramic decided to phase out Daramic DC and replace it with Daramic HD. (PX0695 at 003). U.S. Battery switched its DC purchases to HD when DC was discontinued by Daramic in 2006. (Wallace, Tr. 1947).

482. A Daramic strategic planning document shows that HD was specifically targeted as an alternative to Microporous' rubber separator, Flex-Sil, being used in golf cart and floor scrubber batteries. (PX0319 at 003).

483. Tests conducted by Daramic accurately showed HD performed pretty close to Flex-Sil. (Whear, Tr. 4839, *in camera*). Daramic is currently still testing HD in comparison to Flex-Sil. (Whear, Tr. 4787).

484. Until the acquisition, Microporous was Trojan Battery's exclusive battery separator supplier. (Godber, Tr. 153).

485. Prior to the acquisition, Daramic tried to sell Daramic HD to Trojan Battery for use in its deep-cycle batteries, including golf cart batteries. (Hauswald, Tr. 659-60).

486. Daramic attempted to get business from Trojan Battery in 2007. (PX0904 (Seibert, Dep. at 131), *in camera*). An internal Daramic email exchange states: "We know we can price the product where we want to either get business or cause [Microporous] to reduce theirs." The response notes: "knowing that we're 'competitive' should we take prices down 5% to 10% to get even more aggressive?" (PX0329 at 001).

487. In 2006, U.S. Battery switched all its applications that were using Daramic DC to Daramic's replacement product, Daramic HD. (Qureshi, Tr. 2028). Daramic HD is superior to Daramic DC in terms of cycle life. (Qureshi, Tr. 2028).

488. A November 9, 2005 Daramic Trip Report to U.S. Battery confirms that U.S. Battery viewed HD as a superior to DC. (PX0557 at 002). Based on a comparison of Daramic HD to Daramic DC in enveloped golf cart batteries, Daramic reported that "Nawaz [Qureshi] wants to switch all DC product immediately to HD . . . . Nawaz wants to make a running change as soon as it is available." (PX0557 at 002). Moreover, Daramic noted that U.S. Battery's Nawaz Qureshi "provided a list of four (4) new product lines he would like to switch away from rubber. NOTE: Some of these new sizes include mid-level product line." (PX0557 at 002). Included within the four new products, was the "US 2000 (mid-level golfcart battery)." (PX0557 at 002). The November 9, 2005 trip report also states that "[i]t may be up to us to determine how much more business we want to take away from Microporous Products and when we want to take it." (PX0557 at 002).

489. In February 2007, Mr. Roe informed the individuals at Daramic who were directly in charge of HD strategy that HD was meant for the same market as Microporous' Flex-Sil separators. (PX0316 at 002; Roe, Tr. 1200-01). Mr. Keith, a Daramic salesman, specifically noted the competition between HD and Flex-Sil, stating that Daramic "must continue to improve our service on HD or we stand a good chance of losing golf car business back to [Microporous] Flex-Sil." (PX0413 at 005).

490. Daramic believed that the HD separators could match the antimony suppression of Microporous' pure rubber Flex-Sil separator. (PX0911 (Roe, Dep. at 58-59), *in camera*). Daramic advertised to customers that HD matched the antimony poisoning retardation of the Flex-Sil separators. (PX0423 at 002; Roe, Tr. 1202-03). This advertisement was part of the marketing product literature that was provided to battery manufacturers. (Roe, Tr. 1203).

491. Additionally, Daramic provided battery manufacturers with test results comparing Daramic HD to rubber separators. (PX0423 at 002). The test results indicated

that HD outperformed pure rubber separators as well as non-active separators over the life of a battery. (PX0423 at 002). These test results were designed to compare HD to Flex-Sil, as Flex-Sil is the only pure rubber separator available on the market. (PX0911 (Roe, Dep. at 58-59), *in camera*).

492. Daramic informed customers that the HD separators are superior to Microporous' separators. (RX0598 at 001).

493. When Daramic introduced the HD separators, it understood that on a performance basis they were close to the level of Microporous' Flex-Sil separators. (PX0433 at 001).

494. Prior to the acquisition of Microporous, Daramic was taking active measures to improve the quality of the HD separators. (PX0911 (Roe, Dep. at 227), *in camera*). For example, when HD was introduced to the marketplace with a 12 mil backweb thickness, there were problems associated with wrinkling of the separators. (Roe, Tr. 1312-13). Daramic was subsequently able to overcome this wrinkling problem by increasing the backweb thickness of the HD separators to 13 mil. (Roe, Tr. 1312-13).

495. Exide understood that Daramic was marketing the HD separators for use in golf cart batteries. (Gillespie, Tr. 2937). When Daramic introduced the HD separators, Daramic approached Exide and asked that Exide test the HD separator in golf cart batteries to see how it performs. (Gillespie, Tr. 2937). Daramic wanted to know what it would take for Exide to get HD into Exide's golf cart batteries. (Gillespie, Tr. 2937-38).

496. From Exide's perspective, Daramic was extremely interested in getting Exide's golf cart business. (Gillespie, Tr. 2938-39; *see also* PX1071 at 001-02 (May 2006 email from Mr. Roe to Mr. Gillespie: "we are aggressively pursuing this market")).

497. When Daramic introduced the HD separators, Exide was interested in buying HD for its deep-cycle batteries for performance and commercial reasons. Exide's testing indicated that HD met Exide's performance criteria for deep-cycle batteries. Daramic offered Exide a competitive price on the HD separators. Additionally, Exide received an incentive for buying HD because it also received a credit back from Daramic for every purchase of HD under their contractual agreements. (Gillespie, Tr. 2937-38).

498. Prior to Daramic's acquisition of Microporous, Daramic was attempting to grow its sales of HD in the deep-cycle segment. (Roe, Tr. 1209; PX0736 at 002). In fact, in February 2006, Mr. Roe informed Exide's head of procurement that Daramic was "aggressively pursuing" sales in the "golf cart/deep-cycle and motorcycle battery business." (PX1071 at 001-02; Roe Tr. 1209-11). In order to grow market share of HD in the deep-cycle market, Daramic provided HD

samples to most of the significant deep-cycle battery manufacturers including Trojan Battery, Exide, U.S. Battery, and Crown Battery. (PX0262 at 003).

499. Daramic measured HD separators against Microporous' Flex-Sil separators. (PX0904 (Seibert, Dep. at 106-07), *in camera*). Daramic's February 2007 HD Product Strategy Presentation showed that Daramic's HD separators equaled or surpassed Microporous' Flex-Sil separators in the following categories for deep-cycle applications: {[redacted]} (PX0023 at 010, *in camera*).

500. By 2007, Daramic's budget indicated that "gaining market share" in the "[d]eep cycle battery market" was a "critical success factor" for achieving Daramic's goals. (PX0263 at 003-04, *in camera*). Included in the 2007 budget was an HD action plan which sought increased sales of HD to Exide and U.S. Battery. (PX0263 at 008, *in camera*). This action plan targeted a complete conversion of Exide's deep-cycle batteries from Flex-Sil to HD. (PX0263 at 008, *in camera*). Daramic's action plan also included qualification of HD for use in Exide's deep-cycle OEM batteries. (PX0263 at 008, *in camera*). Additionally, the action plan targeted increasing HD's share of U.S. Battery's deep-cycle batteries from {[redacted]} up to {[redacted]} (PX0263 at 008, *in camera*).

501. Daramic wrote in its September 2007 Americas Monthly Sales Report that East Penn Battery and U.S. Battery were concerned about receiving a consistent supply of HD separators from Daramic. (PX0305 at 007). Daramic saw that it had opportunities to increase sales of HD separators to U.S. Battery. (PX0305 at 007). In the Monthly Sales Report, Daramic noted that it must continue to improve its service or it would "stand a good chance of losing golf car business back to [Microporous] Flex-Sil." (PX0305 at 007).

(d) Customers viewed Daramic HD and Microporous' deep-cycle products as substitutes

502. Exide regards Flex-Sil and Daramic HD separators to be substitutes for each other. (Gillespie, Tr. 2933). Exide uses Flex-Sil and Daramic's HD separators in its flooded lead-acid batteries for use in golf cart and floor scrubber applications. (Gillespie, Tr. 2932). Exide does not use any other type of separator in its deep-cycle batteries. (Gillespie, Tr. 2933). No other separators meet Exide's performance criteria for deep-cycle batteries. (Gillespie, Tr. 2933).

503. Flex-Sil and HD are used as substitutes in Exide's most common golf cart battery, the GC110, which makes up approximately 80% of Exide's deep-cycle sales. (Gillespie, Tr. 2941-44; PX1401 and PX1402 (demonstrative batteries)). For the end user, there is no difference in the price or warranty between Exide's GC110 batteries which use HD and those that use Flex-Sil. (Gillespie, Tr. 2944).

504. The testing conducted by U.S. Battery comparing Flex-Sil and HD showed comparable results. (Wallace, Tr. 1972; Qureshi, Tr. 2063).

505. U.S. Battery's 1800 model deep-cycle battery contains either Flex-Sil or Daramic HD today with no distinction in its performance or warranty claims rate. (Wallace, Tr. 1946). Based on its battery performance testing, U.S. Battery found that Flex-Sil and HD separators are comparable products, *i.e.*, one is not better than the other. (Wallace, Tr. 1971-72).

506. Prior to Daramic's acquisition of Microporous, JCI purchased HD separators from Daramic for use in golf cart batteries. (Hall, Tr. 2703-05; 2874, *in camera*). JCI was engaged in discussions with Microporous for the supply of separators for golf cart batteries prior to Daramic's acquisition of Microporous. (Hall, Tr. 2704). JCI was interested in Microporous' deep-cycle separators in order to have an alternative to Daramic's HD separators because JCI wanted to "see competition." (Hall, Tr. 2706-07). JCI had obtained samples of CellForce and was preparing to build and test golf cart batteries with CellForce prior to the acquisition. (PX1515 at 006, *in camera*). Discussions with Microporous about deep-cycle separators continued even after discussions regarding a possible Microporous expansion to support PE SLI separator business with JCI had fallen apart. (Hall, Tr. 2704-05; *see* F. 684-93).

507. JCI's contract {[redacted]} (Hall, Tr. 2874, *in camera*; RX0072, *in camera*).

508. Exide benefits from purchasing HD because HD costs less than Flex-Sil. (Gillespie, Tr. 2944, 2996, *in camera*). Exide has no issues with the quality of the HD separators. (Gillespie, Tr. 2944).

509. After the merger, U.S. Battery met with Daramic and told Daramic that in identical applications, there were no noticeable differences between HD and Flex-Sil. (Qureshi, Tr. 2088-89; *see also* PX0682 at 002, *in camera* (U.S. Battery's assessment of the benefits of HD versus Flex-Sil in identical applications showed no notable differences between the products) (emphasis omitted).

510. Crown Battery is testing Daramic HD as a replacement for Flex-Sil in its golf cart batteries. (Balcerzak, Tr. 4138). Crown Battery has qualified HD in deep-cycle golf cart application, but has found that HD does not perform as well as Flex-Sil. (Balcerzak, Tr. 4123-24, 4135-36).

(e) HD took sales from Microporous

511. Microporous' CEO knew "[w]ithout a doubt" that HD was "competing" and was a "threat" to Microporous in the deep-cycle market. (Gilchrist, Tr. 467-68, *in camera*). Microporous did, in fact, lose business to HD, which competed against Flex-Sil and CellForce. (Gilchrist, Tr. 343, 368-70; McDonald, Tr. 3949).

512. Daramic increased the sales of HD in every year between the introduction of HD and Daramic's acquisition of Microporous. (Roe, Tr. 1209). Daramic was gaining market share in the deep-cycle market in part through customers who were converting the separators that they were using in their deep-cycle batteries from Flex-Sil to HD. (Roe, Tr. 1212-13; 1277-78). Both Exide and U.S. Battery switched from Flex-Sil to HD for a portion of their deep-cycle golf cart batteries. (Roe, Tr. 1212-13).

513. Exide began switching from Flex-Sil to HD separators for its deep-cycle batteries in 2005. (Gillespie, Tr. 2936-37).

514. U.S. Battery switched from Flex-Sil to HD separators for some of its deep-cycle batteries. (Gilchrist, Tr. 369-70).

515. U.S. Battery is pleased with the performance of HD, such that its purchases have increased over time and are included in additional models in its product line. (Wallace, Tr. 1947-48). U.S. Battery planned additional purchases of the HD separator for its Group 27 and 31 lines of batteries prior to Daramic's acquisition of Microporous. (Wallace, Tr. 1948).

516. Daramic felt that it was within its discretion to determine how much of U.S. Battery's deep-cycle business it wanted to win away from Microporous. (PX0557 at 002 ("It may be up to us to determine how much more business we want to take away from Microporous Products and when we want to take it.")).

517. In the months prior to the acquisition of Microporous, Daramic continued to try to gain market share through conversion of Exide's batteries from Flex-Sil to HD. On December 21, 2007, Daramic submitted a comprehensive supply proposal to Exide with regards to Exide's separator purchases. (PX0261, *in camera*). In this proposal, Daramic encouraged Exide to complete the switch of Flex-Sil to HD for its golf cart batteries which would result in "well-defined cost savings programs" to save Exide {[redacted]} on its golf cart battery separator purchases. (PX0261 at 002, 007, *in camera*). Daramic believed that {[redacted]} (Roe, Tr. 1789, *in camera*).

518. Daramic's December 2007 sales report indicates that Exide was interested in converting another size of its golf cart batteries from Flex-Sil to HD. (PX0222 at 001, *in camera*).

519. Daramic's HD separator had been making inroads into the deep-cycle golf cart market prior to the merger. (McDonald, Tr. 3943-45). HD sales had been growing among Microporous golf cart customers. (McDonald, Tr. 3945).

(f) HD constrained pricing of Microporous

520. Due to the threat of HD's emerging presence in the deep-cycle market, Microporous lowered prices on its Flex-Sil separator, attempting to protect market share. (McDonald, Tr. 3943). Trojan Battery, Exide, and U.S. Battery all used HD as a competitive threat to Microporous' deep-cycle battery separators. (Gilchrist, Tr. 379-80, 406).

521. In 2005, the possibility that U.S. Battery could retaliate against an effective price increase by purchasing HD prevented Microporous from removing a material rebate program U.S. Battery enjoyed. (PX0509; McDonald, Tr. 3912).

522. On three occasions between 2006 and 2007, Exide used HD to successfully constrain the price of Flex-Sil. (Gillespie, Tr. 2945-53). With both HD and Flex-Sil qualified for use in deep-cycle batteries, Exide had some added leverage in negotiations with both Daramic and Microporous. (Gillespie, Tr. 2945-46). Having two potential suppliers of deep-cycle separators mitigated Exide's risk and exposure in the supply chain by mitigating the risk of sole-sourcing and by providing a backup source of supply in case of disruption of supply capability. (Gillespie, Tr. 2945).

523. In 2006, Exide used HD as leverage in negotiations with Microporous to get better pricing and payment terms from Microporous. (Gillespie, Tr. 2946-50). In March 2006, Microporous informed Exide that it was raising prices on the Flex-Sil separators and decreasing Exide's payment terms. (PX1059 at 001; PX0636 at 002). At that time, Exide told Microporous that "we will begin to explore other opportunities to obtain golf cart separators." (PX1059 at 001). One day later, Gordon Ulsh, Exide's CEO, informed Mr. Gilchrist that Microporous' pricing action was "forcing us to run quicker to alternate supply." (PX0636 at 001). Mr. Gillespie told Mr. Gilchrist that Exide had qualified HD and would move the majority (and possibly all) of its deep-cycle purchases to Daramic in response to Microporous' pricing actions. (Gillespie, Tr. 2946-48).

524. In March 2006, Daramic became aware that Exide had threatened to move from Flex-Sil to HD. (PX1710 at 001). On March 17, 2006, Mr. Hauswald informed Mr. Toth that Microporous "found out that we are taking their market share with our Daramic HD, for the golf cart business." (PX1710 at 001).

525. Exide and Microporous did come to an agreement on the pricing of Flex-Sil, with Exide receiving more favorable pricing terms and obtaining pricing concessions from Microporous. (Gillespie, Tr. 2949; *see also* PX0635 (April 2006 email from Mr. Gilchrist to Mr. Ulsh noting "we are anxious to return our relationship with Exide to a more cooperative realm. And as such . . . I am extending our terms to Exide to 50 days.")).

526. Exide believes that in this instance the only reason that Exide was "able to negotiate or have this leverage" to obtain lower prices and better pricing terms from Microporous was because it had HD as a "viable option." (Gillespie, Tr. 2949-50).

527. In 2007, Exide used HD as leverage with Microporous to fight off a rubber surcharge that Microporous had sought to add to Flex-Sil separators. (Gillespie, Tr. 2950-53; Gilchrist, Tr. 375-79). Exide had refused to pay the rubber surcharge proposed by Microporous because Exide had HD as a "viable alternative to switch the business" and informed Microporous that "if you levy the surcharge, you're going to lose that business." (Gillespie, Tr. 2951-53).

528. Also in 2007, Exide used HD as leverage to fight off a price increase on Flex-Sil separators. (Gillespie, Tr. 2953). At that time, Microporous attempted to impose a base price increase on the Flex-Sil separators being sold to Exide. Exide refused to pay this price increase because at that time it had the ability to threaten to move its deep-cycle business to Daramic. (Gillespie, Tr. 2953; *see also* PX1097, *in camera* (February 05, 2008 email from Exide to Microporous regarding Microporous' proposed price increase ("Exide has a compelling argument which would suggest [Microporous] owes Exide a substantial reduction in its current pricing.")).

529. Trojan Battery also used the threat of switching to Daramic's HD as leverage in pricing negotiations with Microporous. (PX1663; Godber, Tr. 258, *in camera*; Gilchrist, Tr. 371-72, 379, 406 (Trojan Battery would bring up HD every time we instigated the need for a price increase.).

530. Trojan Battery met with Daramic in February 2005 to discuss the fact that Daramic was going to introduce the HD product at the Battery Council International ("BCI") convention in April, and that test results showed the product would do as well as Flex-Sil. (Godber, Tr. 178). At the time, Trojan Battery was concerned with Microporous' capacity to supply it with separators and was also interested in learning if the HD product had some pricing advantage. (Godber, Tr. 182-83).

531. Trojan Battery discussed the potential of using the Daramic HD separator at an internal meeting on February 21, 2005 because of its "[n]eed for a second source to ensure supply and competitive pricing." (PX1651; Godber Tr. 183-84). After February 2005, Daramic's potential ability to offer a competitive product became a platform for discussions with Microporous regarding price reductions and capacity. (Godber, Tr. 183-84; *see also* PX0429 (email from Rick Godber to Mike Gilchrist: "We now understand that Daramic may have a separator that can compete in performance, and may have cost advantages to Flex-Sil and CellForce.")).

532. At the 2005 BCI convention, Daramic made a presentation about the HD product, which left people very excited that Daramic had a product that could match Flex-Sil performance. (Godber, Tr. 187-88; *see also* PX1653 (email from Trojan Battery's technical director stating: "Daramic's technical presentation at BCI was well received by the people I talked to . . . . [Daramic's] presentation will generate additional interest in HD separators which will make it a common separator for deep-cycle applications in time.").

533. Trojan Battery received samples of and pricing for the HD separator in May 2005. (Godber, Tr. 188). The pricing on the HD separator was, depending on the product line, 10 to 28% below what Trojan Battery was currently paying Microporous for Flex-Sil. (Godber, Tr. 188).

534. Trojan Battery tested Daramic's HD separator and approved it for its batteries in its Pacer line of golf carts. (Godber, Tr. 171). Today, CellForce, Daramic HD, and Flex-Sil are qualified for use in Trojan Battery's Pacer batteries. (Godber, Tr. 172).

535. Trojan Battery was able to get Microporous to provide cost reductions by threatening to test and switch to Daramic's HD separator. (Godber, Tr. 190-91; *see also* PX1655 at 001 (email from Trojan Battery to Microporous stating: "[HD] appears to be a fairly immediate replacement for CellForce at a substantial lower cost. Longer term it may work as a Flex-Sil replacement in our products.")).

536. Prior to the introduction of HD separators by Daramic, Microporous did not respond positively to Trojan Battery's request for price reductions. (Godber, Tr. 199). After the introduction of the Daramic HD separator, Microporous told Trojan Battery that it was going to work with Trojan Battery to reduce its costs to alleviate the need for Trojan Battery to switch to HD separators. (Godber, Tr. 199-200). Microporous made reference to Daramic's HD during its price discussions with Trojan Battery. (Godber, Tr. 200).

537. During the 2005 cost discussions with Microporous, Trojan Battery also was trying to accelerate its ability to use more CellForce, since it was less expensive than Flex-Sil. (Godber, Tr. 191). At the time, Trojan Battery was not able to get all the CellForce that it wanted from Microporous because there was limited capacity and a large demand from the motive market. (Godber, Tr. 195).

538. From 2005 to the time of the acquisition, Trojan Battery continually used the threat of buying Daramic HD to get lower prices from Microporous. (Godber, Tr. 200-15). In October 2005, Trojan Battery used the threat of moving business to HD as leverage against Microporous to negotiate down a proposed energy charge from 5.5% to 3.75%. (Godber, Tr. 200-01).

539. In early 2006, Microporous attempted to increase the prices it charged Trojan Battery by around 6.5% for Flex-Sil and by 4.5% for CellForce. (Godber, Tr. 202). Trojan Battery did not accept the price increases. (Godber, Tr. 202). In its negotiations with Microporous, Trojan Battery used the threat of switching to HD separators to reduce the amount of the price increase down to 4.5% across the board for all Microporous separators. (Godber, Tr. 202). At the time Trojan Battery was negotiating the price increase, Mr. Gilchrist stated: "We must put the specter of Daramic's [HD] product totally behind us." (PX1660 at 004; Godber, Tr. 203-04).

540. In August 2007, Microporous again proposed a price increase to Trojan Battery on its Flex-Sil and CellForce products of 6.5% and 4.5 to 5%, respectively. (Godber, Tr. 204). The price increases covered separators that went into Trojan Battery's OE and aftermarket golf cart batteries. (Godber, Tr. 293-95).

541. The August 2007 price increase led to discussions in which Trojan Battery told Microporous "[y]ou're forcing us to again now go look at an alternative like Daramic HD, which was the only alternative." (Godber, Tr. 204-05; *see also* PX0428 at 001, *in camera* ("appears to be a perception we have no options. . . . I felt [Microporous' owners] needed to understand there are alternatives."). A Trojan Battery internal email exchange confirms that Trojan Battery was contemplating HD as an alternative on some of its product lines and was also contemplating giving up the exclusive separator design that Microporous provided Trojan Battery in return for Trojan Battery's sole source commitment. (Godber, Tr. 206-07; PX1663).

542. Microporous and Trojan Battery ultimately signed an agreement regarding the August 2007 price increase whereby Trojan Battery would receive a {[redacted]} price increase on Flex-Sil and a {[redacted]} price increase on CellForce on December 1, 2007, and another {[redacted]} price increase on Flex-Sil and a {[redacted]} price increase on CellForce on December 1, 2008. (Godber, Tr. 214-15; PX1664). By accepting these price increases, Trojan Battery and Microporous agreed {[redacted]} (Godber, Tr. 214-15). Trojan Battery and Microporous agreed that Microporous would be allowed no further price increases {[redacted]} (Godber, Tr. 214-15, 235, *in camera*; PX1664).

(g) Microporous responded to HD by offering CellForce

543. Microporous recognized HD as a threat and offered CellForce to Exide at a cost savings. (McDonald, Tr. 3949).

544. Microporous offered to sell CellForce to U.S. Battery. (Wallace, Tr. 1952-53). Prior to U.S. Battery's use of HD, Microporous had not offered it CellForce for deep-cycle application. (Wallace, Tr. 1953).

545. U.S. Battery approved the purchase of CellForce and planned to purchase this new brand of separators from Microporous. (Wallace, Tr. 1977).

546. Trojan Battery has determined that 25% of its deep-cycle batteries could use CellForce instead of Flex-Sil. (Godber, Tr. 173). The same 25% of Trojan's batteries that could use CellForce, also could use Daramic HD, instead of Flex-Sil. (Godber, Tr. 173).

547. Currently, 16% of Trojan Battery's deep-cycle batteries contain CellForce. (Godber, Tr. 176). The percentage of Trojan's batteries using CellForce was expected to grow to 21% prior to Daramic's acquisition of Microporous. (Godber, Tr. 176). Microporous informed Trojan Battery that "once we get this [the Austrian expansion (*see* F. 769-72)] up and going, we will have some more CellForce that will be available in the states." (Godber, Tr. 224).

548. Trojan Battery wanted to expand its use of CellForce to get a cost savings because CellForce was less expensive than Flex-Sil. (Godber, Tr. 225). Trojan Battery had plans to move a considerable amount of its Flex-Sil batteries to CellForce when Microporous got its Austrian plant up and running in spring 2008. (Godber, Tr. 226-27). The conversion to CellForce was delayed approximately four months once Daramic acquired Microporous and due, in part, to Daramic's strike at its Owensboro plant (*see* F. 952). Trojan Battery estimated that the delay in the transition from Flex-Sil to CellForce resulted in Trojan Battery paying approximately $140,000 more for its separators than it had been expecting to. (Godber, Tr. 228-29).

(ii) Anticompetitive effects in the deep-cycle market

549. Microporous' Flex-Sil has unique properties that differentiate it from other battery separators. (PX0131 at 014). Because Flex-Sil is differentiated from other products, its owner has market power, and, thus, would not lose all of its sales if it were to increase price above cost. (Simpson, Tr. 3176). "[T]he owner of Flex-Sil has the incentive to increase price until it gets to the point where the profit that it loses as sales shift to other products just begins to exceed the additional profit that it gets from getting a higher price on those sales it continues to make." (Simpson, Tr. 3177; PX2251 at 017, *in camera*).

550. Daramic HD was the closest independently-owned substitute for Flex-Sil. Thus, if the owner of Flex-Sil were to increase price a little more, some of the sales that would be lost would shift to Daramic HD. (Simpson, Tr. 3177-78). If Flex-Sil and Daramic HD are owned by the same owner, then the joint owner recovers some of the profit on the lost Flex-Sil sales that shift to Daramic HD. (Simpson,

Tr. 3178). "[I]n this way a price increase that would not make sense for an independently owned Flex-Sil (or Flex-Sil and CellForce) would make sense if they also owned Daramic HD." (Simpson, Tr. 3178, PX2251 at 017, *in camera*; Kahwaty, Tr. 5514-15, *in camera*).

551. Daramic's acquisition of Microporous was a merger to monopoly in the deep-cycle market. (Simpson, Tr. 3193, *in camera*). By eliminating the competition between Daramic and Microporous, the acquisition enables Daramic to increase price. (Simpson, Tr. 3193, *in camera*). Since the acquistion, Daramic has not lost any deep-cycle business to any competitor anywhere in the world. (Roe, Tr. 1217-18).

(a) Daramic's refusal to honor Microporous' commitments to Trojan Battery

552. Just prior to Daramic's acquisition of Microporous, Trojan Battery was in discussions with Microporous on a contract extension and had agreed to most major terms including contract length and the pricing formula. (Godber Tr. 215-17). The current contract between Microporous and Trojan Battery was set to expire in 2010 and Trojan Battery wanted to create a longer-term arrangement so that it would be protected in the event that Microporous was sold. (Godber, Tr. 215).

553. After the acquisition, Daramic stated to Trojan Battery that it wanted to stand behind the commitments that Microporous had made to Trojan Battery. (Godber Tr. 218-19). In a letter to Trojan Battery's Rick Godber on March 31, 2008, about one month after the acquisition, Daramic's Pierre Hauswald wrote:

> Mike [Gilchrist] has explained to me that just before Daramic acquired Microporous, you and he were very, very close to concluding a new supply contract between Trojan and MP that would have gone through 2019. We are prepared to stand behind the commitments MP made to you before this acquisition. So, if you are still interested, we just need to work out the very few details that were still open when you last discussed this topic with Mike, and then we could finalize the extension. . . . I just wanted you to know that we are still willing to honor the commitments MP made to you personally and to Trojan.

(PX1666).

554. Contrary to its statement that it was "prepared to stand behind the commitments [Microporous] made" before the acquisition, Daramic insisted upon material changes to the contract extension that was being negotiated. (Godber, Tr. 239, *in camera*). Those changes included the pricing structure, {[redacted]} changes to the contract length {[redacted]

[redacted]} and a clause stating that {[redacted]} (Godber, Tr. 239-40, *in camera*). None of these terms had been in the draft contracts exchanged between Trojan Battery and Microporous prior to the merger. (Godber, Tr. 240, *in camera*). {[redacted]} (Godber, Tr. 241, *in camera*).

555. After the acquisition, Trojan Battery was left with no alternatives to Daramic for deep-cycle separators. (Godber, Tr. 291).

556. Daramic had notified Trojan Battery of a price increase {[redacted]} even though Microporous and Trojan Battery had agreed prior to the merger that {[redacted]} (Godber, Tr. 232-33, *in camera*). {[redacted]} (PX1664; Godber, Tr. 235, *in camera*; Gilchrist, Tr. 407-10). Trojan Battery was angry about the notice because of "the thought that they would be coming out with a price increase, A, shortly after their acquisition and, B, because of the agreement I had set up with Mike Gilchrist the fall before for December of '08." (Godber, Tr. 232-33, *in camera*).

557. Daramic's proposed price increase to Trojan Battery was {[redacted]} (Godber, Tr. 233, *in camera*). Trojan Battery was upset because it had never seen such a high price increase before. (Godber, Tr. 234, *in camera*). The highest price increase Trojan Battery had previously received from Microporous was {[redacted]} (Godber, Tr. 234, *in camera*).

558. Daramic told Trojan Battery that the price increases were based on energy costs and material costs. (Godber, Tr. 234, *in camera*). Daramic did not share its cost information with Trojan Battery, as it is not contractually obligated to do so. (PX0904 (Seibert, Dep. at 203), *in camera*).

559. Although the 2007 contract between Trojan Battery and Microporous regarding pricing, limited price increases to Trojan Battery to {[redacted]} (PX1664), {[redacted]} (Godber, Tr. 236, *in camera*). {[redacted]} (Godber, Tr. 236, *in camera*).

560. Trojan Battery and Daramic were unable to reach an agreement. (Godber, Tr. 236, *in* camera). {[redacted]

[redacted]} (Seibert, Tr. 4209-10, *in camera*). Subsequently, Daramic sued Trojan Battery. (Godber, Tr. 247-48, *in camera*). The dispute between Daramic and Trojan Battery is ongoing. (Godber, Tr. 238, *in camera*).

561. The latest proposal from Daramic would result in Trojan Battery paying approximately {[redacted]} more than it had agreed to in September 2007. (Godber, Tr. 238, *in camera*). Since the acquisition, Trojan Battery has looked for other alternatives for supply but has determined it has no alternatives. (Godber, Tr. 241, *in camera*).

562. In 2007, when Microporous announced a rubber surcharge and price increase, Exide avoided both by threatening to switch to HD. (Gillespie, Tr. 3044-45, 3132, *in camera*). After the acquisition, Daramic informed Exide that it had to pay the {[redacted]} or Daramic would stop supplying Flex-Sil to Exide. (Gillespie, Tr. 3044, 3132-33, *in camera*).

563. Exide agreed to pay the {[redacted]} (Gillespie, Tr. 3044-45, *in camera*). The net effect of the agreement has Exide paying {[redacted]} higher prices for Flex-Sil after the acquisition than it had been paying to Microporous before the acquisition. (Gillespie, Tr. 3044-46, 3121, 3132-34, *in camera*).

(b) Daramic's post-acquisition strategy to sell Flex-Sil

564. In September 2007, approximately six months prior to the acquisition of Microporous by Daramic, Mr. Qureshi of U.S. Battery wrote to Microporous stating: "CellForce separators look very promising." (PX1740 at 001, *in camera*). In a November 2007 Microporous Customer Contact Report on U.S. Battery, Microporous reported that U.S. Battery "was very comfortable with CellForce" and would decide if it would commit a certain volume once it received pricing. (PX1763 at 003). The report states that Microporous told U.S. Battery that it would have capacity available, but if U.S. Battery did not want to commit, Microporous needed to know, so that it could sell the CellForce volume elsewhere. (PX1763 at 003).

565. On February 5, 2008, just three weeks before the acquisition, Microporous' North American Sales representative, Roger Berger, informed U.S. Battery's Mr. Qureshi that with Microporous' Austrian facility "right on schedule," it would have available capacity to supply U.S. Battery with {[redacted]} at a "cost savings versus Flex-Sil." (PX1741 at 004, *in camera*). Mr. Berger's email to Mr. Qureshi stated: "My question for you guys is do you want me to keep this available capacity open for U.S. Battery beginning in April?" (PX1741 at 004, *in camera*). The next day, Mr. Qureshi responded that "[w]e have decided

to switch {[redacted]} to CellForce." (PX1741 at 003, *in camera*).

566. After the acquisition, when U.S. Battery approached Daramic for supply of its HD separator for a new battery it had been developing, Daramic communicated to U.S. Battery that Daramic did not have the appropriate tool to be able to produce an HD separator in the requested profile. (McDonald, Tr. 3823-24). Daramic told U.S. Battery it also could not provide CellForce for the requested profile because it did not have the proper tooling. (McDonald, Tr. 3823-24). Daramic instead offered U.S. Battery a Flex-Sil quotation. (McDonald, Tr. 3824).

567. Although U.S. Battery would prefer to use CellForce in its mid-level golf batteries, they are currently using the more expensive Flex-Sil. (Qureshi, Tr. 2042). U.S. Battery was told by Daramic that CellForce would not be available. (Qureshi, Tr. 2042).

568. Since the acquisition of Microporous, Daramic documents show that Daramic has discussed preventing customers from converting from the higher priced, higher margin Flex-Sil as a way of increasing its profitability. (PX0617 at 001-02, *in camera*). When {[redacted]} tried to increase its purchases of the lower priced HD from the more expensive Flex-Sil in March of 2008, {[redacted]} instructed his sales team to {[redacted]} (PX0441 at 001-02, *in camera*).

569. In response to a June 12, 2008 email from Pierre Hauswald to his subordinates criticizing their lack of efforts and seeking ideas for improving Daramic's profitability, Steve McDonald, Daramic's Sales Manager for the Americas, proposed that {[redacted]} conversion from FS to HD. Not only do we take a major hit on margin, we also lose the higher dollar sale." (PX0617 at 001-02, *in camera*).

570. Daramic has restricted the number of HD separators available to U.S. Battery for purchase. (Wallace, Tr. 1979).

571. In the later part of 2008, after the acquisition, U.S. Battery had designed two deep-cycle batteries – the Group 27 and 31 batteries – that it had previously been purchasing from another company. (Qureshi, Tr. 2042-43). U.S. Battery designed the batteries to use the more cost-effective separator, Daramic HD. (Qureshi, Tr. 2044, 2049; PX1747). Daramic informed U.S. Battery that the separators it wanted for the batteries were not available in either CellForce or HD. (Qureshi, Tr. 2049). When these batteries go into production, they will be using Flex-Sil separators instead. (Qureshi, Tr. 2044).

572. Prior to the merger, U.S. Battery had hoped to increase its purchase of Daramic's HD separators in the next two to three years to between 30 to 50%. (Qureshi, Tr. 2090). Daramic internal trip reports regarding U.S. Battery also recognized that

U.S. Battery had hoped to achieve a more even balance in purchases between Daramic and Microporous prior to the merger. (*See, e.g.*, PX1739 at 002, *in camera* ("[U.S. Battery's] unit cost per battery is lower using HD than Flex-Sil thus incentive exists to narrow the 85/15 gap closer to 50/50."); PX0681 at 002; PX0326 at 001 ("U.S. Battery is presently purchasing 1 T/L [truckload] of Daramic for 5 T/L of Microporous Products material. They would like to achieve a more even balance between their two separator suppliers.")). Since the acquisition, U.S. Battery has been unable to purchase more HD from Daramic. (Wallace, Tr. 1980).

573. In April 2008, U.S. Battery met with Daramic and discussed the then recent acquisition of Microporous. (Qureshi, Tr. 2051). U.S. Battery expressed its concern that the lack of competition between Microporous and Daramic could adversely impact U.S. Battery. (Qureshi, Tr. 2051-52; *see also* PX0682 at 002, *in camera*).

574. Exide also lost the leverage it had to get a competitive price when Daramic bought Microporous because there was "only one provider" of deep-cycle separators left. (Gillespie, Tr. 2953-54).

575. After the merger, when Daramic was unable to supply sufficient HD to Exide due to the strike at Owensboro, Exide was forced to purchase Flex-Sil, which was the only available alternative product for its deep-cycle batteries. (Roe, Tr. 1223). Only by purchasing Flex-Sil was Exide able to avoid a supply interruption during the strike. (RX1260, *in camera*). In purchasing Flex-Sil in place of HD during the strike, Exide had to pay more, since Flex-Sil was priced higher than HD. (Roe, Tr. 1223-24).

576. {[redacted]} (PX0904 (Seibert, Dep. at 191), *in camera*).

b. In the motive separators market, Microporous was Daramic's only competitive constraint

(i) Product competition

577. Prior to the acquisition, Daramic and Microporous were the only suppliers of separators for motive power batteries for North American customers. (Gilchrist, Tr. 306-07, 342; Benjamin, Tr. 3533; Douglas, Tr. 4075-76; Leister, Tr. 4027-28; McDonald, Tr. 3949; PX0506 *in camera*).

578. Entek is not in the motive separator business anymore. (Balcerzak, Tr. 4097; Seibert, Tr. 4174, *in camera*; Axt, Tr. 2186, *in camera*; *see also* F. 386, 392-98, 403).

579. EnerSys has searched for alternatives to Daramic's motive separators and has not found any manufacturers of motive separators in North America. (Axt, Tr. 2216-17, *in camera*). Although EnerSys has sought motive separators from Entek, Entek has not supplied them. (Axt, Tr. 2189, *in camera*).

580. During the time period from 2003 until the acquisition of Microporous, the only competitor that Daramic lost North American motive power business to was Microporous. (Roe, Tr. 1278-79; PX0911 (Roe, Dep. at 16), *in camera*). During that time, Microporous was also the only battery separator manufacturer whose competition caused Daramic to lower prices on motive batteries. (Roe, Tr. 1264-66, 1812-13).

581. Microporous sought to capture market share from Daramic in the motive market. (PX0131 at 062-65). Microporous' efforts to obtain business from EnerSys put competitive pressure on Daramic to respond by reducing its prices. (PX0247, *in camera*; PX0243, *in camera*).

(a) Daramic viewed Microporous as a threat

582. Daramic recognized Microporous as a competitor in 2003, noting that "we have a new polyethylene competitor entering the North American market. Micro-Porous Products . . . they have attacked all the large manufacturers and to keep from losing business, we have adjusted prices as needed which has eroded our margins . . . ." (PX0153 at 002).

583. The only motive competitor that Daramic lowered its prices to meet in North America was Microporous. (Roe, Tr. 1265). In 2002, Daramic was lowering prices on motive products to "fight the aggressive offers" of Microporous. (PX0243 at 001, *in camera*).

584. In 2002, Daramic lowered prices on industrial products to East Penn Battery "to fight" Microporous. (PX0243 at 002, *in camera*).

585. In 2002, Daramic signed an exclusive supply agreement with C&D to supply C&D with motive power PE separators. (PX0836 at 001; Roe, Tr. 1254). Daramic's contract with C&D contained a competitive pricing clause which allowed C&D the opportunity to move product to a competitor if it received a lower-priced offer and Daramic declined to match the offer. (PX0836 at 001; Roe, Tr. 1254-55).

586. Soon after signing the contract with Daramic, C&D brought a lower-priced offer from Microporous for motive power separators to Daramic. (Roe, Tr. 1255; PX0836 at 001). In response to Microporous' lower-priced offer and in order to maintain its relationship with C&D, Daramic made price concessions to C&D. (Roe, Tr. 1255-57; PX0836 at 001). Daramic's reduced price did not match the price offered by Microporous. (Roe, Tr. 1255; PX0836 at 001).

587. In early 2003, Daramic learned that Microporous was again offering even lower prices to entice C&D to switch from Daramic to Microporous. (PX0836 at 001). C&D informed Daramic that Daramic's prices were 60% higher than the Microporous offer. (PX0836 at 001). C&D again reminded Daramic about the competitive price clause in their contract. (PX0836 at 001). Mr. Roe was surprised that Microporous continued to offer lower prices. (Roe, Tr. 1257). In response to Microporous' second attempt to win C&D's business, Daramic again offered price concessions to C&D amounting to a savings for C&D of $275,000. (PX0836 at 001). Ultimately, Daramic gave C&D an 11.2% price reduction in April 2004 in order to maintain C&D's business in the face of competition from Microporous. (PX0409 at 001; Roe Tr. 1261).

588. Daramic wanted to "eliminate the competitive clause of [its] agreement" with C&D. (PX0836 at 002). By eliminating the competitive price clause, Daramic felt that it could tie up 100% of the C&D business for the next three years and keep Microporous from supplying C&D. (PX0836 at 002; Roe, Tr. 1259).

589. Daramic expected that it would continue to face price competition at C&D from Microporous in the future. (Roe, Tr. 1266). In 2005, Mr. Roe informed Mr. Hauswald that he expected there to be a "price fight" with Microporous for the C&D business when the contract expired at the end of 2006. (Roe, Tr. 1266-67; PX0209 at 001). Mr. Roe also expected that Daramic's prices would be higher than Microporous' at the end of the contract period. (PX0209 at 001).

590. Daramic had no interest in splitting C&D's separator business with Microporous after 2006. (PX0209 at 001). In order to keep 100% of C&D's business, Mr. Roe suggested that Daramic "play our card that we supply all or nothing." (PX0209 at 001). Mr. Roe thought that an "all or nothing" strategy could be successful with C&D because he did not believe that Microporous was capable of supplying all of C&D's motive and stationary separator needs at that time. (PX0209 at 001; PX0922 (Roe, IHT at 104-05, 115-16), *in camera*).

591. With respect to East Penn Battery, Daramic reacted to Microporous price competition on motive power separators by lowering prices in 2004 by 3% for East Penn Battery to maintain that business. (PX0409 at 001; Roe, Tr. 1262-63).

592. Competition between Microporous and Daramic also resulted in lower prices for EnerSys in 2004 and 2005. F. 593-94).

593. In 2004, EnerSys was able to use a bid from Microporous for its motive power business to negotiate a reduction in price from Daramic in the $200,000 range for its North American motive separator business. (Axt Tr. 2121-22; RX0208). Daramic lowered prices on its motive power separators at EnerSys by about 14% from an average price of $2.04 per square meter to an average price of $1.75 per square meter. (PX0409 at 001; Roe, Tr. 1263-64).

594. In 2005, EnerSys and Daramic were exchanging emails relating to an energy surcharge sought by Daramic. (RX0582; Axt, Tr. 2242, *in camera*). Referring to Microporous' CellForce, EnerSys wrote to Daramic, "I tell you right now, if you expect any more than the {[redacted]} that I have approved, EnerSys will have to change our supply chain strategy due to newer technology that is available in the marketplace." (RX0582; Axt, Tr. 2243, *in camera*).

595. In negotiations with EnerSys in February 2006, Daramic offered to {[redacted]} (Axt, Tr. 2165-66, *in camera*). EnerSys received a proposal from Microporous that was significantly better for EnerSys, offering EnerSys a savings of {[redacted]} (Axt, Tr. 2166, *in camera*). EnerSys told Daramic that its proposal was not attractive and that there was a high probability that EnerSys would go with Microporous. (Axt, Tr. 2166, *in camera*). In August 2006, Daramic offered EnerSys a savings of {[redacted]} (PX1204, *in camera*).

596. In its 2006 discussion document entitled "3-Year Strategy," Daramic saw Microporous as a threat in that Microporous' planned capacity expansions (*see generally* F. 769-804) could threaten additional Daramic industrial sales and noted that the key for Daramic to securing its motive sales as either execution of a long-term contract with EnerSys or the acquisition of Microporous. (PX0171 at 008).

597. In 2007, Microporous sought a rubber cost pass-through agreement with its customers, including EnerSys. (RX0210 at 001). This new rubber cost pass-through {[redacted]} (RX0207, *in camera*). After several weeks of negotiations, EnerSys accepted it with respect to {[redacted]} (RX0210 at 001-02; McDonald, Tr. 3909; Burkert, Tr. 2313-14, 2334-36, 2358-59, *in camera*). With respect to {[redacted]} EnerSys was able to threaten to switch its volume to Daramic in order to avoid the new rubber cost adjustment formula. (RX0210 at 001; Axt, Tr. 2246).

598. On November 7, 2007, Daramic wrote to EnerSys to inform it that Daramic's prices would increase in 2008 commensurate with Daramic's costs. (RX0768 at 001, *in camera*). Mr. Roe added, however, that Daramic would {[redacted]} (RX0768 at 001, *in camera*).

599. EnerSys responded to Daramic stating that it was "not at all surprised by the Daramic, negotiate with a gun to the customer's head, strategy in regards to contracts" but that, because of the availability of Microporous, "[u]nfortunately for Daramic, these types of ploys will have no success in future negotiations with EnerSys." (RX0768 at 001, *in camera*; Burkert, Tr. 2343-44, *in camera*)

("banking on having Microporous as a supplier, . . . I could just walk away and say no, I'm not signing a contract, I don't need to buy from you.").

600. With respect to Exide, Daramic, in 2005, noted that because Exide could not go to Microporous, Daramic could "negotiate a little tougher." (PX0843 at 001).

601. Daramic sold "HD to certain traction customers, primarily as a defensive move against [Microporous'] CellForce." (PX0316 at 002; PX0023 at 004, *in camera*; Hauswald, Tr. 853, *in camera*). Daramic measured HD separators against Microporous' CellForce separators for use in motive applications. (PX0023 at 010, *in camera*). Daramic's February 2007 HD Product Strategy Presentation showed that Daramic's HD separators equaled or surpassed Microporous' CellForce separators in the following categories for motive applications: {[redacted]} (PX0023 at 010, *in camera*).

602. In 2007, Daramic projected that it would lose to Microporous sales of motive power separators of 500,000 square meters for East Penn Battery, 250,000 square meters for Douglas Battery, and 250,000 square meters for Crown Battery. (PX0258 at 002; Roe, Tr. 1288-89).

(b) Microporous took sales from Darâmic

603. Bulldog Battery was Microporous' first big motive customer. (Benjamin, Tr. 3515).

604. In 2002 to 2003, Bulldog Battery switched to Microporous for separators for its motive batteries because Daramic, Bulldog's Battery supplier at that time, was not providing reliable delivery and consistent product quality. (Benjamin, Tr. 3511-12). Daramic had been supplying Bulldog Battery with a PE type separator which could run on a sleeve machine. Microporous began supplying Bulldog Battery with its newly developed CellForce product which could also run on a sleeve machine. (Benjamin, Tr. 3508, 3514).

605. In an effort to source motive separators from the only other motive separator supplier, Bulldog Battery proposed buying a tool for Microporous, if Microporous would run the tool for Bulldog Battery. Microporous responded to Bulldog's Battery offer, by saying it would buy the tool if Bulldog Battery would sign a one-year contract. Bulldog Battery agreed to Microporous' proposal. (Benjamin, Tr. 3513-14).

606. After Bulldog Battery became a customer of Microporous, Daramic would periodically contact Bulldog Battery and ask it to switch back to buying from Daramic. (Benjamin, Tr. 3517).

607. In 2006, after Bulldog Battery had switched to Microporous, Daramic unsuccessfully tried to win back this business by offering Bulldog Battery lower pricing on Daramic HD. (Benjamin, Tr. 3516, 3518, 3557). Bulldog Battery continued to source most of its motive battery separators from Microporous which lowered its price for CellForce in response to Daramic's pricing offer. (Benjamin, Tr. 3516-17).

608. In 2006, Bulldog Battery was able to receive a 2.5% price decrease on all of its separator purchases from Microporous after telling Microporous that Daramic had offered it a lower price. (Benjamin, Tr. 3545-48). If Bulldog Battery wanted to switch its motive separators from Microporous' CellForce separators to Daramic's HD separators, it could do so. (Benjamin, Tr. 3518, 3555). Thus, if Microporous and Daramic were independent, Bulldog Battery would have two sourcing options for its motive separator needs, instead of only one today. (Benjamin, Tr. 3555).

609. In August 2006, Daramic reported North America 2006 gross margins of 37.2% for its PE industrial separators, but an average of 28% for its HD separators. Daramic feared that a shift to PE/rubber separators for the motive market would lead to higher HD sales and that it could not charge a premium for HD due to competition from CellForce. (PX0319 at 013).

(ii) Anticompetitive effects in the motive market

610. Daramic's acquisition of Microporous was a merger to monopoly in the motive market. (Simpson, Tr. 3193, *in camera*). By eliminating the competition between Daramic and Microporous, the acquisition enables Daramic to increase price. (Simpson, Tr. 3193, *in camera*).

611. Effective January 1, 2009, Daramic announced price increases that ranged from {[redacted]} for motive customers. (PX0950 at 014-16, *in camera*). {[redacted]} (PX0255 at 001, *in camera*; Roe, Tr. 1292-94, 1352-54, *in camera*; *see* F. 820-23, 849-50).

612. On April 2, 2009, {[redacted]} Mr. Michael Shor, Daramic's Director of Litigation, wrote a letter to {[redacted]} advising him that {[redacted]} [Daramic would] be forced to take whatever steps are necessary to protect Daramic's interests." (PX2262 at 001-02, *in camera*).

613. After the acquisition, Daramic raised the prices for CellForce separators sold to Bulldog Battery by 10%. This price increase took effect on January 1, 2009.

(Benjamin, Tr. 3522). Previously, Daramic charged Bulldog Battery a 7% energy surcharge in 2008. (Benjamin, Tr. 3521). Bulldog Battery has no ability to determine whether these increases are justified by increases in Daramic's raw material costs. (Benjamin, Tr. 3524-25). However, as compared to past pricing increases from separator suppliers, the President of Bulldog Battery feels the 10% price increase is "pretty exorbitant." (Benjamin, Tr. 3525). For example, in the five-year period during which it purchased CellForce separators from Microporous, the cumulative price increases from Microporous totaled about 3% and the largest price increase was 1 to 1 ½%. (Benjamin, Tr. 3526).

614. After Daramic notified Bulldog Battery that a 10% price increase effective January 1, 2009 would be occurring, Bulldog Battery did not try to negotiate a lower price with Daramic because "[t]here was no way to negotiate a lower price. There was no place to go." (Benjamin, Tr. 3522). Further, Bulldog Battery did not look to source its needs from another motive battery separator manufacture because there is no other supplier. (Benjamin, Tr. 3526).

615. Since the acquisition of Microporous in February 2008, Daramic has not lost any motive power business in North America to any competitors. (Roe, Tr. 1279). Nor has Daramic made any price concessions to North American customers for motive products due to competition from any other competitor. (Roe, Tr. 1812-13).

c. In the UPS separator market, Microporous was Daramic's only competitive constraint

616. Prior to the acquisition, Daramic was the only supplier of separators for reserve power for flooded high-end batteries to North American customers. (Gilchrist, Tr. 305-06; 343).

(i) Microporous was in the process of commercializing a UPS separator to address the black scum issue

617. Prior to the acquisition, Microporous had been working on the development of a separator for the UPS market, as part of its project LENO, which stands for low electrical resistance, little or no oil. The project was initially approved in early 2007. (Brilmyer, Tr. 1835-36).

618. The LENO project began as an effort by Microporous, at the request of EnerSys, to develop a separator to compete with Daramic's Darak product used in EnerSys' gel batteries and a separator that would address the black scum problem in UPS batteries. (McDonald, Tr. 3863, *in camera*; Brilmyer, Tr. 1839-40, 1864).

619. Darak was substantially more expensive than PE separators. (Brilmyer, Tr. 1842-43). Because Darak was a high cost/high margin product compared to the battery

separator developed by the LENO project team, Microporous hoped to take a substantial portion of Daramic's Darak business after the new product was available in commercial quantities. (Brilmyer, Tr. 1865, 1878-79, *in camera*, 1917, 1874, *in camera*).

620. Included in the LENO project was the development of a "white PE" separator, which involved {[redacted]} in an effort to address the black scum problem experienced with some UPS batteries. (PX0663 at 002, *in camera*; Brilmyer, Tr. 1836-42, 1863-65; McDonald, Tr. 3865, *in camera*; Whear, Tr. 4731-32, 4821, *in camera*; F. 227).

621. Black scum can result from the interaction of various chemicals and the oil component of a separator through a process of oxidation. (Hauswald, Tr. 1096-98; Brilmyer, Tr. 1834-35; Whear, Tr. 4707-08). Black scum interferes with the maintenance of a flooded UPS battery by obscuring the indicators for the acid level in the battery, by making it harder to detect the formation of lead sulfate on the surface of the plates, and by allowing a valve for the watering system to get stuck. (Brilmyer, Tr. 1852-55; F. 228-29).

622. The LENO team eventually discovered what it believed to be a solution to the black scum problem, {[redacted]} (Brilmyer, Tr. 1855-56).

623. Microporous developed samples of a potential Darak replacement and the white PE product, and provided samples to EnerSys for testing in July or August of 2007. EnerSys tested the proposed Darak replacement on a flooded, stationary battery and a gel battery. (Brilmyer, Tr. 1855-57; McDonald, Tr. 3863-64, *in camera*).

624. EnerSys wanted to switch to Microporous' white PE product for its flooded UPS batteries as soon as the product was validated by engineering, and advised Microporous of this fact. (Axt, Tr. 2103-04; Burkert, Tr. 2325-26).

625. Salespeople from Microporous were optimistic that there was customer demand for its new battery separator in the United States and Europe, including from customers such as EnerSys, Exide and East Penn Battery. (PX0490, *in camera*; Brilmyer, Tr. 1868, *in camera*). Battery customers prefer having more than one plant as a source for their separators to ensure supply security and to obtain competitive pricing. Because Daramic manufactured Darak at only one plant in Germany, customers were interested in another source for this type of battery. (Brilmyer, Tr. 1869, *in camera*).

626. Prior to the acquisition, Microporous had made capital expenditures in its European facility, and was planning on additional expenditures at its United

States facility, in anticipation of separator sales from project LENO as early as late 2008 or early 2009. (Brilmyer, Tr. 1858; PX0664 at 002, *in camera*).

627. Microporous determined that the potential market for LENO would be "both in the U.S. and Europe with customers like EnerSys, Exide, East Penn." These customers had been identified early in the planning process and helped to determine the profit potential of the enterprise. (PX0490, *in camera*; Brilmyer, Tr. 1868, *in camera*).

628. The manager of the LENO project, George Brilmyer, expected that the new products from the project would generate revenues from commercial sales by the end of 2008 or early 2009. Microporous projected revenues in this time frame for both the calcium stearate-free PE separators and the new gel battery separator. (Brilmyer, Tr. 1857-58, 1881, *in camera*).

(ii) The acquisition halted efforts to address black scum in UPS market

629. After the acquisition, Microporous' technical shop was moved from Piney Flats, Tennessee to Owensboro, Kentucky. (Whear, Tr. 4820, *in camera*). Daramic moved Brilmyer from Piney Flats, Tennessee to its Owensboro Kentucky facility and disbanded the R&D group of the former Microporous against the request of Brilmyer and Rick Wimberly, Vice President of Technology, who thought that the projects that they had been engaged in under an independent Microporous were worthy of a continued concerted focus. As a result, work on the LENO project slowed down. (Brilmyer, Tr. 1861-62).

630. After the acquisition, Daramic contemplated halting work on the former Microporous' LENO project. (PX0579 at 003, *in camera*) (October 06, 2008 internal Daramic email discussing the LENO project and its potential importance at EnerSys) ("LENO . . . project likely to be stopped. This is a cannibalizing product of Daramic PE and Darak").

631. Daramic had also previously been working on a fix for its PE separators' black scum problem. (PX0913 (Whear, Dep. at 197), *in camera*; Whear, Tr. 4825, *in camera*). It halted those efforts in 2004 or 2005 and instead offered the Darak product, which does not create black scum, to EnerSys as an alternative. (Whear, Tr. 4722; PX0913 (Whear, Dep. at 200), *in camera*; Axt, Tr. 2104).

632. There was little support for the LENO project among Daramic management since the goal of the project was to replace the costly, "very high-margin" Darak product with a less expensive, lower margin PE based separator. (Brilmyer, Tr. 1863-64).

(iii) Anticompetitive effects in the UPS market

633. By removing Microporous as a potential competitor with products it was working on developing in the UPS market (F. 617-32), the acquisition harms competition and enables Daramic to increase price. (Simpson, Tr. 3188, 3193, *in camera*).

634. When EnerSys searched for alternatives to Daramic's UPS separators, it did not find any other manufacturers of UPS separators in North America. (Axt, Tr. 2216-17, *in camera*).

635. There are no alternatives besides Daramic for UPS customers anywhere in the world today. (Axt, Tr. 2101-03, 2220-22, *in camera*).

d. In the SLI market, Microporous was a competitive constraint

636. Prior to the acquisition, the North American SLI battery separator market was supplied principally by Daramic and Entek. (F. 426). Microporous had the capability of manufacturing separators for SLI applications and was actively competing in the SLI market. (F. 430, 778, 638-51, 684-90, 694-722).

637. Daramic's May 2007 Strategy Audit acknowledges: "Battery manufacturers lack purchasing power despite their scale due to limited number of suppliers," and "[t]here is currently not a lot of rivalry among competitors but this could increase in future due to Asia and uncertainties with current competitors (Entek, [Microporous])." (PX0265 at 004, 008, *in camera*). In comments on an earlier draft of this Strategy Audit, Tucker Roe of Daramic stated: "I would say that over the past years there has not been an aggressive rivalry among competitors but this has changed when Microporous Products entered the market and more recently seen by Entek." (PX0482 at 002).

(i) Microporous was taking steps to expand in SLI

638. Microporous was an uncommitted entrant into the North American SLI market because its presence caused Daramic to lower prices for SLI battery separators to at least East Penn Battery. (Simpson, Tr. 3461-62, *in camera*). Dr. Kahwaty agreed that Microporous was an uncommitted entrant in the SLI market. (Kahwaty, Tr. 5413-14, *in camera*).

639. Prior to the acquisition, at its Piney Flats plant, Microporous manufactured samples for SLI batteries for JCI, Exide, and several battery manufacturers in the European Union. (Gilchrist, Tr. 312-13, 417-18; F. 651, 688, 707-08).

640. Microporous manufactured samples of PE separators for JCI off its CellForce line at Piney Flats. (F. 651, 760). When JCI returned the samples because they did not qualify for use at JCI (F. 651), Microporous approached two of its existing

customers, Douglas Battery and Voltmaster, about purchasing these materials. These customers each performed runablity tests with no problems and Voltmaster purchased the material from Microporous. (McDonald, Tr. 3795-96).

641. Microporous also talked to East Penn Battery about supplying them PE for SLI. (F. 717-22; McDonald, Tr. 3879-80, *in camera*).

642. Microporous' overall expansion plans, (F. 769-804) included firm plans for expansion in the SLI market. (F. 770-71, 778-84, 801-03).

643. Even if Microporous did have higher costs than Daramic in the manufacture of SLI battery separators, these higher costs did not prevent Microporous from competing. (Simpson, Tr. 3463, *in camera*).

(a) Microporous' discussions with JCI on entering SLI market

644. JCI is the largest manufacturer of flooded lead-acid batteries in the world. (Hall, Tr. 2662-63). In the United States, JCI is one of "only three major automotive battery manufacturers." (PX0088 at 001).

645. JCI's PE SLI separator suppliers from 2004 through 2007 were Daramic and Entek. (Hall, Tr. 2687-88).

646. JCI described the separator supply base in 2004 as an "[o]ligopoly," with two major suppliers, Entek and Daramic, controlling close to 80% of the worldwide separator market. (PX1505 at 002, *in camera*).

647. From 2004 through 2007, JCI continued to see price increases, despite double digit growth in its separator purchases, whereas it got lower prices from suppliers of other commodities as JCI's business grew. (Hall, Tr. 2692).

648. While JCI investigated moving some supply away from Entek, JCI had no other supplier outside of Daramic that JCI could use as a source of separator supply. (Hall, Tr. 2802-03). From 2004 through 2007, JCI's goal was to bring new separator manufacturers into the marketplace in order to get more competition. (Hall, Tr. 2691, 2693). JCI's desire was to change "the mind set of the existing suppliers from 'entitlement' to 'compete' for the JCI business." (PX1509 at 009, *in camera*).

- ***Microporous' work with JCI in 2003***

649. JCI decided in the summer of 2003 to pursue a "Global Separator Strategy" in an effort to create more competition among suppliers and thereby reduce its purchasing costs. (PX2112, *in camera*). The company viewed Microporous as

one of three "Major PE Separator Suppliers" in October 2003, and considered it a "New Supplier" that it was developing, particularly for JCI's United States facilities. (PX2112 at 006, 019, *in camera*). "We'll start developing [Microporous] as the third separator source, planning to incorporate them by 12/2003." (PX2112 at 019, *in camera*).

650. As part of JCI's separator sourcing strategy, JCI engaged in discussions with Microporous prior to 2003 in an effort to develop Microporous as a new entrant into the SLI separator business. (Hall, Tr. 2670). JCI wanted a third supplier to create more competition and improve the pricing and performance of Entek and Daramic. (PX2112, *in camera*; Hall, Tr. 2670-71, 2698-99).

651. JCI tested a sample PE SLI separator manufactured by Microporous in 2003. (Hall, Tr. 2696). The Microporous sample SLI separator was produced off of a production line in Microporous' Tennessee facility that had been modified to try to create the requisite SLI sample for JCI. (Hall, Tr. 2696). The PE SLI sample that Microporous provided to JCI in 2003 did not perform well for JCI from a functionality standpoint, and was not qualified by JCI. (Hall, Tr. 2696, 2811, *in camera*; PX0672 at 006, *in camera*).

- ***Daramic forced JCI into contract extension***

652. In 2002, JCI was "primarily a North American company." (Hall, Tr. 2666). It had just acquired Hoeppeke, a smaller European battery producer. (Hall, Tr. 2666). About one year later, it also acquired Varta, another European battery producer. (Hall, Tr. 2672).

653. Daramic supplied JCI facilities in Mexico, Brazil, India and Europe with PE battery separators in 2002. Daramic held "{[redacted]} share of [JCI's] volume" in Europe. (PX2112 at 014, *in camera*; PX1503 at 003, *in camera*; Hall, Tr. 2666).

654. Entek had been the exclusive supplier of PE battery separators to JCI facilities in the United States through December 31, 2003. (PX2112 at 011, *in camera*; PX0820 at 017). Entek also supplied JCI's facility in Torreon, Mexico in 2003. (PX2112 at 014, *in camera*). From 2004 through 2007, JCI purchased between 110 and 120 square meters of PE separators on an annual basis from Entek without a contract. (Hall, Tr. 2690).

655. Soon after becoming Global Vice President for Procurement at JCI in 2002, Rodger Hall sought better separator pricing for the company. (Hall, Tr. 2666). It did not appear to Mr. Hall that Entek and Daramic were aggressively competing for JCI's business. (Hall, Tr. 2666-67). For example, JCI requested a quote on the United States business from Daramic and after a delay on Daramic's part of several months, the quote received from Daramic suggested to JCI that Daramic

was not aggressive about getting into JCI's United States business. (Hall, Tr. 2668).

656. In 2003, JCI perceived a lack of competition between Entek and Daramic for its business. (RX0039 at 016, *in camera*; Hall, Tr. 2670). JCI felt that Daramic and Entek were "defending their business and . . . using aggressive tactics that restrict the growth of our supply base." (PX1505 at 002, *in camera*).

657. In early 2003, Daramic began pressing JCI to negotiate a global supply contract and give it more business. (PX1503, *in camera*). Daramic outlined for JCI a general proposal under which the parties would enter into a {[redacted]} (PX1503 at 003, *in camera*).

658. In 2003, JCI wanted to reduce the mandatory minimum volumes committed to Entek and Daramic so that space could be created for new competition. (Hall, Tr. 2670-74).

659. JCI's and Daramic's negotiations continued during 2003 and Daramic continued to supply JCI's facilities in Europe and elsewhere outside the United States at previously invoiced prices. (Hall, Tr. 2672, 2780). As of November 2003, Daramic considered its "negotiations for a global contract [with JCI] . . . still pending." (PX1786 at 027).

660. In June 2003, JCI considered Daramic's attitude toward JCI to be "complacent," "lazy" and unresponsive, particularly with respect to pricing. (PX0928 at 001; Hall, Tr. 2873-74, *in camera*). JCI explained that Daramic does not appear to compete and does not have to, given the absence of market forces. (Hall, Tr. 2873-74, *in camera*, RX0044 at 002, *in camera*). Daramic was, to JCI, "'arrogant' and difficult to deal with" and unwilling to lower its prices to JCI during "the last six or seven years" while JCI's purchasing volume had grown. (PX0928 at 001-02).

661. At a meeting in June 2003 at JCI headquarters, Microporous discussed the potential for it to supply "as high as 50,000,000 square meters on a worldwide basis" of JCI's PE separator needs for the SLI market. (PX0928 at 001).

662. In addition to considering Microporous, JCI, in 2003, also considered a start-up company in Europe named Alpha as a potential new supplier. (Hall, Tr. 2683-86). However, JCI believed there to be high risks associated with Alpha because it was not yet in existence. (Hall Tr. 2686, 2872; PX1505 at 002, *in camera*). JCI also did not view Alpha as being on equal footing with Microporous because Microporous was producing separators with a proven technology. (Hall, Tr. 2872-73, *in camera*).

663. In 2003, during the course of negotiations with JCI, Daramic came to understand that Microporous was bidding on a portion of JCI's SLI business in both the United States and Europe. (Roe, Tr. 1237; PX0693). Daramic understood that JCI was reviewing a proposal for the establishment of a new battery separator manufacturing facility in Europe and assumed that this would be a new Microporous manufacturing facility. (Roe, Tr. 1240; PX0693).

664. Daramic and JCI continued their negotiations throughout 2003. (Roe, Tr. 1674-76). On December 2, 2003, Daramic informed JCI that Daramic was withdrawing its earlier proposals. (PX1504 at 001). If JCI did not sign Daramic's proposed contract by the end of the month, then "all purchases for product in Europe will be priced on a spot purchase price that will be significantly higher than those previously quoted." (PX1504 at 001).

665. On December 3, 2003, JCI told Daramic that it wanted two proposals, one for the United States and one for Europe. (PX0965 at 013, *in camera*). Daramic took a position it would only negotiate for a worldwide contract, and was unwilling to submit a proposal for JCI's European business only. (Roe, Tr. 1680-81).

666. In late 2003, Daramic believed that Microporous was offering to supply JCI under a five-year contract with continuous price reductions passed along to JCI. (Roe, Tr. 1237-38; PX0693; PX0758 at 017, *in camera*). JCI had requested a similar price reduction clause from Daramic, which Daramic "totally rejected." (PX0693).

667. Soon after learning of Microporous' bid for JCI's SLI business, in December 2003 or January 2004, Daramic threatened to cut off supply to JCI in Europe if JCI did not sign a long-term contract. (PX0758 at 017, *in camera*).

668. JCI did not consider the negotiations finalized with Daramic over the contract on the table in the beginning of 2004. JCI was still negotiating pricing and was unhappy with the minimum volume requirements. (Hall, Tr. 2674). Additionally, JCI was not satisfied with the length of the contract and wished to have a shorter-term contract. (Hall, Tr. 2684). JCI informed Daramic that it was not through negotiating the contract. (Hall, Tr. 2675).

669. By early January 2004, the back-and-forth discussions between Daramic and JCI had "escalated," and Mr. Hall, JCI's Vice President of Procurement, became directly involved. (Hall, Tr. 2676-77). Frank Nasisi, the general manager of Daramic at the time, called Mr. Hall and told him the contract "negotiations weren't moving forward at a pace that [Nasisi] considered appropriate and that {[redacted]} price increase was going to occur" on a date certain in the immediate future if JCI did not sign a contract. (Hall, Tr. 2676-77). JCI understood that the {[redacted]} price increase would have covered every product that Daramic was supplying to JCI {[redacted]} (Hall, Tr. 2866-67, *in camera*).

670. JCI responded to Daramic's statement, described in F. 669, that the parties should have a five day "cooling-off period" and then resume discussions about the contract. (Hall, Tr. 2677-78). The parties then agreed to get back to each other after five days. (Hall, Tr. 2677-78).

671. Before the five day period to which the parties agreed, described in F. 670, had passed, Daramic called JCI and stated that Daramic was going to stop shipping separators to JCI if JCI did not sign the Daramic contract in its present form. (Hall, Tr. 2677-78; PX0965 at 013, *in camera*). Daramic informed JCI that if the contract was not signed Daramic intended to close down Daramic's main supply plant to JCI located in Potenza, Italy. (Hall, Tr. 2678). Daramic also told JCI that it would supply JCI with the separators it had in inventory (about a nine-day supply), and when those ran out, JCI would no longer be a Daramic customer unless it signed the contract. (Hall, Tr. 2677-78). Daramic gave JCI only several days to sign the contract and send it back to Daramic as it was, without any changes. (Hall, Tr. 2678).

672. After Daramic made the statement, described in F. 671, to JCI, JCI came to learn that Daramic's Potenza, Italy plant was actually shut down. (Hall, Tr. 2678-80). JCI did not understand why Daramic would shut down the Potenza plant when JCI was continuing to order separators from Daramic. (Hall, Tr. 2868-69, *in camera*).

673. At the time it was negotiating with Daramic in January 2004, JCI believed that the impact of a shutdown of Daramic's Potenza plant on JCI in Europe would be dire; it would create "a very serious problem with supplying [the company's] customers." (Hall, Tr. 2679-80). If Daramic stopped production at the Potenza plant, JCI would be forced to choose which of its battery customers to serve, and which it could no longer supply. (Hall, Tr. 2680-81).

674. After learning that Daramic's Potenza plant had been shut down, JCI contacted Entek to find how much available capacity Entek could supply to JCI. JCI found that Entek could not supply the sizes and the volume that would be required to replace what JCI could not get from Daramic and the Potenza plant. (Hall, Tr. 2680). Even if JCI could obtain some separators from Entek, it still would have faced "a considerable shortfall" in meeting its needs in Europe at that time. (Hall, Tr. 2680).

675. Daramic and Entek were the only suppliers qualified by JCI to supply separators to the company in Europe as of January 2004. (Hall, Tr. 2681). JCI had no other suppliers to turn to. (Hall, Tr. 2681).

676. In January 2004, after searching for other supply options, Mr. Hall went to Greg Sherrill, JCI's General Manager and explained the situation. At that point JCI decided it "had no choice but to sign the contract as it was." (Hall, Tr. 2681-82).

JCI did not wish to sign this contract with Daramic, but the company's management "felt we were being forced to sign this contract." (Hall, Tr. 2682).

677. On January 12, 2004, JCI conceded that Daramic's "aggressive tactics" had left [JCI] with no option but to sign {[redacted]} (PX1505 at 002, *in camera*).

678. A Daramic document notes: "Under pressure, JCI signed the proposed contract, and the deal was done January 19th, 2004." (PX0965 at 013, *in camera*).

679. Daramic believed that by forcing JCI into a long-term contract in 2004, it had stopped Microporous' work with JCI on SLI supply. (PX0433 at 004). At the same time, Daramic recognized that the JCI contract did not entirely eliminate the future threat of Microporous in the SLI business. (PX0433 at 004). Daramic worried that JCI and Microporous might continue to work together during the course of the Daramic contract, with Microporous bringing on new capacity in the United States and/or Europe to fulfill volume commitments that JCI could make for the end of the contractual period. (PX0433 at 004; Roe, Tr. 1274-75).

680. In a series of emails, Daramic's executives acknowledged "strong arming" JCI during 2003 to 2004 contract negotiations. Daramic knew that its coercive negotiating engendered "bad blood" between JCI and Daramic. (PX0750 at 001).

681. Just two weeks after Daramic and JCI agreed to a contract extension, on January 26, 2004, Mr. Roe informed Daramic's worldwide sales team that Microporous had been qualified for use in automotive products at JCI and might soon be pursuing automotive opportunities. (PX0244; Roe Tr. 1249-50). Mr. Roe told the Daramic sales team that it had "become critical that we assess the true sales situation of [Microporous'] Cell-Force product." (PX0244; Roe Tr. 1248). Daramic understood that, at that time, Microporous' CellForce line was running at full capacity and that Microporous was planning a second PE line for its Piney Flats facility. (PX0244; Roe, Tr. 1251-53). Mr. Roe requested that his sales team estimate where Microporous might be supplying customers, and informed the sales team that this was a "critical exercise in order to understand the potential threat of this competitor." (PX0244; Roe, Tr. 1251).

682. {[redacted]} contract between JCI and Daramic took effect as of January 1, 2004. (PX0965 at 013, *in camera*). It obligated JCI to purchase {[redacted]} square meters of SLI separator material annually. JCI quantified the "opportunity cost" of not having a third supplier for its separator needs for the Americas at {[redacted]} (PX1505 at 002, *in camera*).

683. Daramic's purpose in entering into the 2004 {[redacted]} contract with JCI was, in part, to prevent Microporous from becoming a supplier to JCI and expanding its capacity. Daramic understood that JCI was (and is) "a big buyer of separator, and we had a contract with them [in 2004] so that volume wasn't available" to

Microporous. (PX0908 (Amos, Dep. at 133), *in camera*). In particular, Daramic knew that Microporous had "tried to get into the automotive [SLI] space for a while," and that the 2004 contract with JCI "effectively blocked them out of the space in [a] significant way." (PX0744 at 001; PX0908 (Amos, Dep. at 148), *in camera*).

- ***JCI renewed work with Microporous in 2005***

684. JCI reengaged in discussions with Microporous in 2005 about possible supply of PE SLI separators from Microporous to JCI in the United States and in Europe. (Hall, Tr. 2693-94).

685. JCI informed Microporous in 2005 that it wanted to bring Microporous on as an additional SLI separator supplier because Daramic and Entek needed competition to improve their pricing and their performance as suppliers. (Hall, Tr. 2698-99).

686. In 2005, Microporous was intending to expand into SLI for JCI and further expand into industrial separators with CellForce production for EnerSys. (Trevathan, Tr. 3718-19).

687. Microporous advised JCI in 2005 that it was planning to add capacity in Europe, and that this would also free capacity in the United States. JCI contemplated that it would supply its European plants from Microporous' planned European plant, and would supply its Winston-Salem or Tampa plant from Microporous' Piney Flats plant. (Hall, Tr. 2692-95).

688. Subsequent to JCI's 2005 discussions with Microporous, JCI tested Microporous' PE SLI separators a second time, after Microporous had improved the manufacturing process. (Hall, Tr. 2696-97). The problems that had been encountered by JCI in its earlier testing of Microporous separators had been fixed. (Hall, Tr. 2696-97).

689. JCI's technical representatives had discussions with Microporous personnel to make sure that Microporous understood the manufacturing process and understood the changes that were made from the previous failed attempt by Microporous, in order make sure that Microporous could successfully manufacture the separators on a repeated basis. (Hall, Tr. 2697). Following these discussions, JCI was comfortable that Microporous could produce an SLI separator that JCI could use. (Hall, Tr. 2697).

690. Microporous' PE SLI separators were qualified for use at JCI in 2007. (PX0672 at 006, *in camera*).

- ***JCI negotiations ended***

691. Ultimately, the JCI and Microporous negotiations in 2005 did not lead to a contract between the two parties. (Hall, Tr. 2697). One reason the parties did not enter into a contract was that JCI wanted an assignability clause in the contract that would protect JCI in the event Microporous was acquired by a competitor. (Hall, Tr. 2697-2700; 2800).

692. JCI felt it needed an assignment clause in a contract with Microporous because JCI was aware of Daramic's previous acquisitions of separator manufacturers. (Hall, Tr. 2701). JCI considered it a possibility that Daramic might acquire any new separator manufacturing entrant and thereby undo JCI's strategy to add new competitors to the marketplace. (Hall, Tr. 2701).

693. JCI was also concerned that Daramic's arbitration case against Microporous (F. 765) could delay Microporous' installation of capacity such that it would not have the requisite production capacity by the end of 2008. (Hall, Tr. 2700). JCI felt strongly that it needed new capacity in place in a timely manner to avoid being in the same situation it had been in with Daramic in 2004. (Hall, Tr. 2699-2700). Daramic's history with JCI led JCI to be concerned about a potential disruption of supply. (Hall, Tr. 2701, 2748-49, *in camera*).

(b) Microporous worked with Exide to become a supplier of SLI separators

694. In the summer of 2007, Exide issued an RFP to Microporous, Daramic, Entek, Nippon Sheet Glass (NSG), and Amer-Sil for bids on Exide's global separator business starting in 2010. (Gillespie, Tr. 2962; 2965-67; RX0013). The RFP covered Exide's needs for automotive, motive, stationary and golf cart batteries. (Gillespie, Tr. 2967).

695. At that time, summer 2007, Daramic was the only separator manufacturer in the world that could supply all of Exide's PE separator needs. (Gillespie, Tr. 2978).

696. Exide intended to use the 2007 RFP process to "go from a single source to a multi-source environment to mitigate the risk and exposure that Exide had from the single exposure." (Gillespie, Tr. 2966). Exide made all of the potential suppliers aware that Exide intended to pursue a multi-sourcing strategy. (Gillespie, Tr. 2966).

697. Microporous and Exide entered into a Memorandum of Understanding ("MOU"), signed by Microporous on July 20, 2007 and by Exide on September 28, 2007. (Gillespie, Tr. 2968-69; PX1080).

698. The MOU documented the discussions between Exide and Microporous to move forward with Microporous supplying 22 million square meters of PE automotive

separators to Exide beginning in 2010. (Gillespie, Tr. 2968-69; PX1080). This represented about one-third of Exide's PE separator business on a worldwide basis. (Gillespie, Tr. 2978-79).

699. The MOU recites that Microporous operates a plant in Tennessee that is "technologically capable of producing" SLI separators and industrial separators, including CellForce that will meet Exide's needs for automotive and motive power applications. The MOU further states that the parties intend to discuss an agreement under which Exide would "provide [Microporous] the opportunity to participate in" supplying Exide and that Microporous would install and operate two PE lines, capable of producing either SLI or industrial separators. Both of the lines would be located in Tennessee or at "[Microporous'] future manufacturing facility to be located in Feistritz, Austria," or one line would be located in each location. (PX1080 at 002-03).

700. The MOU noted that the parties would agree whether the individual lines would produce SLI or industrial separators, but that "[e]ach manufacturing line would be capable of producing approximately 11,000,000 square meters annually of SLI separator material, or the industrial equivalent of 4,000,000 square meters . . . for a total initial supply position of approximately 22,000,000 square meters annually." The MOU further recites that Microporous "would commit to have the above volumes available to Exide by no later than January 1, 2010, and to supply at least that volume each year over the life of" the intended supply contract, which the MOU states would be a five-year contract, and that Exide would make a reasonable effort to purchase "the Agreed Volume of 22,000,000 square meters volume of SLI separator material (or its equivalent in industrial separator square meters, or any combination of the two) from [Microporous] on an annual basis . . . ." (PX1080 at 003-04).

701. The MOU noted that each party's participation in the business opportunity was subject to the approval of each party's Board of Directors. Microporous' participation was also subject to Microporous' ability to obtain financing for the project. (PX1080 at 005)

702. The MOU includes as "steps to be taken in the near future," that Microporous "will form an engineering and financial team to completely define the scope of the project to install and operate two (2) SLI/Industrial battery separator manufacturing lines"; and that Microporous would manufacture samples for Exide. (PX1080 at 005-06).

703. The parties agreed in the MOU that all commercial and other information shared, as well as the existence of the MOU itself, would be kept confidential. (PX1080 at 006).

704. Mr. Gillespie was responsible at Exide for negotiating the MOU with Microporous. (Gillespie, Tr. 2970-71).

705. Mr. Gilchrist was the point person for Microporous in negotiations with Exide over the MOU and on the expansion for SLI in the United States. (Gillespie, Tr. 2970-71; Trevathan, Tr. 3756).

706. At the August 16, 2007 Microporous Board of Directors meeting, Microporous management reported that a MOU on the two-line SLI expansion had been signed, and that Microporous had given Exide a draft supply agreement. (PX1106 at 031).

707. After negotiating the MOU, Exide went forward with testing of Microporous' separator samples and developing specific pricing for the separators. (Gillespie, Tr. 2974).

708. Exide's initial bench testing of Microporous' PE SLI separators looked good and Exide then produced batteries in the United States and Europe for testing using Microporous separators. (Gillespie, Tr. 2973-74; PX1024; PX1095).

709. Exide personnel also met with Microporous personnel on numerous occasions in furtherance of their work together on future supply of PE SLI separators. (Gillespie, Tr. 2975). For example, members of Exide's procurement team met with Microporous in Paris in January 2008 to discuss Microporous' capabilities and testing of Microporous separators. (PX1023 at 001, 100). Additionally, Exide was working throughout this period of time to get internal buy-in for the strategy to move forward with Microporous, including working on a redlined draft of a supply contract. (Gillespie, Tr. 3075, 3077).

710. The original MOU between Exide and Microporous expired in 2007. (PX1080). In February 2008, Exide and Microporous extended their MOU. (Gillespie, Tr. 2976). At that point in time, Exide intended to purchase PE SLI separators from Microporous in 2010. (Gillespie, Tr. 2976).

711. Prior to the acquisition, Microporous and Exide were working on a draft supply contract and Mr. Gilchrist of Microporous was expecting a counter-offer or revised draft contract from Exide. (Gilchrist, Tr. 445-47, *in camera*).

712. When Microporous renewed its MOU with Exide on February 14, 2008, acquisition negotiations with Daramic were in "stop-start" mode. Because Mr. Gilchrist was concerned that the acquisition might fall through, he carried on developing Microporous' business until the merger agreement was signed. (Gilchrist, Tr. 448-49, *in camera*; RX0403).

713. Just days before the acquisition, Microporous executives, including Mr. Trevathan and Mr. Gilchrist, traveled to Atlanta to meet with Exide to "finalize an agreement" between Microporous and Exide for the PE line expansion at Piney Flats. (Trevathan, Tr. 3734; Gilchrist, Tr. 447-49, *in camera*; PX0392).

714. Microporous' purpose in the February 2008 meeting with Exide was to find out Exide's intent in going forward and to reassure Exide that Microporous was still interested in building a line for them. (McDonald, Tr. 3939).

715. Exide did not return its redline of the draft supply contract to Microporous, and no agreement was finalized prior to the acquisition. (Gillespie, Tr. 3089; Trevathan, Tr. 3640, 3733-35; PX0392).

716. Right up to the date of the acquisition, Microporous had no assurance from Daramic that the acquisition would be consummated. (Trevathan, Tr. 3753). If the acquisition had fallen through, Microporous would have continued with its expansion plans including those involving Exide. (Trevathan, Tr. 3753-54).

(c) Microporous held discussions with East Penn Battery regarding SLI separator supply

717. In October 2007, East Penn Battery discussed the possibility of Microporous supplying PE separators to East Penn Battery for use in SLI batteries. (Leister, Tr. 3990, 4011-12; PX0082).

718. East Penn Battery advised Microporous, in October 2007, that East Penn Battery wanted an alternative to Entek for East Penn's Battery East Coast business because Entek's lead-times exceeded East Penn's Battery manufacturing time, resulting in East Penn Battery having to store more material at its plant than it wanted to. In addition, East Penn Battery was paying freight charges to transport Entek's product from Entek's West Coast facility to East Penn's Battery Lyon Station, Pennsylvania, facility. (Leister, Tr. 3698, 4007-09; PX0082).

719. Based on its October 2007 visit to Microporous' plant in Piney Flats, East Penn Battery believed that Microporous had the manufacturing capability to handle some of its volume. During the visit, East Penn Battery communicated to Microporous that it might be willing to enter into a long-term contract with Microporous for the supply of PE SLI separators. East Penn Battery wanted Microporous to know that East Penn Battery was serious about the possibility of it purchasing SLI material from Microporous. (Leister, Tr. 4016-17).

720. During the 2007 discussions, East Penn Battery provided Microporous with part numbers and volumes that East Penn Battery might be interested in purchasing from Microporous, but Microporous did not have the machinery or the tooling to supply the volumes that East Penn Battery requested. (Leister, Tr. 3991).

721. Microporous did not commit to East Penn Battery that it could supply East Penn Battery with the sizes and volumes of PE separators discussed in 2007. (Leister, Tr. 3991).

722. By the time of the acquisition, Microporous had not been qualified by East Penn Battery as an alternative supplier of PE separators. (Leister, Tr. 3991).

(ii) Anticompetitive effects in the SLI separator market

(a) Economic analysis

1. Unilateral effects

723. Daramic's acquisition of Microporous had two harmful unilateral effects in the SLI market. (Simpson, Tr. 3194, *in camera*). The first concerns sales to Exide. Although Microporous would not initially be in a position to supply all of the needs of Exide, Exide wanted to have Microporous as an independent supplier because Exide believed that it could obtain better pricing with an additional supplier competing for its business. (F. 696, 744; Simpson, Tr. 3194, *in camera*).

724. The second harmful unilateral effect of the acquisition concerns sales to smaller battery manufacturers. "For smaller battery manufacturers, Microporous would be in a position to meet all of their demand. And Microporous could be their best supplier, in which case eliminating it would reduce competition. They [Microporous] could be their second best supplier, in which case they would be the constraint on the supplier who was the best . . . . [In that way], the acquisition would reduce competition." (Simpson, Tr. 3194-95, *in camera*).

2. Coordinated interaction

725. After the acquisition, Daramic and Entek are the only suppliers of separators for SLI (automotive) batteries to North American customers. (F. 437; Gilchrist, Tr. 307-08, 342).

726. Daramic's acquisition of Microporous would facilitate coordinated interaction. (Simpson, Tr. 3201-02, *in camera*).

727. Coordinated interaction refers to anticompetitive effects that can only occur when the merged firm acts in concert with some of its rivals. (Simpson, Tr. 3199-3200, *in camera*). While outright collusion is an example of coordinated interaction, "firms that repeatedly interact can learn over time that they make more profits if they don't compete too aggressively, so just that over time firms through repeated interaction begin to behave in a way that's less competitive . . . and recognize that by behaving not as aggressively they earn more profits." (Simpson, Tr. 3200, *in camera*). "While sellers sometimes explicitly coordinate their behavior, sellers often simply learn to cooperate through repeated interaction." (PX0033 (Simpson Report) at 020-021, *in camera*).

728. For coordinated interaction to occur, firms need to reach terms of coordination, monitor those terms, and enforce those terms. (Simpson, Tr. 3201, *in camera*). The following factors would make coordinated interaction more likely: repeated interaction among firms; a small number of firms; and information being readily available in the marketplace about what other firms are doing. (Simpson, Tr. 3201, *in camera*).

729. The factors that make coordinated interaction more likely are present in the SLI market. (Simpson, Tr. 3201-02, *in camera*). Daramic knew against whom it was competing if a customer was dual sourcing its separator needs. (PX0904 (Seibert, Dep. 142), *in camera*). Daramic's salespeople would know if they only had a portion of the customer's separator needs and would see the competitor's separators at the customer's location. (PX0904 (Seibert, Dep. 142-43), *in camera*).

730. Daramic views itself as the "market leader" when it comes to pricing. (PX0235). Daramic was the first in the industry to announce a price increase for 2006. Soon after Daramic's announcement, Entek "followed [Daramic's] lead" and increased prices. (PX0235). Daramic was "excited" because Entek "had again shown that Daramic is the market leader." (PX0235). Daramic's Vice President of worldwide sales informed his sales team to "NOT BE AFRAID TO FORCE THE INCREASE." (PX0235, emphasis in original).

731. If Daramic hears a rumor about a competitor, it is a small enough community that Daramic can check and find out whether the information is accurate. (Hauswald, Tr. 834, *in camera*). The industry is small enough that competitive information such as Microporous' opening of a factory, Daramic's strike at a plant, or a plant closing for any significant length of time, is known by everyone in the industry. (Hauswald, Tr. 835-37, *in camera*).

732. In 2006, Mr. Hauswald learned and wrote down sales information relating to the customers to whom Microporous was selling and the quantities they sold. (Hauswald, Tr. 840, *in camera*; PX0093 at 046, *in camera*). Daramic gets such information from its workforce regarding what customers are buying. (Hauswald, Tr. 840, *in camera*).

733. Mr. Hauswald wrote down what he thought to be Microporous' total sales to the United States broken down by customer, including EnerSys, East Penn Battery, Exide, C&D, Douglas Battery, Crown Battery, and Bulldog Battery. (PX0093 at 046, *in camera*; Hauswald, Tr. 841, *in camera*). Mr. Hauswald also wrote down the difference in price for C&D between Daramic's and Microporous' product, with Microporous offering a price {[redacted]} lower than Daramic. (PX0093 at 046, *in camera*; Hauswald, Tr. 843, *in camera*).

(b) Post-acquisition duopoly in SLI

734. JCI entered into a long-term contract with Entek in 2007 to be an exclusive supplier to JCI in the Americas and Europe. (Hall, Tr. 2747, *in camera*). Subsequent to the completion of the long-term contract, {[redacted]} (Hall, Tr. 2747, *in camera*).

735. {[redacted]} (Hall, Tr. 2762-63, *in camera*). {[redacted]} (Hall, Tr. 2762-63, 2823-24, *in camera*). {[redacted]} (Hall, Tr. 2763-64, 2823-24, *in camera*).

736. When JCI's contract with Daramic expired on December 31, 2008, JCI transitioned that business to Entek. (Hall, Tr. 2748, *in camera*). This constitutes a loss of {[redacted]} in annual revenue for Daramic. (Toth, Tr. 1535; RX0998, *in camera*).

737. Entek will not constrain Daramic's post-acquisition pricing {[redacted]} (Simpson, Tr. 3195, *in camera*). {[redacted]} (Simpson, Tr. 3196-97, *in camera*).

738. {[redacted]} (Simpson, Tr. 3197, *in camera*) {[redacted]} (Simpson, Tr. 3197, *in camera*).

739. {[redacted]} (Simpson, Tr. 3442, *in camera*). "{[redacted]} (Simpson, Tr. 3441, *in camera*). {[redacted]} (Simpson, Tr. 3442, *in camera*).

740. {[redacted]} (Simpson, Tr. 3197, *in camera*). {[redacted]} (Simpson, Tr. 3197-98, *in camera*).

741. Entek's lack of a constraining effect on Daramic can be seen by comparing Daramic's response to {[redacted]} (Simpson, Tr. 3198-99, *in camera*). Microporous was building a new factory in Austria and had plans to add an additional line at its Tennessee plant. (Gaugl, Tr. 4576). The additional capacity at the Austria plant would have freed up capacity at its Tennessee plant which previously had supplied European customers. (PX2301 (Heglie, Dep. at 38-39), *in camera*).

742. Daramic responded to Microporous' new capacity by instituting its MP Plan which offered favorable pricing to customers that Daramic thought might shift to Microporous. (F. 820-52).

743. {[redacted]} (PX1823 at 001, *in camera*). {[redacted]} (PX1823 at 001, *in camera*).

744. {[redacted]} (Gillespie, Tr. 3022, *in camera*). {[redacted]} (Gillespie, Tr. 3022, *in camera*).

745. In 2009, Exide has been taking steps to move some of its SLI business from Daramic to Entek. (Gillespie, Tr. 2977, 3049, *in camera*, 5826-5827, *in camera*). Exide intends to purchase {[redacted]} of its SLI needs after 2009 from Entek. (RX1704 at 001, *in camera*, Gillespie, Tr. 5826, 5838-39, *in camera*). Exide has {[redacted]} (Gillespie, Tr. 5868, *in camera*). Additionally, Exide would not {[redacted]} (Gillespie, Tr. 5826-28, *in camera*).

746. Beginning in June 2009, and pursuant to the supply contract between Exide and Daramic, Exide began {[redacted]

[redacted]} (RX01676, *in camera*; RX01723, *in camera*; Siebert, Tr. 5671; Gillespie, Tr. 5855-56).

747. Exide's purpose {[redacted]} and was not to enable Exide to replace Daramic with another supplier. (Gillespie, Tr. 5795-96). Exide's purpose in this regard was communicated to Daramic. (RX01679 at 002, *in camera* (Daramic acknowledging its "understanding" that Exide {[redacted]})).

748. Exide's most recent contract proposal to Daramic {[redacted]} (RX1687 at 002, *in camera*; Gillespie, Tr. 5812-13, *in camera*).

749. In an 8-K filing made with the Securities and Exchange Commission ("SEC") on January 19, 2010, Polypore announced that Daramic entered into a new evergreen supply agreement with Exide. Order on Complaint Counsel's Motion for Official Notice, February 16, 2010.

2. Daramic acquired Microporous to eliminate a competitive threat

750. As early as July 2003, Daramic's head of sales, Tucker Roe, sent a memo to the President of Daramic summarizing the rationale for acquiring Microporous: "The only reason for acquisition would be purely defensive to secure our market share of the traction market and terminate the continued price erosion." (PX0935 at 001; *see also* PX0433 at 004 ("The main disadvantage I see if we do <u>not</u> acquire [Microporous] is that [Microporous] may continue their plans for a second line resulting in either our loss of current customers or further reduction in our market pricing, hence loss of margins.")).

751. In 2003, the President of Daramic put an acquisition of Microporous at the top of his list of possible acquisitions, describing the benefit to Daramic as "[e]liminate price competition." (PX0932).

752. The effects of price competition eventually led Daramic in 2005 to consider an outright acquisition of Microporous. (PX0433). Daramic understood that the benefit of an acquisition of Microporous would be the elimination of their low price competitor. (PX0433 at 003).

753. The main disadvantage that Daramic saw in 2005 in not acquiring Microporous was that Microporous might continue its expansion plans, resulting in either a loss

of customers for Daramic or a further reduction in Daramic's market pricing. (PX0433 at 004; Roe, Tr. 1271-72). Daramic believed that if Microporous remained independent and was "allowed to add additional capacity," it would "further reduce the overall market pricing." (PX0433 at 003-04; Roe, Tr. 1270-71; PX0919 (Riney, IHT at 294-95), *in camera*).

754. Bob Toth became CEO of Polypore in July 2005. (PX0901 (Toth, Dep. at 7), *in camera*). Upon becoming CEO, Mr. Toth was provided with "a summary of several memos done by Tucker [Roe]" regarding Daramic's "need to protect [its] market share, by discouraging new competitors (H&V, . . .) or through acquisition (PIL in Potenza, Jungfer in Austria)." (PX2242 at 001, *in camera*). Mr. Hauswald told Mr. Toth that "[Microporous] falls mainly in this category, they represent a threat to Daramic for the future. . . . Their first line costs us {[redacted]} million/year, in price concession and loss of business. The second line could cost us another {[redacted]} million." (PX2242 at 001, *in camera*).

755. In September 2005, Mr. Hauswald again advises Mr. Toth that Daramic should buy [Microporous] because it has taken EnerSys business from Daramic and threatens to take even more. (PX0168). Mr. Hauswald told Mr. Toth that "[Microporous] is a real threat for our business, not only in the industrial market, but, later, in the automotive market, because there is no doubt that JCI and EXIDE will contact them for a deal, when our contracts will expire. I'm still recommending to buy [Microporous], as a defensive action." (PX0168 at 002).

756. One month later in October 2005, Frank Nasisi, advised Mr. Toth that based on the information Daramic has received about Microporous building a plant in Europe for EnerSys, "[w]e must do everything possible to stop this process . . . . The bottom line is that [Microporous] can be another Entek: building plants to exclusively supply EnerSys, JCI, East Penn and so forth." (PX0694 at 001). Mr. Hauswald felt that Daramic should "solve the [Microporous] case definitively." (PX0694 at 001).

757. Daramic recognized that customers might view a Daramic acquisition of Microporous as an elimination of a potential PE supplier, thereby creating a situation where battery manufacturers would have even greater dependency on Daramic for supply of PE separators. (PX0433 at 004). Daramic further understood that customers would not take well to a Daramic acquisition of Microporous in light of Daramic's past history of acquisitions of other PE suppliers such as Evanite, PIL, and Jungfer. (PX0433 at 004; Roe, Tr. 1275-76).

758. In August 2006, Daramic personnel including, Mr. Hauswald, Mr. Roe, Mr. Whear, and Mr. Riney, met to discuss the direction of the company. (PX0992 at 001, *in camera*; Hauswald, Tr. 826, *in camera*). Daramic at the time believed that Microporous was gaining market share due to three factors: "1) price, 2) Daramic was too slow to respond to customer's needs for new products, and 3) [its] available production capacity." (Hauswald, Tr. 827-28, *in camera*; PX0992 at

004, *in camera*). Daramic also stated that Microporous' products were similar in performance to Daramic's products. (PX0992 at 004, *in camera*).

759. On August 23, 2006, Mr. Frank Nasisi sent an email to Pierre Hauswald on various issues at Daramic. In his email, Mr. Nasisi stated, "[Microporous] will be a problem for Daramic. They have acquired momentum and it will be very difficult to stop them unless the BOARD will approve its purchase at any price (it will be more now than a year ago)." (PX0167).

3. Daramic attempted to prevent Microporous from using Jungfer technology to sell PE SLI in Europe

760. In 1999, Microporous installed at its Piney Flats facility a PE line that was designed to make CellForce and SLI separators. Microporous bought this line from Jungfer, a company in Austria that had a business of making separators and installing manufacturing lines for other companies to make separators. (Gilchrist, Tr. 320, 391; Hauswald, Tr. 772, *in camera*; McDonald, Tr. 3903).

761. In 2001, Daramic acquired Jungfer and acquired Jungfer's assets, two production lines. (Hauswald, Tr. 772, *in camera*; PX2241 at 002). After Daramic acquired Jungfer, Daramic closed down the Jungfer plant. (Gilchrist, Tr. 320-21; Hauswald, Tr. 772, *in camera*).

762. In May 2005, Frank Nasisi, the departing CEO of Polypore, notified Michael Graff by email that while looking through his files he had found the contract between Jungfer and Microporous relating to the PE production line that Jungfer installed for Microporous in 2001. In the email he stated:

> The contract puts a restriction on Microporous Products to sell PE product for automotive application in Europe or Korea, places where at that time Jungfer was selling its product. This is certainly a big restriction of anyone who wants to expand the business by going into the automotive market . . . .
>
> It certainly will reduce their value for anyone outside Daramic. Phillip [Bryson, Polypore General Counsel,] will investigate it further and provide us with a clear picture of this new finding.

(PX0747).

763. In June 2006, {[redacted]} (PX0751 at 001, *in camera*). In his email reply, Mr. Hauswald stated:

> [Microporous]: waiting to see what are our chances to re-enforce the contract [Microporous]-Jungfer, when Jungfer sold the equipment, with a clause saying that they aren't authorize[d] to produce and sell automotive product in Europe. {[redacted]}

(PX0751 at 001, *in camera*).

764. Pierre Hauswald assembled a team to come up with a plan to keep [Microporous] from gaining additional business at Daramic's expense resulting from the plant in Europe. (PX0246, *in camera*). The email to the team discusses the actions taken by Daramic thus far, and noted among other things that {[redacted]} (PX0246, *in camera*).

765. In addition, in October 2006, Daramic sued Microporous to prevent it from selling SLI separators in Europe from lines using the Jungfer manufacturing process. (PX2241, *in camera*). Further, {[redacted]} (PX2237 at 006, *in camera*).

4. Prior to the acquisition Microporous was expanding

766. Prior to the acquisition, Microporous had been owned by Industrial Growth Partners ("IGP"). (Gilchrist, Tr. 301). In evaluating its investment in Microporous, IGP saw growth opportunities in golf cart, reserve power and motive power battery separator markets, and potential opportunity in the automotive market. (PX2300 (Heglie, IHT at 21-23), *in camera*). Other attributes that IGP evaluated in making its investment in Microporous included a highly engineered product, strong profitability, that a large component of the business was aftermarket, which tends to have a steady demand, and good cash flow characteristics. (PX2300 (Heglie, IHT at 22), *in camera*).

767. At the time of IGP's acquisition of Microporous, IGP determined that Microporous had multiple growth strategies. (PX2301 (Heglie, Dep. at 22), *in camera*). During the course of IGP's ownership of Microporous, the Microporous Board, which was comprised of mostly IGP employees or partners, wanted to grow Microporous' sales and profits. (PX2301 (Heglie, Dep. at 24), *in camera*).

768. Because Microporous was owned by private equity companies, starting in the 1990s, it was imperative that the company develop growth strategies and expansion into the SLI market was the first place the company looked. (Gilchrist, Tr. 299).

769. Various plans had been considered by Microporous regarding the addition of production facilities in Europe and at Piney Flats. Microporous' original plan was

to add one line in Europe to free up capacity in Piney Flats and thereby be able to supply EnerSys' growing industrial battery separator needs in the United States and Europe. When JCI and others showed interest in buying automotive product from Microporous, the plan expanded to add a second line in Austria. The second line could be used for separators for industrial or automotive batteries. (Gilchrist, Tr. 401-02, 558; Gaugl, Tr. 4559-60; *see* RX0207).

770. In November 2006, the IGP Board approved a larger expansion plan which provided for two lines in Europe, including the building of a new facility, as well as the installation of a new line at Piney Flats. This expanded program anticipated supplying East Penn Battery with separators for SLI application. (Trevathan, Tr. 3722, 3598-99).

771. In May 2007, Microporous management presented the Microporous Board with the strategic plan, which included "Protect golf car market"; "Protect position in European traction"; "Regain U.S. traction position"; and "Create position in SLI market." (PX1102 at 029 (emphasis omitted). The Board was generally supportive of the strategic plan. (PX2301 (Heglie, Dep. at 30), *in camera*; PX2300 (Heglie, IHT at 159), *in camera*). With regard to creating a position in SLI, while there were debates between management and the Board regarding the details and execution, "the core tenet of trying to create a position in that market," was agreed to by the Microporous Board. (PX2301 (Heglie, Dep. at 31), *in camera*; PX2300 (Heglie, IHT at 160), *in camera*).

772. At the time Microporous was planning the Austrian expansion, it was contemplating expanding in the United States as well. (Gaugl, Tr. 4560). When it began ordering equipment for the expansion, it ordered equipment for three lines. (Gaugl, Tr. 4576). Two of those lines were to be built in Austria, and one was to be built in Piney Flats, Tennessee. (Gaugl, Tr. 4576).

a. Microporous was planning to add capacity

773. Microporous planned to add a production line for polyethylene separators at the Piney Flats facility in May or June of 2008. (Gilchrist, Tr. 374-75, 457, *in camera*; Gaugl, Tr. 4560).

774. Long lead-time items for a PE line are those pieces of equipment that take from ten to twelve months to arrive. Microporous ordered the long lead-time items for the additional PE line to be installed in Feistritz, Austria in December 2006. (Trevathan, Tr. 3599-600).

775. Microporous purchased equipment for the new Piney Flats line, including the mixers, extruder, calender roll, heat exchangers for the condensation unit, dryers, and the pinhole detection system. (Gaugl, Tr. 4561). Initial work on the additional line at Piney Flats began prior to the acquisition, including designing

and planning work, hiring an engineering firm, and drawing up blueprints. (Gaugl, Tr. 4575).

776. Microporous spent approximately 1.5 million Euros on the equipment for a third line. Mainly, only electrical equipment was necessary to finish the line. (Gaugl, Tr. 4560-64; Trevathan, Tr. 3599-60).

777. In the fall and early winter of 2007, Microporous moved ahead with plans to expand. Microporous met several times with a building contractor, J.A. Street, and hired it to draw plans for additional PE capacity in its Piney Flats facility. (Trevathan, Tr. 3725-26, 3735-36). Other than the design and planning work, however, no work was done to install a third line prior to the acquisition. (Gaugl, Tr. 4574-75).

778. At the time of the acquisition, Microporous had built two "state-of-the-art" production lines at a plant in Feistritz, Austria, both of which could produce either CellForce separators or plain polyethylene separators and, therefore, could be used for SLI batteries or industrial batteries. Microporous' plan was to have the Feistritz plant operational in March 2008. (Gilchrist, Tr. 312, 332, 558-59; Trevathan, Tr. 3714; Gaugl, Tr. 4551; PX0078 at 025, *in camera*).

779. As acknowledged by both Daramic and Microporous in the summary of major terms of the acquisition, at the time of the acquisition, "Phase I consisting of 2 lines is on track for completion in Austria and will be able to achieve production capacity of up to {[redacted]} square meters of CellForce for SLI or first quality PE (or up to {[redacted]} square meters of industrial CellForce) separators per month by no later than June 2008." (PX0742 at 007, *in camera*).

(i) Microporous planned to expand to meet customer requests

780. This original Austrian plan expanded when other customers of Microporous showed interest in buying separators in Europe. At the end of 2005, JCI showed interest in buying automotive separators from Microporous. The anticipated volume was 22 million square meters. Accordingly, Microporous' Austrian expansion plan was changed to install a second line in Austria and an additional line in Piney Flats. (Gaugl, Tr. 4559-60; Trevathan Tr. 3598-99).

781. In early 2007, Microporous' negotiations with JCI broke down. By this time Microporous had begun discussions with Exide, and had been provided a copy of a Memorandum of Understanding to sign, under which Microporous would supply a volume that equated to roughly 22 million square meters. (Trevathan, 3601-10). When the JCI deal fell through, Microporous believed the expansion would supply Exide. (Trevathan, Tr. 3722).

782. Microporous' planned Phase II expansion consisted of a third line for completion in Austria that would be able to "achieve production capacity of up to {[redacted]} square meters of CellForce for SLI or first quality PE (or up to {[redacted]} square meters of industrial CellForce) separators per month by June 2009." (PX0742 at 007, *in camera*).

783. Collectively, Phases I and II of Microporous' expansion consisted of three production lines capable of producing a total of up to {[redacted]} square meters of CellForce for SLI or first quality PE (or up to {[redacted]} square meters of industrial CellForce) separators per year. (PX0742 at 007, *in camera*).

784. Phase III of Microporous' planned expansion consisted of "2 additional lines with up to {[redacted]} square meters of capacity of CellForce for SLI or first quality PE (or up to {[redacted]} square meters of industrial CellForce) separators per year." (PX0742 at 007, *in camera*).

785. All together, the three phase expansion plan was projected to increase Microporous' capacity from {[redacted]} million square meters to {[redacted]} million square meters by 2011. (PX0462 at 005, *in camera*; PX0738 at 013, *in camera*; PX0463 at 002, *in camera*).

786. Microporous planned to devote one full line in Austria to serving the EnerSys business in Europe. (Gilchrist, Tr. 401-02).

787. {[redacted]} This meant that EnerSys would {[redacted]} (PX1200; Axt, Tr. 2144, *in camera*). Initially, EnerSys committed each of its battery manufacturing plants to Microporous except Richmond, Kentucky, which was not included because EnerSys wished to keep two suppliers and because CellForce could not be sleeved at that time. (Axt, Tr. 2131).

788. {[redacted]} (Axt, Tr. 2150, *in camera*). {[redacted]} Microporous did not have enough capacity in Piney Flats to support the total EnerSys demand. Microporous had to go back to its Board of Directors and get approval for a new industrial line. (Axt, Tr. 2151, *in camera*).

789. {[redacted]} (RX0207 at 010, *in camera*; Axt, Tr. 2152, *in camera*). The new line was to be completed between June 1 and August 1, 2009. (RX0207 at 010, *in camera*; Axt, Tr. 2156, *in camera*). From EnerSys' perspective, {[redacted]

[redacted] } (Axt, Tr. 2153, *in camera*).

790. In 2007, Microporous negotiated a contract with EnerSys for industrial CellForce volume related to the European facility as well as the expanded United States facility. (Trevathan, Tr. 3728). One of the commitments that Microporous made to EnerSys was to { [redacted] } (RX0207 at 010, *in camera*). { [redacted] } (RX0207 at 009-10, *in camera*).

791. The Microporous Board { [redacted] } at its August 16, 2007 Board meeting, after the amendment was executed. (PX2300 (Heglie, IHT at 164-65), *in camera*); PX1106 at 031).

792. While the 2007 contract amendment that committed Microporous to { [redacted] } (PX2300 (Heglie, IHT at 138), *in camera*).

793. The Microporous Board wanted to maintain its customer position with EnerSys. (PX2301 (Heglie, Dep. at 38), *in camera*). Fulfilling commitments to EnerSys was important to the Microporous Board. (PX2301 (Heglie, Dep. at 38), *in camera*).

794. At no point did Microporous go back to EnerSys to say that it could not fulfill the 2007 contract. (PX2300 (Heglie, IHT at 164), *in camera*).

(ii) Backfill supply for North America

795. By moving production of EnerSys' European volumes to Austria, Microporous planned to make capacity available at Piney Flats for North American customers. (Gilchrist, Tr. 402-03; Trevathan, Tr. 3763, 3774).

796. The "backfill" describes how to refill idle or unutilized capacity in Microporous' Piney Flats, Tennessee plant that would become available when Microporous transferred a portion of its United States business to Austria. (PX2301 (Heglie, Dep. at 38-39), *in camera*).

797. As part of its 2007 backfill plan, Microporous was trying to sell United States based customers, including East Penn Battery, additional volumes of CellForce

for motive power, displacing the PE separators they had previously used in this application. (Gilchrist, Tr. 344; McDonald, Tr. 3874-77, *in camera*).

(a) Microporous owners had funded and were willing to continue to fund Microporous expansion plans

798. By the summer of 2007, Daramic was aware of Microporous' expansion plans. In an August 9, 2007 email reporting on his conversation with Mr. Bryson about a possible acquisition of Microporous, Mr. Heglie wrote that he "told him [Mr. Bryson] that we were in the early stages of our investment, had partnered with management and were not looking to divest, and are in the midst of executing on our own multi-pronged expansion plan for which we have plenty of capital and support." (PX1105 at 002).

799. On November 14, 2007, three months after Microporous and Daramic began discussing a potential acquisition, and three months after Microporous and {[redacted]} the Microporous Board issued "strategic mandates" to Mr. Gilchrist to "make the Board's long- and near-term objectives for the Company more clear . . . as well as assist in the 2008 strategic financial planning process." (PX2301 (Heglie, Dep. at 64), *in camera*).

800. The November 2007 Board mandates were not intended to tell Microporous management that there would be no further expansion. (PX2301 (Heglie, Dep. at 65), *in camera*). Nor did the mandates mean that Microporous should stop the work that it was doing to try to grow the business. (PX2301 (Heglie, Dep. at 65-66), *in camera*).

801. After the issuance of the mandates on November 14, 2007, the Microporous Board "was still open to the possibility of moving into the . . . PE SLI market." (PX2301 (Heglie, Dep. at 71), *in camera*; *see also* PX2300 (Heglie, IHT at 183), *in camera* ("I think the [IGP part of the] Board's, my view . . . is the SLI automotive market wasn't as attractive as other market opportunities available for the company, but it was still a potential growth opportunity.")).

802. In 2007, Exide wanted "to move forward with an SLI project for two lines (one in U.S. and one in Europe) to begin supply January 1, 2010." (PX1102 at 024; PX2300 (Heglie, IHT at 153-54), *in camera*; Trevathan, Tr. 3757). Exide was "[a]lso interested in incremental industrial volumes in Europe." (PX1102 at 024; PX2300 (Heglie, IHT at 153-54), *in camera*). Mr. Heglie, on behalf of the Board and IGP, did not tell Mr. Gilchrist to cease work on the Exide SLI project. (Gilchrist, Tr. 454-55, *in camera*).

803. Microporous management was working in good faith with Exide in 2007 on potential expansion for PE SLI separators. (PX2301 (Heglie, Dep. at 75-76), *in camera*).

804. Growth opportunities as relating to customer development would have continued to be a focus of IGP and Microporous absent the acquisition. (PX2300 (Heglie, IHT at 219-21), *in camera*).

5. Competition between Daramic and Microporous increased in the months preceding the acquisition

805. In 2007, Daramic faced competition from Microporous at five of Daramic's top ten customers. (Roe, Tr. 1307). This included renewed competition from Microporous in both motive and automotive markets. In the automotive market, Daramic understood that Microporous was competing with Daramic for business at JCI, Exide, East Penn Battery and Fiamm. (Roe, Tr. 1303-07). Daramic during this period viewed Microporous as a viable competitor for automotive separator supply. (Roe, Tr. 1307-08; PX0922 (Roe, IHT 359-61), *in camera*). At the same time, Microporous was competing with Daramic for motive business at EnerSys, Exide and East Penn Battery. (Roe, Tr. 1303-06). Daramic and Microporous continued to compete for deep-cycle customers as well. (PX0263 at 003-04, 008, *in camera*).

806. In 2007, Daramic grew concerned about the possible loss of automotive business to Microporous at JCI. (PX2078). At that time, Daramic was supplying about 55 million square meters of separators to JCI on an annual basis. (Roe, Tr. 1296). Daramic also understood that it was JCI's strategy to have multiple suppliers in each geographic region (the Americas, Europe and Asia) in order to exert pressure on PE suppliers. (Roe, Tr. 1296-98; PX2078).

807. In 2007, Daramic considered Microporous to be a competitive threat for JCI's automotive business. (Roe, Tr. 1307). In August 2007, Mr. Roe informed Mr. Hauswald that "one likely scenario" for JCI would include Microporous taking 20 to 25 million square meters of product in 2009, product which to date was being supplied to JCI by Daramic. (PX2078; Roe, Tr. 1301). Mr. Roe further believed that Microporous might get an even larger share of JCI's separator business beginning in 2010. (PX2078; Roe, Tr. 1301).

808. In the fall of 2007, Daramic believed that it was facing an EBITDA loss of {[redacted]} between 2008 and 2010 without an acquisition of Microporous. (PX0276 at 007, *in camera*).

809. On November 10, 2007, Mr. Hauswald emailed Mr. Roe asking whether the 2008 budget and long range plans were realistic. (PX0238 at 001; PX0922 (Roe, IHT at 362-63), *in camera*). Mr. Roe responded by email dated November 12, 2007, stating that "2008 will be the most challenging year ever faced by Daramic."

(PX0238 at 001). Mr. Roe stated that Daramic was "finishing 2007 on a down-swing" and was "beginning to feel the real effects" of price competition and Daramic's past performance issues. (PX0238 at 001). Mr. Roe indicated that Daramic had to be the "price leader" and "continue to push/force price increases" even as the competition was lowering prices. (PX0238 at 001). Mr. Roe also emphasized to Mr. Hauswald that 2008 would be a uniquely difficult year for Daramic because of Microporous' ongoing expansion project which was "an element we have not faced in many years." (PX0238 at 001). According to Mr. Roe, "unlike prior years, we have a true legitimate big competitor entering the market (MP) and for sure they will capture volume at whatever it takes." (PX0238 at 001; PX0922 (Roe, IHT at 362-363), *in camera*; Roe, Tr. 1302-03).

6. The acquisition eliminated capacity expansion plans

810. Microporous had discussions with East Penn Battery about expanding into SLI in the United States around the time of the acquisition discussions with Daramic in late 2007. (PX2300 (Heglie, IHT at 186-88), *in camera*). Microporous put off discussions with East Penn Battery in part "based on the uncertainty with the Daramic transaction . . . IGP was unwilling to commit a bunch of capital to it without knowing if we're going to be compensated for it." (PX2300 (Heglie, IHT at 188), *in camera*).

811. Microporous was likewise reluctant to invest additional capital to gain Exide's business while it was engaged in acquisition discussions with Daramic. (PX2300 (Heglie, IHT at 190), *in camera*).

812. With the acquisition of Microporous by Daramic, Exide's strategy of adding separator suppliers to the marketplace (F. 696, 744) was defeated. (Gillespie, Tr. 2979-80).

813. The additional PE line (F. 773-76) was never installed. (Gaugl, Tr. 4560). Part of the equipment for that line is sitting in boxes in Austria and Piney Flats. The extruder is at the supplier in a semifinished stage and the pinhole detector is being used in Piney Flats. (Gaugl, Tr. 4565).

7. The acquisition impacted innovation competition

814. Daramic and Microporous competed with one another to innovate deep-cycle battery separators. (Qureshi, Tr. 2049-50). Daramic improved the performance of its original deep-cycle separator, Daramic DC, {[redacted]} such that it would behave physically like Flex-Sil. (PX0949 at 019, *in camera*; Qureshi, Tr. 2050). The new improved product became known as Daramic HD. (PX0949 at 019, *in camera*).

815. With U.S. Battery's increased use of Daramic DC and Daramic HD, Daramic became aware that the {[redacted]} of the separators slowed down the hand

assembly of the cells at U.S. Battery. (PX1742 at 002, *in camera*). A November 2006 document discussing a visit to U.S. Battery stated that "[i]f we [Daramic] are to earn more sales, {[redacted]} (PX1742 at 001, *in camera*). An April 4, 2007 Daramic Trip Report to U.S. Battery reiterates that "[a] lack of stiffness in leaf separators had been an impediment to further sales by Daramic." (PX0681 at 001). The April 4, 2007 trip report states that Daramic made a presentation to U.S. Battery on its {[redacted]} project, a project to improve separator stiffness for better handling. (PX0681 at 001; PX0682 at 001, *in camera*). After the presentation, U.S. Battery indicated an interest in receiving separators with sodium silicate for added stiffness to test. (PX0681 at 002).

816. In April 2008, Daramic visited U.S. Battery and reviewed the results of the {[redacted]} project and determined that the sodium silicate additive affected the capacity of the battery. (PX0682 at 001, *in camera*; Qureshi, Tr. 2087-88). During the Daramic visit to U.S. Battery, Mr. Qureshi suggested that Daramic use polyvinyl alcohol to improve stiffness. (PX0682 at 001, *in camera*; Qureshi, Tr. 2087-88). U.S. Battery does not know whether Daramic has followed up on its suggestions to improve stiffness. (Qureshi, Tr. 2051, 2087-88).

817. Microporous had several technically innovative projects underway prior to the acquisition, including, but not limited to, projects LENO, to address the black scum and Darak replacement issues at EnerSys (F. 617-28); {[redacted]} (Whear, Tr. 4730-46, *in camera*).

818. Despite the prospects for the new gel battery separator from the LENO project, after the acquisition (F. 617-28), Daramic's management was not interested in the further development of a product to replace Darak, a very high-margin product for Daramic. (Brilmyer, Tr. 1863-64).

819. Of the Microporous innovation projects listed in F. 817, {[redacted]} in the flooded lead-acid battery arena after having come under Daramic's control. (Whear, Tr. 4736-52, *in camera*).

8. Daramic's reaction to Microporous' expansion – The MP Plan

820. In the fall of 2007, Daramic took active steps to respond to what Daramic estimated would be a potential loss of {[redacted]} in global sales in the SLI and motive markets. Mr. Roe and Mr. Hauswald developed a project known as the "MP Plan." The goal of the MP Plan was to secure long-term agreements with customers who Daramic identified as being at risk of shifting their sales to Microporous. (PX0255, *in camera*; PX0911 (Roe, Dep. at

184-87), *in camera*; PX0258 at 001 ("What do we want to achieve? Secure select [long term] agreements to fight the [Microporous] threat.")).

821. Regarding the MP Plan, Daramic projected that, for East Penn Battery, Daramic was at risk of losing as much as 1 million square meters of automotive product, and 500,000 square meters of motive power separators, to Microporous. Daramic projected that, for Douglas Battery, Daramic was at risk of losing as much as 250,000 square meters of motive product to Microporous. Daramic projected that, for Crown Battery, Daramic was at risk of losing as much as 250,000 square meters of motive product to Microporous. (PX0258 at 002; Roe, Tr. 1288-89). Daramic based its projections on information that Microporous had visited Crown Battery, Douglas Battery, and East Penn Battery, and assumed that Microporous had given these customers quotations. (Roe, Tr. 1289-90).

822. Daramic offered these customers contracts that {[redacted]} (PX0255 at 001, *in camera*; Roe, Tr. 1292-94, 1350-54, *in camera*). The terms offered to customers under the MP Plan limited {[redacted]} (PX0258; PX0255 at 001, *in camera*).

823. The goals of the MP Plan were to: Secure select long-term agreements to fight the Microporous threat; achieve price improvements; achieve margin improvements; achieve price stability; and increase volume resulting in net margin increase. To achieve its goals, Daramic planned to offer customers: Fixed or guaranteed delivery times; inventory commitments; price stability; consignment; rebate schedules; limited price increases; and a competitive price in comparison to Microporous. The MP Plan also noted that "[a]s a last resort we play hard – no agreement – no supply." (PX0258).

a. The Crown Battery contract

824. Fifty percent of Crown Battery's product line is SLI batteries for automobile replacement, trucks, and buses. Crown Battery includes in its SLI division the batteries it makes for deep-cycle batteries for sweeper/scrubbers, golf carts and marine vehicles. The other fifty percent is what Crown Battery refers to as motive power industrial, which is primarily forklift batteries and coal mine equipment batteries. (Balcerzak, Tr. 4092).

825. Crown Battery signed a {[redacted]} contract with Daramic in December 2007 to purchase no less than 100% of Crown's requirements for polyethylene battery separators for lead-acid batteries for its motive and automotive power applications. The products and specifications included Daramic High Performance for SLI applications, Daramic Industrial for motive power

applications, and Daramic HD for deep-cycle, motive, or marine applications. (Balcerzak, Tr. 4104, *in camera*; RX0994, *in camera*).

826. Crown Battery had previously had {[redacted]} with Daramic prior to entering into the December 2007 contract. It was Daramic's suggestion that they enter into a {[redacted]} Crown Battery saw the choice to enter into the contract as a "no-brainer." (Balcerzak, Tr. 4104-06, 4111, *in camera*; RX0994, *in camera*).

827. Other factors that led Crown Battery to enter into the contract with Daramic were that Crown Battery had been dealing with Daramic for over 20 years; Crown Battery viewed Daramic as one of its best suppliers that had provided Crown Battery with great service; and the ability to lock in a fair price, when raw materials were "going through the roof . . . was an offer that [Crown] couldn't refuse." (Balcerzak, Tr. 4104-06, 4111, *in camera*; RX0994, *in camera*).

828. As an inducement to Crown Battery to sign a long-term contract, {[redacted]} of the cost of the tool required for making Crown Battery's desired profile. (Balcerzak, Tr. 4116, *in camera*; RX0994 at 009, *in camera*).

829. Although Crown Battery had purchased Microporous products for its golf cart batteries, and had considered CellForce when it first came on the market, Crown Battery stopped considering CellForce for industrial applications many years before the 2007 contract with Daramic and did not consider the price of CellForce when negotiating the 2007 contract with Daramic. Crown Battery had no test results for CellForce and would not switch to a supplier without test results from them. (Balcerzak, Tr. 4106-08, *in camera*).

830. {[redacted]} (Balcerzak, Tr. 4106, *in camera*; 4128-29).

b. The East Penn Battery contract

831. East Penn's Battery automotive division includes its SLI batteries used for cars, boats and recreational vehicles. Included in its automotive division are its deep-cycle batteries. East Penn's Battery industrial division manufactures motive power batteries, for forklifts and mine equipment, and stationary batteries for backup systems, for hospitals, telephones and cable. (Leister, Tr. 3976-77).

832. East Penn Battery uses "straight" polyethylene battery separators for all its flooded batteries, including those used for its deep-cycle batteries used in golf

carts and floor scrubbers. For its sealed battery technology, used in stationary power batteries, it uses AGM. For its motive power batteries, it used to purchase small quantities of rubber-based PE from Microporous, but does not any longer. (Leister, Tr. 3978-80).

833. On January 7, 2008, East Penn Battery entered into a three-year contract with Daramic to supply {[redacted]} of its automotive and 90% of its industrial PE needs through December 31, 2010, at specified prices. (PX0637 at 002-09, *in camera*; RX1519, *in camera*; Leister, Tr. 2980, 3999-4000, 4005, *in camera*).

834. The percentages agreed to in the January 2008 contract were based upon East Penn's Battery then-current purchasing habits. At that time, East Penn Battery was purchasing small quantities of rubber-based PE separators from Microporous for motive power batteries, in an amount meeting less than 10% of its needs. East Penn Battery wanted to continue to purchase this quantity, even though Microporous was higher priced than Daramic, but was not interested in buying more than 10% from Microporous. (Leister, Tr. 3980, 3999-4000, 4005, *in camera*).

835. East Penn Battery has never purchased any other type of separator from Microporous for commercial use in any other battery application. (Leister, Tr. 3985-86, 3990-91).

836. Pursuant to the terms of the January 2008 Agreement, East Penn Battery {[redacted]} (RX1519, *in camera*; Leister, Tr. 3999-4000, 4005, *in camera*).

837. East Penn Battery reviews its suppliers on a regular basis in the areas of quality, delivery, performance, technology, information feedback, and cost. Daramic consistently ranks in the top 20 suppliers, with a score of 80%-90%. Daramic rates "excellent" with East Penn Battery in on-time delivery and technology, and is equal to all competitors with respect to quality. (Leister, Tr. 3986-88).

838. East Penn Battery has never had a long-term supply contract or a memorandum of understanding with Microporous for the purchase of separators. (Leister, Tr. 3989, Gilchrist, Tr. 503, *in camera*).

839. In 2007, East Penn Battery discussed the possibility of Microporous supplying PE separators to East Penn Battery for use in SLI batteries. (Leister, Tr. 3990). East Penn Battery provided Microporous part numbers and volumes that East Penn Battery might be interested in purchasing from Microporous, but Microporous did not have the machinery or the tooling to supply the volumes that East Penn Battery requested. (Leister, Tr. 3991).

840. Microporous never committed to East Penn Battery that it could supply East Penn Battery with the sizes and volumes of PE separators discussed in 2007.

Microporous has never been qualified by East Penn Battery as an alternative supplier of PE separators. (Leister, Tr. 3989-91).

841. After East Penn Battery had entered into a three-year contract in 2008 for most of its PE separator needs, Microporous felt that, with the exception of Crown Battery and Exide, Microporous had "no more opportunities to sell much CellForce, or PE for that matter, for motive power or SLI in North America." (PX0108).

c. The Douglas Battery contract

842. Douglas Battery manufactures batteries for forklifts used for material handling, UPS or reserve power batteries for cell phone towers, and deep-cycle batteries for vehicles used in coal-mining. The company does not make flooded lead-acid batteries for any stationary application. (Douglas, Tr. 4051-55, 4082).

843. Douglas Battery has purchased motive separators from Daramic since at least 1974. Douglas Battery has been happy with Daramic's service and products. (Douglas, Tr. 4059-61, 4075).

844. Douglas Battery and Daramic entered into a supply agreement dated January 1, 2008, and signed February 22, 2008, pursuant to which Douglas Battery agreed to purchase no less than 100% of its total requirements for polyethylene battery separators, exclusively from Daramic, including Daramic HD and Daramic CL, {[redacted]} (PX2058, *in camera*; Douglas, Tr. 4066-68, *in camera*).

845. The parties to the 2008 contract agreed that {[redacted]} and, thus, provided an enhancement to the contract. (PX2058, *in camera*; Douglas, Tr. 4066-68, *in camera*).

846. Microporous had approached Douglas Battery about purchasing battery separators in 2004. Douglas Battery has not discussed the supply of separators with Microporous since 2004. (Douglas, Tr. 4067, *in camera*).

847. Douglas Battery had tested a golf cart separator manufactured by Microporous, and found it too brittle. (Douglas, Tr. 4062-63, 4067, *in camera*; 4083-84).

848. At the time of entering into the 2008 supply contract with Daramic, Douglas Battery was not engaged in any discussions with Microporous. (Douglas, Tr. 4062-63; 4067, *in camera*; 4083-84). Douglas Battery understood that Microporous made a hard rubber separator for flooded batteries, but the battery Douglas Battery makes for UPS stationary applications uses absorbed glass mat, and takes a different separator than the separators available from Microporous. (Douglas, Tr. 4053-54, 4068, *in camera*, 4081-84).

d. Effect on pricing

849. Under the 2007 contract Daramic entered into with Crown Battery under the MP Plan, {[redacted]} despite Daramic's increases in raw material and energy costs during that time period. (Roe, Tr. 1352-53, *in camera*).

850. Under the 2008 contract Daramic entered into with Douglas Battery under the MP Plan, Daramic was unable to pass through {[redacted]} in 2009. (Roe, Tr. 1353, *in camera*).

851. Under the 2008 contract Daramic entered into with East Penn Battery under the MP Plan, Daramic passed through {[redacted]} (Roe, Tr. 1353, *in camera*).

852. In contrast to the customers at threat of loss to Microporous, Daramic was unwilling to offer to {[redacted]} (F. 897-916; PX0985, *in camera*; Roe, Tr. 1344-45, *in camera*).

9. Polypore Board documents analyzing the acquisition predicted anticompetitive effects

853. As chairman of the Polypore Board, Mr. Graff's role in the Microporous acquisition was to "encourage management to do diligence and come forward with a recommendation of how they wanted to proceed." (Graff, Tr. 4855). Those responsible for the due diligence were people from Daramic assisted by Polypore employees. (Graff, Tr. 4865, *in camera*). Mr. Graff, along with the other Polypore Board members, was responsible for approving the Microporous acquisition. (Graff, Tr. 4865, *in camera*).

854. On October 24, 2007, at Polypore's regular third quarter Board of Directors meeting, Mr. Hauswald made a presentation, to the Polypore Board regarding the results of the due diligence. (Hauswald, Tr. 778, *in camera*; Graff, Tr. 4868-69, *in camera*). On October 4, 2007, approximately three weeks before presenting his results to the full Board, Mr. Graff received a copy of the Project Titan Board presentation, which included Mr. Hauswald's speaker notes. (Graff, Tr. 4870-71, *in camera*; PX0738, *in camera*). The October 4, 2007 presentation was an interim report from the due diligence team. (Graff, Tr. 4879-80, *in camera*).

855. Included in the October 4, 2007 interim report as one of the rationales for making the acquisition was Hauswald's projection that Daramic would lose {[redacted]} square meters of volume in 2008, {[redacted]} square meters in 2009, and {[redacted]

[redacted]} square meters in 2011, if it did not make the acquisition. (PX0738 at 004, *in camera*).

856. In reviewing the October 4, 2007 interim report with Mr. Graff, Mr. Hauswald discussed the downside scenario that Daramic would have to "lower prices by {[redacted]} square meters of industrial volume to avoid Microporous Phase III." (Graff, Tr. 4873-74, *in camera*; PX0738 at 004, *in camera*). The October 4, 2007 interim report also listed that one of the "Acquisition Benefits" is to "Implement {[redacted]} price increase to non-contract customers on industrial products in 2010." (PX0738 at 007, *in camera*).

857. The October 4, 2007 interim report showed the "impact on Daramic's LRP (EBITDA loss) without acquisition," to be losses of {[redacted]} in 2008, 2009, and 2010, respectively. This "was the downside case [if Daramic] didn't do the acquisition." (Graff, Tr. 4874, *in camera*; PX0738 at 008, *in camera*).

858. The October 4, 2007 interim report also stated that without the acquisition, Daramic would have a "5-year EBITDA loss of {[redacted]} by fighting against [Microporous] Phase III"; that there would be "[e]xcess supply and market price erosion"; and that Daramic [would have a] market share loss of {[redacted]} (PX0738 at 010, *in camera*).

859. With the exception of the speaker notes and backup slides, the presentation to the Board of Directors on October 24, 2007 was identical to the October 4, 2007 interim report that Mr. Graff reviewed three weeks earlier. (*Compare* PX0738 at 002-11, *in camera*, *with* PX0203 at 080-89, *in camera*). The rationale for the acquisition that was presented to the Board of Directors included: the {[redacted]} price increase on industrial products in 2010; the impact on Daramic LRP (EBITDA loss) without the acquisition; the 5-year EBITDA loss of {[redacted]} by fighting against Microporous' expansion; the excess supply and market price erosion that would occur without the acquisition; and the {[redacted]} market share loss that Daramic would suffer if it did not acquire Microporous. (PX0203 at 085-86, 088, *in camera*).

860. In January 2008, approximately a month before the acquisition, the due diligence team provided the Board additional rationales for acquiring Microporous, which included the team's belief that Microporous had plans to expand PE capacity from {[redacted]} square meters to {[redacted]} square meters by 2011. (Graff, Tr. 4883-84, *in camera*; RX1097 at 002, *in camera*).

861. Approximately four days before the acquisition, the due diligence team provided the Board with a presentation that again included as an acquisition benefit the {[redacted]} price increase on industrial products in 2010. (PX0464 at 004, *in camera*).

862. When it reviewed the Daramic 2008 budget, which was presented to the Polypore Board on December 11, 2007, the Polypore Board considered the due diligence team's findings regarding the impact of not acquiring Microporous and the impact of having to compete with an independent Microporous. (PX0823, *in camera*; Roe, Tr. 1225; Graff, Tr. 4885-88, *in camera*).

863. Daramic assembles its budget based on certain assumptions with regard to volume and pricing and includes a three-year long-term plan. (Roe, Tr. 1226-27). The assumptions that Daramic incorporates into the budget are Daramic's best estimate of what is going to happen in the upcoming year with respect to volume and pricing of the separators that Daramic sells. (Roe, Tr. 1226-30). These assumptions are specifically laid out in the budget to show the Polypore Board how the budgetary figures were prepared. (Roe, Tr. 1226-27).

864. Daramic did not know whether its MP Plan would successfully maintain customers at risk of loss to Microporous. Despite launching the MP Plan, Daramic's 2008 budget included the assumption that {[redacted]} square meters of PE separator volume would be lost to Microporous in 2008. (PX0823 at 002, 008, *in camera*; Graff, Tr. 4887-88, *in camera*). This is the same volume that Daramic was projecting in the MP Plan to lose to Microporous. (Roe, Tr. 1370, *in camera*).

865. The 2008 budget also included Daramic's long-range plans covering the time period of 2008 through 2010. (PX0823 at 007-12, *in camera*). The long-range plan is the budget that Daramic sets for what it thinks is a likely scenario. (PX0919 (Riney, IHT at 298), *in camera*). In its long-range plans, using its best estimates of what was likely to occur in the coming three years, Daramic's management assumed that it would lose to Microporous: {[redacted]} square meters in 2008, {[redacted]} square meters in 2009, and {[redacted]} square meters in 2010. (PX0823 at 008, *in camera*; Roe, Tr. 1371-75, *in camera*; Graff, Tr. 4887-88, *in camera*). The only competitor mentioned in Daramic's 2008 budget is Microporous. (Graff, Tr. 4888-89, *in camera*).

866. Daramic's documents show an assumption that it would have to lower prices by {[redacted]} square meters of product in 2009. (PX0276 at 019, *in camera*; Roe, Tr. 1388-82, *in camera*). The {[redacted]} square meters of separators matches the figures that Daramic was providing to the Polypore Board for consideration of an acquisition of Microporous. (*See* PX0276 at 016, 019, *in camera*).

867. When Daramic presented the 2008 budget to the Board for approval in December 2007, Daramic also provided a comparison of how the long-range plan would look with and without the Microporous acquisition. (PX0823 at 013-14, *in camera*). With an acquisition of Microporous, Daramic's underlying sales assumptions changed dramatically. Daramic assumed that with an acquisition of Microporous, it would retain the millions of square meters of separators that it

previously projected as losing to Microporous. Additionally, Daramic assumed that it would no longer have to lower prices by {[redacted]} square meters of separators in 2009. Daramic also assumed it would be able to increase prices on CellForce and other industrial separators in 2010, resulting in a total increase of {[redacted]} in EBITDA for Daramic in 2010. (PX0823 at 013, *in camera*).

868. Polypore's Board approved Daramic's 2008 budget. (Roe, Tr. 1382, *in camera*).

a. Daramic acquired Microporous to avoid market share loss and EBITDA loss

869. Mr. Hauswald gave a presentation entitled "Project Titan" regarding the acquisition of Microporous to the Polypore Board in October 2007. (PX0203 at 080-89, *in camera*; Hauswald, Tr. 776, 778-79, *in camera*). Mr. Hauswald confirmed that he put together a financial model of what the world would look like with the acquisition and without the acquisition and had the numbers checked to make sure they were accurate. (Hauswald, Tr. 778-79, *in camera*). Mr. Hauswald prepared the presentation at the direction of Mr. Toth. (Hauswald, Tr. 900-01, *in camera*).

870. The model presented in the Project Titan showed that Daramic would receive {[redacted]} additional EBITDA between 2008 and 2012 with the acquisition. (PX0203 at 084, *in camera*).

871. The Project Titan Board presentation also projected a business risk without the acquisition was that Daramic would lose market share of {[redacted]} and would lose {[redacted]} in EBITDA over 5 years by fighting against Microporous' Phase III expansion. (PX0203 at 088, *in camera*; PX0738 at 010, *in camera*; *see also* PX0275 at 012, *in camera*).

872. The Project Titan Board presentation revealed that the impact on Daramic long-range planning EBITDA without the acquisition would be a {[redacted]} (PX0203 at 086, *in camera*; Hauswald, Tr. 783, *in camera*). While the cumulative loss for the three years of 2008 through 2010 was predicted to be {[redacted]} the loss was expected to increase over the next two years for a total "5-year EBITDA loss of {[redacted]} by fighting against MP Phase III." (PX0203 at 086, 088, *in camera*; Hauswald, Tr. 783, *in camera*).

873. Mr. Hauswald's speaker notes for the October 2007 Project Titan Board presentation showed, by customer, the volume of business Daramic was projected to lose to Microporous over the next four years, if it did not acquire Microporous. (PX0174 at 003, *in camera*, Hauswald, Tr. 788-89, *in camera*). Hauswald projected Daramic would lose industrial at EnerSys, industrial and automotive at East Penn Battery, and automotive at both JCI Europe and JCI Americas. (Hauswald, Tr. 788-89, *in camera*, PX0174 at 003, *in camera*). The total volume

of business that Daramic was predicted to lose to Microporous at these customers was {[redacted]} (PX0174 at 003, *in camera*). By comparison, the cumulative loss to Microporous for Entek over the same four-year period was projected to be only {[redacted]} square meters of automotive. (PX0174 at 003, *in camera*; Hauswald, Tr. 789, *in camera*).

874. Mr. Hauswald's speaker notes for the October 2007 Project Titan Board presentation also projected that Daramic would lose {[redacted]} because of the loss of some Exide business to Microporous. (Hauswald, Tr. 789, *in camera*; PX0174 at 003, *in camera*).

875. In addition, Mr. Hauswald's speaker notes for the October 2007 Project Titan Board presentation projected that, without the acquisition, Daramic would need to lower its price by {[redacted]} on the industrial part of the business and would need to offer price concessions to Exide of {[redacted]} (Hauswald, Tr. 789, 791 *in camera*; PX0174 at 003, *in camera*).

876. Daramic believed that, absent the acquisition, it would have to lower prices and build low cost facilities to compete on price with Microporous. The October 2007 Project Titan Board presentation speaker notes stated under the heading, "No Acquisition - Sales volume loss and aggressive approach to block MP phase 3 expansion," that without an acquisition Daramic would "[t]arget specific MP customers with minimum {[redacted]} price reduction" and that Daramic would "[b]uild low cost production line to compete on price." (PX0738 at 017, *in camera*).

877. Mr. Hauswald informed the Polypore Board, in the October 2007 Project Titan Board Presentation, that a benefit of the acquisition was to "[s]ecure our market share," by avoiding the loss of share to an expanding Microporous. (Hauswald, Tr. 784, *in camera*; PX0203 at 086, *in camera*). Microporous had {[redacted]} square meters of PE capacity with plans to expand to {[redacted]} square meters by 2011 in a 3-phase expansion plan.. (PX0462 at 005, *in camera*; PX0738 at 013, *in camera*; PX0463 at 002, *in camera*). Daramic's documents show that it expected to lose customers and orders due to the extra capacity installed by Microporous, which would come up to {[redacted]} of Daramic's capacity and saw as one of the "[b]enefits of an acquisition to Daramic: . . . Preserve our Market Share WW, by avoiding the loss of customers and orders due to the extra capacity installed ({[redacted]} of our present capacity)." (PX0463 at 003, *in camera*).

878. In the October 2007 Project Titan Board Presentation, Mr. Hauswald also informed the Polypore Board that a business risk with a Microporous acquisition was customer reaction, response or potential legal action by customers. (PX0203 at 088, *in camera*; Hauswald Tr. 785-86, *in camera*).

879. Prior to the acquisition, Daramic projected profit and loss scenarios with and without the acquisition of Microporous. (PX0051, PX0095 at 001-02, *in camera*). The non-acquisition scenario accounts for "[c]ompetitive pricing to block additional expansion [of Microporous]." (PX0051). The combined revenues of Daramic and Microporous from 2008 through 2012 in the non-acquisition scenario with competitive pricing is {[redacted]} less than the acquisition scenario. (PX0051, PX0095 at 001-02, *in camera*).

b. Daramic acquired Microporous to raise prices

880. At the October 2007 Polypore Board meeting, Mr. Hauswald explained to the Polypore Board that with the acquisition, Daramic would be able to institute a {[redacted]} price increase to non-contract customers on industrial products in 2010, which would result in {[redacted]} in incremental EBITDA. (Hauswald, Tr. 782, 819-20, *in camera*; PX0203 at 084, *in camera*; PX0738 at 006-07, *in camera*; PX0463 at 008, *in camera*; PX0464 at 004).

881. The Polypore Board documents also indicated that Daramic planned to gain {[redacted]} in additional EBITDA by phasing out its low margin Daramic HD production in Owensboro with CellForce in 2009, and increasing the market price on HD in 2010. (PX0203 at 085, *in camera*; PX0738 at 006, 007, *in camera*; PX0463 at 005, 008, *in camera*; PX0464 at 004, *in camera*). Once HD was phased out, customers who had been purchasing HD would have to pay more for CellForce. (Hauswald, Tr. 819, *in camera*).

c. Polypore Board approved the acquisition based on the due diligence team's findings as stated in the Board documents

882. The Board of Directors approved the acquisition of Microporous on February 27, 2008 at a special meeting. (PX0742 at 001, *in camera*; Toth, Tr. 1476-77, *in camera*). At the meeting, Mr. Toth first provided a summary of the strategic rationale for the transaction and the key financial projections. (Toth, Tr. 1477, *in camera*; PX0742 at 001, *in camera*). Based on the management team's presentation and recommendation, {[redacted]} a resolution to acquire Microporous. (Toth, Tr. 1477, *in camera*; PX0742 at 001 *in camera*).

883. When the Board voted for the resolution approving the Microporous purchase at the February 27, 2008 special meeting, it was relying on the term sheet that was attached. (PX0742 at 001, *in camera*; Toth, Tr. 1607, *in camera*). The term sheet includes Microporous' expansion plans. (Toth, Tr. 1607, *in camera*; PX0742 at 007, *in camera*). The Board's resolution stated that "the Board previously conducted a detailed review of this project at prior meetings, including an analysis of the strategic rationale, financial terms, and post-acquisition business plans." (PX0742 at 001, *in camera*). The presentations analyzed at the prior meetings

included the financial data presented in the Board documents (F. 854-59) that Daramic would increase prices after an acquisition, but would have to lower prices without the acquisition. (PX0203 at 080-89, *in camera*; PX0738, *in camera*; PX0463, *in camera*; PX0464, *in camera*). The analysis referred to in the resolution included the presentations made by the due diligence team at the October and January Board meetings. (Graff, Tr. 4890-91, *in camera*).

884. The resolution approving the acquisition also references the "Term Sheet," which summarizes "the final key terms of the Acquisition." (PX0742 at 001, *in camera*; Graff, Tr. 4892, *in camera*). The term sheet refers to "Underlying Assumptions (see attached Exhibit A)," which included the three-phased expansion project that Microporous was undertaking. (PX0742 at 003, 007, *in camera*).

885. In approving the acquisition, the resolution, as reflected in the Board Minutes states: "NOW, THEREFORE, BE IT RESOLVED that the Acquisition as presented to the Board by the Company's management on February 27, 2008 and substantially as summarized on the attached Term Sheet, [is] hereby approved." (PX0742 at 001, *in camera*).

10. Microporous recognized that Daramic's offer to acquire it eliminated competition

886. On August 9, 2007, Eric Heglie and Phillip Bryson met "to have an initial discussion . . . concerning a potential acquisition." (PX1104 at 002). Mr. Heglie is one of the principles at IGP and a Board member of Microporous. (PX2300 (Heglie, IHT at 15), *in camera*; Gilchrist, Tr. 419-20). Mr. Bryson is in-house counsel for Polypore. (PX1104 at 001).

887. In preparation for the August 9, 2007 meeting between Mr. Heglie and Mr. Bryson, Mr. Gilchrist emailed Mr. Heglie to suggest that Mr. Heglie stress that Microporous "be valued at what its immediate significant growth opportunities offer"; and that "IGP [is] committed to growth and infusing necessary capital for Microporous to execute its growth plans." (PX1104 at 001). In addition, Mr. Gilchrist suggested that Mr. Heglie stress the following:

> Any offer must take into account the significant strategic implications of what Daramic gains by owning Microporous:
>
> - Total control of deep-cycle markets (no competitor)
> - Total control of industrial markets (no competitor)
> - Regains complete upper hand in automotive with no new competitor being introduced
> - Control of CellForce
> - Control of new developments in our chemistry

(PX1104 at 001; PX1106 at 040).

888. Mr. Gilchrist's August 9, 2007 email to Mr. Heglie concluded that Daramic's attempt to purchase Microporous "is a 'strategic' play on Daramic's part and not based on current financials but the prospects of taking Daramic's most dangerous competitor out of play." (PX1104 at 001).

889. On the evening of August 9, 2007, the same day that he met with Mr. Bryson, Mr. Heglie documented the conversation the two had that day, "while fresh in [his] mind." (PX1105 at 001). In an August 9, 2007 email to Mr. Gilchrist, Mr. Heglie reported that Polypore's Phillip Bryson stated that Daramic management saw "benefits in pricing/market share consolidation . . . . " (PX1105 at 001). Mr. Heglie further reported that Mr. Bryson said that "one of their strategic goals is to get bigger in golf cart market, and that we can either battle it out or combine to achieve that." (PX1105 at 001).

890. In the August 9, 2007 email reporting on his conversation with Mr. Bryson about a possible acquisition of Microporous, Mr. Heglie wrote that he "told him [Mr. Bryson] that we were in the early stages of our investment, had partnered with management and were not looking to divest, and are in the midst of executing on our own multi-pronged expansion plan for which we have plenty of capital and support." (PX1105 at 002).

891. In preparing for a follow-up meeting scheduled for August 21, 2007 between Microporous and Daramic, IGP and Microporous spent the weekend of August 18, 2007, working on information sheets for Mr. Gilchrist to present verbally to Daramic. (PX0069; PX1108; PX1109). According to Mr. Heglie, the theme of the discussion "obviously being that in 4-5 years we will be competing more head-on with Daramic in their key markets and will be a much more diversified business than we are today." (PX0069 at 001). Moreover, Mr. Heglie believed that at the meeting Microporous should play up our differentiated technology via CellForce and its derivatives. Heglie wrote: "I think if we can make Daramic feel that we are not only going to attack their markets, but also do it with proprietary technology that has significant benefits over their existing products, it will make our case that much stronger." (PX1108 at 001).

892. The August 20, 2007 revised information sheet that Microporous prepared in anticipation of meeting with Daramic included the "Current Situation: Microporous is spending capital to execute a three-phase capacity expansion plan which includes facility construction and five (5) new CellForce and/or polyethylene process lines." (PX1109 at 002). The information sheet also included: "End of Year 2010 Financial Estimate: Incremental estimated EBITDA growth from present to End-of-Year 2010: {[redacted]} Of the {[redacted]} in incremental growth, approximately 90% will be replacing Daramic existing business." (PX1109 at 002).

893. The incremental growth that Microporous was expecting by 2010 tracks closely to the {[redacted]} of EBITDA loss in 2010 that Daramic reported to the

Polypore Board of Directors as the impact on its long range plan if it did not acquire Microporous. (PX0203 at 086, *in camera*).

894. The August 20, 2007 revised information sheet also included "Strategic Implications to be Considered:

- Daramic will have the benefit of existing differentiated technologies (Flex-Sil, Ace-Sil, and CellForce).
- Daramic will have complete control of 100% of the deep-cycle markets.
- Daramic will have complete control of >97% of the [i]ndustrial markets for motive power.
- Daramic will have complete control of 100% of the industrial flooded reserve power markets.
- Daramic will dissolve the threat of Microporous in automotive SLI as no new competitor will be introduced into the market with a secured position."

(PX1109 at 003).

a. Microporous and Daramic found assignment of contracts irrelevant because customers had no options

895. In an August 2007 email from Mr. Gilchrist to Mr. Heglie regarding EnerSys' reaction to a potential acquisition of Microporous by Daramic, Mr. Gilchrist wrote:

> EnerSys, as well as others, will be frustrated by this acquisition. Our contract with EnerSys allows only for the fact that EnerSys cannot be compelled to assign the contract to a competitor buying [Microporous]. The reality is that this means basically nothing as there are no other choices from which to source industrial separators but [Microporous] and Daramic – Amer-Sil is not an option. The reality is that everyone would be stuck with Daramic – like it or not. This lack of assignment does not diminish our value to Daramic.

(PX1104 at 001).

896. In late January 2008, with the closing for the acquisition just a month away, IGP was concerned that it needed to make assignments of the Trojan Battery and Daramic contracts post-closing issues, because it feared that Daramic's general counsel, Phillip Bryson, would refuse to close without knowing what the customers would say. (PX1125 at 001). Jeff Webb of IGP and Mike Gilchrist agreed that Mr. Gilchrist should broach the subject with Pierre Hauswald because

he "will best understand the practical business issue of both EnerSys and Trojan having nowhere else to go and will probably be the most agreeable to dealing with assignments after closing." (PX1125 at 001). Mr. Hauswald agreed with this assessment. (PX0079).

11. The acquisition allowed Daramic to impose anticompetitive price increases

a. Price increases to certain customers

897. {[redacted]} (RX0945 at 097, *in camera*; Roe, Tr. 1352-53, *in camera*). {[redacted]} (Roe, Tr. 1222).

898. {[redacted]} (PX0950 at 015 *in camera*; Benjamin, Tr. 3521-22).

899. {[redacted]} (PX0950 at 015, *in camera*).

900. {[redacted]} (PX0950 at 015, *in camera*).

901. {[redacted]} (Godber, Tr. 233, 236-38, *in camera*; PX0950 at 014, *in camera*). Daramic later revised the announced price increases to a {[redacted]} (Godber, Tr. 236-37, *in camera*). {[redacted]} (Godber, Tr. 238, *in camera*). Compared to the pricing in the contract that {[redacted]} (Godber, Tr. 239, *in camera*).

902. {[redacted]} (Gillespie, Tr. 3001-02, *in camera*; PX2052 at 003, *in camera*).

903. Subsequent to Daramic's acquisition of Microporous, Daramic has {[redacted]} (Gillespie, Tr. 3002, *in camera*).

904. {[redacted]} (Gillespie, Tr. 3000, *in camera*).

905. Daramic's post-acquisition supply proposals to {[redacted]} (Gillespie, Tr. 3047, *in camera*). Daramic's pricing proposals have {[redacted]} (Gillespie, Tr. 3047, *in camera*). {[redacted]} (Gillespie, Tr. 3047, *in camera*).

906. On July 1, 2008, Daramic instituted {[redacted]} for most customers. (PX0950 at 004-13, *in camera*; Riney, Tr. 4949, 4951, *in camera*).

907. {[redacted]} (Seibert, Tr. 4285, 4299, *in camera*). {[redacted]} (Seibert, Tr. 4285, *in camera*; RX0542).

908. {[redacted]} (PX0704 at 010, *in camera*).

909. Mr. Hauswald sent a June 12, 2008 email to Mr. McDonald explaining his frustrations with the Daramic organization {[redacted]} (McDonald, Tr. 3881-82, *in camera*; PX0617 at 001-02, *in camera*). Mr. McDonald emailed a response to Mr. Hauswald ideas for improving earnings {[redacted]} (PX0617, *in camera*; McDonald, Tr. 3885-86 *in camera*).

910. Daramic establishes a budgeted volume and budgeted pricing for each customer. (Seibert, Tr. 4301-02, *in camera*). {[redacted]} (Seibert, Tr. 4284, *in camera*).

911. {[redacted]} (PX0950 at 013, *in camera*).

912. During the period August 31, 2008, through approximately November 30, 2008, Daramic notified customers of price increases scheduled to take effect anywhere between September 1, 2008 and January 1, 2009. (PX0950 at 014, *in camera*;

PX0371). The notification letter informed customers that Daramic's energy costs and input costs had increased. (PX0371). The proposed price increases by customer range from {[redacted]} (PX0950 at 014-15, *in camera*).

913. Effective January 1, 2009, Daramic announced price increases that ranged from {[redacted]} (PX0950 at 014-16, *in camera*).

914. Effective January 1, 2009, Daramic announced price increases that ranged from {[redacted]} (PX0950 at 014-16, *in camera*).

915. Effective January 1, 2009, Daramic announced price increases that ranged from {[redacted]} (PX0950 at 014-16, *in camera*).

916. Mr. Seibert, the Vice President and Business Director for sales, marketing, and technical assistance, is not aware of any customers who moved their business to another separator manufacturer as a result of Daramic raising prices effective January 1, 2009. (Seibert, Tr. 4287-90, *in camera*). Mr. Seibert has not even received a report from anyone in his sales team stating that Daramic would lose business as a result of its proposed price increase of {[redacted]} effective January 1, 2009. (Seibert, Tr. 4288, *in camera*).

b. Economic analysis

917. Daramic's acquisition of Microporous led to price increases. (Simpson, Tr. 3165).

918. The acquisition enabled Daramic to increase price unilaterally. (Simpson, Tr. 3192-94, *in camera*).

919. "The most straightforward method of looking to see whether an acquisition or a merger led to higher prices is to compare pricing before and pricing after the acquisition. . . . [T]here are other factors that also affect price, and one has to control for these factors . . ." (Simpson, Tr. 3209-10, *in camera*).

920. Four factors could lead to higher prices in a market: increasing demand for the product, changes in productivity, increasing input costs, and increasing market power. (Simpson, Tr. 3212, *in camera*). Daramic's fall 2008 price increase can not be explained by increasing demand for battery separators since demand for battery separators has fallen since mid-2008. (Simpson, Tr. 3212-13, *in camera*). Productivity changes do not explain Daramic's 2009 price increase, since learning by doing generally makes firms more productive over time. (Simpson, Tr. 3213, *in camera*).

921. Input price increases do not explain Daramic's 2009 price increase. (Simpson, Tr. 3213-20, *in camera*). {[redacted]} (Weerts, Tr. 4510-11, *in camera*). For

example, Daramic's raw material and energy inputs are based on crude oil. (PX2068 at 001). Several price indices can be used to estimate changes in the price of these raw material and energy inputs. (PX2068 at 001). The United States Bureau of Labor Statistics publishes price indices for crude petroleum – domestic production and fuels and related products and power on its website. (Simpson, Tr. 3215-17, *in camera*). The price indices for crude petroleum – domestic production and fuels and related products and power declined markedly during the period that Daramic was notifying customers of price increases. (Simpson, Tr. 3217, *in camera*).

922. The price index for crude petroleum, domestic production was 252.6 in November 2007 and 150.6 in November 2008. (PX0033 (Simpson Report) at 045, *in camera*). Higher input prices do not explain Daramic's fall 2008 price increases. (Simpson, Tr. 3218, *in camera*).

F. Entry

1. Barriers to entry

a. In general

923. Prior to the acquisition, Microporous possessed various tangible and intangible assets. The tangible assets included: a product that worked and had been qualified by customers, a technical workforce that could troubleshoot and innovate, a business force that was effective at selling the product, a factory in the United States, and a soon-to-be-opened factory in Europe. Microporous' intangible assets included: a favorable reputation with customers and the benefit of learning by doing, which is accumulated through having produced the product for a number of years. (Simpson, Tr. 3205-06, *in camera*). Some of these assets needed to be acquired sequentially – "you can't test a product until you develop a product and you can't get learning by doing until you're actually producing the product and figuring out through producing it how to make it more efficiently." (Simpson, Tr. 3206, *in camera*).

924. Barriers to entry into the relevant markets include a significant capital investment, sophisticated production processes, extensive customer relationships, high customer switching costs, and patent-protected technology. (Gilchrist, Tr. 604-05; RX0741 at 015).

925. The industry standard for the cost of investing in a battery separator production line is roughly $1 million per square meter of production capacity, but can be somewhat more or less. (PX0907 (Kung, Dep. at 34-35), *in camera*). For example, Microporous built its 11 million square meter line in Austria for approximately $9 million. (Gaugl, Tr. 4546-47). Amer-Sil estimated it would cost {[redacted]

[redacted]} (RX1620 at 002, *in camera*). purchasedseparators for {[redacted] RX1029, *in camera*)

926. A single calender roll can cost between $30,000 and $64,000. (RX0146). A battery separator manufacturer needs multiple calender rolls to produce separators. (Gillespie, Tr. 3138, *in camera*). For instance, there are five calender rolls used to produce CellForce in Piney Flats, and four or five calender rolls used to manufacture PE separators in Austria. (Gaugl, Tr. 4618). Daramic has at least 80 different calender rolls that it utilizes in the production of separators. (Whear, Tr. 4778-79).

927. Additional high barriers to entry include required "know-how," and limited market size, which detracts potential entrants. (PX1124; PX2300 (Heglie, IHT at 126-27), *in camera*). IGP viewed Microporous' patent protection for CellForce, significant know-how, and process intellectual property in the production of its products, as company strengths when it evaluated acquiring Microporous. (PX1124; PX2300 (Heglie, IHT at 119-20), *in camera*; PX1124 at 001).

928. Daramic recognized that scale, experience and learning effects, capital requirements, value of reputation and brand, and access to distribution constitute barriers to entry. (PX0265 at 012, *in camera*; *see also* Toth, Tr. 1428-29 (achieving product breadth, scale and global supply capability are barriers to entry); PX3015 at 017).

929. In its Strategy Audit, Daramic admits that barriers to entry for the sale of battery separators are high "because of the capital investment needed to achieve the scale required to supply the large battery manufacturers, plus the impact of increasing environmental regulations." (PX0265 at 004, *in camera*). Daramic cites the following as either "very high entry barriers" or "somewhat high entry barriers": 1) "scale-based benefits"; 2) "experience, learning effects"; 3) "capital requirements"; and 4) "value of reputation, brand." (PX0265 at 011, *in camera*).

930. In its Corporate Strategy Workshop report, Daramic acknowledges that experience and learning effects, which are related to know-how, create a high barrier to entry, both at the time the report was prepared and in the future. (Hauswald, Tr. 804-05, *in camera*; PX0194 at 025, *in camera*). Daramic also admits that capital requirements provide a somewhat high barrier to entry for servicing large battery manufacturers, both at the time of the report and in the future. (Hauswald, Tr. 805, *in camera*; PX0194 at 025, *in camera*). In addition, Daramic states that the value of reputation and brand is a very important barrier to entry, and will continue to be somewhat important in the future. (Hauswald, Tr. 805; PX0194 at 025, *in camera*).

b. Patents

931. The patent for PE separator technology expired in the 1980s and general PE separator technology is not currently patent-protected. (Whear, Tr. 4679; Toth, Tr. 1626).

932. CellForce technology and Daramic HD technology are patent-protected. CellForce is patent-protected until 2019. Daramic HD is patent-protected for approximately two more years. (RX0741 at 015; Gilchrist, Tr. 382; PX2300 (Heglie, IHT at 119), *in camera*; Whear, Tr. 4801). Daramic also has a patent on Daramic CL (Clean Oil). (PX2161).

933. Daramic considers its Jungfer manufacturing process technology, which has unique features related to solvent consumption and extraction, to be valuable intellectual property and a trade secret. Daramic had sued Microporous in part to try to keep it from using the Jungfer process for the automotive business, claiming that the process was a Daramic trade secret. (Hauswald, Tr. 1153-55; PX2241 at 007, *in camera*).

934. Microporous considered the design specifications for its production lines to be confidential and proprietary. These design specifications can reveal production capacities, which Microporous did not want its competitors to know. (Gaugl, Tr. 4612; PX0905 (Gaugl, Dep. at 77), *in camera*; PX0590 (Gaugl, Arb. Dep. at 158-59, *in camera*)). Microporous had its machine suppliers sign non-disclosure agreements that prevent the machine suppliers from giving the specifications of the machines that it was ordering to Microporous' competitors. (Gaugl, Tr. 4612). Daramic also protects its PE line equipment specifications and considers these specifications Daramic's intellectual property. (PX0924 (Jensen, Dep. at 024-25, *in camera*)).

2. Know-how

a. Design and construction of production lines

935. Learning how to build a PE battery separator line is an ongoing process where you learn day-by-day. (Gaugl, Tr. 4591). The process is modified as defects and problems are discovered, so that each new line should be better than the prior lines. (PX0907 (Kung, Dep. at 100), *in camera*).

936. Practical experience obtained while working at a company that manufactures PE battery separators is another source of knowledge that is helpful in learning how to develop a PE production line. (PX0907 (Kung, Dep. at 98-100), *in camera*).

937. Mr. Kung, of BFR (Baoding Fengfan Rising Battery Separator Co., Ltd.) has refined his designs for a PE separator production line over the years. (RX0050 at 004, *in camera*; PX0907 (Kung, Dep. at 100), *in camera*). Mr. Kung said, "after

running for a couple of years you always can find out some kind of problem you have or defect you have. So you just modify them. That is the nature of it. So each [time] you build a new one, it's better than the other one." (PX0907 (Kung, Dep. at 100), *in camera*).

938. Prior to designing and starting up the line for Microporous in Piney Flats, Tennessee, Mr. Gaugl had previously designed and started up four other PE battery separator lines – two for Global Industries in South Korea; one for Baotou in the province of Inner Mongolia in China; and one for Jungfer in Jungfer's Feistritz, Austria facility. (Gaugl, Tr. 4532-34). By the time Mr. Gaugl became responsible for the Microporous line in Piney Flats, Tennessee, he had five years' experience setting up PE production lines. (Gaugl, Tr. 4543).

939. The manufacturing process for making PE separators "is not available to everybody." (Gaugl, Tr. 4547). Only Mr. Gaugl, James Kung of BFR, two former Jungfer employees – Dr. Winkler and Mr. Duya – and "certain people at Daramic as well as at Entek" could also put together and design a line. (Gaugl, Tr. 4642).

940. Creating a "turnkey PE line" involves installing all the necessary equipment, training all the personnel, then handing over control of the line to the operator. (PX0907 (Kung, Dep. at 9-10), *in camera*).

941. One person cannot create a turnkey PE line, because the process is too complicated. It requires a team of several members with prior experience in PE production. (PX0907 (Kung, Dep. at 27, 101), *in camera*). Engineers are required because the line has many different sections and many different manufacturing steps with each step needing a special technology. (PX0907 (Kung, Dep. at 101), *in camera*). For example, chemical engineering is needed for the production process, mechanical engineering for automation issues, mechanical engineering for equipment design, and environmental engineering to address environmental issues. (PX0907 (Kung, Dep. at 102), *in camera*).

942. {[redacted]} (Weerts, Tr. 4498-99, *in camera*).

943. Good engineering helps reduce PE separator manufacturing costs. (PX0907 (Kung, Dep. at 39-40), *in camera*).

944. When Daramic decided to relocate the Jungfer lines it had purchased from Austria to Thailand, it sent former Jungfer personnel from Austria who were familiar with

the equipment and had experience setting up PE lines of that type. (PX0924 (Jensen, Dep. at 20, *in camera*)). This experience was important to Daramic because it allowed for efficient installation of these lines, even though the Prachinburri facility had been operating one separator line since at least 2001 with local personnel. (PX0924 (Jensen, Dep. at 21, *in camera*)).

945. The lessons that Microporous learned from the early manufacturing of CellForce in Piney Flats, Tennessee were used when setting up the lines in Austria, so as to avoid making the same mistakes. (Gilchrist, Tr. 396-97).

b. Running a production line

946. The equipment needed to manufacture polyethylene separators includes an extruder, extractor, calender rolls, mixer, dryer and bulk handling equipment. (Gilchrist, Tr. 591-93).

947. Two to three people are required to run the assembly line. Additional personnel include supervisory personnel, lab backup, a maintenance crew and nondirect employees supporting the operation of the line. (Gilchrist, Tr. 602).

948. Workers on the line coordinate several different pieces of equipment with different functions. To ensure the product is formulated to the customer exact specifications, a worker must know how to set the proper conditions for pressures, temperatures and speeds. (Gilchrist, Tr. 395).

949. When Microporous bought the line from Jungfer for its Piney Flats plant (*see* F. 760), it sent workers over to Austria for training. Microporous also decided to hire the Jungfer engineer who designed the line, Peter Gaugl, as an "insurance policy" to get the line operating quickly and correctly. (Gilchrist, Tr. 395-96).

950. When Gaugl was setting up Microporous' Austrian lines, he hired a few former Jungfer employees which helped shorten the start-up period for the lines. One of the reasons for choosing Austria for Microporous' expansion plan was so that Microporous could hire former Jungfer employees who were familiar with PE battery separator production. (Gaugl, Tr. 4606).

951. Hiring skilled employees can shorten the start-up period for a new PE battery separator production facility by six months. Hiring skilled employees is advantageous because it quickens the start-up period, by eliminating months of training time. (Gaugl, Tr. 4606).

952. On August 6, 2008, a labor strike was declared at Daramic's Owensboro, Kentucky manufacturing facility. The Owensboro strike lasted 55 days. Production stopped and there were delays in meeting customers' needs. (Hauswald, Tr. 1071).

953. During the Owensboro strike, Daramic brought its own management and employees over from Europe to help run the Owensboro manufacturing lines. Notwithstanding the use of experienced personnel to run the production lines, the separators produced on those lines during the strike had "quality issues" and the "number of defects rose significantly." (Gillespie, Tr. 2986-92).

954. During the Owensboro strike, Daramic provided a wavy separator roll to Exide. (Gillespie, Tr. 2987-88; PX1407). Exide was dissatisfied with the wavy separators, but had no other qualified source of supply. (Gillespie, Tr. 2988-90). Exide had no option but to use the wavy separators or face shutting down its battery manufacturing operations. (Gillespie, Tr. 2989-90). Using the wavy separators was a "big deal" for Exide in terms of manufacturability because the wavy separators caused variations in Exide's productivity level, costing Exide more money to run the product through Exide's battery production lines. (Gillespie, Tr. 2988-89).

955. Exide learned first hand lessons from Daramic's Owensboro strike. The strike demonstrated to Exide that manufacturing separators takes more than turning a switch, as experienced Daramic employees were unable to run their own product, with their own designs, without encountering considerable quality problems. (Gillespie, Tr. 2992-93).

956. EnerSys also received poor quality separators from Daramic during the Owensboro strike. A lot of material was out of specifications in a variety of ways. (Burkert, Tr. 2332). EnerSys had no choice but to accept the poor quality material, since it did not know how long it would take Daramic to replace it. (Burkert, Tr. 2332). These quality issues cost EnerSys money in terms of efficiency losses at the plants and, EnerSys anticipates, quality issues will show up through warranty returns on batteries. (Burkert, Tr. 2339). EnerSys estimates that these issues cost it $1.4 million in costs, which amounts to approximately $3.2 million in revenues. (Burkert, Tr. 2339).

957. Having personnel skilled in producing rubber separators was important to Daramic in its acquisition of Microporous, because the rubber market was a new market and a new technology for Daramic. (Hauswald, Tr. 784-85, *in camera*).

958. PE battery separator plants make continuous improvements in efficiency and quality. A PE battery separator producer that has gone through several steps of continuous improvement will definitely be better than a firm just starting up into the production of PE battery separators. (Gaugl, Tr. 4605).

c. Technical expertise

959. The battery separator manufacturing technology of making microporous membranes is a very complicated technology. (PX0907 (Kung, Dep. at 39-40), *in camera*).

960. A new entrant would need a good technical team to redesign and improve PE separator products, and thereby make a cheaper and better product, in order to compete with large firms such as Daramic and Entek. (PX0907 (Kung, Dep. at 39-40, 107), *in camera*).

961. One of the reasons EnerSys declined to get involved in {[redacted]} EnerSys saw providing capital to an entity without expertise in the PE market as too high a risk. (Axt, Tr. 2305-06, *in camera*).

962. A supplier's technical expertise is important to EnerSys, for innovation, customer support, and collaborative engineering. (Axt, Tr. 2109-10).

963. Mr. Kung has been training the engineering team at BFR since 2001 and he believes they are {[redacted]} (PX0907 (Kung, Dep. at 103, 106-07), *in camera*).

3. Scale

964. Daramic recognizes the economies of scale in the battery separator industry, stating that "cost/unit declines w/scale, spreads fixed costs over more units," and that Daramic's large capacity gives it a competitive advantage. (PX0241 at 001, *in camera*). One of Daramic's strategies has been to {[redacted]} (RX1498 at 001, *in camera*).

965. At the time of the acquisition, Microporous' Piney Flats PE production line had a capacity of approximately 10 million square meters. In addition, at the time of the acquisition, Microporous had in place two more PE/CellForce lines installed and in pre-operational phase in its Austria facility, for a total capacity of approximately {[redacted]} million square meters of PE/CellForce capacity in 2008. (Gilchrist, Tr. 334-35; PX0174 at 012, *in camera*; PX0081 at 018, *in camera*). Furthermore, Microporous had purchased equipment for another PE line, to be added in May or June of 2008, which would have added more capacity. (F. 775-76; PX0920 (Gilchrist IHT at 58-59, *in camera*)).

966. An individual PE line with annual production capacity of 3 million square meters is "too small" to operate profitably because the profit margin of the battery separator industry is very small. (PX0907 (Kung, Dep. at 47), *in camera*) ("If you don't have big volume, you are not going to make any profit.").

967. When BFR was operating just two PE separator lines, its capacity of {[redacted]} because of the larger cost of investment to buy the land and to build the building and the lines. (PX0907 (Kung, Dep. at 61-62), *in camera*). {[redacted]

[redacted]} of its PE manufacturing operations. (PX0907 (Kung, Dep. at 68), *in camera*).

968. Daramic recognizes that its competitors and new entrants grow by adding small lines, and that they cannot earn the cost of capital on a large line due to the time needed to fill the capacity. (PX0241 at 001-02, *in camera*).

4. Reputation

969. Daramic recognizes that reputation is a barrier to entry. (PX0265 at 012, *in camera*).

970. EnerSys looks for a company with a good reputation, when evaluating a potential supplier. (Axt, Tr. 2108; Gagge, Tr. 2484).

971. EnerSys was willing to try Microporous' CellForce product because Microporous had a great reputation with EnerSys' European and former-Hawker personnel for customer focus, competitive pricing, and technical superiority. (Axt, Tr. 2127).

972. Exide perceived Microporous to have a very good reputation in the marketplace. (Gillespie, Tr. 3127, *in camera*).

5. Timing for entry

a. In general

973. The overall time required to obtain tangible assets such as those possessed by Microporous, including a product that worked and had been qualified by customers, a technical workforce that could troubleshoot and innovate, a business force that was effective at selling the product, a factory in the United States, and a soon-to-be-opened factory in Europe, and intangible assets such as those possessed by Microporous, including a favorable reputation with customers and the benefit of learning by doing, which is accumulated through having produced the product for a number of years, can be assessed either by summing up the times to obtain the ones that could not be obtained simultaneously (such as product development and product testing) or by examining past instances where a firm entered a market. Under either approach, entry would take at least several years. (Simpson, Tr. 3207-08, 3395, *in camera*). Further, Daramic's use of exclusive contracts can impede entry by depriving the entering firm of sales. (Simpson, Tr. 3209, *in camera*).

b. Building and running a production line

974. On average, it takes an experienced PE line builder approximately eighteen to twenty months to install a PE separator line in an existing facility. (Gaugl, Tr. 4543).

975. The average 18-month project of setting up a PE battery separator line includes: about two months to do the generic layout of the lines and the specification of the main equipment; about ten months to obtain the long lead-time items; approximately four months to install the equipment; and about two months to start-up and debug the lines. (Gaugl, Tr. 4543-44).

976. The average 18-month project of setting up a PE battery separator line ends at the 24-hour test run. (Gaugl, Tr. 4595). In the 24-hour test, the line must demonstrate that it is capable of producing "in spec" material (*i.e.*, material with the tensile strength, electrical resistance, and other characteristics required by the customer) at the required daily output, or "throughput." (Gaugl, Tr. 4539-40). The 24-hour test is to demonstrate the technical capabilities of the line. It is unrelated to whether one can make a commercial product at a competitive cost. (PX0905 (Gaugl, Dep. at 43-44)).

977. Passing the 24-hour test run does not mean that a new PE line will operate without problems. (Gaugl, Tr. 4595). Problems that occur after the 24-hour test are not always obvious at the time of the 24-hour test. (Gaugl, Tr. 4595). Any necessary debugging of new lines will continue after the 24-hour test. (Gaugl, Tr. 4594-95).

978. While two to three months is an average time for debugging, debugging can take up to four or five months. (PX0907 (Kung, Dep. at 132), *in camera*).

979. During the debugging period, PE product can be produced for sale to customers, but at a lower yield. A PE line contains many different pieces of equipment, and if one piece does not function correctly, it affects the functionality of other components. (PX0907 (Kung, Dep. at 134-35), *in camera*; Gaugl, Tr. 4585, 4594).

980. Peter Gaugl built the PE/CellForce line for Microporous in Piney Flats, Tennessee in 2000. (Gaugl, Tr. 4534). At the time he built the line in Tennessee, Mr. Gaugl was employed by Jungfer as a project engineer responsible for designing and starting up polyethylene battery separator lines for other companies. (Gaugl, Tr. 4531-32). Mr. Gaugl incorporated the lessons from previous lines he had designed and started up when designing and starting up later PE battery separator lines. (Gaugl, Tr. 4587).

981. In early 2001, Jungfer ran the 24-hour acceptance test for the line in Piney Flats, which showed that the equipment fulfilled the capacity and quality standards. (PX0590 (Gaugl, Arb. Dep. at 52-53), *in camera*).

982. The Piney Flats line encountered a number of problems, including machine breakdowns and electrical failures. (Gaugl, Tr. 4587-88, 4595). The Piney Flats line's electrical problems were not obvious at the time of the 24-hour test.

(Gaugl, Tr. 4595). In some cases, the problems with the Piney Flats line were identified months after the 24-hour test run. (Gaugl, Tr. 4594-95). Some of the problems that Mr. Gaugl discovered with the new line installed at Piney Flats occurred after the one-year warranty period given to Microporous by Jungfer. (Gaugl, Tr. 4596-97, 4599).

983. While the new Piney Flats line was producing good material when it was working, the electrical failures prevented the line, at times, from producing any material at all. (Gaugl, Tr. 4595).

984. Mr. Kung and his team of {[redacted]} assembled a turnkey PE line for {[redacted]} (PX0907 (Kung, Dep. at 25-27), *in camera*). That line had annual production capacity of {[redacted]} million square meters of PE separator material. (PX0907 (Kung, Dep. at 27, 34-35), *in camera*). It took eighteen months for Mr. Kung and his team to build that line for {[redacted]} (PX0907 (Kung, Dep. at 28), *in camera*).

985. Fully training a PE separator manufacturing line workforce takes approximately six months. (Gaugl, Tr. 4606-07).

986. Microporous began planning to build a new plant in Europe in early 1999. Although Microporous began working on a plan to build a stand-alone line in Europe in early 1999 to satisfy EnerSys' needs in Europe, Microporous did not pursue the plan seriously until approximately 2004 to 2005. (Gilchrist, Tr. 329-30).

987. A PE battery separator production line requires approximately 15 to 18 different pieces of equipment. Before Mr. Gaugl could order the equipment for Microporous' Austrian expansion, Mr. Gaugl had to design the layout and specifications for all the equipment for the line, including the connection points and controls between the individual machines on the line. (Gaugl, Tr. 4609-10). Mr. Gaugl designed the equipment to be installed in Austria in 2005. (PX0590 (Gaugl, Arb. Dep. at 102), *in camera*; Gaugl, Tr. 4609).

988. In January 2006, Microporous prepared a business plan detailing its planned expansion. The purpose of the business plan was to secure incentives and financing for the expansion from the Austrian government and local banks, respectively. (PX0611; PX0905 (Gaugl, Arb. Dep. at 128-29), *in camera*).

989. Microporous ordered the long lead-time items for its new lines in December 2006. These long lead-time items were those pieces of equipment that take from ten to twelve months to arrive, but are necessary to the installation. (Trevathan, Tr. 3600). The long lead-time items for a PE line include the dryers, extruders, and the calender systems. (Trevathan, Tr. 3600).

990. The construction of the plant building began in February 2007. Prior to the construction, Microporous spent nine to ten months obtaining approvals for the plant from local government authorities and environmental agencies. Additionally, it spent time obtaining financial incentives from the Austrian government. (Gilchrist, Tr. 329-31). Thereafter, the building was completed, and the manufacturing equipment was installed and tested. Within the first week after the acquisition, in March 2008, commercial product was being produced from the Feistritz plant. (Gilchrist, Tr. 333-35; Gaugl, Tr. 4603).

991. The Feistritz plant started operations on a regular schedule, reaching optimum efficiency in June 2008. (Gaugl, Tr. 4603-04).

992. However, as of January 2009, the Austrian facility was still going through a learning curve. (Gaugl, Tr. 4605).

6. Product development

993. Daramic's development of a deep-cycle separator took many years. (PX0433 at 001; PX0950 at 064, *in camera*). Daramic began testing different additives for a new deep-cycle separator as early as 1999. This project evolved over time, beginning with the development of Daramic DC, which went to market in 2002, and culminated in the development of Daramic HD. (F. 145; Whear, Tr. 4777-78). Daramic began testing Daramic HD in 2003, but it was not until 2005 that Daramic made its first commercial sales of Daramic HD. (F. 145; Whear, Tr. 4778).

994. In 2005, Daramic was making very little gross margin on Daramic HD because of the manufacturing costs and the market price it had to set in order to get customers to switch from Microporous' deep-cycle battery separators to Daramic HD. (PX0433 at 001).

995. The development of the CellForce product also took many years. (Gilchrist, Tr. 323). CellForce was initially developed by Microporous in 1995 to 1996 and the first samples were given to Trojan Battery in 1996 to 1997. (Gilchrist, Tr. 316-17, 324-25). that it obtained RX1029, *in camera*; h, Tr. ; a Beginning in early 2001, Microporous began producing CellForce on a production line at its Piney Flats facility. (Gilchrist, Tr. 321-22).

996. Microporous began making profits on its investment in CellForce in 2004, approximately two to three years after it began selling commercial quantities of CellForce to Hawker/EnerSys. (Gilchrist, Tr. 393; F. 1002).

997. In the late 1990's, U.S. Battery had discussions with Daramic about Daramic developing a deep-cycle battery separator. (Qureshi, Tr. 2014-15). U.S. Battery engaged Daramic in these discussions because there was no other competition to

Microporous and U.S. Battery believed the product could be produced at a lower cost. (Qureshi, Tr. 2016-17).

998. U.S. Battery's Nawaz Qureshi helped Daramic develop a deep-cycle battery separator. (Qureshi, Tr. 2015). He gave some technical suggestions and built test batteries for Daramic that contained Daramic separators and Flex-Sil separators, which both Daramic and U.S. Battery tested at their own facilities. (Qureshi, Tr. 2015-18).

999. Daramic recognized that U.S. Battery was "a key development partner" with respect to Daramic HD and its predecessor, Daramic DC. (PX0326 at 001; *see also* PX0681 at 001 ("a valuable partner in the qualification of Daramic products in the past – notably Daramic DC and Daramic HD"; PX0950 at 064, *in camera*).

1000. Amer-Sil attempted to develop a PVC separator known as "Amersleeve," which was a multilayer separator that could potentially be used in sleeve form. (PX0916 (Dauwe, Dep. at 46-47), *in camera*). Amer-Sil work on the Amersleeve development project lasted five or six years. (PX0916 (Dauwe, Dep. at 157-58), *in camera*). Amer-Sil discontinued work on the Amersleeve project in 2008 because the separator did not work and no customers were interested in purchasing it. (PX0916 (Dauwe, Dep. at 47), *in camera*).

7. Product testing

a. In general

1001. Testing typically involves testing both the separator material and battery performance using the material. Battery manufacturers generally provide customers with a warranty against material, workmanship and manufacturing defects for a period of time. If a battery has a bad component such as a separator, the warranty may require the manufacturer to replace the defective battery with a new battery. Failing to test a battery separator in the battery prior to sale is risky, since doing so increases the risk of warranty claims for quality issues. (PX0320 at 001; Whear, Tr. 4788-90; Benjamin, Tr. 3505; Wallace, Tr. 1965).

1002. Microporous began producing CellForce on the new production line at its Piney Flats facility beginning in early 2001. (Gilchrist, Tr. 321-22). Interested customers tested the product from Microporous' new PE/CellForce line before purchasing commercial quantities. It took more than a year for Hawker/EnerSys, the first CellForce customer, to complete its testing and approval process and begin buying commercial quantities. Trojan Battery, the second CellForce customer, began buying commercial quantities in 2002. (Gilchrist, Tr. 321-23, 325).

1003. Trojan Battery began testing CellForce in mid-1999 and qualified it in March 2001, but experienced shrinkage issues with the product and stopped ordering it in

August 2001. Ordering resumed in March 2002, when a solution to the shrinkage problem was found. (Gilchrist, Tr. 321-23, 325, 358-61; PX0450 at 005).

1004. At EnerSys, the process for testing and validating a new separator product involves preliminary material tests of separator samples, which are typically made in a laboratory, and final tests of production samples in actual batteries. The preliminary tests involve testing the separator material in puncture, shrinkage and electrical resistance tests, as well as analyzing its brittleness and composition, *i.e.*, particularly oil. (Gagge, Tr. 2484-87). If the separator samples pass these preliminary tests, EnerSys will request the potential supplier to provide production samples, *i.e.*, separators made on the supplier's production line. (Gagge, Tr. 2484-86).

1005. After receiving production samples from a potential separator supplier, EnerSys builds test batteries with the new separators. These test batteries undergo performance and battery life tests. The performance tests essentially analyze whether the battery with the new separator will generate the electrical current specified for the battery. The battery life tests are time-consuming because they are designed to determine whether the battery will perform well for the duration of the battery's warranty period. These tests involve placing the test batteries in a box that has an elevated temperature, which helps age the battery. (Gagge, Tr. 2484-89).

1006. After a separator is qualified by testing, a battery manufacturer must also make sure the separator can run on the battery manufacturing lines. (Gillespie, Tr. 2936; *see also* Gagge, Tr. 2488). Use of a new separator requires the battery manufacturer to understand and tweak the battery manufacturing machines to be able to run a different product. (Gillespie, Tr. 2936).

1007. Life-cycle testing and production testing can be conducted concurrently. (Gagge, Tr. 2507-08, *in camera*).

1008. A battery manufacturer will also test and qualify a separator when it switches the backweb thickness. (Leister, Tr. 4025).

1009. The process for qualifying product changes coming from an existing supplier takes less time than the process, such as that described in F. 1004-07, for qualifying the initial product. For example, after Daramic decided to switch HD production to Piney Flats from Owensboro in the spring of 2008, the product was first qualified by a customer less than one year later in February or March of 2009. (Trevathan, Tr. 3715-16). Similarly, when Daramic requested JCI in Europe to accept separators made in Daramic's United States facility, when there was a strike at Daramic's Potenza plant, JCI noted that OE qualification and approval would take "several months." (RX1150 at 003; *see also* RX0014 (Exide stating that OE's would require eight to twelve months to qualify European-made product for United States car batteries); RX1148 at 002 (noting qualification of

Daramic HD being produced out of Piney Flats would require only three to four weeks); RX1144 at 001-02 (testing of CellForce manufactured for EnerSys out of Festritz, in comparison to CellForce produced out of Piney Flats)).

1010. A battery manufacturer may be able to shorten battery life-cycle testing if it pays an outside firm to do the testing. (RX0007 (Exide expected to shorten original time-line of two years by sending industrial batteries out for testing)).

b. Motive and UPS product testing

1011. Full testing of battery separators in motive batteries takes two to three years to complete. (Whear, Tr. 4798; PX0568; *see also* Whear, Tr. 4813, *in camera*; PX0564, *in camera*).

1012. Motive and UPS battery separators undergo life-cycle testing for a period of two and a half years at EnerSys. This period is necessary for EnerSys to assure itself and be able to show its customers objective data that the battery will fulfill its warranties and perform as represented. EnerSys also needs data to show its customers to validate a switch in materials. (Gagge, Tr. 2490-91).

1013. Exide expects testing of industrial separators to take approximately two years. (Gillespie, Tr. 2973-74; RX0013 at 009; PX1090 at 004).

1014. Daramic believes that the costs associated with switching suppliers is "much higher" for customers purchasing industrial (motive or stationary) separators than it is for customers purchasing automotive separators. (PX0482 at 003).

c. Deep-cycle testing

1015. Life-cycle tests for deep-cycle batteries are conducted a few different ways. The Battery Council International ("BCI") sets testing standards for the rate of discharge. At Trojan Battery, life-cycle testing in the lab involves putting the battery on a discharge machine in a laboratory that runs automatically so that the battery cycles until the end of its life. Trojan Battery's machine gets one cycle per day. (Godber, Tr. 158-59). A cycle is the period between charge/discharge. (Qureshi, Tr. 2005-06).

1016. The time required to complete lab testing for deep-cycle batteries depends on how many cycles per day the battery goes through, and how many cycles are required before the battery will be approved. (Godber, Tr. 159-60 (six to seven-hundred cycles, with once per day cycling); Quershi, Tr. 2067-68 (can cycle two to four times per day, and battery can be approved after 750 cycles)). Trojan Battery completed lab testing and qualified Daramic HD for its low-line Pacer golf cart battery in approximately nine months. (Godber, Tr. 170-71).

1017. Exide's testing and qualification of deep-cycle battery separators typically takes between eighteen and twenty-four months. (Gillespie, Tr. 2934).

1018. Trojan Battery tests separators for use in its batteries in order to understand the life-cycle characteristics due to original equipment warranty requirements and to protect its brand. (Godber, Tr. 158). Trojan Battery conducts lab testing and also duplicates tests of the different OEMs to which it sells batteries. Trojan Battery also conducts field testing, which has been a requirement of its OEMs. (Godber, Tr. 158-59).

1019. In field testing, Trojan Battery will build a battery with a particular separator and then will go to a golf course and put the batteries in the golf carts at the course and follow the batteries during the course of their life. (Godber, Tr. 160). A field test for a separator generally is a two-year time frame to understand how the battery is going to perform in the field. (Godber, Tr. 159, 163). On a severe hilly course, field testing may be done in eighteen months because the discharge of the battery will be faster and the battery will degrade sooner. (Godber, Tr. 163).

1020. Field testing is expensive. Trojan Battery will typically conduct lab testing first and proceed to field testing or not, depending on the results of the lab tests. For example, Daramic DC was not put out for field testing by Trojan Battery. (Godber, Tr. 164-65). Trojan Battery began testing the CellForce separator in June 1999 for approval for a lower capacity golf cart, the T-605, and for a marine battery line. (Godber, Tr. 166). These two product lines were for aftermarket products. (Godber, Tr. 166). The field test was started after the life-cycle testing began, once Trojan Battery began seeing good results in the lab. The qualification process finished in March 2001. (Godber, Tr. 166-67).

1021. Trojan Battery ran into a shrinkage problem with CellForce on its marine product lines, shortly after it began selling the product. (Godber, Tr. 167-68). Trojan Battery decided to pull products with CellForce separators from the market. (Godber, Tr. 168). Microporous was able to resolve the shrinkage problem and the product was returned to market after some additional testing. (Godber, Tr. 168; F. 1003).

1022. Trojan Battery tested CellForce for aftermarket floor scrubber, scissor lift and boom lift batteries, and completed the testing for those applications in approximately twenty to twenty-two months. (Godber, Tr. 169-70).

1023. Daramic expected that testing of its separators for deep-cycle applications at Trojan Battery would take approximately two years. (PX2248 at 001, *in camera*, ("Trojan is 100% [Microporous], this is where we push our HD product, but qualification will take almost 2 years.").

1024. Daramic understood that battery manufacturers would require testing and qualification of its HD separator before HD would be accepted for commercial use. Daramic expected customer qualification of HD for use in deep-cycle batteries to take more than eighteen months. (PX0262 at 003).

d. SLI testing

1025. In general, completing testing for SLI separators takes less time than for other applications. Life-cycle testing for transportation battery separators can be expected to take up to nine months, and field testing to take one year. (RX0013 at 009; PX1090 at 003).

e. PVC testing

1026. Amer-Sil's PVC separators are not currently being tested by any battery manufacturer for use in North American battery manufacturing plants. (PX0916 (Dauwe, Dep. at 132)). Qualification of Amer-Sil's PVC separators for use in North America would take at least two years, as testing typically takes two years. (PX0916 (Dauwe, Dep. at 163-64), *in camera*).

8. Actual and potential entrants

a. Entek

1027. Entek is not currently selling separators in the deep-cycle, motive or UPS markets. (F. 382-83, 392-93, 403, 421, 1029-30, 1040). Entek has essentially exited the industrial side of the business. (Balcerzak, Tr. 4097; Burkert, Tr. 2311).

1028. Entek is unlikely to expand to enter these markets in North America within the next two years. (F. 1029-48).

1029. Entek is principally a producer of SLI. (Weerts, Tr. 4492, *in camera*). Entek used to sell separators for industrial applications in the 1990's. Entek's strategy {[redacted]} {[redacted]} Less than 1% of Entek's business is in the industrial segment. (Weerts, Tr. 4502-03, 4526-27, *in camera*).

1030. Entek believes it is more difficult to run industrial product than SLI because of the thicker backweb profiles, leading to problems such as blisters and pinholes. In addition, Entek believes that the profile of industrial material, including the rib height in relation to the backweb, requires a slower extraction process, which decreases output. (Weerts, Tr. 4515-16, *in camera*).

1031. Crown Battery asked Entek to provide material for Crown's golf cart batteries. At the time of the adjudicative hearing, Entek had yet to provide any samples to Crown Battery. (Balcerzak, Tr. 4130-31, 4138-39).

1032. Entek declined a request by Bulldog Battery that Entek supply Bulldog Battery with separators for motive application. Entek has never approached Bulldog Battery about supplying Bulldog Battery with separators for motive application. Bulldog Battery did not follow up with Entek because it believed it was pointless to do so. (Benjamin, Tr. 3519-21).

1033. It is Exide's understanding that Entek has little interest in making separators for motive or stationary applications. If Entek were to enter these markets, {[redacted]} (Gillespie, Tr. 3037, 3040, *in camera*; Weerts, Tr. 4488-90, *in camera*).

1034. Entek did not {[redacted]} (Weerts, Tr. 4505, *in camera*).

1035. In November 2008, {[redacted]} These caveats constitute big issues for Exide. (Gillespie, Tr. 3129-30, *in camera* (the caveats are "not molehills; these are mountains"); Weerts, Tr. 4509, *in camera*; PX1902 at 001, *in camera*). For example, Exide does not have problems with black scum on the separators that it purchases from Daramic. (Gillespie, Tr. 3136, *in camera*).

1036. {[redacted]} (Weerts, Tr. 4488-99, *in camera*). {[redacted]} (Gillespie, Tr. 3126-27, *in camera*).

1037. As of the time of trial, {[redacted]} (Gillespie, Tr. 3040, *in camera*; Weerts, Tr. 4507-09, *in camera*). {[redacted]} (Weerts, Tr. 4509, 4527, *in camera*).

1038. {[redacted]} (Gillespie, Tr. 3037-38, *in camera*).

1039. {[redacted]} (Weerts, Tr. 4521, *in camera*).

1040. Entek used to supply EnerSys with motive separators during the 1990's, but Entek exited that business. (Burkert, Tr. 2311).

1041. As part of EnerSys' ongoing effort to find additional suppliers for industrial separators, it approached Entek at the 2008 BCI conference that took place soon after the acquisition. EnerSys believed the best approach to obtaining another supplier was to find a supplier that was already making separators and try to convince them to get into the industrial market. Entek expressed interest, so while Mr. Burkert of EnerSys was at the Entek booth at the BCI conference, he had his office email the Entek representative a draft Non-Disclosure Agreement ("NDA") for his signature as a prelude to discussions. (Burkert, Tr. 2351-52, *in camera*). Despite numerous emails and telephone calls by EnerSys to follow up with Entek, EnerSys never received a signed NDA back from Entek. When Mr. Burkert approached an Entek representative in another industry conference in Europe, he got the impression that Entek was not interested. (Burkert, Tr. 2352-53, *in camera*).

1042. Shortly before the adjudicative hearing, {[redacted]} (Burkert, Tr. 2446-48, 2354-55, *in camera*).

1043. EnerSys does not have any plans to order PE separators for its batteries from {[redacted]} (Burkert, Tr. 2357, *in camera*).

1044. If EnerSys received preproduction samples of {[redacted]} material today, it would do {[redacted]} preliminary testing. (Gagge, Tr. 2522, *in camera*). If those samples worked, EnerSys would get production samples and test those on the motive side for {[redacted]} (Gagge, Tr. 2522, *in camera*).

1045. JCI has had discussions with Entek about possibly supplying deep-cycle separators. As of the time of the adjudicative hearing, Entek had not yet provided any samples to JCI. (Balcerzak, Tr. 4130-31, 4138-39).

1046. {[redacted]} (Hall, Tr. 2747, 2874, *in camera*; RX0072, *in camera*).

1047. To enter the deep-cycle battery separator market at a level sufficient to restore the pre-acquisition competitive environment, {[redacted]} would need to develop a reliable product, modify its production line, get qualified by customers, and then gain the learning by doing necessary to be efficient. (Simpson, Tr. 3408, *in camera*).

1048. Entek is unlikely to enter either the deep-cycle or industrial markets in a way that would counter anticompetitive effects of the acquisition. (Simpson, Tr. 3195-96, *in camera*).

1049. {[redacted]} (Hall, Tr. 2749, 2825, *in camera*; Weerts, Tr. 4480, *in camera*). {[redacted]} (Hall, Tr. 2820, *in camera*).

1050. {[redacted]} (Gillespie, Tr. 3024-25, *in camera*; Simpson, Tr. 3442, *in camera*).

b. Amer-Sil

1051. Amer-Sil produces PVC separators for European flooded motive and stationary batteries, and does not produce PE separators. (F. 443). It is not a participant in the relevant markets. (F. 350, 352). Amer-Sil is not likely to enter the relevant markets in North America within the next two years. (F. 351, 353, 1052-56).

1052. PVC is generally not used as separators for motive batteries in North America. (Axt, Tr. 2102).

1053. Amer-Sil has {[redacted]} (PX0916 (Dauwe, Dep. at 115, 117, *in camera*)). {[redacted]} (RX1620 at 002).

1054. {[redacted]} (PX0916 (Dauwe, Dep. at 89-90), *in camera*; Burkert, Tr. 2451, 2355-56, *in camera*; RX1621). {[redacted]} (Burkert, Tr. 2356, *in camera*). {[redacted]} (Burkert, Tr. 2355-56, *in camera*).

1055. Amer-Sil ultimately concluded that {[redacted]

[redacted]} (PX0916 (Dauwe, Dep. at 94-95), *in camera*; RX1620 at 002). Amer-Sil's owners thought {[redacted]} (PX0916 (Dauwe, Dep. at 94), *in camera*).

1056. EnerSys does not have any plans to order PE separators for its batteries from Amer-Sil. (Burkert, Tr. 2357, *in camera*).

c. Asian manufacturers

(i) In general

1057. Most Chinese battery manufacturers are "very small" and their PE separator order volumes are similarly very small. (PX0907 (Kung Dep. at 69-71, *in camera*)). The manufacturing costs involved in serving smaller customers and making multiple tooling changes make it disadvantageous to construct a high-volume (*e.g.*, 20 million square meter annual production capacity) PE line in China. (PX0907 (Kung, Dep. at 116-17, *in camera*)).

1058. Asian battery separator manufacturers have been expanding their capacity. (Thuet, Tr. 4333). Demand for battery separators within Asia is also expanding. Daramic estimated that demand in the Asian Pacific market was growing at the rate of 10% per year. (RX1050 at 005, 007, 015, *in camera*; *see also* PX0907 (Kung, Dep. at 143), *in camera*). Asia is a net purchaser of battery separators. (PX0907 (Kung, Dep. at 147), *in camera*).

1059. It would take approximately six to eight weeks for separators from China to arrive in the United States by ship. (F. 289). The longer supply chain from China to North America means more potential points of disruption, and potentially longer resulting delays in delivery. With local supply, disruptions are dealt with in "hours and days," as opposed to potentially longer delays when dealing with a supply chain stretching halfway around the world. This potentially amounts to the difference between shutting a plant down for an hour or for a month. The shorter length of the supply chain is a factor giving Microporous an advantage over Asian suppliers. (Gillespie, Tr. 3034-35, *in camera*).

1060. Exide typically compensates for the risk of a lengthy supply chain by seeking cost savings from offshore suppliers. Exide has a general rule that it will only outsource supply offshore if it can get the outsourced product for {[redacted]} than local supply. The {[redacted]} compensates Exide for the "risk or headache that you have to go through by elongating that supply chain." (Gillespie, Tr. 3036, *in camera*). Exide found that the cost of obtaining products from Asian suppliers was higher than Exide's current suppliers. (F. 1084; Gillespie, Tr. 3031, *in camera*).

1061. Exide has {[redacted]} (Gillespie, Tr. 5823, *in camera*).

1062. Daramic knows of no Asian manufacturer that has ever supplied PE or PE/rubber separators for flooded batteries to any North American battery manufacturer. (Roe, Tr. 1236).

1063. It is unlikely that the Asian suppliers, including Anpei, Baotou, NSG and BFR, discussed in F. 1064-78, *infra*, would enter the North American market within two years. (F. 1064-1112; PX0033 (Simpson Report) at 022-23, *in camera*).

(ii) Anpei

1064. Anpei does not currently make either UPS or motive separators. (Axt, Tr. 2217-18, *in camera*).

1065. Daramic rated Anpei as {[redacted]} for technology performance, technology processibility, and technology quality, whereas it considered itself {[redacted]} in those three categories. (PX0265 at 016, *in camera*).

1066. Mr. Kung is familiar with the engineering capabilities at Anpei because he trained the engineers who are still there. (PX0907 (Kung, Dep. at 279, *in camera*). He also maintains contact with {[redacted]} (PX0907 (Kung, Dep. at 51-53, *in camera*)). Anpei's technical team is {[redacted]} when judged by American standards. (PX0907 (Kung, Dep. at 49-50, *in camera*)).

(iii) Baotou

1067. Baotou had a PE manufacturing line in Mongolia. Its remote location far from any battery manufacturer customers is a "big disadvantage," creating difficulties in shipping its product. (PX0907 (Kung, Dep. at 110, *in camera*)). Baotou {[redacted]} (PX0907 (Kung, Dep. at 120, *in camera*)). At that time, {[redacted]} (PX0907 (Kung, Dep. at 119-20, *in camera*)).

(iv) NSG

1068. Nippon Sheet Glass (NSG) is a separator manufacturer located in Japan. (Gillespie, Tr. 2963). In July 2006, NSG had expressed interest in supplying PE separators to Exide. (PX1073 at 001).

1069. NSG declined to quote on Exide's RFP. In July 2007, NSG informed Exide that it did not have capacity to service new customers of PE separators from its Japanese facility. NSG stated that it had sold a majority interest of its PE separator facility in Tianjin, China to Daramic, in order to focus NSG's business on its core competency in AGM separators. With the sale, "Daramic has the management authority to decide product mix and customer pricing" for Tianjin, and NSG suggested that Exide contact Daramic for a quote on supply from Tianjin. Since declining to quote, NSG has not approached Exide about possible supply of PE separators. (Gillespie, Tr. 2963-65; PX1079).

(v) BFR

1070. BFR manufactures PE separators for use in automobiles, motorcycles and trucks. (PX0672 at 002, *in camera*; PX0907 (Kung, Dep. at 85-86, *in camera*)). {[redacted]} (RX0061, *in camera*).

1071. BFR's first line was constructed in 2001, with a capacity of between 3 and 4 million, at a cost of approximately $1 per square meter. (PX0907 (Kung, Dep. at 54, 61), *in camera*).

1072. Currently, BFR operates four production lines. (Hauswald, Tr. 1033-34). BFR currently has approximately {[redacted]} square meters of capacity. (RX0032, *in camera*; PX0672 at 001, *in camera*; Hall, Tr. 2769, 2837-38, 2860, *in camera*).

1073. To date, BFR has {[redacted]} The BFR Board has {[redacted]} Nor has the BFR Board {[redacted]} (Hall, Tr. 2880-81, *in camera*).

1074. BFR {[redacted]} (PX0907 (Kung, Dep. at 263, *in camera*)). BFR has not had {[redacted]} (Hall, Tr. 2880-81, *in camera*).

1075. {[redacted]} (Hall, Tr. 2771-74, *in camera*).

1076. Variability in elongation causes runnability issues at battery manufacturing plants by jamming up machines. (Hall, Tr. 2772, *in camera*). Problems related to elongation add extra costs for battery manufacturers. (Hall, Tr. 2774-76, *in camera*).

1077. JCI's Shanghai production facility also {[redacted]} (Hall, Tr. 2774, *in camera*).

1078. Daramic has never competed with BFR for business in North America. (Roe, Tr. 1807; PX0907 (Kung, Dep. at 186-187, *in camera*)).

(vi) Views of North American customers

(a) Exide

1079. Exide has "extensively looked around the world" for alternative suppliers of automotive battery separators. (Gillespie, Tr. 2962). Exide's search for alternate suppliers has included the hiring of a third party to help find potential suppliers in Asia, issuing a request for proposal ("RFP"), and trips by Exide personnel around the world. (Gillespie, Tr. 2962, 3022-23, *in camera*).

1080. Exide has not found any manufacturers in China or elsewhere in Asia that could make the motive and stationary separators that Exide needs for its flooded lead-acid batteries. (Gillespie, Tr. 3041, 3049, *in camera*).

1081. Exide identified {[redacted]} as the {[redacted]} most promising Asian suppliers that could potentially supply PE SLI separators to Exide in the future. (Gillespie, Tr. 3023, 3041, *in camera*). Exide has conducted some preliminary lab tests on swatches of material produced by the {[redacted]} Asian suppliers it identified as potential suppliers. (Gillespie, Tr. 3023, *in camera*).

1082. Exide's understanding of both {[redacted]} based upon complete company profiles it obtained, is that neither company has the technology necessary to produce six millimeter separators. Exide also believes that {[redacted]} Exide would need. One of the profiles Exide procured reported that {[redacted]} defective rate, which is "pretty bad." "Defective," in this context, means the separators do not conform to the buyer's specifications. (Gillespie, Tr. 3025-27, *in camera*; RX0306 at 004, *in camera*).

1083. Based on preliminary lab testing of material swatches, Exide narrowed its list of {[redacted]} potential Asian suppliers, {[redacted]} down to {[redacted]} and ordered a sample roll for the purpose of conducting performance testing for SLI battery applications. Exide believes that the amount of testing that would need to be done is such that it would be more than a year before it had an indication of whether the separators could be put into production. (Gillespie, Tr. 3023-24, 3041, *in camera*).

1084. Even if the {[redacted]} qualify for use at Exide, there are a number of other issues that would need to be resolved before Exide would use {[redacted]} (Gillespie, Tr. 3024-25, *in camera*). The pricing that Exide has received from {[redacted]} higher than the prices Exide is currently paying Daramic, including transportation, but not including taxes. (Gillespie, Tr. 3024-25, 3029, *in camera*).

1085. In considering {[redacted]} as a potential supplier, Exide considers {[redacted]} to pose a risk. Exide is concerned that {[redacted]} Exide also considers {[redacted]} as adding risk to the supply chain. (Gillespie, Tr. 3024-25, *in camera*).

1086. Exide is concerned also because {[redacted]} (Gillespie, Tr. 3024, *in camera*).

1087. Exide does not foresee buying {[redacted]} in the next two years. (Gillespie, Tr. 3025, *in camera*).

1088. Based upon its evaluation of Asian suppliers, Exide does not see any of the Asian suppliers as being on equal footing competitively with what Exide knew Microporous to be before it was acquired by Daramic. (Gillespie, Tr. 3028-30, *in camera*). In Exide's view, Microporous was better situated than all of the potential Asian suppliers in terms of cost, quality, proximity of manufacturing facilities, and technology. (Gillespie, Tr. 3028-36, *in camera*).

1089. It has been Exide's observation when visiting Asian manufacturing operations that the infrastructure, technology and "know-how" is not present in the manufacturing operations of Asian suppliers. (Gillespie, Tr. 3031-32, *in camera*). The majority of separators manufactured in Asia are manufactured for batteries in the Chinese market. Asian manufactured separators do not meet the standards of American consumers for American cars, or the standards for Europe. (Gillespie, Tr. 3032, *in camera*).

(b) EnerSys

1090. EnerSys has had discussions {[redacted]} about supplying industrial separators. EnerSys requested and received {[redacted]} (RX0222, *in camera*; Axt, Tr. 2217-18, 2272, *in camera*). {[redacted]} (Axt, Tr. 2218-19, *in camera*).

1091. EnerSys has also found there to be language barriers to dealing with {[redacted]} (Gagge, Tr. 2500, *in camera*).

1092. EnerSys is currently in discussions with {[redacted]} about getting production tooling in order for them to generate production samples for testing. (Gagge, Tr. 2499-2500, *in camera*). {[redacted]} has been unable to find calender rolls. EnerSys wants to go forward with {[redacted]} EnerSys is working to locate a source of {[redacted]} (Burkert, Tr. 2360, *in camera*).

1093. If {[redacted]} gets a calender roll, it will be a minimum of two and a half to three years before {[redacted]} could actually supply EnerSys with product. (Burkert, Tr. 2360, *in camera*).

1094. EnerSys and {[redacted]} (Hall, Tr. 2849-50, *in camera*; RX0059, *in camera*). {[redacted]} (Hall, Tr. 2881-82, *in camera*).

1095. EnerSys has conducted preliminary materials testing on automotive separator samples provided by {[redacted]} The materials passed this preliminary materials testing. (Burkert, Tr. 2388, *in camera*).

1096. {[redacted]} initial pricing to EnerSys was approximately {[redacted]} higher than Daramic's. When shipping and tax are added in, the prices would be approximately {[redacted]} higher than those of Daramic. Based on EnerSys' research, "the pricing out of Asia would still be higher than the proposed Daramic increase {[redacted]} (Axt, Tr. 2217-18, 2220, *in camera*).

1097. Because {[redacted]} do not have experience making motive or UPS separators, EnerSys anticipates that it will take at least six months for these companies to get the necessary calender rolls in place. (Axt, Tr. 2218, *in camera*; *see also* Gagge, Tr. 2499, *in camera*).

1098. {[redacted]} estimated that it would cost {[redacted]} million to build an industrial PE line with the {[redacted]} million square meter capacity needed by EnerSys, and that it needed to acquire land and have a building to house the line. {[redacted]} estimated that it would cost from {[redacted]} million to modify an old line to an industrial separator line that could produce about {[redacted]} million square meters of separators per year. (RX0027, *in camera*).

1099. [redacted] } (Axt, Tr. 2218, *in camera*). If [redacted] } appropriate calender roll, [redacted] } before [redacted] } could begin ordering industrial product from [redacted] } (Burkert, Tr. 2443, 2360-62, *in camera*; Gagge, Tr. 2498-99, *in camera*).

1100. EnerSys does not consider [redacted] } or [redacted] } to be on the same footing as Microporous was prior to the acquisition. (Burkert, Tr. 2362-63, *in camera*). In addition, EnerSys is concerned about supply chain with [redacted] } including the distance, the amount of material it would have to stock, potential for interruptions in shipments, weather delays and other interruptions in supply. (Burkert, Tr. 2364-65, *in camera*).

1101. EnerSys perceives there to be "no comparison" between Microporous, and [redacted] } and [redacted] } [redacted] } and [redacted] } are Chinese automotive PE suppliers that support the Chinese automotive market. While these Chinese companies are developing and improving, "it's like comparing a Chevy to a Cadillac. [Microporous] was . . . state of the art, very innovative, with a strong management team." (Axt, Tr. 2221, *in camera*).

1102. EnerSys had qualified Microporous' motive product, and was working with Microporous regarding UPS, although Microporous was not totally qualified. [redacted] } are just "getting started" with the qualification process for EnerSys. (Axt, Tr. 2222, *in camera*). In addition, because [redacted] } are located in [redacted] } there are logistical issues for EnerSys such as additional transportation costs and times, duties, and extra inventory. (Axt, Tr. 2223, *in camera*).

1103. EnerSys believes that, other than [redacted] } does not have the technical expertise in making separators, setting up lines, and handling technical issues. If [redacted] } EnerSys would consider [redacted] } to be on "shaky ground." (Burkert, Tr. 2363-64, *in camera*). [redacted] } [redacted] } at 92, *in camera*)).

1104. EnerSys does not consider [redacted] } to be on the same footing as Microporous was prior to the acquisition, and considers [redacted] } "shaky at best as far as options." (Burkert, Tr. 2363, *in camera*). Among EnerSys' concerns are the logistical problems arising from the long distance, that [redacted] } technical personnel do not speak English, that [redacted] } lacks technical expertise, and that [redacted] } was unable on its own to find someone to make the necessary calender rolls. (Burkert, Tr. 2363, 2366, *in camera*).

1105. EnerSys is not planning on buying PE separators for flooded lead-acid batteries for North America from [redacted] } After doing research and engaging in further discussions, EnerSys came to the conclusion that {[redacted]} (Burkert, Tr. 2359, *in camera*).

1106. EnerSys made attempts to contact a company {[redacted]} by mail, email, and phone, for potential supply, but never received any response from the company. (Burkert, Tr. 2359, *in camera*). EnerSys is not planning on doing business with {[redacted]} (Burkert, Tr. 2360, *in camera*).

1107. EnerSys does not know of any company that is on an equal footing with the pre-acquisition Microporous or Daramic today, with respect to UPS and motive battery separators, and does not know of any entity that will be the equivalent of the pre-acquisition Microporous or Daramic in the next two years. (Burkert, Tr. 2366-67, *in camera*).

(c) East Penn Battery

1108. East Penn Battery requested and obtained a quote for the sale of PE separators from Anpei. (Leister, Tr. 3992). East Penn Battery has tested PE material samples from Anpei. (Leister, Tr. 3992; RX0079). East Penn Battery approved an Anpei separator for use in a small-engine battery, similar to a lawn mower battery. (Leister, Tr. 4032-33).

1109. If the PE separator industry were to change such that East Penn Battery could not obtain supply from its current PE suppliers, East Penn Battery would consider Anpei as an alternative supplier. (Leister, Tr. 3993).

1110. East Penn Battery is not currently seeking to obtain PE separators from any Asian PE separator manufacturers. East Penn Battery does not know if Anpei has the available capacity to supply East Penn Battery with separators. (Leister, Tr. 4032, 4035-36). East Penn Battery believes that obtaining PE separator supply from Anpei in Asia would be a logistical challenge that is even greater than what East Penn Battery is experiencing with its current supply situation with Entek. Obtaining supply from Entek's West Coast manufacturing facility creates problems for East Penn Battery, with long lead-times and added freight charges. (Leister, Tr. 4008-09, 4035).

(d) JCI

1111. JCI considers {[redacted]} (Hall, Tr. 2745-46, 2862, *in camera*; RX0043, *in camera*; PX1509 at 004-09, *in camera*). JCI has not {[redacted]} (PX0672 at 006, *in camera*). JCI is {[redacted]} (Hall, Tr. 2862, *in camera*).

(e) Douglas Battery

1112. It is unlikely Douglas Battery would look to offshore separator supply, even if the domestic price of motive separators were to increase by 5%. Douglas Battery has a preference for local supply. (F. 309; Douglas, Tr. 3080, 4082).

9. Vertical integration

1113. JCI has not considered building its own separator manufacturing lines to manufacture separators for internal use. (Hall, Tr. 2703). Nor does JCI believe it has the competency to build and run a separator manufacturing line on its own. (Hall, Tr. 2703).

1114. {[redacted]} (RX0073, *in camera*; Hall, Tr. 2826-28, *in camera*).

1115. {[redacted]} (Weerts, Tr. 4479-80, *in camera*; Hall, Tr. 2819-20, *in camera*). The purpose of {[redacted]} (Hall, Tr. 2749, *in camera*; Weerts, Tr. 4480, *in camera*).

1116. Exide used to manufacture separators at a facility it owned in Corydon, Indiana. In 1999, Exide sold that facility to Daramic. (RX0899; Gillespie, Tr. 2983). Exide does not intend to go back into the business of manufacturing battery separators, which it considers outside its "core competency." (Gillespie, Tr. 2983-84).

1117. Trojan Battery investigated installing a Flex-Sil line near Trojan Battery's manufacturing facility in Sandersville, Georgia. It began its consideration before the acquisition, but investigated it much more after the acquisition. Trojan Battery determined that the equipment would cost approximately $8 million. Trojan Battery determined that it did not have the right personnel for the manufacturing process, which it believes is unique. After it considered the cost, the resources required to run the line, as well as the current economic situation, Trojan Battery chose not to pursue vertical integration. (Godber, Tr. 229-31).

1118. Bulldog Battery believes that it is not practical for it to manufacture its own motive separators. Based on internal discussions and discussions with sales representatives from Microporous and Daramic over the years, Bulldog Battery has concluded that it lacks know-how needed to manufacture separators, including knowledge of the compounds used and the methodologies for controlling porosity and curing the separator material. Additionally, Bulldog Battery believes that the equipment and tooling needed to manufacture separators would require a big investment, which would be difficult for it to justify. (Benjamin, Tr. 3527-29).

1119. After the acquisition, Mr. Craig of EnerSys had a brief conversation with {[redacted]} EnerSys {[redacted]} (Craig, Tr. 2625, 2643-45, *in camera*). {[redacted]} (Craig, Tr. 2644, *in camera*; *see also* Burkert, Tr. 2365-66, *in camera* ([redacted]). EnerSys would not put money in to {[redacted]} (Burkert, Tr. 2463, *in camera*).

1120. Sebang is located in Korea. It has two lines with approximately {[redacted]} square meters of capacity. Sebang primarily produces separators for its mother company through a vertical integration arrangement. However, Sebang also sells to the general marketplace. (Seibert Tr. 4264-65, *in camera*; Thuet, Tr. 4331).

10. Sponsored entry

1121. {[redacted]} (PX0907 (Kung, Dep. at 59), *in camera*; RX0053, *in camera*). {[redacted]} (RX0050 at 004, *in camera*). {[redacted]} (RX0053, *in camera*; RX0052, *in camera*; Hall, Tr. 2715-16). {[redacted]} (Hall, Tr. 2716). {[redacted]} (RX0032, *in camera*).

1122. {[redacted]} (RX0073 at 001; Hall, Tr. 2826-28, *in camera*).

1123. {[redacted]} (F. 734).

1124. EnerSys considered {[redacted]} (Axt, Tr. 2113, 2305-06, *in camera*; Burkert, Tr. 2450-51, *in camera*).

1125. East Penn Battery has never considered investing capital in an Asian supplier of PE. (Leister, Tr. 4036). East Penn Battery does not have any current plans to enter a joint venture with any battery separator manufacturer or to sponsor the entry of any battery separator manufacturer. (Leister, Tr. 4036-38). Nor does East Penn Battery have any plans to vertically integrate and manufacture separators in-house. (Leister, Tr. 4038).

1126. Exide has never considered entering a joint venture with any separator manufacturer. (Gillespie, Tr. 2984). Nor is Exide interested in investing money into a battery separator manufacturer. (Gillespie, Tr. 2984-85). Exide's discussions with Microporous regarding Microporous' supplying Exide with SLI separators required that Microporous would shoulder the investment costs. (Gillespie, Tr. 3088).

G. Microporous' financial position prior to the acquisition

1127. Over the three years prior to the acquisition, Microporous' sales had been growing. Net sales grew {[redacted]} from 2004 to 2005; {[redacted]} from 2005 to 2006; and {[redacted]} from 2006 to 2007. Microporous' net sales in 2007 of {[redacted]} yielded EBITDA of {[redacted]} Daramic's presentations to the Polypore Board prior to the acquisition adjusted Microporous' figures downward and projected EBITDA profits of {[redacted]} for 2007; {[redacted]} for 2008; {[redacted]} for 2009; and {[redacted]} for 2010. (PX0078 at 019, *in camera*; PX0203 at 083, *in camera*).

1128. Four days before the acquisition, Polypore reported to its Board that the Microporous acquisition would have positive impacts on its EBITDA of approximately {[redacted]} (PX0824 at 002, *in camera*).

1129. As of December 31, 2007, Microporous had outstanding debt of approximately $46 million, which included debt for the purchase of the Jungfer line for the Piney Flats expansion in 2001, and for the 2007 Feistritz expansion. (PX0078 at 021, *in camera*; Gilchrist, Tr. 549-50).

1130. Although it was profitable, Microporous was not meeting some of its budget projections in 2007. (Trevathan, Tr. 3652).

1131. The Board of Microporous was supportive of a long-term strategy of business growth. However, it was also looking to management to control costs and keep on budget. It also wanted management to be more focused on return on investment, numbers, and the risk associated with those numbers. (RX0401; PX2300 (Heglie IHT, 60, 219-20), *in camera*).

1132. There was a restructuring plan within Microporous to address deteriorating margins at Microporous. (Trevathan, Tr. 3773-74; RX0283).

1133. Microporous had not been for sale on the open market, but instead had been approached by Daramic. (PX2300 (Heglie, IHT at 217-18), *in camera*).

1134. If the acquisition had fallen through, IGP's plan was to continue to own Microporous; to continue evaluating growth opportunities; and to try to grow cash flow, improve margins, and generate cash to pay down Microporous' debt. IGP saw plenty of opportunities for growth "on the radar screen." (PX2300 (Heglie IHT, 219-20)).

1135. Had the deal with Daramic fallen through, Microporous would have continued negotiations to expand to supply Exide. Mr. Trevathan thought that if the deal fell through, he could keep things on track to improve Microporous' profitability. (Trevathan, Tr. 3750, 3753-54).

1136. At the time of the acquisition, Microporous had a contract for all of the EnerSys volumes in North America and Europe. (RX0207, *in camera*). EnerSys is a significant customer, with 38 to 40% market share in motive battery sales worldwide. (Axt, Tr. 2227). {[redacted]} (Axt, Tr. 2151, *in camera*).

1137. At the time of the acquisition, Microporous had multiple offers for backfilling its CellForce production line at Piney Flats, including offers from C&D for a UPS application, and from EnerSys, Trojan Battery, Crown Battery, and East Penn Battery. (Gilchrist Tr. 397-98, 402-03, 467, *in camera*; RX0207, *in camera*). The contract with EnerSys/Hawker filled one line at Feistritz, while Microporous was making "a very concentrated effort" to sell PE separators from the second Feistritz line to several SLI battery manufacturers. (*See* F. 780-81). In addition to Exide and JCI, there were 35 to 40 smaller SLI battery manufacturers in Europe. Many of these European manufacturers were good customer prospects because they liked Microporous' PE technology, which was based on Jungfer's technology. Some of these manufacturers had formerly purchased separators from Jungfer when it was still in business. (Gilchrist Tr. 344-47).

1138. Although the {[redacted]} were set to be switched to Piney Flats in March or April 2008, after the acquisition Daramic requested that the volumes remain at Daramic's Owensboro, Kentucky plant, where they remain today. Absent the acquisition, {[redacted]} (Axt, Tr. 2210-11, *in camera*).

H. Efficiencies

1139. The acquisition has enabled Daramic to include Microporous in its purchasing contracts. This volume purchasing power since the acquisition has achieved savings on raw material costs, in the annualized amount of approximately {[redacted]} (RX1603; RX0071; Riney, Tr. 4972, *in camera*; PX0912 (Riney, Dep. at 46), *in camera*; Hauswald, Tr. 904, *in camera*).

1140. Daramic did not discuss with Trojan Battery potential cost savings from its acquisition of Microporous. At no time did Daramic offer to pass on any cost savings from its acquisition of Microporous to Trojan Battery. (Godber, Tr. 220-21).

1141. After the acquisition, Daramic eliminated some positions that, with the acquisition, it deemed to be redundant, including some in sales and technical services. (Riney, Tr. 4972, 5025-26, *in camera*; PX0912 (Riney, Dep. at 44, 93), *in camera*).

1142. Prior to the acquisition, the CellForce line had a yield of approximately 76%. Since the acquisition, through the efforts of the Daramic task force, the CellForce line has increased to a yield of approximately 90%. (Hauswald, Tr. 1062).

1143. Since the acquisition, Daramic has focused on {[redacted]} (Riney, Tr. 4972, *in camera*). Daramic has sought to {[redacted]} (Riney, Tr. 4973, *in camera*). Daramic has also sought to {[redacted]} These production efficiencies have not been quantified. (Riney, Tr. 4973, *in camera*; PX0912 (Riney, Dep. at 71, 77, 87), *in camera*).

1144. Since the acquisition, Daramic has seen some, unquantified, cost savings from implementing procedures at Microporous facilities to reduce waste and to recycle. (Hauswald, Tr. 1065-67).

1145. Daramic's expert Dr. Kahwaty did not analyze whether any efficiencies gained since the acquisition have been passed on to consumers. (Kahwaty, Tr. 5249-50, *in camera*).

1146. Dr. Kahwaty's opinion that Microporous was a high-cost producer applied only to Microporous' production of roll-stock PE material for SLI. The opinion did not apply to production of Flex-Sil, and Dr. Kahwaty could not say whether Microporous was a high-cost producer of CellForce. Dr. Kahwaty did not compare the production cost of CellForce with Daramic HD. Dr. Kahwaty's opinion is not adequately supported by data. (PX00945 (Kahwaty Report at 66); Kahwaty, Tr. 5255-56, 5259, *in camera*).

1147. The post-acquisition efficiencies that Respondent asserts were gained by the merger do not offset the anticompetitive effects of the merger. (F. 1139-48; Simpson, Tr. 3240, *in camera*).

I. Monopolization

1. Challenged monopolistic conduct

1148. The monopolization charge, as framed in Complaint Counsel's post-trial brief, is that Daramic engaged in a pattern of coercive and exclusionary behavior to obtain or maintain monopoly status in several relevant markets, with the purpose of weakening Microporous. CCB at 50, 55. Complaint Counsel's post-trial brief centers on four key examples of what Complaint Counsel charges is exclusionary conduct: (a) that in September 2006, Daramic used its market power in motive separators to force EnerSys to sign a contract with a higher price than EnerSys would have received from Microporous; (b) that Daramic implemented the "MP Plan," to respond to Microporous' threat to Daramic's automotive and motive power business in the United States and Europe, culminating in exclusive or nearly exclusive supply contracts with Crown Battery, Douglas Battery, and East Penn Battery; (c) that Daramic refused to provide a bid to Exide for 50% of Exide's PE supplies; and (d) that Daramic used the same tactics as it did in the "MP Plan" with Fiamm to secure a contract with Fiamm. CCB at 55-59.

1149. The share of the motive battery separator market covered by Daramic's exclusive contracts with Exide, East Penn Battery, EnerSys Mexico, EnerSys United States, Crown Battery, and Douglas Battery rose from roughly {[redacted]} in 2007 to roughly {[redacted]} in the first quarter of 2008. (Simpson, Tr. 3230, 3236, *in camera*; PX0033 (Simpson Report) at 047).

a. September 2006 contract with EnerSys in the motive separators market

1150. EnerSys is one of the largest industrial battery manufacturers in the world, with plants in North America, Europe, and Asia. (Axt, Tr. 2108; PX1204 at 002-03, *in camera*). EnerSys produces about 38% of the motive batteries in the North American market. (Axt, Tr. 2129).

1151. EnerSys manufactures motive power batteries in North America at facilities in Richmond, Kentucky; Ooltewah, Tennessee; and Monterrey, Mexico. (Axt, Tr. 2099-2100).

1152. On May 21, 2004, EnerSys entered into a supply contract with Daramic. (RX0964, *in camera*; PX1204 at 001, *in camera*; Axt, Tr. 2122). Daramic was designated as the {[redacted]} supplier of battery separators for all EnerSys plants in North America. (RX0964 at 002, *in camera* {[redacted]}). (*See also* RX0208; RX0209; Axt, Tr. 2122, 2134, *in camera*).

1153. The expiration date for the {[redacted]} EnerSys/Daramic agreement was {[redacted]} (RX0964 at 001, *in camera*; Axt, Tr. 2122-23, 2134, *in camera*). During this period, EnerSys also purchased separators from Microporous for its battery plants located in China and Europe. (PX1200 at 002, *in camera*; Axt, Tr. 2118, 2125-27, 2141-42, *in camera*).

1154. In late 2005 and early 2006, EnerSys and Microporous discussed the potential for Microporous to construct a new factory in Austria, and to displace Daramic as a supplier for most of the EnerSys plants in Europe. (Axt, Tr. 2123-24, 2129, 2166, *in camera*; Gilchrist, Tr. 309-10, 416).

1155. On February 10, 2006, Microporous and EnerSys executed a memorandum of understanding ("MOU"). (PX1200 at 001-05, *in camera*; Axt, Tr. 2140, 2145, *in camera*).

1156. The MOU provided for Microporous to supply all of EnerSys' battery plants in Europe and China, and most of its plants in North America, beginning in 2007. (Axt, Tr. 2141-44, *in camera*). The EnerSys volumes would convert from Daramic to Microporous on a plant-by-plant basis as the then current contract with Daramic expired. (PX1200, *in camera*; RX0206; Axt Tr. 2148-49, *in camera*).

1157. The MOU specified that EnerSys and Microporous would "begin negotiation and drafting of the {[redacted]} agreement with the good faith objective of completing the agreement no later than May 1, 2006." (PX1200 at 004, *in camera*).

1158. During early 2006, EnerSys was also in negotiations with Daramic concerning the future relationship between the companies. Daramic wanted to supply all of EnerSys' PE separator needs worldwide. (Axt, Tr. 2118, 2164, *in camera*). Daramic's Pierre Hauswald and Tucker Roe visited EnerSys' Vice President of Global Procurement, Larry Axt in January 2006 to convey Daramic's "desire to regain a sizable portion" of the EnerSys motive power business in Europe while "maintaining [its] current position here in the States" as {[redacted]} PE provider to EnerSys. (PX1289 at 001, *in camera*; Axt, Tr. 2160-61, *in camera*).

1159. Daramic followed up on the January 2006 discussions by submitting a written proposal to EnerSys on February 26, 2006. (PX1289 at 001-03, *in camera*). The proposal outlined the terms of a "Global Agreement" under which EnerSys {[redacted]} (PX1289 at 001, *in camera*).

1160. In February 2006, EnerSys compared the competing proposals from Daramic and Microporous, and concluded that the Microporous offer "was significantly better to [EnerSys'] bottom line" by approximately {[redacted]} (Axt, Tr. 2166, *in camera*). EnerSys then informed Daramic that the numbers in its proposal "weren't attractive and there was a high probability" that EnerSys would not select Daramic as its primary PE supplier for the upcoming contract period. (Axt, Tr. 2166, *in camera*).

1161. EnerSys did not completely reject Daramic's February 2006 proposal. In the following months, EnerSys continued to have additional conversations with Daramic because Microporous' management had not completed the process of obtaining Board approval for its capital investment in the Austrian plant. (Axt, Tr. 2166-67, *in camera*).

1162. In May 2006, the MOU between Microporous and EnerSys expired. (Axt, Tr. 2256, *in camera*; PX1200 at 004, *in camera*).

1163. On May 17, 2006, Tucker Roe of Daramic forwarded an email message to EnerSys requesting a decision on the Daramic proposal before the end of the month. (PX1201 at 002, *in camera*; Axt, Tr. 2251-52, *in camera*).

1164. {[redacted]} (Axt, Tr. 2253, *in camera*). {[redacted]} (Axt, Tr. 2253, *in camera*).

1165. In a July 6, 2006 meeting, EnerSys informed Daramic that certain battery plants then supplied by Daramic would, beginning in 2007, be transferred to Microporous. Specifically, Daramic would lose business at Monterrey, Mexico and Ooltewah, Tennessee, as well as Montecchio, Italy. (PX0986 at 001; Axt, Tr. 2128-29, 2148, 2159, 2169-70, *in camera; see also* PX1203, *in camera*; PX1240; Roe, Tr. 1701).

1166. EnerSys also advised Daramic that EnerSys would move to Microporous {[redacted]} (PX1203, *in camera*; PX1240; *see also* Roe, Tr. 1701-02).

1167. {[redacted]} (Roe, Tr. 1770-71, *in camera*; PX1240; PX1203, *in camera*).

1168. Daramic maintained that EnerSys' {[redacted]} (Roe, Tr. 1770-71, *in camera*; PX1240; PX1203, *in camera*).

1169. In July 2006, Daramic advised EnerSys that, {[redacted]

[redacted]}
(PX1203, *in camera*; Axt, Tr. 2172, *in camera*).

1170. Daramic continued to pursue a contract extension with EnerSys, despite what EnerSys had told them in July 2006. (Axt, Tr. 2260, *in camera*). On August 8, 2006, Daramic executives met with EnerSys at its headquarters in Reading, Pennsylvania. (PX1204 at 001, *in camera*; PX1205; Axt, Tr. 2255-56, 2260, *in camera*).

1171. Following the meeting, Daramic {[redacted]} (PX1204, *in camera*). {[redacted]} (PX1204 at 001, *in camera*; Axt, Tr. 2258, *in camera*). {[redacted]}

1172. Daramic gave EnerSys a deadline to respond of August 31, 2006. (PX1205; Axt, Tr. 2259, *in camera*). The deadline was later extended to September 15, 2006. (PX1205).

1173. EnerSys informed Daramic that {[redacted]} (Axt, Tr. 2176, 2260, *in camera*).

1174. {[redacted]} (Axt, Tr. 2256, *in camera*).

1175. The September 15, 2006 deadline for EnerSys to respond to Daramic's proposal issued in February 2006 passed without a formal response from EnerSys. (Roe Tr. 1699-1701; PX1289, *in camera*).

1176. When informed of this development, Polypore CEO Robert Toth decided that Daramic "should pull our offer and force a decision. Unless I don't know or understand something, we should play hardball here." (PX0456 at 001).

1177. In October 2006, Daramic declared a force majeure event. Daramic had been notified by one of its key raw suppliers, Ticona, that Ticona had experienced a force majeure event caused by an extensive fire in Ticona's production facility. (PX1207).

1178. By letter dated October 6, 2006, Daramic advised EnerSys that it would need to allocate its separator production among its customers. (Hauswald, Tr. 889-90, *in camera*; Axt, Tr. 2146-47, *in camera*; PX1207 ("[E]ffective immediately EnerSys will receive most likely 10 to 20%, if possible up to 50% of your normal material requirements for the next six to eight weeks. Based on the timing communicated to us by our vendor, our current best estimate is that this event will likely impact our ability to supply you with your full allocation of products through at least the middle of November.").

1179. Daramic represented to EnerSys that this disruption in supply was necessary because of a force majeure event outside of Daramic's control. Specifically, "an extensive fire in the production facility of [Daramic's] key raw material supplier" would, going forward, "severely limit the amount of raw material available to Daramic." (PX1207).

1180. {[redacted]} is the primary raw material used by Daramic. Ticona makes approximately {[redacted]} (Hauswald, Tr. 884-85, *in camera*). In 2006, {[redacted]} (Hauswald, Tr. 885-86, *in camera*).

1181. Ticona had notified Daramic in September 2006 that it was experiencing a force majeure and Ticona anticipated that it would not be able to supply more than 50% of Daramic's demand for several months. (RX1077, *in camera*; Hauswald, Tr. 885, *in camera*; RX1598; Toth, Tr. 1404-05).

1182. The Ticona force majeure occurred shortly after Hurricane Katrina, which had impacted adversely Daramic's inventory of {[redacted]} (Hauswald, Tr. 884, 890-91, *in camera*).

1183. At the time of Ticona's declaration of force majeure in September 2006, Daramic anticipated, based on information received from Ticona that its separator production would be impacted in the amount of approximately {[redacted]} square meters. (Hauswald, Tr. 886, *in camera*).

1184. Following Ticona's announcement of the force majeure in September 2006, Daramic attempted to find alternative supply of {[redacted]} (Hauswald, Tr. 887, *in camera*; Roe, Tr. 1707). Representatives of Daramic worked long hours, traveling around the world trying to locate alternate supply of {[redacted]} and to move some of its existing supply of {[redacted]} from Daramic's facilities in North America to Asia and Europe. (Hauswald, Tr. 891-92, *in camera*; RX1054).

1185. {[redacted]} (Hauswald, Tr. 887-88, *in camera*; RX0698 at 005, *in camera*).

1186. At the time of Ticona's declaration of force majeure, Daramic could not supply all of its customers with PE separators with the reduced supply of {[redacted]} from Ticona. (Hauswald, Tr. 890, 1143-46, *in camera*).

1187. EnerSys confirmed from Microporous that Ticona had suffered a production disruption. (Axt, Tr. 2284-85; PX1209). In addition, EnerSys learned {[redacted]} (RX0235, *in camera*; Craig, Tr. 2617-18, *in camera*).

1188. Daramic's Tucker Roe attempted to reach EnerSys over the telephone before sending the letter notifying EnerSys of the force majeure situation. (Roe, Tr. 1707-11). Bob Toth sent emails to John Craig telling EnerSys that Daramic was doing what it could to handle the situation and apprising EnerSys of the status of deliveries. (PX1287; PX1288; Craig, Tr. 2577-82). Roe developed a plan with Axt whereby they would talk daily about the supply situation during this force majeure period. (Roe, Tr. 1711). Toth told every customer with whom he spoke, including Craig, that Daramic was doing what it could to get separators to them. (Toth, Tr. 1406).

1189. Daramic employees worked 12 hour days during this force majeure period trying to manage the situation, juggling schedules and verifying inventories in an effort to meet the customer requirements. (Roe, Tr. 1704-05).

1190. Daramic felt the impact of Ticona's force majeure more acutely than Microporous because Daramic's purchases of {[redacted]} from Ticona were approximately ten times greater than those of Microporous and Microporous had PE deliveries from the Ticona facility in Texas, not Europe, where the force majeure event occurred. (Trevathan, Tr. 3646).

1191. Supply resumed to EnerSys and other Daramic customers in October 2006, after {[redacted]} (Hauswald, Tr. 887-88, *in camera*; RX0698 at 005, *in camera*).

1192. After a short period of negotiations, EnerSys and Daramic agreed to a new supply contract orally on or about October 16, 2006, and officially executed the contract extension on October 31, 2006. (Axt, Tr. 2193, *in camera*; PX1211, *in camera*; PX1224, *in camera*).

1193. Under this new contract, EnerSys agreed to purchase 90% of its separator requirements for its North America facilities from Daramic, and would be permitted to contract with any company, including Microporous, to provide battery separators to EnerSys for each of its plants as its contractual commitment to Daramic for those plants expired. (Burkert, Tr. 2426-27, *in camera*).

1194. At the end of 2006, EnerSys was still unsure if the Microporous product would work in the EnerSys North American plants and qualification was uncertain. (Axt, Tr. 2127-28). In addition, EnerSys had concerns about whether

Microporous possessed enough capital to enable it to supply other EnerSys plants. (Axt, Tr. 2166-67, *in camera*).

1195. EnerSys was interested in moving forward with Microporous, if Microporous had two plants. (Axt, Tr. 2129; 2143, *in camera*). {[redacted]} (Axt, Tr. 2260, 2303-04, *in camera*).

1196. In January 2007, EnerSys entered into a contract with Microporous for motive separators. (RX0207, *in camera*; RX0953, *in camera*). Under this contract, EnerSys agreed to purchase and Microporous agreed to sell battery separators to EnerSys' facilities in Europe; Ooltewah, Tennessee; and Monterey, Mexico. (RX0207 at 001-02, *in camera*).

1197. The January 2007 contract was amended in August 2007, to provide for Microporous to supply separators to EnerSys' remaining North American facility located in Richmond, Kentucky. (RX0207 at 010, *in camera*).

1198. In its Purchasing Outlook Economic Assumptions Fiscal Year 2009, EnerSys set forth EnerSys' schedule to transition its PE separator purchases from Daramic to Microporous and stated as one of its assumptions for fiscal year 2009: "All steps are in place to move all PE business to CellForce as Daramic's contract expires for each location." (RX0220 at 008, *in camera*; Burkert, Tr. 2428, *in camera*).

1199. EnerSys projected that by 2010, EnerSys would not purchase any PE type separators from Daramic. (Burkert, Tr. 2429, 2431, *in camera*; RX0221, *in camera*).

b. The "MP Plan"[4]

c. Daramic's 2007 bid to Exide

1200. In 2007, Exide issued a Request for Proposal ("RFP") to battery separator manufacturers around the world including Daramic, Microporous, Entek, Amer-Sil and Nippon Sheet Glass ("NSG"). (Gillespie, Tr. 2962-63).

1201. The 2007 Exide RFP called for each separator manufacturer to bid on all PE supplies globally (including motive, automotive SLI, industrial, golf cart, and specialty) at volumes of 25%, 50%, 75% and 100%. Exide did not define in the RFP how the supplier was to bid a lower percentage, whether by plant, product mix or otherwise. (Gillespie, Tr. 2967-68; 3015, *in camera*).

1202. Exide gave the suppliers to whom it issued the RFP the "choice to quote on part or all or whatever they felt comfortable with . . . ." Exide "left it up to [the

[4] Findings of fact on the MP Plan are set forth in F. 820-52.

separator manufacturers] to decide what or any portion they wanted to quote on." (Gillespie, Tr. 2965).

1203. Daramic responded to Exide's 2007 RFP by quoting prices for 100%, 75% and 25% supply, but did not provide bidding as to 50% supply. (Gillespie, Tr. 3011, *in camera*; PX1028 at 058-60, *in camera*; Roe, Tr. 1360, 1785-86, *in camera*).

1204. Exide was Daramic's highest volume customer in 2007, and loss of volume from Exide would necessitate Daramic realigning its sourcing strategy. (Roe, Tr. 1306, 1717-20).

1205. At the time Daramic submitted its response to Exide's 2007 RFP, Daramic was exploring other business opportunities which made offering a quote at 50% difficult. Daramic believed that it had the opportunity to pick up incremental volume from JCI; was considering a modification to its line at Corydon (which supplies Exide) in order to manufacture a synthetic paper material known as Artysin; and was considering modification of several of its PE lines for a project involving the production of filtration applications. (Roe, Tr. 1716-17).

1206. Daramic explained to Exide that it did not provide Exide with a quote for 50% because "they needed to evaluate which lines they would shut down and which plants that they would close because of the significant volume drop." (Gillespie, Tr. 3017, *in camera*). As Exide's Gillespie recognizes, running a plant at 100% of its capacity is more economical than running a plant at 50% of its capacity. (Gillespie, Tr. 3122, *in camera*).

1207. The exclusive supply offer from Daramic provided the best pricing option for Exide. (Gillespie, Tr. 3011-12, *in camera*; PX1028 at 041-46, 058-60, *in camera*). Under Daramic's proposal, Exide's pricing, payment terms, credit limit and other terms degraded in each supply scenario less than 100% supply. (Gillespie, Tr. 3016, *in camera*; PX1028 at 058-59, *in camera*).

1208. Of the five companies to which the RFP was submitted, only Daramic provided a quote that covered all of Exide's needs as set out in the RFP. (PX1036, *in camera*).

1209. NSG did not submit a quote in response to Exide's RFP. (Gillespie, Tr. 2963-64; PX1079 at 001-03).

1210. Amer-Sil submitted a bid for a portion of Exide's European motive power requirements. (Gillespie, Tr. 2967). Amer-Sil is viewed by Exide as a small player, only capable of supplying limited applications in Europe. (Gillespie, Tr. 2968-69). Amer-Sil did not bid on Exide's automotive requirements. (Gillespie, Tr. 2968).

1211. After the issuance of the RFP, Microporous and Exide engaged in negotiations and entered into a MOU September 28, 2007 (F. 697-98), which stated: . . . 003

September 7, 2007 after the issuance of Exide's RFPSeptember 28, 2007

1212. At the time of Exide's RFP, Exide had not even considered testing Microporous' CellForce. (PX0679).

1213. When Exide compared the proposals of Entek, Microporous, Amer-Sil and Daramic, many of the prices Daramic offered were on par, or below the prices offered by others. (PX1036, *in camera*). Further, the same analysis shows that Exide would have paid {[redacted]} more for its separators by sourcing from a combination of Microporous and Daramic, as opposed to sourcing solely from Daramic, and {[redacted]} more than the current prices that Exide was paying to Daramic. (Gillespie, Tr. 3106-09, *in camera*; PX1036, *in camera*).

1214. Daramic offered Exide "annual savings of more than {[redacted]}" and "incentives that generate an additional {[redacted]} million in annual savings." (PX2296 at 002, *in camera*).

1215. While Exide claims it was not satisfied with the proposal it received from Daramic, it never made a counterproposal to Daramic's offer, asked Daramic to submit a new proposal, or specified the parts of the proposal which it considered insufficient. (Roe, Tr. 1718-19).

1216. At the time the 2007 proposal was being discussed, Exide was approximately $14 million dollars over its significant $19 million credit line with Daramic. (Bregman, Tr. 2908-09, *in camera*; RX1285). Exide repeatedly exceeded this credit limit with Daramic in violation of its contract and in violation of the order of the court after Exide emerged from bankruptcy. (Bregman, Tr. 2909-11, *in camera*).

d. Daramic's 2007 contract negotiations with Fiamm

1217. Fiamm is the third largest automotive battery manufacturer in Europe and was one of Daramic's top ten customers in 2007. (Roe, Tr. 1306-07, 1345, *in camera*; PX0215 at 002, *in camera*).

1218. In late 2007, Daramic was involved in contract negotiations with Fiamm for SLI separators. (Roe, Tr. 1306-08, 1345-46, *in camera*). Daramic's {[redacted]} agreement with Fiamm was expiring at the end of 2007. (Roe, Tr. 1346, *in camera*).

1219. Daramic's sales personnel learned that Fiamm's automotive business was at risk of loss to Microporous. (Roe, Tr. 1352, *in camera*; PX0222 at 004, *in camera*). Daramic grew concerned because Fiamm would be "a key customer for

[Microporous] and pave the way for others to follow." (PX0215 at 003, *in camera*).

1220. Daramic understood from Fiamm that Microporous and "the Chinese (Anpei?) are making a strong run [at Fiamm] with low prices. Fiamm wanted a price reduction perhaps [half]way to the competition prices. We will probably have to play hard to force a new 100% agreement." (PX0214, *in camera*).

1221. Daramic believed that "Fiamm would be a fantastic communication tool for [Microporous'] automotive products with other customers" and that Fiamm "would be a key-customer for [Microporous] and pave the way for others to follow." (PX0215, *in camera*, Roe, Tr. 1345-46, *in camera*).

1222. After several negotiations, Fiamm gave Daramic a "take it or leave it" proposal, of a {[redacted]} The lower prices represented a loss of {[redacted]} in contribution margin for Daramic. However, Daramic believed it was worth it, to capture a guarantee of {[redacted]} and a {[redacted]} "lock" on the "3rd largest battery manufacturer in Europe." (PX0214, *in camera*; PX0215, *in camera*; Roe, Tr. 1345, *in camera*).

1223. Daramic decided to accept Fiamm's proposal described in F. 1223. (PX0215, *in camera*; Roe, Tr. 1350-51, *in camera*).

1224. During the negotiations between Daramic and Fiamm, Fiamm had told Daramic that Microporous had proposed a price of {[redacted]} After the acquisition, Daramic learned that the price that the Microporous' bid was {[redacted]} which was in line with Daramic's proposal. Daramic also learned that, although Fiamm had indicated that it might split its supply between Microporous and Asian PE suppliers, in fact only a small amount was contemplated for Asia. (Roe, Tr. 1346, 1348-49, 1782, *in camera*).

J. Daramic's Agreement with Hollingsworth & Vose

1225. Hollingsworth & Vose ("H&V") manufactures absorptive glass mat ("AGM") separators for sealed lead-acid batteries. (PX0094 at 001, *in camera*). It is the dominant AGM producer in North America, and is one of the largest AGM manufacturers worldwide. (PX0035 at 004; Roe, Tr. 1745; PX0011, *in camera*; RX1101 at 004).

1226. H&V has "look[ed] for opportunities to provide types of separator [in addition to AGM] to the industry," including PE battery separators. (PX0925 (Porter, Dep. at 37), *in camera*).

1227. In 1999, Exide owned and operated a PE separator manufacturing facility in Corydon, Indiana. (PX0726; PX0925 (Porter, Dep. at 35), *in camera*; PX0917

(Cullen, Dep. at 11), *in camera*). Exide manufactured separators at Corydon for some of its North American battery plants. (Gillespie, Tr. 2983-84).

1228. In 1999, Exide engaged the services of Bowles Hollowell Conner ("BHC"), a financial advisory firm, to assist it with selling the Corydon plant. (PX0724 at 002).

1229. In June 1999, BHC contacted H&V to invite H&V to submit a "non-binding indicative offer" to purchase the Corydon plant from Exide. (PX1368 at 001).

1230. H&V was interested in purchasing the Corydon PE facility from Exide and received information from BHC that enabled it to evaluate the Corydon opportunity. (PX0925 (Porter, Dep. at 35), *in camera*; PX0917 (Cullen, Dep. at 11), *in camera*).

1231. Daramic, Microporous, and Entek each placed bids on Exide's Corydon facility in June 1999. (PX0726 at 006-08).

1232. Daramic was aware that H&V was interested in the Corydon facility. (PX0169 at 001).

1233. H&V explored the possible purchase of the Corydon facility from Exide because it was interested in opportunities to diversify its separator product offerings and to "provide other types of separator to the industry." (PX0925 (Porter, Dep. at 37-38), *in camera*).

1234. In addition to an opportunity to diversify its separator product offerings, H&V was also interested in purchasing the Corydon plant from Exide because Exide was purchasing AGM separators from H&V at the time Exide was selling the Corydon plant. H&V believed that the acquisition "could provide an opportunity to bundle flooded PE separator and [AGM separator] into a contract" with Exide. (PX0925 (Porter, Dep. at 37), *in camera*). Likewise, H&V believed that purchasing Corydon "might provide an opportunity to supply other [battery] customers in a similar manner which could – it could provide additional financial return." (PX0925 (Porter, Dep. at 37), *in camera*).

1235. On July 1, 1999, H&V submitted to BHC a proposal to acquire the Corydon plant for $26,000,000 in cash, and to enter into a series of five-year agreements to supply PE and AGM battery separators to Exide. (PX1368 at 001-02).

1236. Ultimately, Exide did not accept the H&V acquisition proposal. Instead, Exide agreed to sell the PE separator assets to Daramic. (PX0727 at 002; Gillespie, Tr. 3070; PX0922 (Roe, IHT at 224), *in camera*). Daramic closed the transaction to purchase the Corydon facility from Exide on December 15, 1999. (PX2050 at 034, *in camera*).

1237. Daramic remained concerned that H&V would pursue an alternative strategy for entering the PE separator market. (PX0169 at 001; PX0035 at 005).

1238. Daramic approached H&V and proposed an alliance between the two companies. (PX0169 at 001; PX2143 at 001, *in camera*). The core of this arrangement was a set of mutual promises to stay out of one another's markets. (PX0169 at 001; PX0094 at 002-03, *in camera*; PX0035 at 005-06; PX2150 at 001, *in camera*; PX1356 at 001).

1239. Daramic's intentions in entering into an agreement with H&V are described in an internal Daramic email written by Pierre Hauswald, General Manager and Vice President of Daramic, on April 2, 2005:

> [Every time we] meet investors they ALL ask: what about AGM? Aren't you missing the boat? What do you do?
>
> Just a few words of history..
> A few years ago, H&V announced that they want to go [in]to the PE business, and plan to make acquisition (it was Exide) or build their own plant.
> In order to stop them, we made an (sic) written agreement with them, through a partnership, saying that:
> - we will work together where ever possible
> - they will not go in the PE business
> - we will not go in the glass business (AGM).

(PX0169 at 001).

1240. In a subsequent letter to Tucker Roe, dated July 22, 2005, Hauswald characterized the agreement between Daramic and H&V as follows: "Because H&V threatened us of going in the PE separator business, we made a strategic alliance with them. We will not produce AGM, and they will not produce PE separator." (PX0035 at 005).

1241. Another motivation for the agreement between Daramic and H&V was to aid Daramic and H&V in competing with a joint venture between Entek and Dumas (an AGM producer). (Roe, Tr. 1745; RX0151). Entek and Dumas "appeared at trade shows together and were putting a unified front together." (PX0925 (Porter, Dep. at 110), *in camera*). According to H&V, responding to Entek/Dumas was "one of the primary benefits to forming the alliance [with Daramic]. So they provided a stronger competitive entity against us so we thought it was a good idea to also respond in the manner that we did." (PX0925 (Porter, Dep. at 110), *in camera*). Likewise, Daramic felt that it needed an alliance with H&V in order to effectively compete against Entek/Dumas. (Roe, Tr. 1745).

1242. The written agreement between Daramic and H&V was entered into on April 5, 2001 and titled "Cross Agency Agreement." (PX0094, *in camera*). Among other provisions in the agreement, Daramic agreed therein not to sell AGM battery separators in the United States or anywhere in the world. In return, H&V agreed not to sell PE battery separators in the United States or anywhere in the world. (PX0094 at 002-03, *in camera*).

1243. Covenant 4(a) of the Cross Agency Agreement states:

> Daramic shall not, during the period that this Agreement is in effect, and for a period of 5 years after termination of this Agreement, either directly or indirectly, including without limitation, through its distributors or agents, manufacture, develop, solicit, sell, market or handle any absorptive glass mat separators within the Territory, or participate in or with or assist any individual, company, corporation or other entity, in the manufacture, development, solicitation, sale, marketing or handling within the Territory of any absorptive glass mat separators. A breach of the foregoing shall be grounds for termination pursuant to Section 8.

(PX0094 at 002, *in camera*).

1244. Covenant 4(b) of the Cross Agency Agreement states:

> H&V shall not, during the period that this Agreement is in effect, and for a period of 5 years after termination of this Agreement, either directly or indirectly, including without limitation, through its distributors or agents, manufacture, develop, solicit, sell, market or handle any microporous polyolefin separators within the Territory, or participate in or with or assist any individual, company, corporation or other entity, in the manufacture, development, solicitation, sale, marketing or handling within the Territory of any microporous polyolefin separators. A breach of the foregoing shall be grounds for termination pursuant to Section 8.

(PX0094 at 002, *in camera*).

1245. Pursuant to the Cross Agency Agreement, H&V was authorized to act as a non-exclusive sales agent for Daramic products; and Daramic was authorized to act as a non-exclusive sales agent for H&V products. (PX0094 at 002, *in camera*).

1246. The parties contemplated that there would be no cross-selling in any area or to any customer where a party already had sales representation. (PX0094 at 002, 003, 013-022, *in camera*).

1247. Because both H&V and Daramic already had full sales coverage of "the known customer base in the United States," at the time they entered their agreement, they looked abroad to "remote parts of the world" for potential joint sales opportunities. (PX0917 at 015-16 (Cullen, Dep. at 59-60), *in camera*; PX0094 at 013, *in camera* (all customer accounts in North America had current sales representation from Daramic, H&V or both at the time the Cross Agency Agreement was entered); PX1325 at 001 (virtually all potential customers in the Americas had 100% supply relationships with Daramic and/or H&V at the time the Cross Agency Agreement was entered); PX0925 (Porter, Dep. at 95-97, 126-127), *in camera* (North America was not a subject of parties' discussions about "areas of geographic opportunity for either company.")).

1248. H&V contemplated "the use of Daramic salespeople in remote parts of the world where" it was not represented. PX0925 (Porter, Dep. at 126-27), *in camera*. H&V also hoped Daramic would be helpful to the sale of its products in Europe and Southeast Asia. (PX0917 (Cullen, Dep. at 14), *in camera*).

1249. Daramic contemplated sales opportunities in "new markets, new territories" such as Eastern Europe or Asia, where H&V "may have better representation." (Roe, Tr. at 1746, 1811).

1250. Under the Cross Agency Agreement, Daramic represented H&V primarily in India and Brazil. (Roe, Tr. 1747-48). Daramic representatives have made a small volume of sales on behalf of H&V in Brazil and India, {[redacted]} over five years. (PX0014, *in camera*; PX2145 at 001-02).

1251. Daramic never paid any commissions to H&V because H&V never made any sales of PE separators during the course of the Cross Agency Agreement. (Roe, Tr. 1810).

1252. As part of the Cross Agency Agreement, H&V and Daramic hosted joint "hospitality event[s]" for customers at industry conventions." (PX0925 (Porter, Dep. at 127-28), *in camera*; PX0923 (Hauswald, IHT at 280, 282), *in camera* ("[W]e share some evenings, customer appreciation evenings [at] conventions. That's basically it, what we do together.")).

1253. Daramic acknowledges that the Cross Agency Agreement is not needed to put on customer appreciation events jointly. (Roe, Tr. 1811-12; RX0370 at 002).

1254. H&V and Daramic looked at joint research and development opportunities for new products, exchanged raw materials, and collaborated on what materials would work well together. (PX0917 (Cullen, Dep. at 123), *in camera*). However, such activity never progressed past the initial "concept." (Roe, Tr. 1747; PX0917 (Cullen, Dep. at 119-23, 314-15), *in camera*; PX0925 (Porter, Dep. at 156-57, 167-68), *in camera*). Daramic and H&V did not develop any new separator product for a battery application as a result of the Cross Agency Agreement. (PX0925 (Porter, Dep. at 107-08), *in camera*).

1255. As part of their joint activity, Daramic and H&V shared product marketing and customer information. (PX0925 (Porter, Dep. at 65-66), *in camera*). Exchanged confidential information was protected by non-disclosure provisions and other restrictions against improper use, which were included in the Cross Agency Agreement. (PX0094 at 007-08, *in camera*; PX1356 at 001 (noting"[a] Confidentiality Agreement exists between [H&V/Daramic] and each of its employees" that covers exchanges between the companies and communications with customers in connection with activities contemplated by the Cross Agency Agreement)).

1256. The original Cross Agency Agreement took effect on March 23, 2001 and continued for five years. (PX0094 at 002, 006, *in camera*). It was extended in 2006 for an additional three years, expiring in March 2009. (PX0158, *in camera*; PX2147). The parties agreed and understood that the restrictions on competition in Section 4 would survive for an additional five years following the expiration of the Cross Agency Agreement (*i.e.*, until March 2014). (PX0094 at 002, *in camera*; RX1014; PX2150 at 001, *in camera*; PX0158, *in camera*).

1257. At the time that the parties renewed the Cross Agency Agreement, Mr. Hauswald was unaware of any customers or potential customers of Daramic that the company could not reach efficiently without the assistance of H&V. (PX0923 (Hauswald, IHT at 286), *in camera*).

1258. In considering whether to renew the Cross Agency Agreement, Mr. Hauswald discussed with Mr. Nasisi, the former CEO of Daramic, the importance of the mutual restriction on competition. (PX0923 (Hauswald, IHT at 290), *in camera*). That restriction was the reason Daramic "[had] an agreement with H&V. They will not go in the PE business. We will not go in the AGM business." (PX0923 (Hauswald, IHT at 292), *in camera*).

1259. Each party has honored its undertaking not to compete in the other's market. (PX2150 at 001, *in camera*). *See also* RX0095 at 001, *in camera* (battery product mix in five year strategic plan of H&V reflects no PE separator sales). Daramic has not developed its own AGM separator and has been relegated to having to develop what it calls a "me too" product. (PX0035 at 002). Daramic also has been prevented by the Cross Agency Agreement from purchasing an AGM separator manufacturer to compete in the market. (PX0169 at 001).

K. Remedy

1260. To restore the competition lost through Daramic's acquisition of Microporous, a remedy needs to recreate a firm similar to the Microporous that would have existed, but for the acquisition. At a minimum, this would require recreating a firm: with production facilities in both the United States and Europe; with intellectual property, comparable to that of Microporous; a technical staff, comparable to that of Microporous; a product mix comparable to that of Microporous, and intangible assets (knowledgeable and skilled workforce, and industry reputation) comparable to that of Microporous. (Simpson, Tr. 3262-63).

1261. The Piney Flats, Tennessee plant, acquired from Microporous in the acquisition (F. 9-10, 43), comprises two buildings, a building for the manufacture of Flex-Sil and Ace-Sil, and a building for the manufacture of CellForce. At the Piney Flats plant, Microporous operated three production lines – one line for each of its three products, Flex-Sil, Ace-Sil and CellForce. (Gilchrist, Tr. 311-12; *see* PX0078 at 012, *in camera*).

1262. At the time of the acquisition, the Piney Flats plant had one overall operations manager, and one set of administrative offices. There was no time when the two buildings were operated independently of one another. (Gilchrist, Tr. 311, 539; Gaugl, Tr. 4641).

1263. The Feistritz, Austria plant was also acquired through the acquisition. (F. 6, 10; RX1227 at 089-91, *in camera*; PX0078 at 012 *in camera*, PX0162 at 019-20, 062, *in camera*). The plant comprised two lines, for the production of CellForce and/or SLI. (F. 778).

1264. At the time of the acquisition, the Feistritz plant was not yet operational. There were 15 employees on the ground at the Feistritz plant, including engineers that were in the process of completing the Feistritz plant, and operators and mechanics that were testing components of the line. (Gilchrist, Tr. 333-34).

1265. Microporous' plan was to have the Feistritz plant operational in March 2008. (Gilchrist, Tr. 312, 332, 558-59; Trevathan, Tr. 3714; Gaugl, Tr. 4551; PX 0078 at 025, *in camera*). Within the first week after the acquisition, in March 2008, commercial product was being produced from the Feistritz plant. (Gilchrist, Tr. 333-35; Gaugl, Tr. 4603).

1266. Prior to the acquisition, Microporous had no contracts in place committing use of the second line in Austria. (Trevathan, Tr. 3631).

1267. The Microporous expansion plan contemplated construction of a third line. As part of that plan, design and planning work had been done, and long-lead time equipment items had been acquired. However, the third line had not been installed prior to the acquisition. (F. 774-77; Gaugl, Tr. 4561-64).

1268. Part of the equipment Microporous ordered for the purpose of building a third production line remains in boxes in Austria. Part of that equipment is in Piney Flats. (Gaugl, Tr. 4565).

1269. The pinhole detector purchased by Microporous as part of its expansion plan is being used in Piney Flats in production. The extruder purchased by Microporous is in a semifinished stage at the supplier. (Gaugl, Tr. 4565).

1270. Prior to constructing lines at the Feistritz plant, approximately 60% of the capacity produced on the CellForce line in Piney Flats was being shipped to

Europe. Constructing lines in Europe would have enabled Microporous to shift that production to Europe and to expand its business by opening capacity in the United States to serve more customers. (Trevathan, Tr. 3721, 3774).

1271. Sufficient scale to supply a large business is important to large battery manufacturers. At the time of the acquisition, Microporous was supplying large battery manufacturers. (Gillespie, Tr. 3052, *in camera*; Axt, Tr. 2129; Hauswald, Tr. 934, *in camera*).

1272. Multiple plants from which to supply customers is important to help ensure continuity of supply, in the event of a disruption at one plant. (Godber, Tr. 225-26; Gaugl, Tr. 4602; Axt, Tr. 2109).

1273. Daramic recognized the competitive advantages of scale, including cost advantages due to economies of scale, breadth of product, and different locations. (F. 928-29, 964; Hauswald, Tr. 726-27, 821-22, *in camera*; PX0194, *in camera*).

1274. Microporous embarked upon its expansion plans in order to be more competitive. (F. 768-72).

1275. As battery manufacturers become global suppliers, they seek out separator suppliers who have opened plants in other countries. For example, {[redacted]} (Gilchrist, Tr. 309-10, 456-57, *in camera*; RX0207 at 010-12, *in camera*).

1276. When Microporous was operating just out of Piney Flats, EnerSys could not give Microporous more volume unless Microporous had another manufacturing facility. EnerSys would not commit to additional volume for a manufacturer with only one operation. (Axt, Tr. 2143, *in camera*). It was crucial for EnerSys that its suppliers have more than one plant. (Axt, Tr. 2129).

1277. EnerSys does more business in Europe than in the United States. (Axt, Tr. 2129).

1278. When Microporous and Exide entered into their MOU in 2007 for 22 million square meters (F. 697-98), it was important to Exide that Microporous had locations in the United States and Europe, because Exide had just as much business in Europe as it did in North America. (Gillespie, Tr. 2969-70).

1279. Prior to the acquisition, Trojan Battery had wanted to switch from Flex-Sil to CellForce, which is about 10% cheaper. Microporous' moving of production to the Feistritz plant would better enable Microporous to meet Trojan Battery's United States demand for CellForce. (Godber, Tr. 224-28).

1280. At present, the Feistritz plant is operating at approximately 70% capacity. (Gaugl, Tr. 4569).

1281. The Feistritz plant is presently producing CellForce for EnerSys and is also producing standard PE SLI separators for automotive use. (Gaugl, Tr. 4569-70).

1282. Approximately 30% of Feistritz' production is CellForce. The remaining 70% is devoted to pure PE separators for automotive applications. The main customer for the CellForce is EnerSys, with smaller quantities being sold to TAB, a small company in Slovenia. (Gaugl, Tr. 4570-71; Hauswald, Tr. 923, *in camera*).

1283. Daramic closed its Potenza, Italy plant in December 2008. The majority of the orders were {[redacted]} The amount that was transferred from Potenza to Feistritz is approximately {[redacted]} square meters per year. Without the Potenza orders, the capacity being utilized at Feistritz would be very low. A "rough guess" of that utilization is {[redacted]} (Gaugl, Tr. 4572-73; Riney, Tr. 4962, *in camera*; Hauswald, Tr. 922-23, *in camera*).

1284. Prior to the transfer of Potenza orders to Feistritz, EnerSys and TAB together were filling approximately {[redacted]} of one line. The other line was empty. (Hauswald, Tr. 923-24, *in camera*).

1285. Without the Potenza orders, the 2009 forecasts were that Feistritz would have net income of {[redacted]} (Riney, Tr. 4969, *in camera*).

1286. At present, 60 to 70% of the CellForce product being produced in Piney Flats is being exported for EnerSys to Europe. (Gaugl, Tr. 4573).

1287. The CellForce line at Piney Flats is presently utilized at approximately 35 to 40% capacity, which includes production of CellForce and a small amount of HD. (Trevathan, Tr. 3647).

1288. In addition to the manufacturing plants and line in boxes, Microporous' assets obtained through the acquisition include intangible assets such as contracts and other receivables, intellectual property, technology and know-how, and other intangible assets related to the product lines acquired from Microporous. (PX0162, *in camera*).

III. ANALYSIS

A. Jurisdiction

The Complaint charges Respondent with violations of Section 5 of the Federal Trade Commission Act ("FTC Act"), 15 U.S.C. § 45, and of Section 7 of the Clayton Act, 15 U.S.C. § 18.

Section 5(a)(2) of the FTC Act gives the Commission jurisdiction "to prevent persons, partnerships, or corporations . . . from using unfair methods of competition in or affecting commerce . . . ." 15 U.S.C. § 45(a)(2); *Kaiser Aluminum & Chem. Corp. v. FTC*, 652 F.2d 1324, 1327 n.2 (7th Cir. 1981). Respondent is a corporation engaged in the interstate sale of battery separators for flooded lead-acid batteries. F. 1-4, 9-10, 37-42. Respondent's challenged activities relating to the sale of battery separators have an obvious nexus to interstate commerce. F. 11. Respondent admits the jurisdictional allegations in this case. Complaint ¶ 3; Answer ¶ 3. Thus, the Commission has jurisdiction over Respondent and the subject matter of this proceeding, pursuant to Section 5 of the FTC Act.

Section 7 of the Clayton Act prohibits acquisitions, the effect of which "may be substantially to lessen competition, or tend to create a monopoly." 15 U.S.C. § 18. "Section 11(b) of the Clayton Act, 15 U.S.C. § 21(b), expressly vests the Commission with jurisdiction to determine the legality of a corporate acquisition under Section 7 and, if warranted, to order divestiture." *In re R.R. Donnelley & Sons Co.*, No. 9243, 120 F.T.C. 36, 140, 1995 FTC LEXIS 450, at *11 (July 21, 1995); *see also Hospital Corp. of Am. v. FTC*, 807 F.2d 1381, 1386 (7th Cir. 1986) (noting Commission's concurrent jurisdiction with the federal courts to enforce Clayton Act).

The February 28, 2008 purchase of Microporous by Respondent was a corporate acquisition. F. 9. The Commission's jurisdiction includes adjudicating the lawfulness of acquisitions that have already been completed. *In re Coca-Cola Co.*, No. 9207, 117 F.T.C. 795, 911, 1994 FTC LEXIS 327, at *205-06 (June 13, 1994); *see, e.g., In re Chicago Bridge & Iron Co.*, No. 9300, 138 F.T.C. 1024, 2005 FTC LEXIS 215 (Jan. 6, 2005), *aff'd*, 534 F.3d 410 (5th Cir. 2008). Therefore, the Commission has jurisdiction over Respondent and the subject matter of this proceeding, pursuant to Sections 7 and 11 of the Clayton Act.

B. Burden of Proof and Statutory Framework

The parties' burdens of proof are governed by Federal Trade Commission Rule 3.43(a), Section 556(d) of the Administrative Procedure Act ("APA"); and case law. Pursuant to Commission Rule 3.43(a), "[c]ounsel representing the Commission . . . shall have the burden of proof, but the proponent of any factual proposition shall be required to sustain the burden of proof with respect thereto." 16 C.F.R. § 3.43(a). Under the APA, "[e]xcept as otherwise provided by statute, the proponent of a rule or order has the burden of proof." 5 U.S.C. § 556(d). The APA, "which is applicable to administrative adjudicatory proceedings unless otherwise provided by statute, 'establishes . . . [the] preponderance-of-the evidence standard.'" *In re Rambus Inc.*, No. 9302, 2006 FTC LEXIS 101, at *45 (Aug. 20, 2006) (quoting *Steadman v. SEC*, 450 U.S. 91, 95-102 (1981)), *rev'd on other grounds,* 522 F.3d 456 (D.C. Cir. 2008), *cert. denied*, 129 S. Ct. 1318 (2009). *See In re Automotive Breakthrough Sciences, Inc.*, No. 9275, 1998 FTC LEXIS 112, at *37 n.45 (Sept. 9, 1998) (holding that each finding must be supported by a preponderance of the evidence in the record); *In re Adventist Health System/West*, No. 9234, 1994 FTC LEXIS 54, at *28 (Apr. 1, 1994) ("Each element of the case must be established by a preponderance of the evidence.").

The Complaint challenges the acquisition under both Section 7 of the Clayton Act and Section 5 of the FTC Act. The allegation that the acquisition is a Section 5 violation, as well as a Section 7 violation, "does not require an independent analysis." *In re Chicago Bridge*, 2005 FTC LEXIS 215, at **8 n.23; *aff'd, Chicago Bridge & Iron Co. v. FTC*, 534 F.3d 410, 423 n.5 (5th Cir. 2008) ("The appeal at issue primarily concerns section 7 of the Clayton Act as section 5 of the FTC Act is, as the Commission determined and the parties do not contest, a derivative violation that does not require independent analysis."). *Accord FTC v. PPG Indus., Inc.*, 798 F.2d 1500, 1501 n.2 (D.C. Cir. 1986) (stating that Section 5 of the FTC Act "may be assumed to be merely repetitive of [Section] 7 of the Clayton Act."); *In re R.R. Donnelley & Sons*, 1995 FTC LEXIS 450, at *34 n.32.

Section 7 of the Clayton Act prohibits acquisitions, "where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or tend to create a monopoly." 15 U.S.C. § 18. *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 355 (1963) ("The statutory test is whether the effect of the merger 'may be substantially to lessen competition' 'in any line of commerce in any section of the country.'"). "Congress used the words '*may be* substantially to lessen competition' to indicate that its concern was with probabilities, not certainties." *Brown Shoe Co. v. United States*, 370 U.S. 294, 323 (1962); *accord FTC v. CCC Holdings, Inc.*, 605 F. Supp. 2d 26, 35 (D.D.C. 2009). "Thus, to establish a violation of Section 7, the FTC need not show that the challenged merger or acquisition *will* lessen competition, but only that the loss of competition is a 'sufficiently probable and imminent' result of the merger or acquisition." *CCC Holdings*, 605 F. Supp. 2d at 35 (quoting *United States v. Marine Bancorp.*, 418 U.S. 602, 623 n.22 (1974)).

The first step in analyzing a Section 7 case is to determine the "line of commerce" and the "section of the country." 15 U.S.C. § 18. In other words, the first step is to determine the relevant product and geographic markets. *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1110 (N. D. Cal. 2004); *In re R.R. Donnelley & Sons*, 1995 FTC LEXIS 450, at *37-38. *See United States v. General Dynamics Corp.*, 415 U.S. 486, 510 (1974) (stating that the "delineation of proper geographic and product markets is a necessary precondition to assessment of the probabilities of a substantial effect on competition within them"). Complaint Counsel bears "the burden of proving a relevant market within which anticompetitive effects are likely as a result of the acquisition." *In re R.R. Donnelley & Sons*, 1995 FTC LEXIS 450, at *38.

The second step in analyzing a Section 7 case is to determine whether the effect of the acquisition "may be substantially to lessen competition, or to tend to create a monopoly." 15 U.S.C. § 18. In *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 982-

83 (D.C. Cir. 1990), the D.C. Circuit adopted an analytical approach to Section 7 cases which has been followed in subsequent cases. That analytical framework, by which the government can establish the probable effect of an acquisition, has traditionally consisted of a burden shifting exercise with three parts.

First, the government must establish a prima facie case that an acquisition is unlawful. *Baker Hughes*, 908 F.2d at 982; *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 715 (D.C. Cir. 2001). Typically, the government establishes a prima facie case by showing that the transaction in question will significantly increase market concentration, thereby creating a presumption that the transaction is likely to substantially lessen competition. *Heinz*, 246 F.3d at 715; *Chicago Bridge*, 534 F.3d at 423.

Second, once the government establishes the prima facie case, the respondent may rebut it by producing evidence to cast doubt on the accuracy of the government's statistical evidence as predictive of future anticompetitive effects. *Baker Hughes*, 908 F.2d at 982; *Chicago Bridge*, 534 F.3d at 423. This second step of the analysis requires that the merger be "functionally viewed, in the context of its particular industry." *Brown Shoe*, 370 U.S. at 321-22; *In re Weyerhaeuser Co.*, No. 9150, 106 F.T.C 172, 1985 FTC LEXIS 26, at *215 (Sept. 26, 1985). "Nonstatistical evidence which casts doubt on the persuasive quality of the statistics to predict future anticompetitive consequences may be offered to rebut the prima facie case made out by the statistics." *Kaiser Aluminum*, 652 F.2d at 1341.

Factors which may be considered to rebut a prima facie case include "ease of entry into the market, the trend of the market either toward or away from concentration, and the continuation of active price competition." *Id.* In addition, courts and the Commission typically consider "efficiencies, including quality improvements, after the government has shown that the transaction is likely to reduce competition." *In re Evanston Northwestern Healthcare Corp.*, No. 9315, 2007 FTC LEXIS 210, at *191 (Aug. 6, 2007) (citing *Heinz*, 246 F.3d at 715, 720). "The defendant has the burden of production to show that efficiencies offset any likely anticompetitive effects of the increase in market power produced by the merger." *Id.* (citing *Heinz*, 246 F.3d at 715, 720; *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1088-89 (D.D.C. 1997)).

Third, and finally, if the respondent successfully rebuts the prima facie case, the burden of production shifts back to the government and merges with the ultimate burden of persuasion, which is incumbent on the government at all times. *Baker Hughes*, 908 F.2d at 983; *Chicago Bridge*, 534 F.3d at 423; *FTC v. University Health, Inc.*, 938 F.2d 1206, 1218-19 (11th Cir. 1991); *Kaiser Aluminum*, 652 F.2d at 1340.

The courts recognize, however, that in practice, evidence is often considered all at once and the burdens are often analyzed together. *Chicago Bridge*, 534 F.3d at 424-25 (citing *University Health*, 938 F.2d at 1218-19). "The Ninth and Eleventh Circuits interpret *Baker Hughes*' burden-shifting language as describing a flexible framework, rather than an air-tight rule." *Chicago Bridge*, 534 F.3d at 424. As a practical matter, the distinction between the burden of production and the ultimate burden of persuasion can be elusive. *Baker Hughes*, 908 F.2d at 991. Thus, in *Chicago Bridge*, where the government's prima facie case addressed why the respondent's rebuttal evidence was not sufficient or not credible, the court held that the Commission could conclude that the respondent's burden of production on rebuttal had not been satisfied, without having to formally switch the burden of production back to the government. *Chicago Bridge*, 534 F.3d at 424.

The Commission also recognizes a more flexible approach to the evidentiary analysis, stating: Although the courts discuss merger analysis as a step-by-step process, the steps are, in reality, interrelated factors, each designed to enable the fact-finder to determine whether a transaction is likely to create or enhance existing market power. *In re Evanston*, 2007 FTC LEXIS 210, at *141-42 (citing *Baker Hughes*, 908 F.2d at 984 (Section 7 inquiry is of a "comprehensive nature")).

This more flexible approach accommodates the practical difficulties in separating the burden to persuade and the burden to produce, and "allows the Commission to preserve the *prima facie* presumption if the respondent . . . fails to satisfy the burden of production in light of contrary evidence in the *prima facie* case." *Chicago Bridge*, 534 F.3d at 425. *See also Oracle*, 331 F. Supp. 2d at 1111 (noting that the Supreme Court and appellate courts acknowledge the need to adopt a flexible approach in determining whether anticompetitive effects are likely to result from a merger, and that the Merger Guidelines view statistical and non-statistical factors as an integrated whole, avoiding the burden shifting presumptions of the case law).

C. Relevant Product Markets

1. Relevant product markets in general

Proper definition of the product market is "a necessary precondition to assessment" of the effect of a merger or acquisition on competition. *General Dynamics*, 415 U.S. at 510; *see Brown Shoe*, 370 U.S. 294, 324 (1962) (interpreting the phrase "any line of commerce" in Section 7 of the Clayton Act to require determination of the product market). A properly defined or relevant product market identifies the products with which the defendants' products compete and should include those producers that have the actual or potential ability to take significant business from each other. *CCC Holdings*, 605 F. Supp. 2d at 37; *SmithKline Corp. v. Eli Lilly & Co.*, 575 F.2d 1056, 1063 (3d Cir. 1978).

In a relevant product market ("relevant product market" or "product market"), the producers could exercise market power – in other words, profitably raise price substantially above the competitive level, for a significant period of time, by restricting output – if they were united through a cartel or merger. IIB Phillip E. Areeda, Herbert Hovenkamp & John L. Solow, Antitrust Law: An Analysis of Antitrust Principles and Their Application (hereinafter "Antitrust Law") ¶¶ 501, 530a, at 109-11, 225-27 (3d ed. 2007). The major constraint on their ability to exercise market power is the availability of substitutes for their products. *H.J., Inc. v. Int'l Tel. & Tel. Corp.*, 867 F.2d 1531, 1537 (8th Cir. 1989); *see Rothery Storage & Van Co. v. Atlas Van Lines, Inc.*, 792 F.2d 210, 218 (D.C. Cir. 1986).

The principal factors that the courts and the Commission consider in defining a relevant product market are set forth below.

a. Reasonable interchangeability of use and cross-elasticities of demand

The two factors that courts have traditionally emphasized in defining a product market are "the reasonable interchangeability of use and the cross-elasticity of demand between the product itself and substitutes for it." *FTC v. Arch Coal, Inc.,* 329 F. Supp. 2d 109, 119 (D.D.C. 2004) (quoting *Brown Shoe*, 370 U.S. at 325). These factors address the question of "'whether two products can be used for the same purpose, and if so, whether and to what extent purchasers are willing to substitute one for the other.'" *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1074 (D.D.C. 1997) (quoting *Hayden Publ'g Co. v. Cox Broad. Corp.*, 730 F.2d 64, 70 n.8 (2d Cir. 1984)).

If products can be used for the same purpose, the products are deemed "functionally interchangeable." *United States v. Chas. Pfizer & Co.*, 246 F. Supp. 464, 468 (E.D.N.Y. 1965); *accord Arch Coal,* 329 F. Supp. 2d at 119. Courts generally place functionally interchangeable products in the same product market. *Arch Coal*, 329 F. Supp. 2d at 119. However, products are only included in the same market if they are both functionally and reasonably interchangeable. *Pfizer*, 246 F. Supp. at 468 n.3. "Whether one product is reasonably interchangeable for another depends not only on the ease and speed with which customers can substitute it and the desirability of doing so, but also on the cost of substitution, which depends most sensitively on the price of the products." *FTC v. Whole Foods Mkt., Inc.,* 548 F.3d 1028, 1037 (D.C. Cir. 2008) (citing *United States v. Microsoft Corp.*, 253 F.3d 34, 53-54 (D.C. Cir. 2001) (en banc)). *See, e.g., United States v. E. I. Du Pont de Nemours & Co.*, 351 U.S. 377, 399, 404 (1956) (recognizing not only "a very considerable degree of functional interchangeability" between cellophane and other flexible packaging materials but also "reasonable interchangeability for the purposes for which they are produced -- price, use and qualities considered").

Customer preferences for one product versus another do not negate reasonable interchangeability. *Oracle,* 331 F. Supp. 2d at 1131. "[T]he issue is not what solutions the customers would like or prefer for their . . . needs; the issue is what they could do in the event of an anticompetitive price increase by [the merged entity]." *Id.*; *see also Arch Coal*, 329 F. Supp. 2d at 122 (finding that the type of coal some customers preferred was not in a separate relevant market when customers with that preference could and did use other types of coal and benefited from the competition). In addition, even though the court must evaluate the extent to which customers treat products as interchangeable, it need not find that all customers will substitute one product for another. *Arch Coal*, 329 F. Supp. 2d at 122.

The change in the demand for one product in response to a change in the price of another product – the products' cross-price elasticity of demand (or "cross-elasticity of demand") – is an important consideration in market definition, because it reveals the ability of substitute products to constrain prices and maintain competition. *See, e.g., Du Pont*, 351 U.S. at 400 (deciding that the "great sensitivity" of customers of flexible packaging materials to changes in the materials' relative prices prevented the cellophane maker's monopoly control over price); *FTC v. Swedish Match*, 131 F. Supp. 2d 151, 157 (D.D.C. 2000) (stating that if moist snuff were "sufficiently similar" to loose-leaf tobacco to induce "adequate substitution to defeat" loose-leaf price increases, it should be included in the same product market); *In re R.R. Donnelley*, 1995 FTC LEXIS 450, at *44 n.44 (observing that "[c]ross-price elasticity of demand between the product in question and other products is used as the best indicator of own[-]price elasticity of demand for the product in question, which is the ultimate concern of market definition").

The higher the cross-elasticity of demand between two products, the more likely it is that the products will be counted in the same market. *Rothery Storage*, 792 F.2d at 218; *FTC v. Cardinal Health, Inc.*, 12 F. Supp. 2d 34, 46 (D.D.C. 1998). However, "[t]he existence of significant substitution in the event of *further* price increases or even at the *current* price does not tell us whether the defendant *already* exercises significant market power." Phillip Areeda & Louis Kaplow, Antitrust Analysis ¶ 340(b) (4th ed. 1988), *quoted in Eastman Kodak Co. v. Image Technical Servs.*, Inc., 504 U.S. 451, 471

(1992). Therefore, "[c]ourts should be wary of defining markets so broadly that a seller's existing market power is missed." *Oracle*, 331 F. Supp. 2d at 1121.

"The cross-elasticity of production facilities may also be an important factor in defining a product market . . ." *Brown Shoe*, 370 U.S. at 325 n.42. The greater the cross-elasticity of supply or production – the change in the supply of, or in the use or capacity of production facilities for, one product in response to a change in the price of another product – the more likely it is that the products will be placed in the same relevant market. *Rothery Storage*, 792 F.2d at 218; *Cardinal Health*, 12 F. Supp. 2d at 46.

Respondent in this case claims a "high degree of supply-side substitution." RB at 11. Supply substitution (or "supply-side substitution") – the likely responses of sellers to price changes – may appropriately be considered in defining a product market. *Kaiser Aluminum*, 652 F.2d at 1330. *See Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1436 (9th Cir. 1995) (ruling that the ease with which full-serve gasoline stations could be converted to self-serve required full-serve sales to be included in the relevant market); *New York v. Kraft Gen. Foods, Inc.*, 926 F. Supp. 321, 360-61 (S.D.N.Y. 1995) (finding that line extensions of existing cereal brands, or switches in the production of companion brands (such as Frosted Flakes and Corn Flakes), could be sufficiently "swift and . . . competitively significant" to reinforce or support the court's conclusion, based on demand considerations, that the relevant market comprised all ready-to-eat cereals); *Frank Saltz & Sons, Inc. v. Hart Schaffner & Marx*, No. 82 Civ. 2931, 1985 U.S. Dist. LEXIS 16243, at *14 (S.D.N.Y. Sept. 5, 1985) (concluding that "[t]he interchangeability of better quality suits with other suits on both the supply and demand side, as well as the inherent weakness of a relevant market definition that is described only by price, preclude a finding that the relevant market consists [only] of better quality suits").

At the same time, "any test 'which ignores the buyers and focuses on what the sellers do, or theoretically can do, is not meaningful' in determining a relevant product market," *Beatrice Foods Co. v. FTC*, 540 F.2d 303, 307 (7th Cir. 1976) (quoting *United States v. Bethlehem Steel Corp.*, 168 F. Supp. 576, 592 (S.D.N.Y. 1958)), at least outside the realm of economic theory. *Kaiser Aluminum*, 652 F.2d at 1330 & n.5. "Deviation from an exclusive demand-side focus is rarely employed when markets are defined for the purpose of analyzing mergers . . . ." Andrew I. Gavil, William E. Kovacic & Jonathan B. Baker, Antitrust Law in Perspective: Cases, Concepts and Problems in Competition Policy 489-90 (2d ed. 2008).

Demand substitution will, accordingly, remain the focus, though not the exclusive focus, of market definition in this case. Supply substitution is, however, sufficiently important in principle and so central to Respondent's theory of the case that it is considered.

b. The approach of the Merger Guidelines

The Horizontal Merger Guidelines set forth the approach and the standards that the federal antitrust agencies "normally" use in analyzing the merger or acquisition of a competitor. U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 0 (1992), as revised (1997) ("Merger Guidelines"). In evaluating antitrust issues, such as market definition and competitive effects, a number of courts have applied or considered the Merger Guidelines. *California v. Sutter Health Sys.*, 130 F. Supp. 2d 1109, 1120 (N.D. Cal. 2001); *In re R.R. Donnelley*, 1995 FTC LEXIS 450, at *38 n.36. The Merger Guidelines are not, however, binding on the courts. *PPG Indus.*, 798 F.2d at 1503 n.4; *Sutter Health*, 130 F. Supp. 2d at 1120; *In re R.R. Donnelley*, 1995 FTC LEXIS 450, at *38 n.36.[5]

In defining a product market, the Merger Guidelines focus solely on the likely responses of buyers to a price increase (*i.e.*, demand substitution). *In re R.R. Donnelley*, 1995 FTC LEXIS 450, at *42; *Merger Guidelines* § 1.0. The likely responses of sellers to a price increase (*i.e.*, supply substitution) are considered in identifying firms that participate in the relevant market and in analyzing entry. *In re R.R. Donnelley*, 1995 FTC LEXIS 450, at *42; *Merger Guidelines* § 1.0.

[5] The *Merger Guidelines* are, after all, only guidelines and acknowledge that "mechanical application of [their] standards may provide misleading answers to the economic questions raised under the antitrust laws." *Merger Guidelines* § 0. The *Merger Guidelines* are, thus, to be applied "flexibly." *Id.*

The Guidelines generally define a product market as the smallest "group of products such that a hypothetical profit-maximizing firm that was the only present and future seller of those products ('monopolist') likely would impose at least a 'small but significant and nontransitory' increase in price." *Merger Guidelines* § 1.11. If a "'small but significant and nontransitory' increase in price" ("SSNIP" or "small price increase") would induce enough buyers to switch to substitute products, the price increase would be unprofitable and the tentatively identified product group would be too narrow. *Id.* The product group should expand to include "the next-best substitute for the merging firm's product" until a group of products is identified that satisfies the hypothetical monopolist's small price increase or SSNIP test. *Id.*

Under the Merger Guidelines' approach, the question, simply put, is whether a hypothetical monopolist could profitably impose a small price increase or a SSNIP. *Whole Foods*, 548 F.3d at 1038; *Oracle*, 331 F. Supp. 2d at 1111-12; *United States v. SunGard Data Sys.*, 172 F. Supp. 2d 172, 190 (D.D.C. 2001). "If a small price increase would drive consumers to an alternative product, then that product must be reasonably substitutable for those in the proposed market and must therefore be part of the market, properly defined." *Whole Foods*, 548 F.3d at 1038 (citing *Merger Guidelines*); *see Arch Coal*, 329 F. Supp. 2d at 120 (noting that the Merger Guidelines present an analytical framework for considering product interchangeability and cross-elasticity of demand). Product market definition "is based on the 'narrowest market' principle." *Arch Coal*, 329 F. Supp. 2d at 120 (record citation omitted).

A product market may also be defined on the basis of sellers' ability to exercise price discrimination in sales to particular customers. *Merger Guidelines* § 1.12. A hypothetical monopolist could profitably impose a discriminatory SSNIP on sales to targeted buyers if those buyers would not defeat the SSNIP by switching to other products, and if other buyers would not undermine the discrimination by purchasing the product at a lower price and reselling it to the targeted buyers. *Id.* The relevant market could, in such a case, consist of "a particular use" of a product by a customer group. *Id.*

c. *Brown Shoe's* "practical indicia"

The boundaries of a product market (or of a submarket that may also, if properly defined, amount to a product market for antitrust purposes) may, in addition, "be determined by examining such practical indicia as industry or public recognition of the submarket 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." *Brown Shoe*, 370 U.S. at 325. These "practical indicia," as Judge Bork commented, "seem to be evidentiary proxies for direct proof of [demand and supply] substitutability. . . . When submarket indicia are viewed as proxies for cross-elasticities they assist in predicting a firm's ability to restrict output and hence to harm consumers." *Rothery Storage*, 792 F.2d at 218-19 (citing J. Von Kalinowski's statement that *Brown Shoe* "does not provide 'a new test' for determining the relevant market, but merely provides 'several new factors' in discovering 'interchangeability between different products'").

Numerous courts have applied, and continue to apply, *Brown Shoe's* "practical indicia" in determining the relevant market. *See, e.g., Beatrice Foods*, 540 F.2d at 308-09 (limiting the relevant market to paint brushes and rollers, and excluding aerosol and other paint sprayers, based on industry recognition of separate markets and on the products' peculiar characteristics, different production processes, and distinct prices); *CCC Holdings*, 605 F. Supp. 2d at 43 (finding that "practical indicia – particularly industry recognition of a separate market; TLV's [automobile total loss valuation software's] peculiar characteristics . . . ; and sensitivity to price changes only against other TLV products – support the conclusion that TLV software products represent a relevant product market"). As *Brown Shoe's* factors are "practical indicia" and not requirements, courts have found markets or submarkets even when only some of these factors are present. *Staples*, 970 F. Supp. at 1075; *see id.* at 1075-80 (noting pricing evidence corresponding to the "sensitivity to price changes" factor, the uniqueness of office superstores, and documents showing how the merging parties evaluated their competition).

Proper market definition "is a matter of business reality . . . of how the market is perceived by those who strive for profit in it." *FTC v. Coca-Cola Co.*, 641 F. Supp. 1128, 1132 (D.D.C. 1986), *vacated as moot*, 829 F.2d 191 (D.C. Cir. 1987). Thus, the merging parties' documents may reveal how they evaluate their "competition," and may be highly probative of what the relevant market is. *See, e.g.*, *Cardinal Health*, 12 F. Supp. 2d at 49 & n.10; *Staples*, 970 F. Supp. at 1079; Commentary on the Horizontal Merger Guidelines, at 11. The views of other industry participants may also help to delineate the market. *See, e.g.*, *CCC Holdings*, 605 F. Supp. 2d at 42 n.18; *Swedish Match*, 131 F. Supp. 2d at 164-65. "[T]he apt warning" may nonetheless be noted that "'"separate markets are not indicated by documents within A firms that are preoccupied with other A firms . . . . [if] a hypothetical monopolist of product A firms would focus entirely on the price of a close substitute B.'" *CCC Holdings*, 605 F. Supp. 2d at 42 n.18 (internal quotation omitted).

With these general principles in mind, the relevant product markets in this case are analyzed.

2. Relevant product markets in this case

For the reasons set forth below, the evidence supports the four relevant product markets alleged in the Complaint that Complaint Counsel sought to prove at trial: deep-cycle; motive; uninterruptable power supply ("UPS"), and starting, lighting, and ignition ("SLI" or "automotive") battery separators for flooded lead-acid batteries. Complaint ¶ 5. The evidence does not support the alternative markets proposed by Respondent: a market of an all polyethylene ("PE") battery separators for flooded lead-acid batteries[6] and a Flex-Sil market.

This analysis first addresses aspects of the separator industry for flooded lead-acid batteries as a whole. The deep-cycle, motive, UPS, and SLI separator markets are then analyzed in turn. Finally, Respondent's opposition to Complaint Counsel's proposed

[6] The Complaint also alleges an all PE market, Complaint ¶ 6, but Complaint Counsel declined to pursue this allegation at trial. *See, e.g.*, Complaint Counsel's Pre-Trial Br. at 8-13 (Apr. 20, 2009) (positing only four rather than five relevant product markets).

markets, together with Respondent's proposed all PE separator and Flex-Sil only markets, are examined.

a. The separator industry for flooded lead-acid battery separators as a whole

All flooded lead-acid battery separators perform certain basic functions and share certain basic characteristics. F. 81-82. Flooded lead-acid batteries are different from, and more expensive than, valve-regulated lead-acid ("VRLA") batteries, which use an absorbed (or absorptive) glass mat ("AGM") separator and are also referred to as AGM batteries. F. 83-84.

Battery separators are differentiated by various characteristics, including their base material, the additives to their base material, their formula, rib spacing, backweb and overall thickness, border areas, and finishing. F. 85-87. As Respondent's expert economist concedes, battery separators are "highly differentiated products." Kahwaty, Tr. 5132-33; F. 85; *see, e.g.*, F. 118-19.

Separators with different backweb thicknesses perform differently. F. 88. It is possible, but atypical, to use separators with the same backweb thickness in different applications. F. 89. Since separators vary in electrochemical properties and other respects besides thickness, the battery's performance, including its life, would probably be affected if separators of the same backweb thickness were swapped from one application into another. F. 90-91, 97.

A particular type of battery, made for a particular application in accordance with particular specifications for performance, often requires unique features or properties for the separator. F. 92. Battery separator manufacturers, thus, make different separator products, each of which may be especially suited to a specific application or end use. F. 92; *see, e.g.*, F. 96.

Daramic categorizes its separator sales by broad categories of end uses or applications, F. 93, 120, and its different separator types are tailored to provide the particular functionality that is sought for particular applications. F. 94. Although there are some exceptions or overlaps, the following applications for flooded lead-acid batteries generally use different types of separators: deep-cycle, motive, UPS, and SLI applications. F. 95.

PE separator manufacturers typically know the end use applications for the separators that they sell. F. 98-113. Separators for different end use applications return different gross margins for Daramic and sell in different price ranges. F. 114-16. Arbitrage of separators – in the sense of resale by customers charged lower prices to customers charged higher prices – is unlikely, because separators are, for the most part, differentiated products, manufactured with customer-specific designs. F. 117; *see generally* F. 85, 92.

Dr. John Simpson, Complaint Counsel's expert economist, opined that deep-cycle, motive, UPS, and SLI battery separators are each a relevant product market. F.121; *see* F. 122-23. He based his opinion, in part, on an analysis of "critical loss": The largest amount of sales that a hypothetical monopolist in each of these markets could lose before a 5 to 10% price increase would become unprofitable. F. 176. Critical loss analysis has become "a standard tool" for economists in defining relevant markets. *CCC Holdings*, 605 F. Supp. 2d at 40 n.16. Economists perform a critical loss analysis to calculate the "critical loss": the percentage of sales that would have to be lost to make a price increase unprofitable for a hypothetical monopolist. *Arch Coal*, 329 F. Supp. 2d at 121 n.7. If the actual loss – the percentage of sales that would actually be lost in response to a given price increase – is less than the critical loss, the price increase would be profitable and the product market need not be broadened to include other products. IV Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law ¶ 914a1, at 80-81 (3d ed. 2009). However, critical loss analysis suffers from a "widely recognized flaw . . . that such analysis often overstates actual loss when a company has high profit margins . . . ." *Whole Foods*, 548 F.3d at 1048 (Tatel, J., concurring).

Dr. Simpson, like respondent's expert in *Whole Foods*, did not provide sufficient quantitative evidence for the magnitude of the actual loss, or sufficient methodology for calculating the actual loss. Dr. Simpson's basis for his statement as to actual loss seems to be his conclusion, for each of the separator markets he found, that other "evidence in this case indicates that . . . a [hypothetical] monopolist [of production in North America] would lose essentially no sales to products outside the product market and very little, if any, sales to products outside the geographic market." PX0033 (Simpson Report) at 007, *in camera*.

While Dr. Simpson's critical loss analysis may not be completely persuasive, such analysis is not necessary to support his overall product market analysis, which is persuasive and supported by the record. His opinion, for each of the alleged markets, took into account the "unique need[s]" that each of those types of separators met, as well as company documents that analyzed competition in the context of each of those alleged markets. *See* PX0033 (Simpson Report) at 12, 14-18, *in camera*. In addition, for each of the alleged markets, "the main thing [that Dr. Simpson] was relying on in implementing the hypothetical monopolist test was the statements by the buyers that they had very little options to substitute, and hence, that the demand curve was very inelastic." (Simpson, Tr. 3414, *in camera*; *see* PX0033 (Simpson Report) at 12-18, *in camera*). While the record does not indicate clearly which buyer statements Dr. Simpson considered, there is considerable evidence in the record of no, or of very few, "reasonable" alternatives, weighing "price, use, and qualities," *Du Pont*, 351 U.S. at 404, to Daramic's products. *See* F. 167-73 (regarding deep-cycle separators); F. 206-13 (regarding motive separators); F. 238-40 (regarding UPS separators); F. 262-64 (regarding SLI separators).

The specific product markets are analyzed below.

b. Separators for deep-cycle flooded lead-acid batteries: a relevant product market

"Deep-cycle" batteries are batteries that deeply discharge, such as those used in golf carts, floor scrubbers, scissor lifts, and boom lifts. F. 128, 162. Deep-cycle batteries are typically more deeply discharged than motive batteries, and are designed to run at lower amperage, for a longer period of time, than SLI batteries. F. 130-31. The construction of deep-cycle batteries differs from that of other types of batteries, particularly automotive batteries. F. 132. Deep-cycle batteries are made with thicker and more durable grids or plates, which can better withstand deep discharges and corrosion, and high-density active material that take longer to fall apart. F. 132.

Deep-cycle batteries typically use a lead alloy plate with relatively high antimony content. F. 133. SLI batteries, in contrast, typically have much lower antimony content, or no antimony content at all. F. 133. Antimony aids in the construction of deep-cycle batteries and facilitates their cycle of charges and discharges. F. 136-37, 151. However, "antimony poisoning" takes place when traces of antimony are released through corrosion, and antimony deposits onto the negative plate. F. 138. Antimony poisoning shortens the life of the battery and requires the battery user to add water to the battery more often. F. 139. Battery separators that are made of rubber, such as Flex-Sil, or that are made of PE and incorporate a rubber additive, such as Daramic HD and CellForce, reduce antimony poisoning in deep-cycle batteries. F. 140-48, 151.

On the other hand, separators that are made of pure PE are not able to suppress antimony poisoning. F. 150. Pure PE separators do not perform as well as separators that are made of rubber, or that incorporate a rubber additive, in deep-cycle applications. F. 150-56; *see* F. 184. Separators made of polyvinyl chloride ("PVC") also fail to suppress antimony poisoning and pose certain risks. F. 157-58, 184. Sealed batteries, using AGM or silica gel separators, also do not perform well in deep-cycle applications, and are considerably more expensive than flooded batteries. F. 159-60.

For the reasons noted in the preceding paragraph, separators that are made of pure PE, PVC, AGM, or silica gel do not generally have "reasonable interchangeability for the purposes for which they are produced – price, use and qualities considered," *Du Pont*, 351 U.S. at 404 – with separators that are made of, or that incorporate, rubber. For the reasons noted above regarding deep-cycle separators' distinctive characteristics, as well as in Section III C 2 a, regarding flooded lead-acid battery separators as a whole, separators that are made for motive, UPS, SLI, and other applications are also not typically interchangeable with separators that are made for deep-cycle applications such as golf carts and floor scrubbers. *See generally* Sections III C 1 a, III C 3 c, *supra*.

Since Daramic's acquisition of Microporous, there has been only a single source of flooded lead-acid batteries for deep-cycle applications. F. 167-68, 170. As of mid-2009, there was no switching by Daramic's customers to separators that do not include rubber in response to its post-acquisition price increases on deep-cycle separators. F. 170-71. There was also no switching to separators that do not include rubber in response to the limited supply of Daramic HD during the strike at Daramic's Owensboro plant in 2008. F. 172-73.

Dr. Simpson correctly concluded that deep-cycle battery separators are a relevant product market. F. 179. In support of his conclusion, Dr. Simpson observed that for the deep-cycle batteries that are used in golf carts and floor scrubbers, battery manufacturers would not switch to products other than Flex-Sil, CellForce, or Daramic HD, even with a 5% increase in their price, because there are no close substitutes for those three products. F. 179. As Dr. Simpson observed, "both producers and customers note that rubber or PE/rubber deep-cycle battery separators meet a unique need that other battery separators cannot meet." F. 174. Even Respondent's own economic expert, Dr. Kahwaty, described the demand for separators in the golf cart and floor scrubber market as "inelastic." F. 175.

The boundaries of the deep-cycle separator market are also shown by "such practical indicia as industry or public recognition of the [market or] submarket as a separate economic entity, [and] the product[s'] peculiar characteristics and uses." *Brown Shoe*, 370 U.S. at 325. These indicia, as Judge Bork explains,

> represent[] observations about what one ordinarily observes when a market is distinct. The "industry or public recognition of the submarket as a separate economic" unit matters because we assume that economic actors usually have accurate perceptions of economic realities. The "product's peculiar characteristics" refers to the general truth that substitutes in a market often have a strong physical and functional relationship.

Rothery Storage, 792 F.2d at 219.

In this case, deep-cycle batteries, and deep-cycle battery separators, have distinctive characteristics and distinctive uses or functions. F. 128-56, 162-66, 180. "[C]ompany documents," do, as Dr. Simpson stated, "analyze competition in the context of a market for deep-cycle battery separators." F. 174. The merging parties viewed deep-cycle separators as a separate product market. F. 181-87. Each saw only the other as a competitor in this market. F. 184, 186-87. Only Daramic and Microporous bid in response to the request for proposal (or "RFP") to supply golf cart battery separators to Exide. F. 189. Only Daramic and Microporous have supplied deep-cycle separators to U.S. Battery, which presents itself as the leading manufacturer worldwide of deep-cycle batteries. F. 188.

Deep-cycle battery separators are, for all of these reasons, a relevant product market.

c. Separators for motive flooded lead-acid batteries: a relevant product market

"Motive" batteries are also referred to as "traction" or "industrial traction" batteries. F. 190. Motive batteries are typically very large; they can, thus, serve as counterweights in industrial vehicles (especially material-handling equipment) to help to make those vehicles stable. F. 193. Motive batteries, which are used primarily in forklift trucks, F. 204, are generally much larger, and much more robustly built, than deep-cycle batteries. F. 193; *see* F. 194. The insulation that is used in motive batteries is very expensive and is not a cost-effective option for deep-cycle batteries. F. 194.

Motive separators generally have thicker backwebs than other separators, particularly SLI separators. F. 195. Motive separators have higher requirements with respect to mechanical properties and chemical stability, and lower requirements with respect to electrical resistance, than SLI separators. F. 196.

Respondent sells Daramic Industrial CL ("Daramic CL") for motive batteries. F. 197. Daramic CL is a standard PE separator. The CL stands for clean oil and signifies the use of clean oil as an ingredient. F. 197. CellForce, a PE-based separator that includes rubber in the form of ground up Ace-Sil, is also used in motive batteries. F. 198. Daramic HD, too, has been sold to certain motive customers, "pri[m]arily as a defensive move against [Microporous'] CellForce." F. 199.

North American battery manufacturers have shied away from using PVC in lieu of PE separators in motive batteries. F. 200-03. While PVC has greater resistance to oxidation, it has lower electrical resistance, {[redacted]} PE. F. 200. Due to its stiffness and brittleness, PVC, unlike PE, cannot be used in industrial applications in which the separator is sleeved or enveloped. F. 200. The use of PVC separators is also associated {[redacted]} F. 201. EnerSys uses some PVC separators, manufactured by Amer-Sil, in Europe. F. 203. In North America, where the applications are more heavy-duty, EnerSys does not use, or allow the use of, PVC separators in its batteries. F. 203.

For the reasons noted in the above paragraph, separators that are made of PVC do not generally have "reasonable interchangeability for the purposes for which they are produced – price, use and qualities considered," *Du Pont*, 351 U.S. at 404 – with pure PE or PE-based separators. In addition, for the reasons noted above regarding motive separators' distinctive characteristics, as well as in Section III C 2 a, separators that are made for deep-cycle, UPS, SLI, and other applications are also not typically interchangeable with separators that are made for motive applications, such as forklifts. *See generally* Sections III C 1 a, Section III C 3 c, *supra*.

Prior to the acquisition, Exide searched worldwide for alternative suppliers to Daramic for motive separators. F. 210. For the United States market, Exide received responses to its RFP for motive separators only from Daramic and Microporous. F. 210. Amer-Sil had limited capacity and gave a quote to Exide only for European applications. F. 210.

After Daramic declared a force majeure event in 2006, EnerSys established a team to search worldwide for an alternative source of supply for its industrial, including motive, separators. F. 207. EnerSys reported that it was unable to find an alternative supplier that currently makes motive separators anywhere in the world. F. 207-08. During this period of Daramic's force majeure, the PVC separators from Amer-Sil that EnerSys used in Europe were around 20% more expensive than the PE separators that EnerSys had been purchasing from Daramic. F. 209.

The evidence demonstrates that Daramic could profitably impose a 5% price increase for motive separators. If Daramic demanded a {[redacted]} higher price for its motive separators, {[redacted]} testified that it would have no choice but to pay that higher price, because it has no alternative source to Daramic for industrial PE or PE-based separators. F. 206-08.

"Practical indicia," as well as the lack of reasonable substitutes for Daramic's products, also point to a separate motive separator market. Motive batteries, and motive battery separators, have distinctive characteristics and distinctive uses or functions. F. 193-96, 204, 215. Further, Daramic's documents analyze a "market," or a "market segment" as part of a broader "industrial" market, for motive separators. F. 216. Microporous also viewed motive power as a distinct market. F. 217-20. Microporous identified only Daramic, to which it assigned a market share of 91%, as its competitor in the United States motive power market. F. 220. In the European motive power market, Microporous identified Daramic and Amer-Sil, to which it assigned market shares of 58% and 9%, respectively, as its competitors. F. 220.

In support of his conclusion that motive battery separators constitute a relevant product market, Dr. Simpson observed the following: (1) motive separators have different characteristics than deep-cycle and automotive separators, with both customers and producers noting that motive separators fill a unique need; (2) a 5 to 10% price increase by a hypothetical monopolist of motive separators "would prompt very little shifting, at most, to other products"; and (3) a motive separator market is a context in which Daramic and Microporous documents analyze competition. F. 214. These bases for Dr. Simpson's conclusion find support in the record.

Accordingly, motive battery separators are a relevant product market.

d. Separators for UPS flooded lead-acid batteries: a relevant product market

Uninterruptable power supply ("UPS") batteries are a type of reserve power battery for stationary, as opposed to moving or motive, products. F. 224. In the event of a power shortage or failure, UPS batteries provide standby or backup power for products or facilities that include computers and computer systems, telecommunications networks, and data centers. F. 225, 235.

As more fully explained below, *Brown Shoe's* "practical indicia" – the products' "peculiar characteristics and uses" and "industry . . . recognition . . . as a separate economic entity," 370 U.S. at 325 – support the conclusion that battery separators for flooded lead-acid UPS batteries constitute a separate market. In addition, the preponderance of the evidence shows that Daramic could profitably impose a 5% price increase for UPS separators.

UPS batteries, and UPS battery separators, have certain distinctive characteristics, uses and/or functions. F. 224-30, 235, 243. Classic reserve power batteries generate a lower current over a longer period of time than UPS batteries, which generate a higher current over a shorter period of time. F. 224. UPS batteries are designed to provide a short burst of power, typically of between five to thirty minutes in duration. F. 225. These batteries need to be very dependable and generally last between 15 and 20 years. F. 225. In addition, flooded UPS batteries have thick plates and tend to be built with a clear case, which facilitates inspection of the battery's acid level. F. 226.

Moreover, although battery separators for flooded, lead-acid UPS batteries are typically made of microporous polyethylene, not all PE separator products are well-suited for flooded UPS battery applications. F. 227, 231. Separators for flooded stationary battery applications, including UPS, generally require a lower residual oil content than separators for other flooded battery applications, in order to reduce the problem of "black scum." F. 227-29. Black scum interferes with the maintenance of a flooded UPS battery by obscuring the indicators for the acid level in the battery, making it harder to detect the formation of lead sulfate on the surface of the plates. F. 228. In UPS and other battery applications in which an automatic watering system is used, black scum may also interfere with a valve, causing the battery to overfill and spill acid. F. 228-29.

Daramic CL was specifically designed for industrial applications, such as UPS, where black scum is a problem. F. 232. Daramic's Darak separator, with a base not of PE, but of cross-linked phenolic resin, could also be used in UPS batteries because it contains no oil. F. 234. In addition, CellForce, which includes rubber in the form of ground-up Ace-Sil, can be used in UPS batteries. F. 233. Use of a separator like Daramic HP in a UPS application, in contrast, rather than the automotive application for which Daramic HP was designed, would yield a greater black scum problem than the use of Daramic CL. F. 231-32. The fact that Darak is more expensive than PE-based material used today, F. 234, does not necessarily mean Darak is not reasonably interchangeable with PE-based separators in flooded lead-acid UPS battery applications. *See, e.g., Du Pont*, 351 U.S. at 401, 403-04; *Beatrice Foods*, 540 F.2d at 309-10.

In addition, the evidence shows industry recognition of a UPS market. Microporous sought to enter what it called the "UPS market," in which Microporous identified only Daramic as its competition. F. 244. Daramic also views UPS separators as part of a broader "market segment," which it calls "reserve power," of "industrial" separators. F. 245.

The evidence further supports the conclusion that Daramic could profitably impose a {[redacted]} price increase for UPS separators. EnerSys testified that if Daramic demanded a {[redacted]} higher price for its UPS separators, EnerSys would have no choice but to pay that higher price, because it has no alternative source to Daramic for UPS separators. F. 238-60. After Daramic declared force majeure in 2006, EnerSys established a team to search worldwide for an alternative source of supply of separators for its industrial, including flooded UPS, batteries. F. 238. EnerSys recounted that it was unable to find an alternative supplier that currently makes flooded UPS battery separators anywhere in the world. F. 238.

Finally, expert opinion supports the conclusion that separators for UPS batteries are a separate market. F. 242. Dr. Simpson correctly concluded that UPS battery separators are a relevant product market. F. 242. He adduced the following in support of this conclusion: (1) statements by market participants that UPS separators meet a unique need; (2) EnerSys' indication that it would not switch to other types of separators in response to a {[redacted]} price increase for UPS separators; and (3) Microporous documents that analyzed competition in the context of a UPS separator market. F. 242. The record amply supports the bases for Dr. Simpson's conclusion.

For all the foregoing reasons, battery separators for flooded, lead-acid UPS batteries constitute a relevant product market.

e. Separators for SLI or automotive flooded lead-acid batteries: a relevant product market

The term "SLI," which stands for starting, lighting, and ignition, is basically synonymous with "automotive." F. 259. However, SLI batteries are not only used in automobiles, but are also used in other motorized vehicles. F. 260. SLI separators must have relatively low electrical resistance to allow for the surge in current that is needed to start a car, for example. F. 249. Puncture resistance and mechanical strength are other particularly important properties for SLI separators. F. 252. The battery fails if the thin membrane of an SLI separator is punctured during automotive assembly or other processes. F. 252.

SLI separators must also be very thin. F. 250. A very high percentage – perhaps 90% – of the automotive separators that are produced in North America, and virtually all of the automotive separators that Daramic sells, have a backweb thickness of between six and ten mils (150 to 250 microns, or .150 to .250 millimeters). F. 250. The typical backweb thickness of the automotive separators that are used in the United States is .15 millimeter. F. 250. The backweb thickness of SLI separators has been reduced in recent years to lower the separators' cost. F. 251.

Daramic HP, which is made from polyethylene, amorphous silica, and specially formulated oil, represents the majority of Daramic's sales of automotive separators. F. 253. Daramic HP has largely replaced Daramic Standard, which is formulated from polyethylene, silica, and oil. F. 254. The goal in developing Daramic HP was to provide a product with substantially greater puncture and oxidation resistance than Daramic Standard. F. 256. With HP, Daramic could offer the thinner and less expensive product that competitors were seeking to bring to market and that customers wanted, while maintaining the puncture and oxidation resistance of a thicker separator like Daramic Standard. F. 256.

The CellForce separator, which includes rubber in the form of ground-up Ace-Sil, could potentially be used in SLI batteries, and was tested by JCI in Europe for this application. F. 257. CellForce would have certain advantages in SLI batteries because it inhibits acid stratification and may permit the battery manufacturer to remove some lead from the battery and, thereby, reduce cost. F. 257. Daramic's Strategy Audit states as part of its "industry summary" of the flooded lead-acid battery separator business that there are "[n]o substitutes for PE separators on the horizon." F. 258.

Accordingly, separators that are not made of pure PE, with the possible exception of CellForce, do not generally have "reasonable interchangeability for the purposes for which they are produced – price, use and qualities considered," *Du Pont*, 351 U.S. at 404 – with PE separators for automotive applications. For the reasons noted above regarding automotive separators' distinctive characteristics, as well as in Section III C 2 a, separators that are made for deep-cycle, motive, UPS, and other applications are also not typically interchangeable with SLI separators. *See generally* Sections III C 1 a, III C 3 c, *supra*.

Prior to the acquisition, Exide conducted an extensive global search for alternative suppliers to Daramic for automotive separators. F. 264. As part of this search, in the summer of 2007, Exide sent out an RFP to Daramic, Entek, Nippon Sheet Glass, Amer-Sil, and Microporous. F. 264, 694. Exide received bids for its automotive separator requirements only from Daramic, Entek, and Microporous. F. 264.

Mr. Kung, who has considerable technical and managerial experience in battery separator production, testified that he knows of only three companies in the world – Daramic, Entek, and BFR in China – that produce automotive PE separators as thin as the .15 millimeter that is standard in the United States industry. F. 262. A manufacturer that has not been producing an automotive PE separator as thin as .15 millimeter would find it very difficult to decrease the thickness of its separator. F. 263. A reduction in the thickness of an automotive PE separator from .25 or .2 to .15 millimeter would, according to Mr. Kung, involve a "different technology, different process condition[s, and] different equipment," as well as greater engineering capability. F. 263.

Three of *Brown Shoe's* "practical indicia," 370 U.S. at 325, also support a separate SLI separator market. First, SLI batteries, and SLI battery separators, have distinctive characteristics and distinctive uses or functions. F. 114, 131-33, 152-54, 195-96, 231-32, 250-53, 257, 262-64, 266. Second, SLI separators have distinct and relatively low prices. F. 114. "Distinct prices" could suggest a low cross-elasticity of demand with other types of separators. *Rothery Storage*, 792 F.2d at 219. *See Swedish Match*, 131 F. Supp. 2d at 165 (taking into account, in finding distinct markets, price determinations that paid little regard to, and price movements that displayed little correlation with, the prices of purported substitutes). Here, as in *Swedish Match*, 131 F. Supp. 2d at 161 n.8, "it does appear implausible" that SLI customers would substitute other types of separators in response to a 5 to 10% increase in the price of SLI separators. Stationary, deep-cycle, and motive separators would remain significantly more expensive than SLI separators, *see* F. 114, and those other types of separators would continue to lack, or have less of, properties that are particularly important in SLI separators. *See e.g.*, F. 249-50, 252.

Third, several of Daramic's documents analyze a "market," or a "market segment" of the battery separator market, for SLI and/or "automotive SLI" battery separators. F. 268. Daramic analyzed "[m]arket segment offerings and competition" in SLI and "[m]arket segments and current [product] positioning" in "[a]utomotive SLI" at its "Strategic Planning Session: Products and Markets" in April 2008. F. 268. Mr.

Whear, Daramic's Vice President of Technology, states that at the time Daramic HP was developed, in the mid-1990's, Daramic's "competitors [in SLI] at the time were two, Entek and a company called Evanite." F. 269. As President of Microporous, Mr. Gilchrist identified "[t]hree primary market segments in [the] lead-acid battery industry": automotive, specialty, and industrial. F. 270.

Finally, Dr. Simpson correctly concluded that SLI battery separators are a relevant product market. F. 265. In reaching this conclusion, Dr. Simpson observed: (1) both customers and producers indicate that PE SLI separators, for which there are no foreseeable substitutes, "meet a unique need"; (2) customers state that they would not switch to other separators in response to a 5% price increase for SLI separators; and (3) company documents analyze competition in the context of an SLI separator market. F. 265. All of these bases for his conclusion are supported by the evidence in the record.

Therefore, SLI battery separators are appropriately considered a relevant product market.

3. Respondent's relevant product market arguments are not persuasive

As more fully set forth below, Respondent's argument for an all PE separator market is unconvincing. Moreover, even if Respondent had proved such a broad product market, that finding would not have disproved narrower product submarkets that could themselves amount to relevant markets. "[W]ithin [a] broad market, well-defined submarkets may exist which, in themselves, constitute product markets for antitrust purposes." *Brown Shoe*, 370 U.S. at 325 (citing *United States v. E. I. Du Pont de Nemours & Co.*, 353 U.S. 586, 593-95 (1957)).

Product markets should not, however, be defined so narrowly that they obscure, rather than illuminate, the area of effective competition. It is for this reason that Flex-Sil, also, does not, as Respondent contends, *e.g.*, RB at 12-14, constitute a relevant product market. "[T]he boundaries of the relevant market must be drawn with sufficient breadth to include the competing products of each of the merging companies and to recognize competition where, in fact, competition exists." *Brown Shoe*, 370 U.S. at 326. In failing to recognize the competition that Flex-Sil faces from other products, Respondent fails to show, as discussed further below, that Flex-Sil constitutes a separate market for antitrust purposes.

a. The purported all polyethylene battery separator market

Respondent argues that Complaint Counsel has "ignored the smallest market principle . . . established in the FTC/Department of Justice Horizontal Merger Guidelines." RB at 8. However, Dr. Kahwaty aggregates all PE and PE-based products, and all of Complaint Counsel's particular product markets, into a single large product market. Kahwaty, Tr. 5158, *in camera*; *see id.* at 5145-55. All of those narrower product markets are, from Dr. Kahwaty's perspective, subject to the same competitive influences and the same competitive analysis. *See id.* at 5148-54, *in camera*. Dr. Kahwaty justifies his conclusion that the competitive influences are the same, and that the narrower markets may appropriately be aggregated, on the basis of the "easy supply-side substitution" he finds. *See id.* at 5152-55, *in camera*. "[T]he only way that it makes sense to [Dr. Kahwaty] to aggregate [smaller markets into an all PE market] is if we acknowledge that if you make one product, you can make any of them, [through] very simple supply-side substitution." *Id.* at 5155, *in camera*. This "very simple supply-side substitution" contention is without merit, and will be discussed further below.

Respondent also contends that Complaint Counsel "wholly ignore[s] both business and economic realities" in delineating particular product markets. RRB at 13. "[T]he confusion and blurring of lines between these alleged product market[s]," RRB at 14, is, Respondent claims, demonstrated by the following: (1) lack of agreement in the industry as to what the product markets are; (2) customers' testimony about their preferences for one product over another, rather than about their lack of competitive alternatives; (3) overlap in the characteristics and uses of separators "across the spectrum of the FTC's product categories"; and (4) a "high degree of supply-side substitution." RB at 9-10, RRB at 13-14. This four prong argument will be examined in detail.

In support of the first prong of its argument regarding "business and economic realities" – a supposed lack of agreement in the industry as to the product markets – Respondent states that the "evidence . . . clear" that Daramic "does not focus on separate product markets for SLI, motive power, deep-cycle and reserve power. For example, in analyzing the merger, Daramic focused on PE vs. Non-PE separators." RRFF No. 60 (citing to PX0055 at 082, *in camera*; PX0174 at 009, *in camera*; and PX0275 at 011, *in camera*).

But the documents that Respondent cites do not bear out, let alone make clear, that Daramic does not focus on such separate markets, or focused on PE versus non-PE separators, in analyzing the acquisition. *See* PX0055 at 082, *in camera* (referring to "Acquisition Benefits / Synergies" that included "[a]ccess to deep cycle separator technology," a "5% price increase to non-contract customers on industrial [motive] products," and cost savings from a reallocation of industrial (motive) capacity); PX0174 at 003, *in camera*; PX0275 at 007, 009, *in camera* (estimating, in both of the latter documents, lost sales to specific customers, absent the acquisition, in separate "automotive" and "industrial" categories); *see also* PX0275 at 004, *in camera* (suggesting that Daramic's supposed focus on PE versus non-PE separators might simply reflect Microporous' product portfolio, which featured rubber (Ace-Sil and Flex-Sil) and rubber/polyethylene (CellForce) separators, as well as the standard PE separators that Daramic made). Even if Daramic did, in fact, focus on PE versus non-PE separators, that would not compel a conclusion that PE separators constitute a relevant product market. *See CCC Holdings*, 605 F. Supp. 2d at 42 n.18; Commentary on the Horizontal Merger Guidelines at 11, *discussed in* Section III C 1 b, *supra*.

Respondent makes much of the varying nomenclature that may be used in describing or categorizing batteries and battery separators. *See* RRB at 15-17. Respondent points, as one example, to Mr. Brilmyer's testimony that "a golf cart battery is a type of a traction battery or motive power battery. It's deep-cycle." Brilmyer, Tr. 1831, *quoted in* RRB at 15. Any confusion about the product market boundaries for battery separators seems more contrived than real. The record, in fact, indicates analysis of the competitive landscape and conduct by market participants that is consistent with the contours of the product markets that Complaint Counsel posits. *See* F. 181-89 (regarding the deep-cycle market); F. 216-20 (regarding the motive market); F. 244-45 (regarding the UPS market); F. 268-70 (regarding the SLI market).

Accordingly, the evidence does not support Respondent's claim that there is a lack of industry agreement as to the relevant product markets, and therefore, does not support Respondent's purported all PE market.

b. Product preferences: Flex-Sil as a product market

For the second prong of Respondent's argument regarding "business and economic realities" – customers' purported testimony about their preferences for one product over another, rather than about their lack of competitive alternatives – Respondent relies on *United States v. Oracle*, 331 F. Supp. 2d 1098. RRB at 13. In *Oracle*, the testimony of the customer witnesses was "largely unhelpful to plaintiffs' effort to define a narrow market of high function" software because "[c]ustomer preferences towards one product over another do not negate [reasonable] interchangeability." 331 F. Supp. 2d at 1130-31. "There was little, if any, testimony by these witnesses about what they would or could do or not do to avoid a price increase from a post-merger Oracle. . . . [N]one gave testimony about the cost of alternatives to the hypothetical price increase a post-merger Oracle would charge." *Id.* at 1131.

In this matter, by contrast, there is testimony by customers and others revealing not simply preferences for Daramic's separators but a lack of any – or of any "reasonable," looking to "price, use and qualities," *Du Pont*, 351 U.S. at 404 – alternatives. *See* F. 167-73 (regarding deep-cycle separators); F. 206-13 (regarding motive separators); F. 238-40 (regarding UPS separators). Regarding SLI separators, "reasonable" alternatives to Daramic's products are quite limited for United States battery manufacturers. *See* F. 262-64.

Respondent argues that Flex-Sil belongs in its own separate product market because it is "clear[ly] . . . a superior product to PE and PE/rubber separators, [with] very different technical capabilities compared to those separators because it is made of pure rubber," and with special appeal in applications such as original equipment golf cart batteries to "customers that position their products as high end and unique." RB at 12; *see id.* at 13. Respondent argues that continued purchases predominantly of Flex-Sil, despite its appreciably ({[redacted]}) higher price than Daramic HD ("HD") – a price premium magnified, in Exide's case, by a long-term supply agreement offering significant economic incentives to purchase HD in lieu of Flex-Sil – "preclude any argument that Flex-Sil and HD are economic substitutes." *Id.* at 12-13; *see also* RRB at 17 (reaching the same conclusion since "even when the price of Flex-Sil has increased substantially over the years, customers have not switched to HD, or Cell-Force").

Respondent's argument with respect to Flex-Sil suffers from the same problem that the court identified for the customer witnesses in *Oracle*, the case upon which Respondent relies. "Customer preferences towards one product over another do not negate [reasonable] interchangeability." 331 F. Supp. 2d at 1130-31. There is considerable evidence of reasonable interchangeability between Flex-Sil and Daramic HD. *E.g.*, F. 502-05, 508-10, 512-14, 522-26, 531-32.

The major purchasers of deep-cycle separators – Trojan Battery, U.S. Battery, and Exide – concur that HD and Flex-Sil, or HD, CellForce, and Flex-Sil, are functional substitutes. F. 502, 505, 529. Even Respondent's expert agrees that HD, CellForce, and Flex-Sil are functional substitutes. Kahwaty, Tr. 5328-29, *in camera*. In addition, all of those customers, prior to the acquisition, successfully used Daramic HD as leverage, or as a competitive threat, to obtain a better price on Flex-Sil. *E.g.*, F. 521, 522, 529. Microporous did, in fact, lose business to HD which competed against both Flex-Sil and CellForce. F. 511. *See generally* IIB Areeda, Hovenkamp & Solow, Antitrust Law ¶ 534e, at 271 (observing that "buying and selling patterns over time may indicate the proper market definition").

Neither Flex-Sil's unique or superior attributes, nor Flex-Sil's premium price, places it in a separate product market. After all, cellophane was part of a broader market for flexible wrapping materials, even though it "combine[d] the desirable elements of transparency, strength and cheapness more definitely than any of the others," and even though it cost two or three times more, by surface measure, than its chief competitors. *Du Pont*, 351 U.S. at 398, 401, 403. Although it is possible that Flex-Sil, like cellophane, may have occupied a narrower, or even its own, market had its prices been lower, that cannot be determined on this record. "[P]rice/quality distinctions in products may play a role in market definitions where articles are sold in clearly separate price groupings that have little or no price sensitivity between them . . . [or where] they are clearly indicative of such quality distinctions that articles of different prices are not interchangeable for particular purposes." *Beatrice Foods*, 540 F.2d at 309.

Even if some customers prefer Flex-Sil to HD and will purchase only Flex-Sil for certain of their requirements, as contended by Respondent, *see* RB at 12-13, the evidence showed that some customers in *Arch Coal* preferred 8800 to 8400 BTU coal, and would purchase only a particular type of coal, "regardless of the economics." *Arch Coal*, 329 F. Supp. 2d at 122. However, "[i]n determining interchangeability, . . . the court must consider the degree to which buyers treat the products as interchangeable, but need not find that all buyers will substitute one commodity for another." *Id.* As shown above, here, as in *Arch Coal*, customers who prefer a particular product "nonetheless can use and have used other [products], and benefit from the competition." *Id.*

Separate product markets are not indicated, either, simply because a separator for one customer's application may not work for another customer in the same application. *E.g.*, F. 119. Certain separator profiles, for instance, are unique to individual customers, and certain batteries require a separator of an unusual width. F. 89-92. But this would not result, as Respondent suggests, in "two separators produced for different customers but used in the same application becoming their own product markets because they are not functionally substitutable." RB at 10-11. Such contentions have been made, and consistently rejected, since the *Brown Shoe* decision more than a half-century ago. The Supreme Court in *Brown Shoe* upheld the district court's finding that men's, women's, and children's shoes were relevant markets, in part because those "product lines are recognized by the public," and "each [line] has characteristics peculiar to itself rendering it generally noncompetitive with the others." 370 U.S. at 326. Brown Shoe had contended that further "age/sex" distinctions should have been drawn since, to cite one example, a "'male baby cannot wear a growing boy's shoes.'" *Id.* at 327. The Supreme Court agreed with the district court that a further subdivision of the shoe market would be "'impractical'" and "'unwarranted.'" *Id.* at 328. "Further division does not aid us in analyzing the effects of this merger." *Id.* at 327; *see also* Simpson, Tr. 3174-75 (observing that "[i]t makes sense to aggregate . . . up . . . ." "for tractability" when "things like the market participants are the same . . . and entry conditions are the same)."

Flex-Sil does not, therefore, occupy a separate product market.

c. Product overlap and supply-side substitution

In an effort both to support an all PE separator market and to discredit the product markets advocated by Complaint Counsel, Respondent claims, as the third prong of its business and economic realities argument, that "there was significant evidence at trial that separators among the categories advocated by the FTC overlap significantly." RB at 9. While Respondent does not specify just what it means by "overlap," it appears to mean that separators of a particular backweb thickness may be used, and actually are used, in more than one of the alleged deep-cycle, motive, UPS, and SLI markets. *See* RB at 10. Respondent goes on to say:

> [A] so-called 'UPS' separator might well be effectively used in a 'motive' application, or . . . an 'SLI' separator may be used in a 'deep cycle' application. In fact, the evidence not only shows that this 'could' happen, but that it does happen every day in the reality of the PE battery separator market. This is true in all of the FTC's alleged product categories.

Id. (citations omitted).

There was in fact, as Respondent claims, "evidence at trial that separators among the categories advocated by the FTC overlap" in their backweb thickness. There was not, however, evidence at trial that any such overlap was so extensive or so typical as to have "significant" implications for market definition. *See* F. 89-91, 95-97. Respondent claims, for instance, that "an 'SLI' separator may be used in a 'deep cycle' application." *Id.* "Within the 12 mil backweb range, for example, one would find separators used in automobiles (SLI), golf carts (deep-cycle) and telecom batteries." RFF No. 74 (citing

Hauswald, Tr. 984-85). But telecom separators are not at issue here, and any "overlap" between separators of that thickness for automobiles and for golf carts would be slight. Moreover, ninety-five to ninety-nine percent of the SLI separators that Daramic sells have a backweb thickness of 10 mils or less, while none of the deep-cycle separators that it sells have a backweb thickness of less than 12 mils. F. 149, 250.

As the court observed in *United States v. Oracle*, "defining the relevant market in differentiated product markets is likely to be a difficult task due to the many non-price dimensions in which sellers in such markets compete." 331 F. Supp. 2d at 1121. Part of the problem with Respondent's argument as to "overlaps" is that it oversimplifies the characteristics of battery separators. These characteristics are reduced "primarily [to] backweb thickness and overall product thickness" with the aim of showing that "it is impossible to classify [separators] into distinctive 'buckets.'" RB at 10.

Respondent's assertion regarding the singular importance of backweb thickness is not borne out by other facts presented in the case. *Compare, e.g.*, *id.* (asserting that "the only real difference between industrial [such as motive] and automotive separators is thickness") *with* PX1790 (Daramic marketing flyer) at 001, *quoted in* F. 196 (describing "considerably higher" requirements for motive batteries than for SLI batteries with respect to mechanical properties and chemical stability). Separators are differentiated by various characteristics and even separators of the same thickness are not necessarily functionally, let alone reasonably, interchangeable. *See* F. 85-87, 89-91. To quote Respondent's own economic expert: "Here, the products are highly differentiated . . . . So there's numerous different products here to think through when talking about PE separators, with potentially very complex . . . substitution patterns . . . in response to a . . . small but significant and nontransitory price increase . . . ." (Kahwaty, Tr. 5133-34).

Based on the above facts and legal authorities, Respondent's product overlap claim is unpersuasive.

Finally, the fourth prong of Respondent's business and economic realities argument, that there is a "high degree of supply-side substitution," RB at 11, is not supported by the evidence. If it were so "easy to shift between production of different kinds of PE separators," RB at 11, there would be evidence that such shifts have been made. In fact, however, the evidence shows that switching is not easy. For example, even though Entek has been faced with decreasing demand for automotive separators, the evidence does not indicate that it has reallocated its excess productive capacity from SLI into deep-cycle, motive, or stationary (such as UPS) products. F. 1027, 1031-33. The evidence further shows that suppliers such as Microporous and Daramic took years to enter new markets. F. 457-501, 617-28, 638-722. In addition, the evidence shows that entry is greatly delayed by, among other reasons, the time that is required for testing of new products, and of new applications of existing products. *See* Section, III E 1, *infra*. *See generally*, F. 923-1126. In summary, supply-side substitution is not as swift or as sure as Respondent suggests.

For all the foregoing reasons, Respondent's arguments in opposition to the relevant markets advocated by Complaint Counsel, and for an all PE market and a Flex-Sil market, are rejected.

4. Relevant geographic markets in general

Proper definition of the relevant geographic market, like proper definition of the relevant product market, is "a necessary precondition to assessment" of the effect of a merger or acquisition on competition. *General Dynamics*, 415 U.S. at 510; *see Brown Shoe*, 370 U.S. 294, 324 (1962) (interpreting the phrase "any section of the country" in Section 7 of the Clayton Act to require determination of the geographic market).

"[T]he relevant geographic market must be sufficiently defined" to indicate the area in which "competition is threatened." *Cardinal Health*, 12 F. Supp. 2d at 49. This includes the area within which "the effect of the merger on competition will be direct and immediate." *Philadelphia Nat'l Bank*, 374 U.S. at 357. The boundaries of the geographic market need not be delineated "by metes and bounds as a surveyor would lay off a plot of ground," because proof of the locus of any anticompetitive effect "is entirely subsidiary to the crucial question in this and every § 7 case[,] which is whether a merger may substantially lessen competition anywhere in the United States." *United States v. Pabst Brewing Co.*, 384 U.S. 546, 549-50 (1966).

A properly defined geographic market charts "the area of effective competition . . . [*i.e.,*] the market area in which the seller operates, and to which the purchaser can practicably turn for supplies." *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 327 (1961). The relevant geographic market is the "area to which consumers can practicably turn for alternative sources of the product and in which the antitrust defendants face competition." *Morgenstern v. Wilson*, 29 F.3d 1291, 1296 (8th Cir. 1994). The boundaries of this area are shaped by "'the geographic structure of supplier-customer relations.'" *Philadelphia Nat'l Bank*, 374 U.S. at 357-58 (quoting Carl Kaysen & Donald F. Turner, *Antitrust Policy* 102 (1959)). Those boundaries "must . . . both 'correspond to the commercial realities' of the industry and be economically significant," because "Congress prescribed a pragmatic, factual approach to the definition of the relevant market and not a formal, legalistic one." *Brown Shoe*, 370 U.S. at 336-37 (citations omitted).

In a relevant geographic market, as in a relevant product market, the producers could exercise market power if they were united through a cartel or merger. *See* IIB Phillip E. Areeda, Herbert Hovenkamp & John L. Solow, Antitrust Law, ¶ 551 (3d ed. 2007). The major constraint on producers' ability to exercise market power is the availability of substitutes for their products. *Rothery Storage*, 792 F.2d at 218. Producers who can provide substitutes, and constrain any such exercise of market power, are appropriately included in the relevant geographic market. *See United States v. Rockford Memorial Corp.*, 717 F. Supp. 1251, 1261 (N.D. Ill. 1989), *aff'd*, 898 F.2d 1278 (7th Cir. 1990).

> "To define a market in product and geographic terms is to say that if prices were appreciably raised or volume appreciably curtailed for the product within a given area, while demand held constant, supply from other sources could not be expected to enter promptly enough and in large enough amounts to restore the old price and volume."

Rothery Storage, 792 F.2d at 218 (quoting Lawrence A. Sullivan, *Antitrust* § 12, at 41 (1977)).

The principal factors that the courts and the Commission consider in defining a relevant geographic market are set forth below.

a. Cross-elasticities of demand and supply

"The criteria to be used in determining the appropriate geographic market are essentially similar to those used to determine the relevant product market." *Brown Shoe*, 370 U.S. at 336. The relevant geographic market, like the relevant product market, "depends on interchangeability and cross-elasticity of demand." *Arch Coal*, 329 F. Supp. 2d at 123; *see, e.g., Heerwagen v. Clear Channel Communs.*, 435 F.3d 219, 228 (2d Cir. 2006) (finding little geographic cross-elasticity of demand for live rock concert tickets, since a purchaser of such a ticket is "hardly likely to look outside of her own area" in response to a change in relative prices between areas).

Cross-elasticity of supply may also be important. Indeed, "reliable measures of supply and demand elasticities," while rarely available, are the "kinds of evidence [the Commission] consider[s] most valuable in the definition of a relevant market." *In re General Foods Corp.*, No. 9085, 103 F.T.C. 204, 1984 FTC LEXIS 69, at *312 (Apr. 6, 1984).

A properly defined geographic market would include potential suppliers who could readily offer customers suitable alternatives to the products or services of the defendants should defendants' prices become anticompetitive. *FTC v. Freeman Hosp.*, 69 F.3d 260, 268 (8th Cir. 1995). A market so defined would address "the critical question of where consumers . . . could practicably turn for alternative sources of the product." *Id*; *Tampa Electric*, 365 U.S. at 327.

Numerous courts have adopted a similar approach. *See, e.g., Rothery Storage*, 792 F.2d at 219 n.6 (observing that any attempt by a van line in one location to raise its price above a competitive level "would be met by other van lines sending in trucks and trailers at a lower price"); *FTC v. Foster, Western Refining*, 2007 U.S. Dist. LEXIS

47606, at *144-45 (D.N.M. 2007) (finding that current suppliers, from other areas, of gasoline in bulk to northern New Mexico would increase their role there in response to an anticompetitive move by the merging parties).

b. The approach of the Merger Guidelines

The Merger Guidelines provide guidance in determining the relevant geographic market. *Foster*, 2007 U.S. Dist. LEXIS 47606, at *137; *Arch Coal,* 329 F. Supp. 2d at 123.

The Merger Guidelines state:

> Absent price discrimination, the Agency will delineate the geographic market to be a region such that a hypothetical monopolist that was the only present or future producer of the relevant product at locations in that region would profitably impose at least a "small but significant and nontransitory" increase in price ["SSNIP"], holding constant the terms of sale for all products produced elsewhere.

Merger Guidelines § 1.21; *see In re Evanston*, 2007 FTC LEXIS 210, at *154.

The geographic market is the smallest area within which a hypothetical monopolist could profitably impose a SSNIP of, in general, five percent. *Oracle*, 331 F. Supp. 2d at 1112; *Merger Guidelines* §§ 1.21, 1.11. If enough consumers respond to that price increase by shifting their purchases to suppliers outside of that smallest area, the SSNIP would be unprofitable and the boundaries of the geographic market should be broadened. *Arch Coal,* 329 F. Supp. 2d at 123; *Merger Guidelines* § 1.21. In gauging consumers' likely response to that price increase, "all relevant evidence" will be considered, including evidence that buyers have shifted, or have considered shifting, purchases to another location in reaction to a price increase, that sellers base business decisions on the expectation of such demand substitution, and of the speed and cost of switching suppliers. *In re Adventist Health System/West*, 1994 FTC LEXIS 345, at *11; *Merger Guidelines* § 1.21.

The Merger Guidelines present a somewhat different analysis of market definition when there is price discrimination:

> [I]f a hypothetical monopolist can identify and price differently to buyers in certain areas ("targeted buyers") who would not defeat the targeted price increase by substituting to more distant sellers in response to a "small but significant and nontransitory" price increase for the relevant product, and if other buyers likely would not purchase the relevant product and resell to targeted buyers, then a hypothetical monopolist would profitably impose a discriminatory price increase. . . . The Agency will consider additional geographic markets consisting of particular locations of buyers for which a hypothetical monopolist would profitably and separately impose at least a "small but significant and nontransitory" increase in price.

Merger Guidelines § 1.22.

Arbitrage – in this context, purchase at a lower price from a seller in one geographic area, and resale at a higher price to another customer in a different geographic area – can defeat a discriminatory price increase and thereby "'stitch' together" two geographic areas into a single geographic market. *Oracle*, 331 F. Supp. 2d at 1162 (citation omitted); *see Merger Guidelines* § 1.22. Arbitrage is "particularly difficult where the product is sold on a delivered [price] basis and where transportation costs are a significant percentage of the final cost." *Merger Guidelines* § 1.22 n.12. Arbitrage is also impeded where products are differentiated and a product made for one customer would not work, or would not work well, for another customer. *See Oracle*, 331 F. Supp. 2d at 1162 (describing the testimony of Professor Kenneth G. Elzinga).

Critical loss analysis may be used in defining the relevant geographic market as well as the relevant product market. In defining the relevant geographic market:

> [t]he critical loss test involves two steps: (1) determining the critical loss number of [customers] who would have to leave the proposed market in order to defeat a S[S]NIP by a hypothetical monopolist, and (2) determining whether that critical loss number of [customers] would actually leave the market if faced with a S[S]NIP. If fewer [customers] than the critical loss number would leave the proposed market, this implies that all practical alternatives have been included in the proposed market.

Sutter Health, 130 F. Supp. 2d at 1128.

c. Other indicia of the geographic market

Determination of the relevant geographic market is highly fact sensitive, *see Freeman Hosp.*, 69 F.3d at 271 n.16, as the proper market definition requires a factual inquiry into the commercial realities that consumers face. *See Flegel v. Christian Hosp. Northeast-Northwest*, 4 F.3d 682, 690 (8th Cir. 1993). The evidence must address not only where consumers actually go to obtain products or services, but where they could practicably go if a merger were to have anticompetitive effects. *Freeman Hosp.*, 69 F.3d at 268; *see, e.g.*, *United States v. Country Lake Foods, Inc.*, 754 F. Supp. 669, 674 (D. Minn. 1990) (finding that defendants demonstrated that buyers within an area could practicably turn to dairies outside that area if a dairy cartel were to impose a SSNIP).

The Commission has made clear what kinds of evidence it considers most valuable in defining the relevant geographic market:

> Most direct, but rarely available, are reliable measures of supply and demand elasticities. Of the indirect evidence, especially probative is the level of entry barriers surrounding a market. We also have recognized the inferential value of evidence revealing price disparities, transportation costs, and transshipments between locations, as well as the perceptions firms have about the competitive threat posed by outsiders.

In re General Foods Corp., 1984 FTC LEXIS 69, at *312-13.

A more recent Commission case noted additional factors that may be relevant in identifying the geographic market: price (including exchange rate) movements, "the existence of excess capacity outside the tentatively identified geographic market," tariffs, preferences for local supply "because of the need for timely and frequent deliveries, consistent quality and technical support," and the increased storage and handling costs that imports might entail. *In re Occidental Petroleum Corp.*, No. 9205, 115 F.T.C. 1010, 1992 FTC LEXIS 333, at *32-36, 39-40 (Dec. 22, 1992).

A number of courts, as well as the Commission, have used the Elzinga-Hogarty test in defining the relevant geographic market for merger analysis. *E.g.*, *Oracle*, 331 F. Supp. 2d at 1165; *Country Lake Foods*, 754 F. Supp. at 672 n.2. As the latter decision explains:

> [This test] measures the accuracy of a market delineation by determining the amount of either imports into or exports from a tentative market. The test is based on the assumption that if an area has significant exports or imports, then that area is not a relevant geographic market. Under the [Elzinga-Hogarty test], exports or imports greater than 10% suggest that the market examined is not a relevant market.

Country Lake Foods, 754 F. Supp. at 672 n.2; *see* Kenneth G. Elzinga & Thomas F. Hogarty, *The Problem of Geographic Market Delineation Revisited: The Case of Coal*, 23 Antitrust Bull. 2 (1978). *But see In re Adventist Health System/West*, 1994 FTC LEXIS 345, at *17-19 (cautioning that "[t]he Commission has not, and does not now, endorse either the 'strong' [using the 10% cutoff for imports or exports noted above] or the 'weak' [using a 25% cutoff for imports or exports] [Elzinga-Hogarty] test as the [sole] basis for establishing a relevant market," while conceding that statistical analysis of that sort has a place, along with other evidence, in geographic market definition).

With these principles in mind, the parties' positions and the evidence regarding the relevant geographic market, are analyzed below.

5. The relevant geographic market in this case

a. Positions of the parties

The Complaint alleges, and Complaint Counsel sought to prove at trial, that the relevant geographic market is North America. Complaint ¶ 14; *see* CCB at 28-34; CCRB at 20-22. Complaint Counsel advocates a narrower geographic market than Respondent and relies on the statement in *Philadelphia National Bank*: "The proper question to be asked *in this case* is not where the parties to the merger do business or even where they compete, but where, within the area of competitive overlap, the effect of the merger on competition will be direct and immediate." 374 U.S. at 357; *see* CCB at 29. Complaint Counsel stresses the Merger Guidelines' application to geographic markets of the "'smallest market' principle." CCB at 29; *see Merger Guidelines* § 1.21. The Merger Guidelines state that the geographic market is "the smallest region within which a hypothetical monopolist could 'profitably impose at least a 'small but significant and nontransitory' increase in price.'" *Merger Guidelines* § 1.21; CCB at 29 (quoting *Merger Guidelines* § 1.21).

Respondent submits in its Answer and sought to show at trial that the geographic market is the world. Answer ¶ 14; *see* RB at 14-17, RRB at 23-26. Respondent challenges Complaint Counsel's contention, citing Section 1.22 of the Merger Guidelines, that a hypothetical monopolist could profitably impose a discriminatory price increase on North American purchasers. *Compare* RB at 14; RRB at 24 n.3 (denying that a hypothetical monopolist could impose such a price increase) *with* CCB at 32; CCRB at 20-21. According to Respondent:

> The FTC's geographic market case requires it to show that a hypothetical monopolist could engage in price discrimination on a worldwide basis. Making that case depends, in turn, on a showing that such discrimination would not be defeated by arbitrage. But Complaint Counsel's economic expert, Dr. Simpson, acknowledged that he had not adequately considered whether arbitrage could be used by worldwide customers to defeat price discrimination by the hypothetical monopolist.

RB at 14 (citations omitted).

Based on applicable law, and as more fully discussed below, the evidence presented in this case on price discrimination, customers' desire for local suppliers, barriers to foreign entry, and expert analysis supports a determination that the relevant geographic market is North America, as alleged by Complaint Counsel, and not the world, as urged by Respondent.

b. North America: the relevant geographic market

(i) Price discrimination

The record supports Complaint Counsel's claim, *see* CCB at 31-32; CCRB at 20, that Daramic charges different prices in different geographic regions. F. 275-80. These same facts sufficiently support Complaint Counsel's claim that Daramic "price discriminates between markets." F. 272-73 (noting Dr. Simpson's conclusions); CCRB at 20. However, it is not established that Daramic price discriminates in the sense in which that term is generally used by economists. *See generally Merger Guidelines* § 1.22

(citing as an example of price discrimination a firm that "charg[es] *different prices net of transportation costs for the same product* to buyers in different areas") (emphasis added); IIB Phillip E. Areeda, Herbert Hovenkamp & John L. Solow, Antitrust Law ¶ 517a (clarifying that price discrimination occurs when a firm earns different rates of return, through different ratios of price to marginal cost, on sales to different customers). Dr. Simpson refers, less precisely, to price discrimination "[w]hen a [firm] can charge different prices to different buyers." Simpson Report at 005-06 n.5, *in camera*.

To the extent that there is international price discrimination in separator sales, it would not likely be defeated by arbitrage. Arbitrage is discouraged by separators' product differentiation, manufacturers' direct shipments to customers' plants, freight and other costs of importation, and the preference of customers for local supply. F. 274. Dr. Kahwaty's opinion to the contrary, Kahwaty, Tr. 5165-68, *in camera*, is not persuasive. F. 360.

(ii) Local supply

It is advantageous for a separator manufacturer to offer its customers a local or regional, as opposed to a more distant, source of supply. F. 286. Local separator supply reduces the risk of supply chain disruption, F. 287; lowers shipping costs, as well as warehousing, inventory, and other costs, F. 288-89; speeds delivery, F. 288-89; gives the battery manufacturer greater flexibility in ordering separators for its production lines, F. 290; permits quicker responses to any technical and quality issues that the battery manufacturer may have, F. 291; provides other benefits to the separator supplier, along with its customer, from readier access to, and more frequent meetings with, the supplier's sales representatives and engineers, F. 293, 306; and fosters local or regional competitiveness in supplying expanding regional markets. F. 292, 295.

The advantages of local or regional separator supply are recognized by producers, *see* F. 287-93, 301, and by customers, *see* F. 294-300, 303-09. Certain of these advantages are explicitly acknowledged, for instance, in the Memorandum of Understanding that Microporous and EnerSys signed in 2006. F. 300. The advantages of local supply influenced Microporous' decision to expand into Europe, F. 301; JCI's effort to develop new suppliers in Asia, {[redacted]} F. 295; the expansion of Daramic's production lines in Thailand, F. 310; and Daramic's proposal to JCI in 2003 to build a new plant in Brazil. F. 292. Local or regional separator supply, from multiple plant locations around the world, is a factor that Daramic uses as a marketing point. F. 292. *See generally In re Occidental Petroleum Corp.*, 1992 FTC LEXIS 333, at *39-40; *Merger Guidelines* § 1.21 (noting the relevance of evidence that buyers have shifted, or have considered shifting, purchases to a different location in response to changes in price or other competitive variables, and that sellers have based business decisions on the expectation of such shifts in demand).

(iii) Barriers to foreign manufacturers

Freight charges and, in a number of countries, import duties, add to the price of separator imports. F. 314. Imports from China are further impeded by the Chinese value-added tax, F. 316-17, which could be reduced, but that would remain at an effective rate of 8%, by bonded manufacturing. F. 318.

The chief barrier to separator imports into North America is, however, the lack of competitiveness of BFR, F. 332- 41, 343-44, and other foreign separator suppliers in this region. *See* F. 342, 345-55. This is due, in large part, to higher production costs abroad. *See* F. 322-30; *see also* F. 337 (comparing the average sales prices of BFR and Entek). This lack of competitiveness is also the result of lesser competition in, and greater profitability of, separator sales abroad (from the vantage point of separator suppliers abroad), along with overseas separator suppliers' limited manufacturing capacity and lack of English-speaking staff to service the North American market. *See* F. 336 (referring to BFR); F.1091 (describing language barrier in dealing with Anpei).

Competitive disadvantages to foreign separator suppliers flow, in addition, from a reluctance of North American battery manufacturers to use some types of separators from abroad for other reasons. *E.g.*, F. 351 {[redacted]} There is in some cases, though, a simpler and starker explanation for the lack of separator imports into North America. This is the fact that suppliers in other regions do not yet produce – let alone produce tested and qualified versions of – certain categories of separators, including motive and UPS separators, leaving Daramic as their single source. *See* F. 340, 352, 446-47, 1051-52, 1064, 1069, 1073-74.

(iv) Expert opinion

Dr. Simpson correctly concluded that North America is the relevant geographic market in this case. F. 271. Manufacturers of deep-cycle, motive, UPS, and SLI battery separators are able to set different prices for different geographic regions around the world and, in this sense, to price discriminate based on geography. F. 272. Through this price discrimination based on geography, a hypothetical monopolist could profitably and separately impose a small but significant and nontransitory increase in price on buyers of deep-cycle, motive, UPS, and SLI separators in North America. F. 273. Moreover, arbitrage, which theoretically might defeat any price discrimination, is discouraged by a number of factors, including manufacturers' direct shipments to customers' plants; freight and other costs of importation; and the preference of some customers for local supply. F. 274. Arbitrage is also less likely because separators are, for the most part, differentiated products, made with customer-specific designs. F. 274.

Dr. Kahwaty's analysis of the geographic market, referred to in F. 356-70, is not persuasive in several respects. According to Dr. Kahwaty's critical loss analysis, a decline of more than {[redacted]} in Daramic's PE separator sales, in response to a 5% price increase by Daramic for its North American plants (holding constant its prices for plants located elsewhere), would render that price increase unprofitable. Kahwaty Report at 51, *in camera*; F. 358. The comparable critical loss figure for Entek is, according to Dr. Kahwaty, {[redacted]} Kahwaty Report at 51, *in camera*.

Exports out of North America by both Daramic and Entek are, Dr. Kahwaty states, "significantly above the critical loss values." Kahwaty Report at 51, *in camera*; F. 358. Based on the cost data he used, reviewed at F. 361-66, Dr. Kahwaty reached the following conclusion: "If prices charged by North American PE plants increased, but prices charged by Asian PE plants did not, I would expect a large fraction of the North American plants' non-NAFTA volumes to switch to suppliers located outside of North

America. . . . I conclude that the FTC's alleged North American market is too narrow." Kahwaty Report at 52, *in camera*.

Dr. Simpson's critique of Dr. Kahwaty's analysis is valid. In Dr. Simpson's words:

> It [Dr. Kahwaty's analysis] didn't make sense . . . because the marginal cost of [Daramic's Thailand] plant does not reflect what they were selling the product for. . . .
>
> And the second thing is, if Daramic was exploiting market power in North America, I didn't see why they would use their Thailand plant to undercut that.
>
> And then the third thing was, [Dr. Kahwaty] reported the cost for the Daramic plant, which was not the cost for what independent rivals would have in Asia, so I didn't -- I didn't see really where his analysis was relevant . . . .

Simpson, Tr. 3238, *in camera*. Thus, Dr. Kahwaty's opinion is not supported by the record and therefore not accepted.

c. Conclusion

Based upon applicable legal principles and evaluating all the material evidence, Complaint Counsel has proved by a preponderance of the evidence that the relevant geographic market is North America. Evidence in this case of barriers to foreign competition, such as taxes and tariffs, preference for local supply to avoid higher costs and potential supply disruption, as well as expert opinion, adequately support the conclusion that Respondent could profitably impose a SSNIP in North America. *Oracle*, 331 F. Supp. 2d at 1112; *Merger Guidelines* §§ 1.21, 1.11. In addition, the record does not demonstrate that arbitrage by worldwide customers could defeat price discrimination.

Accordingly, North America is the relevant geographic market in this case.

D. Reasonably Likely Anticompetitive Effects

After determining the relevant product and geographic markets, an analysis of the likely competitive effects of an acquisition requires a determination of the transaction's probable effects on competition in those markets. *CCC Holdings*, 605 F. Supp. 2d at 37 (citing *Marine Bancorp.*, 418 U.S. at 618-23; *Gen'l Dynamics*, 415 U.S. at 510-11). "[T]o satisfy section 7, the government must show a reasonable probability that the proposed transaction would substantially lessen competition in the future." *University Health*, 938 F.2d at 1218; *FTC v. Warner Communs. Inc.*, 742 F.2d 1156, 1160 (9th Cir. 1984).

The government can establish a presumption that the transaction will substantially lessen competition by showing that the acquisition will lead to undue concentration in the relevant markets. *Baker Hughes*, 908 F.2d at 982. Therefore, the analysis first evaluates the evidence presented on market shares and concentration, as found in F. 371-451.

"[M]arket share and concentration data provide only the starting point for analyzing the competitive impact of a merger. . . . [The government] also will assess the other market factors that pertain to competitive effects . . . ." *Merger Guidelines* § 2.1; *In re Weyerhauser Co.*, 1985 FTC LEXIS 26, at *215; *Hospital Corp.*, 807 F.2d at 1386 (deciding that market share figures are not always decisive in a Section 7 case and that the Commission was prudent in inquiring into the probability of harm to consumers). Therefore, to analyze the competitive impact of the acquisition, the Initial Decision next assesses and analyzes the probable and actual effects. Because evidence indicating the purpose of the merging parties is an aid in predicting the probable future conduct of the parties and the probable effects of the merger, *Whole Foods*, 548 F.3d at 1047, included in this analysis is a review of the evidence evincing Daramic's intentions in pursuing the acquisition of Microporous.

1. The role of market concentration statistics

"'The legality of [an acquisition] . . . almost always depends upon the market power of the parties involved.'" *Oracle*, 331 F. Supp. 2d at 1123 (quoting *Cardinal*

Health, 12 F. Supp. 2d at 45). "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." *Baker Hughes*, 908 F.2d at 982; *see Philadelphia Nat'l Bank*, 374 U.S. at 363 (holding that "a merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market, is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects").

As recognized by the D.C. Circuit in *FTC v. Heinz*, the theory of merger law is that in a market with few rivals, firms are able to coordinate behavior, "either by overt collusion or implicit understanding," to restrict output and achieve anticompetitive profits. *Arch Coal,* 329 F. Supp. 2d at 124 (citing *Heinz,* 246 F.3d at 715; *PPG Indus.,* 798 F.2d at 1503). Thus, increases in concentration exceeding certain levels raise a likelihood of "interdependent anticompetitive conduct." *Id.* (citing *Heinz,* 246 F.3d at 715-16). According to the Merger Guidelines, market concentration is a function of the number of firms in a market and their respective market shares. *Merger Guidelines* § 1.5. Dollar sales, shipments, and unit sales can be used to calculate market shares, depending on the nature of the firms and their products. *Id.* § 1.41.

To interpret market data, the Herfindahl-Hirschman Index ("HHI") of market concentration is often used. *Baker Hughes*, 908 F.2d at 983 n.3 (stating that the HHI is a "yardstick" of market concentration). The HHI is calculated by summing the squares of the individual market shares of all the participants in the market. *Arch Coal,* 329 F. Supp. 2d at 124 (citing *Heinz*, 246 F.3d at 716 n.9). The spectrum of market concentration as measured by the HHI is divided into three regions: (1) a market with an HHI of less than 1000 is "unconcentrated;" (2) a market with an HHI between 1000 and 1800 is "moderately concentrated;" and (3) a market with an HHI above 1800 is "highly concentrated." *Merger Guidelines* § 1.5.

An increase in HHI of greater than 100 points in a post-merger moderately concentrated market potentially raises significant competitive concerns. *Arch Coal,* 329 F. Supp. 2d at 124. Likewise, an increase in the HHI of 50 points or more in a post-merger highly concentrated market may raise significant competitive concerns. *Id.* It is presumed that mergers producing an increase in HHI of greater than 100 points in a highly concentrated market are likely to create or enhance market power or facilitate its exercise. *Id.* (citing *Merger Guidelines* § 1.51; *Heinz,* 246 F.3d at 716 & n.9). If HHI figures are sufficiently large, they will establish a prima facie case of an anticompetitive merger. *Id.* (citing *Heinz*, 246 F.3d at 716; *Baker Hughes*, 908 F.2d at 982-83 & n.3).

The evidence in this case demonstrates that in two of the four relevant markets – deep-cycle and motive – Daramic's acquisition of Microporous resulted in Daramic attaining a 100% share of each market. Thus, the acquisition is "presumptively illegal because it [results] in a merger of the only two competitors in [these] relevant market[s] selling the relevant product[s]." *United States v. Franklin Elec. Co.,* 2000 U.S. Dist. LEXIS 20676, *24 (W.D. Wis. 2000).

In the other two relevant markets – UPS and SLI – Daramic did hold and continues to hold market shares of approximately 100% and 50%, respectively. Although Microporous did not have market shares in these markets, as found in F. 422-24, 439 and analyzed below, Microporous was a competitive threat in the UPS market and a competitor in the SLI market. F. 633, 636. Daramic's acquisition of Microporous eliminated this competitive constraint.

2. The acquisition eliminated Daramic's only competitor and established a monopoly in the deep-cycle and motive separator markets

a. Deep-cycle separator market

(i) Market shares and concentration

Before the acquisition, Daramic and Microporous were the only participants in the deep-cycle separator market in North America. Prior to the acquisition, Daramic's market share was approximately 10%, with total sales in 2007 of {[redacted]} F. 385.

Daramic had been gaining market share steadily over the two years preceding 2007. F. 384. Microporous enjoyed the dominant share of the deep-cycle market in North America, with a share of approximately 90% and {[redacted]} in sales in 2007. F. 385. The acquisition was a merger-to-monopoly, increasing Daramic's market share to 100% and increasing the HHI by 1,891 to 10,000. F. 385.

Respondent contends that the HHI calculations fail to take into account that East Penn Battery used straight PE separators for its deep-cycle applications, and considered Entek an alternative supplier. RRB at 12 n.2; RRCCFOF 271. East Penn Battery does use straight PE for some of its deep-cycle batteries, even though such separators are not able to suppress antimony poisoning and result in a significantly shortened battery life. F. 142. However, the evidence indicates that East Penn Battery's use of straight PE for deep-cycle batteries is a stark exception in a market dominated by the use of separators made of rubber, or PE with rubber additive, and, thus, comprised of Microporous' Flex-Sil and CellForce and Daramic's HD products. *See* F. 143-56.

(ii) Competition between Daramic and Microporous

Daramic had made repeated attempts to develop a product to compete with Microporous' Flex-Sil separators in the deep-cycle market and began testing Daramic HD ("HD") in 2003. F. 457, 461. Daramic saw itself in 2005 as "continuing to gain incremental volume and taking it away from Microporous." F. 467. A Daramic strategic planning document shows that HD was specifically targeted as an alternative to Microporous' rubber separator, Flex-Sil, being used in golf cart and floor scrubber batteries. F. 482.

Daramic increased its sales of HD in every year between the introduction of HD and Daramic's acquisition of Microporous and was gaining market share, in part through customers who were switching the separators that they were using in their deep-cycle batteries from Flex-Sil to HD. F. 477, 513-14. For example, a November 9, 2005 Daramic Trip Report to U.S. Battery concludes that U.S. Battery "appreciates that we developed a competing product for rubber . . . . [and] sees their benefit as having two suppliers in order to manage costs while maintaining product performance. Meanwhile, we benefit by continuing to gain incremental volume (and taking it away from Microporous Products) in a market where we are relatively new entrants." F. 467.

Customers benefitted from the competition between Daramic and Microporous. For example, an internal Daramic email exchange states: "We know we can price the product where we want to either get business or cause [Microporous] to reduce theirs." The email response notes: "knowing that we're 'competitive' should we take prices down 5% to 10% to get even more aggressive?" F. 486. Other Daramic documents reflect this competition by Microporous in the deep-cycle market, stating, that in this market, "Microporous is attacking with price." F. 471. In the months prior to the acquisition of Microporous, Daramic continued to try to take market share from Microporous by touting Daramic HD as lower priced than Flex-Sil. F. 517.

Microporous' CEO knew "[w]ithout a doubt" that HD was "competing" and was a "threat" to Microporous in the deep-cycle market. F. 511. Recognizing HD as a threat, Microporous lowered its prices of Flex-Sil and CellForce to protect its market share and offered the lower priced CellForce in place of Flex-Sil. F. 470, 520. Trojan Battery, U.S. Battery and Exide each used HD as a competitive threat to get better pricing and terms from Microporous on deep-cycle battery separators. F. 521-42. From 2005 to the time of the acquisition, Trojan Battery continually used the threat of buying Daramic HD to get lower prices from Microporous. F. 529-42. In 2005, the possibility that U.S. Battery could switch to HD prevented Microporous from removing a material rebate program U.S. Battery enjoyed. F. 522. On three occasions between 2006 and 2007, Exide used HD to successfully constrain the price of Flex-Sil. F. 523-28. Exide believed that its knowing that both Daramic and Microporous wanted Exide's deep-cycle business provided Exide with leverage in negotiations. F. 526.

b. Motive separator market

(i) Market shares and concentration

At the time of the acquisition, Daramic and Microporous were the only market participants in the motive battery separator market in North America. F. 386.

Microporous' 2007 market share was approximately 9%, with sales of approximately {[redacted]} F. 410. Daramic's market share in 2007 was approximately 91%, with sales of {[redacted]} F. 410. Daramic's acquisition of Microporous increased the HHI by 1,663 points to 10,000 in the motive separator market. F. 410. Sales data from 2007 show that the change in HHI and the post-merger HHI for the motive separator market far exceed the thresholds listed in the Merger Guidelines and creates a strong presumption of a significant lessening of competition. *See Heinz*, 246 F.3d at 716.

Further, the evidence shows that Microporous was making inroads in the motive market and would likely have gained a greater share of the market, absent the acquisition. A contract with EnerSys dated January 2, 2007, and amended in August 2007, obligated Microporous to supply all of EnerSys' motive power battery separator requirements. F. 390. Microporous anticipated that its share of the United States motive market would increase to almost 50% by the end of 2009. F. 404-05.

Respondent challenges the HHI statistics for failure to include Entek as a competitor in the motive market. RRFOF 280. Respondent relies on evidence that Entek is theoretically willing to enter the motive market today, if Exide were to pay for all the necessary retooling and commit to a long-term supply agreement. However, no such agreement has been reached, and the time and sunk costs required for Entek to enter the market are significant. F. 399. Further, the evidence shows clearly that Entek has been targeting its business to the SLI market and does not believe it could be price-competitive in the motive market. F. 398. Entek's conduct in not bidding in response to Exide's RFP for motive separators, declining to provide a quote to Douglas Battery for motive power separators, and informing Crown Battery and Bulldog Battery that Entek would not supply them with motive separators, confirms that Entek was not a competitor in the motive market. F. 394-97.

(ii) Competition between Daramic and Microporous

For at least six years prior to the acquisition of Microporous by Daramic, Daramic and Microporous were the only competitors for North American battery manufacturers' motive power business. F. 577. The only price competition that Daramic faced in the sale of motive power separators came from Microporous and the only competitor that Daramic lost North American motive power business to was Microporous. F. 580.

Daramic recognized Microporous as a competitor in 2003, noting that "we have a new polyethylene competitor entering the North American market. Micro-Porous Products . . . they have attacked all the large manufacturers and to keep from losing business, we have adjusted prices as needed which has eroded our margins . . . ." F. 582. Daramic lowered prices on motive separators to C&D, EnerSys, and East Penn, to "fight the aggressive offers" of Microporous. F. 583-95. In its 2006 discussion document entitled "3-Year Strategy," Daramic saw Microporous as a threat because Microporous' planned capacity expansions could threaten additional Daramic industrial sales and noted that the key to Daramic's securing its motive sales was either execution of a long-term contract with EnerSys or the acquisition of Microporous. F. 596.

Daramic's customers benefited from the competition between Daramic and Microporous. In 2005, EnerSys and Daramic were exchanging emails related to an energy surcharge sought by Daramic. F. 594. Referring to Microporous' CellForce, EnerSys wrote to Daramic, "I tell you right now, if you expect any more than the {[redacted]} that I have approved, EnerSys will have to change our supply chain strategy due to newer technology that is available in the marketplace." F. 594. In its negotiations with Daramic over price in 2006, EnerSys believed that because of the availability of Microporous, Daramic could not negotiate as hard. F. 595. With respect to Exide, Daramic, in 2005, noted that because Exide could not go to Microporous, Daramic could "negotiate a little tougher" with Exide. F. 600. With C&D, where Daramic believed that Microporous was not capable of supplying all of C&D's motive separator needs, in order to keep 100% of C&D's business, Mr. Roe suggested that Daramic "play our card that we supply all or nothing." F. 590.

Microporous' customers, too, were able to use the threat of switching to Daramic to get better pricing and terms. Bulldog Battery was able to receive a price decrease on its separator purchases by telling Microporous that Daramic had offered it a lower price. F. 608. When Microporous sought a rubber cost pass-through agreement with its customers, EnerSys refused to accept it with respect to {[redacted]} using the threat of switching its volume to Daramic. F. 597.

c. Acquisition of the only competitor

In the deep-cycle and motive markets, the dramatic increase in Daramic's market shares caused by the merger and the changes in HHI in these markets, are more than sufficient to create a "presumption that the merger will lessen competition." *See Heinz*, 246 F.3d at 716 (holding that increase in HHI of 500 created presumption, "by a wide margin"). More importantly, in these two markets, Daramic acquired its only competitor. Numerous cases have concluded that the elimination of the closest competitor would likely lead to unilateral anticompetitive effects. *E.g., Swedish Match*, 131 F. Supp. 2d at 169 ("A unilateral price increase by Swedish Match is likely after the acquisition because it will eliminate one of Swedish Match's primary direct competitors."); *Cardinal Health,* 12 F. Supp. 2d at 53, 64 (holding that, by combining with their closest competitors to capture an 80% market share, defendants could "curb downward pricing pressure and adversely affect competition"); *Staples*, 970 F. Supp. at 1082 (stating that "merger would allow Staples to increase prices or otherwise maintain prices at an anti-competitive level" by eliminating its closest competitor).

A monopoly market share raises the strongest level of concern that could be associated with a merger. A combination of the only two manufacturers "should be viewed" as nothing "other than a merger to monopoly that by definition will have an anticompetitive effect[.]" *United States v. Franklin Elec. Co.*, 130 F. Supp. 2d 1025, 1035 (W.D. Wis. 2000). *See also Heinz*, 246 F.3d at 717 (stating "no court has ever approved a merger to duopoly"); *PPG Indus.*, 798 F.2d at 1505-06 (stating that where there "appear[ed] to be only three fully capable firms in [the] market," and "[t]he proposed acquisition would leave two," the Commission's showing of market concentration was "overwhelming"). Following Daramic's acquisition of Microporous, purchasers of deep-cycle and motive battery separators no longer have an alternative to Daramic. F. 384, 410, 551, 610. Thus, Daramic's elimination of its only competitor and merger to monopoly in the deep-cycle and motive markets is presumptively illegal.

3. The acquisition eliminated a competitive constraint and cemented Daramic's monopoly in UPS and its duopoly in SLI

a. UPS separator market

(i) Market shares and concentration

At the time of the acquisition, Daramic held a nearly 100% market share in the UPS separator market in North America and Daramic continues, post-acquisition, to maintain that position. F. 422-23, 616. Also at the time of the acquisition, Microporous had been working to enter the market with its development of white PE, a PE separator for UPS flooded lead-acid batteries, designed to resolve the black scum problem in flooded batteries in UPS applications. F. 417-20. Prior to the acquisition, Entek had made small quantities of PE separators for use in industrial applications, but has no intention of producing UPS separators currently. F. 421.

Complaint Counsel's expert, Dr. Simpson, did not calculate market shares or HHI for the UPS market. F. 424. The reasons he provided for not doing so were: Microporous had no sales of UPS battery separators in 2006 or 2007; although Entek may have had some limited sales of UPS separators during this period, the data was insufficient to calculate these sales; and, a calculation of market shares and HHI would, thus, not provide any additional information. F. 424.

(ii) Competition between Daramic and Microporous

In the UPS separator market, the acquisition did not increase Daramic's already 100% market share. However, although it had not yet made sales in the UPS market prior to the acquisition, Microporous, at the request of EnerSys, had been working on the development of a separator to compete with Daramic's Darak product and which could be used in UPS batteries. F. 617-21. As part of its project LENO, Microporous developed samples of a potential Darak replacement and provided samples to EnerSys. F. 623. EnerSys wanted to switch to Microporous' white PE product for its flooded UPS batteries as soon as the product was validated. F. 624. Salespeople from Microporous were optimistic that there was customer demand for its new battery separator in the United States and Europe, including at customers such as EnerSys, Exide and East Penn

Battery. F. 627. Prior to the acquisition, Microporous had made capital expenditures in its European facility, and was planning on additional expenditures at its United States facility, in anticipation of separator sales from project LENO as early as late 2008 or early 2009. F. 626. The manager of project LENO expected that the new products from the project would generate revenues from commercial sales by the end of 2008 or early 2009. F. 628.

b. SLI separator market

(i) Market shares and concentration

Prior to the acquisition, the North American SLI battery separator market was a duopoly, shared by Daramic and Entek. F. 426. In 2007, Entek's share was 51.6% and Daramic's share was 48.4%. F. 439. In 2006, Entek's share was 53% and Daramic's share was 47%. F. 439. The HHI calculation for Daramic of 5005, F. 439, indicates a highly concentrated duopoly. *See Heinz*, 246 F.3d at 716 (district court found HHI score of 4775 indicative of a highly concentrated industry).

(ii) Competition between Daramic and Microporous

Prior to the acquisition, Microporous had the capability of manufacturing separators for SLI applications; had undertaken an expansion plan which included production lines for either CellForce separators or plain PE separators that could be used for SLI or industrial battery separators; was marketing PE separators for SLI applications; and had endeavored to sell such separators to JCI, Exide, and East Penn Battery. F. 430-32. Moreover, prior to the acquisition, both Daramic and Entek perceived Microporous to be a competitive threat in the SLI market. F. 435-36.

(a) Microporous was expanding

Prior to the acquisition, Microporous was expanding, with firm plans to add a production line for polyethylene separators at its Piney Flats, Tennessee facility in May or June of 2008. F. 642. Microporous' strategic plan in May 2007 included: "Protect golf car market"; "Protect position in European traction"; "Regain U.S. traction position"; and "Create position in SLI market." F. 771. At the time of the acquisition, Microporous had built two state-of-the-art production lines at its plant in Feistritz, Austria, both of which could produce either CellForce separators or plain polyethylene separators, and, therefore, could be used for SLI batteries or industrial batteries. F. 778.

(b) Microporous was taking steps to enter the SLI market

- *Microporous' work with JCI*

Beginning in 2003, Microporous was involved in discussions with JCI to enter the SLI market. F. 649-51. In the United States, JCI is one of only three major automotive battery manufacturers. F. 645. JCI had decided in the summer of 2003 to pursue a "Global Separator Strategy" in an effort to create more competition among suppliers and thereby reduce its purchasing costs. F. 649. JCI considered Microporous to be a "New Supplier" that it was developing, particularly for JCI's United States facilities. F. 649. JCI reengaged in discussions with Microporous in 2005 about possible supply of PE SLI separators from Microporous to JCI in the United States and in Europe. F. 684. Microporous advised JCI that it was planning to add capacity in Europe, and that this would also free up capacity in the United States. F. 687. JCI contemplated that it would supply its European plants from Microporous' planned European plant, and would supply its Winston-Salem or Tampa plant from Microporous' Piney Flats plant. F. 687. Microporous' PE SLI separators were qualified for use at JCI in 2007. F. 690. Ultimately, however, the JCI and Microporous negotiations did not lead to a contract between the two parties. F. 691.

- *Microporous' work with Exide*

Microporous worked also with Exide to become a supplier of SLI separators. In the summer of 2007, Exide issued an RFP requesting bids on Exide's global separator needs for automotive, motive, stationary and golf cart batteries. F. 694. Thereafter, Microporous and Exide entered into a memorandum of understanding (MOU). F. 697. The MOU recites that Microporous operates a plant in Tennessee that is "technologically capable of producing" SLI separators and industrial separators, including CellForce, that will meet Exide's needs for automotive and motive power applications. F. 699. The

MOU further states that the parties intend to discuss an agreement under which Exide would "provide [Microporous] the opportunity to participate in" supplying Exide, and Microporous would install and operate two PE lines, capable of producing either SLI or industrial separators. F. 699. The MOU noted that "[e]ach manufacturing line would be capable of producing approximately 11,000,000 square meters annually of SLI separator material, or the industrial equivalent of 4,000,000 square meters. F. 700. The MOU further recites that Microporous "would commit to have the above volumes available to Exide by no later than January 1, 2010, and to supply at least that volume each year over the life of" the intended supply contract, which the MOU states would be a five-year contract, and that Exide would make a reasonable effort to purchase "the Agreed Volume of 22,000,000 square meters volume of SLI separator material (or its equivalent in industrial separator square meters, or any combination of the two) from [Microporous] on an annual basis . . . ." F. 700.

After negotiating the MOU, Exide went forward with testing of Microporous' separator samples and developing specific pricing for the separators. F. 707. Exide's initial bench testing of Microporous' PE SLI separators looked good and Exide then produced batteries in the United States and Europe for testing using Microporous' separators. F. 708. Exide personnel also met with Microporous personnel on numerous occasions in furtherance of their work together on future supply of PE SLI separators. F. 709. In the months prior to the acquisition, Microporous and Exide were working on a draft supply contract and Microporous was expecting a counter-offer or revised draft contract from Exide. F. 711. Exide did not return its redline of the draft supply contract to Microporous, and no agreement was finalized prior to the acquisition. F. 715.

- ***Microporous' work with East Penn Battery***

Microporous also held discussions with East Penn Battery regarding SLI separator supply. In October 2007, East Penn Battery discussed the possibility of Microporous supplying PE separators to East Penn Battery for use in SLI batteries. F. 717. East Penn Battery advised Microporous that East Penn Battery wanted an alternative to Entek and believed that Microporous had manufacturing capability to handle some of its volume.

F. 718. During its visit to Piney Flats, East Penn Battery communicated to Microporous that it might be willing to enter into a long-term contract with Microporous for the supply of PE SLI separators. F 719. East Penn Battery provided Microporous part numbers and volumes that East Penn Battery might be interested in purchasing from Microporous, but Microporous did not have the machinery or the tooling to supply the volumes that East Penn Battery requested. F. 720. Microporous did not commit to East Penn Battery that it could supply East Penn Battery with the sizes and volumes of PE separators discussed in 2007. F. 721.

(c) Daramic viewed Microporous as a competitive threat

Daramic grew concerned about the potential threat to Daramic from Microporous in the SLI market. In 2004, Daramic's Mr. Roe informed his worldwide sales team that Microporous might soon be pursuing automotive opportunities and that it had "become critical that we assess the true sales situation of [Microporous'] Cell-Force product." F. 681.

In late 2003, Daramic believed that Microporous was offering to supply JCI under a five-year contract with continuous price reductions passed along to JCI. F. 666. Soon after learning of Microporous' bid for JCI's SLI business, Daramic threatened to cut off supply to JCI in Europe if JCI did not sign a long-term contract. F. 667. On January 12, 2004, JCI conceded that Daramic's "aggressive tactics" had left [JCI] with no option but to sign {[redacted]} F. 677. A Daramic document notes: "Under pressure, JCI signed the proposed contract, and the deal was done January 19th, 2004." F. 678.

Daramic believed that by forcing JCI into a long-term contract, it had stopped Microporous' work with JCI on SLI supply. F. 679. One of Daramic's goals in entering into this contract with JCI was to prevent Microporous from becoming a supplier to JCI and expanding its capacity. F. 683. Daramic knew that Microporous was trying to enter the SLI market and that Daramic's long-term contract with JCI "effectively blocked them out of the space in a significant way." F. 683. At the same time, Daramic recognized that the JCI contract did not entirely eliminate the future threat of Microporous in the SLI business. F. 679. Daramic worried that JCI and Microporous might continue to work together during the course of the Daramic contract, with Microporous bringing on new capacity in the United States and/or Europe to fulfill volume commitments that JCI could make for the end of the contractual period. F. 679.

In 2007, Daramic developed the "MP Plan" through which it targeted certain customers whose business Daramic believed was at risk of loss to Microporous in 2008. F. 820. With respect to one of these customers, East Penn Battery, Daramic viewed Microporous as a threat to its market share in the SLI market, projecting that it would lose one million square meters of automotive product. F. 821. The goals of the MP Plan were to: secure select long-term agreements to fight the Microporous threat; achieve price improvements; achieve margin improvements; achieve price stability; and increase volume resulting in net margin increase. F. 823. With one of the stated goals being "fight the Microporous threat," Daramic's documents regarding its MP Plan clearly evince Daramic's view of Microporous as a competitive threat in the SLI market.

c. Acquisition of the only competitive constraint

That Microporous had not yet made sales in the UPS and SLI markets does not diminish its competitive role. In *United States v. Continental Can Co.*, the Supreme Court stated: "It is not at all self-evident that the lack of current competition between Continental and Hazel-Atlas for some important end uses of metal and glass containers significantly diminished the adverse effect of the merger on competition." 378 U.S. 441, 464 (1964). As in *Continental Can*, Daramic "might have concluded that it could effectively insulate itself from competition by acquiring a major firm not presently directing its market acquisition efforts toward the same end uses as [the acquiring firm], but possessing the potential to do so." *Id.*

Also instructive in considering the impact of Microporous in the UPS and SLI markets is *United States v. El Paso Natural Gas Co.,* 376 U.S. 651 (1964). There, the Supreme Court held that factual findings that the acquired company, Pacific Northwest, could not have taken business away from the acquiring company, El Paso, were irrelevant and did not prevent a conclusion that the merger had a tendency to lessen competition. Despite evidence that "as an independent entity, [Pacific Northwest] could not have obtained a contract . . . , could not have received the gas supplies or financing . . . , or could not have put together a project to the regulatory agencies," Pacific Northwest was nevertheless "a substantial factor" in the market. *Id.* at 657-58. The Court noted that El Paso first declined an opportunity to supply California Edison, but then reapproached Edison after learning that Pacific Northwest had negotiated a tentative contract with the Edison. El Paso ultimately won the contract using substantial price concessions. According to the Court, such evidence "illustrates what effect Pacific Northwest had merely as a potential competitor. . . . [T]he mere efforts of Pacific Northwest to get into the California market, though unsuccessful, had a powerful influence on El Paso's business attitudes within the State." *Id.* at 659. As explained by the Supreme Court in *United States v. Marine Bancorp.*, "[t]he merger declared unlawful in *El Paso* 'removed not merely a potential, but rather an actual, competitor.'" 418 U.S. 602, 625 n.24 (1974) (citation omitted).

In the UPS market, as in *El Paso*, Microporous had been taking concrete steps to enter, and was shown by the evidence to have been "a substantial factor" in the relevant market at the time it was acquired. Following the acquisition, there is no potential entrant to constrain Daramic in the UPS market. "No merger threatens to injure competition more than one that immediately changes a market from competitive to monopolized." Phillip E. Areeda, Herbert Hovenkamp & John L. Solow, Antitrust Law, ¶911a.

In the SLI market also, as in *El Paso,* Microporous' efforts to gain share had a definite influence on Daramic. For example, the evidence shows Daramic projected losing market share to Microporous, and was so concerned about Microporous taking market share that Daramic was willing to reduce prices in order to obtain long-term contracts and maintain its volume. *E.g.*, F. 820-21, 851. In such circumstances, as in *El Paso*, Microporous' position as a competitive constraint in this case "was not disproved by the fact that it had never sold" battery separators in the relevant market. "Nor is it conclusive that" Microporous did not achieve a firm contract by the time of the acquisition. *Id.* at 660. There is no question that Microporous was bidding for SLI business. *See, e.g.*, F. 684-89, 697-714, 718-20. "Unsuccessful bidders are no less competitors than the successful one." *Id.* at 661. Moreover, as in *El Paso*, the evidence shows that, had Microporous remained independent, it would have continued its efforts to sell in the SLI market, and that opportunities existed for Microporous in that market. *See, e.g.*, F. 684-89, 697-714, 718-20. Where, as here, the competitive landscape was changing, it is appropriate to assess the probable future of the market. *Grumman Corp. v. The LTV Corp.*, 665 F.2d 10, 15 (2d Cir. 1981) (holding that District Court was properly concerned with maintaining small competitor in the market place, where even though competitor had not yet received sales, it was aggressively competing and evidence indicated that competitor would gain market share in the future).

"The acquisition by an already dominant firm of a new or nascent rival can be just as anticompetitive as a merger to monopoly." IV Phillip E. Areeda and Herbert Hovenkamp Antitrust Law ¶912a (3d ed. 2006). "[A] firm that has submitted bids against the dominant firm but lost is clearly an 'actual' competitor, perhaps even forcing the dominant firm to lower its bid in the face of a rival bidder. But even the firm that is preparing to make its first bid or its first sale must be counted as an 'actual' rival once the entry decision has been made." *Id.* The evidence summarized above clearly demonstrates that, in the SLI market, Microporous had made the decision to enter the SLI market and was working to enter into contracts to take SLI sales away from Daramic, and that Daramic viewed Microporous as a threat and responded to Microporous' presence by lowering prices. Accordingly, Microporous was an actual competitor in the SLI market.

In the UPS market, Daramic acquired the only company poised to enter the market and cemented Daramic's monopoly. In the SLI market, Daramic's acquisition of an actual competitor left Daramic and Entek with their previous duopoly in North America, which, as shown below, was largely not competitive before the acquisition.

4. Reasonably probable anticompetitive effects

Section 7 of the Clayton Act was intended to arrest the anticompetitive effects of market power in their incipiency. *Brown Shoe*, 370 U.S. at 317. Thus, the test of a violation of § 7 is whether, at the time of suit, there is a "reasonable probability" that the acquisition is likely to result in the condemned restraints. *United States v. E. I. Du Pont de Nemours & Co.*, 353 U.S. 586, 607 (1957). There "is no requirement that the anticompetitive power manifest itself in anticompetitive action before § 7 can be called into play. If the enforcement of § 7 turned on the existence of actual anticompetitive practices, the Congressional policy of thwarting such practices in their incipiency would be frustrated." *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 577 (1967). Indeed, the Supreme Court in *Procter & Gamble* stated that the appellate court "misapprehended . . . the standards applicable in a § 7 proceeding" in holding that the post-acquisition evidence did "'not prove anti-competitive effects of the merger.'" *Procter & Gamble*, 386 U.S. at 576. *See also Hospital Corp.*, 807 F.2d at 1389 ("Section 7 does not require proof that a merger or other acquisition has caused higher prices in the affected market. All that is necessary is that the acquisition create an appreciable danger of such consequences in the future.").

Cases and the Merger Guidelines recognize two types of anticompetitive effects: unilateral and coordinated. *Oracle*, 331 F. Supp. 2d at 1112-13; *Merger Guidelines* § 2.1. Unilateral effects result when a merger leads to higher prices due to the loss of competition between the two merging firms, independent of the action of other firms in the market. *In re Evanston*, 2007 FTC LEXIS 210, at *157 (citing *Oracle*, 331 F. Supp. 2d at 1113; *Merger Guidelines* § 2.2). The Areeda treatise classifies unilateral effects into four different types: "(a) creating a monopoly or dominant firm; (b) perpetuating a monopoly or dominant firm by eliminating a nascent rival; (c) giving one firm more secure control of its 'niche' in a product-differentiated market; or (d) strengthening a firm's power to make noncompetitive bids that buyers will be unable to refuse." IV Phillip E. Areeda, Herbert Hovenkamp, & John L. Solow, Antitrust Law ¶ 910, at 55-56 (2d ed. 2006). Coordinated effects are reductions in competition caused by express or tacit interaction by the merged firm and the remaining firms in the market, with respect to competitive variables such as prices, price differentials, market shares, customers, or territories. *Oracle*, 331 F. Supp. 2d at 1113; *In re Evanston*, 2007 FTC LEXIS 210, at *157-58 (citing *Merger Guidelines* § 2.1).

It is well settled that contemporaneous and post-acquisition evidence may properly be considered in determining whether the probable effect of a merger will be a substantial lessening of competition. *E.g., Purex Corp. v. Procter & Gamble Co.*, 664 F.2d 1105, 1108 (9th Cir. 1981); *United States v. Falstaff Brewing Corp.*, 383 F. Supp. 1020, 1025 (D.R I. 1974); *see also FTC v. Consolidated Foods Corp.*, 380 U.S. 592, 598 (1965). Post-acquisition evidence is appropriately considered where it "tends to confirm, rather than cast doubt upon, the probable anticompetitive effect" of a merger. *Consolidated Foods*, 380 U.S. at 598. However, post-acquisition evidence that can be manipulated by the party seeking to use it is entitled to little weight, in part because the actions may have been taken to "improve [the defendant's] litigating position." *Hospital Corp.*, 807 F.2d at 1384; *see also General Dynamics*, 415 U.S. at 504-05.

After consideration of the evidence presented at the hearing, as well as at the supplemental hearing, it is clear that the acquisition has probable anticompetitive effects. Evidence presented by Complaint Counsel did not always differentiate the specific relevant market to which it related. This collective evidence is considered below. Next, the impact on each of the relevant markets, individually, is assessed.

Post acquisition, Daramic announced several price increases. During the period of August 31, 2008, through approximately November 30, 2008, Daramic notified customers of price increases scheduled to take effect anywhere between September 1, 2008 and January 1, 2009. F. 912. In addition, on July 1, 2008, Daramic instituted {[redacted]} for most customers. F. 906. Daramic's stated reason for {[redacted]} F. 907. Effective January 1, 2009, Daramic announced price increases that ranged from {[redacted]} F. 913-15. By contrast, customers who were under long-term exclusive contracts, as part of Daramic's MP Plan, {[redacted]}

F. 897.

As explained by Complaint Counsel's expert, Dr. Simpson, four factors could lead to higher prices in a market: increasing demand for the product, changes in productivity, increasing input costs, and increasing market power. F. 920. Dr. Simpson noted that Daramic's fall 2008 price increase could not be explained by increasing demand for battery separators since demand for battery separators has fallen since mid-2008. F. 920. Dr. Simpson also noted that productivity changes could not explain Daramic's 2009 price increase since learning by doing generally makes firms more productive over time. F. 920. In Dr. Simpson's opinion, input price increases could not explain Daramic's 2009 price increase. F. 921. Moreover, {[redacted]} F. 921. With regard to these issues, Dr. Simpson was persuasive and was correct.

a. Unilateral anticompetitive effects in the deep-cycle, motive and UPS separator markets

Post-acquisition, in the markets where Daramic has a monopoly, Daramic has exerted unilateral market power.

(i) Deep-cycle

Since the acquisition, Daramic has instituted price increases in the deep-cycle market. With respect to Trojan Battery, Daramic insisted upon material changes to the contract extension that Trojan Battery had been negotiating with Microporous. F. 554. Those changes included the pricing structure, {[redacted]} changes to the contract length {[redacted]} and a clause stating that {[redacted]} F. 554. Citing increased energy and material costs, Daramic proposed a price increase to Trojan Battery of {[redacted]} on CellForce and {[redacted]} on Flex-Sil. F. 557-58. The highest price increase Trojan Battery had previously received from Microporous was {[redacted]} F. 557. The latest proposal from Daramic would result in Trojan Battery paying approximately {[redacted]} more than it had agreed to pay Microporous in September 2007. F. 561.

With respect to Exide, {[redacted]} F. 562. The net effect of its agreement with Daramic has Exide paying {[redacted]} higher prices for Flex-Sil after the acquisition than it had been paying to Microporous before the acquisition. F. 563. Despite imposing price increases on deep-cycle separators since the acquisition, Daramic has not lost deep-cycle business to any competitor because there are no other competitors. F. 551.

In addition, post-acquisition, Daramic has undertaken a strategy of selling its higher priced, higher margin Flex-Sil, over its HD separator, as an alternative to the CellForce separator. F. 566-72. When {[redacted]} tried to increase its purchases of the lower priced HD from the more expensive Flex-Sil in March of 2008, Daramic's General Manager instructed his sales team to {[redacted]} increase in HD purchases. F. 568. When Daramic was unable to supply sufficient HD to Exide due to the strike at Owensboro, Exide was forced to purchase the higher priced Flex-Sil, because it was the only available alternate product for its deep-cycle batteries. F. 575. When, post-acquisition, U.S. Battery approached Daramic about buying CellForce or HD separators, Daramic informed U.S. Battery that the separators it wanted for its batteries were not available in either CellForce or HD, and sold it Flex-Sil separators instead. F. 570-72.

(ii) Motive

Post-acquisition, {[redacted]} Daramic announced price increases that ranged from {[redacted]} for certain motive customers. F. 611. For example, Daramic raised the prices for CellForce separators sold to Bulldog Battery by 10%, effective January 1, 2009. F. 613. Daramic had previously charged Bulldog Battery a 7% energy surcharge in 2008. F. 613. As compared to past pricing increases from separator suppliers, Bulldog Battery feels the 10% price increase is "pretty exorbitant." F. 613. By comparison, in the five-year period during which Bulldog Battery purchased CellForce separators from Microporous, the cumulative price increases from Microporous totaled about 3% and the largest price increase was 1 to 1 ½%. F. 613.

Bulldog Battery did not try to negotiate a lower price with Daramic because "[t]here was no way to negotiate a lower price. There was no place to go." F. 614.

Since the acquisition of Microporous in February 2008, Daramic has not lost any motive power business in North America to any competitors. F. 615. Further, Daramic has not made any price concessions to North American customers for motive products due to competition from any other competitor. F. 615.

(iii) UPS

In the UPS market especially, innovation competition has been eliminated post-acquisition. Despite Microporous' prospects for a new separator for UPS applications from the LENO project, after the acquisition, Daramic's management was not interested in the further development of a product to replace Darak. F. 630. There was little support for the LENO project among Daramic management since the goal of the project was to replace the costly, "very high-margin" Darak product with a less expensive, lower margin PE based separator. F. 632. One internal Daramic email discussing the LENO project and its potential importance at EnerSys states: "LENO . . . project likely to be stopped. This is a cannibalizing product of Daramic PE and Darak." F. 630.

b. Unilateral and coordinated anticompetitive effects in the SLI separator market

Complaint Counsel has shown that Daramic's acquisition of Microporous has had unilateral anticompetitive effects in the SLI market as to Exide and to other battery manufacturers who had been working with, and looking to, Microporous as an independent supplier of SLI separators. Exide wanted to have Microporous as an independent supplier because it believed that it could obtain better pricing with an additional supplier competing for its business. F. 723. Exide had been close to finalizing an agreement with Microporous to be a supplier of SLI separators. F. 711, 713. With the elimination of Microporous, Exide can turn only to Daramic and Entek. F. 437. For smaller battery manufacturers, Microporous "could be their second best supplier, in which case [it] would be the constraint on the supplier who was the best." F. 724. As Dr. Simpson correctly concluded, "[f]or smaller battery manufacturers, Microporous would be in a position to meet all of their demand. And Microporous could be their best supplier, in which case eliminating it would reduce competition." F. 724.

With the elimination of Microporous, in the SLI market, where only Daramic and Entek compete, there is a strong presumption of coordinated anticompetitive effects. High concentration levels make it "easier for firms in the market to collude, expressly or tacitly, and thereby force price above or farther above the competitive level." *University Health*, 938 F.2d at 1218 n.24. "The combination of a concentrated market and barriers to entry is a recipe for price coordination" or the coordination of markets or customers. *Heinz*, 246 F.3d at 725 (finding that by buying its closest competitor, Heinz would create a "durable duopoly" that "affords both the opportunity and incentive for both firms to coordinate to increase prices) (citing *University Health*, 938 F.2d at 1218 n.24); *CCC Holdings*, 605 F. Supp. at 64-65.

Further, there do not there appear to be any "'structural barriers,' unique to this industry, that are sufficient to defeat the 'ordinary presumption'" of coordination in such a "highly concentrated market." *CCC Holdings,* 605 F. Supp. 2d at 60 (quoting *Heinz*, 246 F.3d at 725); *see also Merger Guidelines* ¶ 2.1 (coordinated interaction). Respondent did not demonstrate that there are any "structural barriers" to coordination. Rather, Respondent notes that Daramic lost its largest customer in the SLI market to Entek and is losing volume from its second largest SLI customer to Entek as well. RB at 21-22. At the supplemental hearing, Respondent produced evidence that Exide has been taking steps to {[redacted]} F. 747-48. Respondent argues that such evidence belies a conclusion that Entek and Daramic would coordinate their behavior. RB at 21-22.

This loss of {[redacted]} however, does not prove that Daramic and Entek are not able to coordinate their behavior in order to restrict output and achieve profits above competitive levels. Daramic's internal documents confirm as much. For example, Daramic's Strategy Audit notes that "[b]attery manufacturers lack purchasing power despite their scale due to limited number of suppliers." F. 435. In comments on an earlier draft of this Strategy Audit, Tucker Roe of Daramic stated: "I would say that over the past years there has not been an aggressive rivalry among competitors but this has changed when Microporous Products entered the market and more recently seen by Entek." F. 435.

Before Microporous began making in-roads into the SLI market, Entek and Daramic "were not aggressively competing against each other for business." F. 655. Daramic and Entek were viewed by customers as "lazy and unresponsive; they do not appear to compete and do not have to, given the absence of market forces." F. 660. As explained in *CCC Holdings*, "[i]n a highly concentrated market, with stable market shares, low growth rates and significant barriers to entry, there are few incentives to engage in healthy competition." *CCC Holdings,* 605 F. Supp. 2d at 66. "With only two dominant firms left in the market, the incentives to preserve market shares would be even greater, and the costs of price cutting riskier, as an attempt by either firm to undercut the other may result in a debilitating race to the bottom." *Id.* at 67. In the SLI separator market, the competitive market was "unhealthy," as Entek and Daramic, as stated by one customer, simply were not operating as competitors. F. 660. Without Microporous as a competitor, there are fewer incentives to engage in healthy competition.

c. Summary

To summarize, post-acquisition price increases add to the strong presumption that a merger to monopoly in three markets, and from three to two competitors in the SLI market, will lead to anticompetitive effects. Daramic has failed to rebut these presumptions and the additional evidence that supports them.

5. Daramic's intent in acquiring Microporous evinces probable anticompetitive effects

"[T]he Supreme Court has clearly said that 'evidence indicating the purpose of the merging parties, where available, is an aid in predicting the probable future conduct of the parties and thus the probable effects of the merger.'" *Whole Foods*, 548 F.3d at 1047 (citing *Brown Shoe*, 370 U.S. at 329 n.48; Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law ¶ 964 (2d ed. 2009) ("[E]vidence of anticompetitive intent cannot be disregarded.")); *see also University Health*, 938 F.2d at 1220 n.27 (stating that evidence from defendants' premerger documents evincing an intent to eliminate competition through the proposed acquisition can help establish the government's *prima facie* case). Microporous recognized that Daramic's offer to acquire it eliminated competition. F. 886-94. As discussed below, Daramic's internal documents plainly evince Daramic's intent to eliminate Microporous as a competitive threat, protect Daramic's market share, prevent price decreases, and implement price increases.

a. Daramic acquired Microporous with the intent to eliminate a competitor and to protect Daramic's market share

As early as July 2003, Daramic's head of sales, Tucker Roe, sent a memo to the President of Daramic summarizing the rationale for acquiring Microporous: "The only reason for acquisition would be purely defensive to secure our market share of the traction market and terminate the continued price erosion." F. 750 ("The main disadvantage I see if we do <u>not</u> acquire [Microporous] is that [Microporous] may continue their plans for a second line resulting in either our loss of current customers or further reduction in our market pricing, hence loss of margins."). In 2003, the President of Daramic put an acquisition of Microporous at the top of his list of possible acquisitions, describing the benefit to Daramic as: "Eliminate price competition." F. 751. In September 2005, Mr. Hauswald advised Mr. Toth that Daramic should buy Microporous because it has taken EnerSys' business from Daramic and threatens to take even more. F. 755. Mr. Hauswald told Mr. Toth that "[Microporous] is a real threat for our business, not only in the industrial market, but, later, in the automotive market, because there is no doubt that JCI and EXIDE will contact them for a deal, when our contracts will expire. I'm still recommending to buy [Microporous], as a defensive action." F. 755.

On October 24, 2007, at Polypore's regular third quarter Board of Directors meeting, Mr. Hauswald made a presentation to the Polypore Board which presented his rationales for acquiring Microporous. F. 854. Included in these rationales was Hauswald's projection that Daramic would lose {[redacted]} million square meters of volume in 2008, {[redacted]} million square meters in 2009, and {[redacted]} million square meters in 2011, if it did not make the acquisition. F. 855. In reviewing his report, Mr. Hauswald discussed the downside scenario that Daramic would have to "lower prices by {[redacted]} on {[redacted]} million square meters of industrial volume to avoid Microporous Phase III [Expansion]." F. 856. The October 4, 2007 interim due diligence report also stated that without the acquisition, Daramic would have a "5-year EBITDA loss of {[redacted]} [million] by fighting against MP Phase III"; that there would be "[e]xcess supply and market price erosion"; and that Daramic [would have a] market share loss of {[redacted]} F. 858.

In its 2008 budget, Daramic's management assumed that it would lose PE separator sales to Microporous of {[redacted]} million square meters in 2008, 2009, and 2010, respectively. F. 865. Daramic's documents also show an assumption that it would have to lower prices by {[redacted]} on {[redacted]} million square meters of product in 2009. F. 866. When Daramic presented the 2008 budget to the Board for approval in December 2007, Daramic also provided a comparison of how the long-range plan would look with and without the Microporous acquisition. F. 867. With an acquisition of Microporous, Daramic's underlying sales assumptions changed dramatically. F. 867. Daramic assumed that with an acquisition of Microporous, it would retain the millions of square meters of separator sales that it previously projected as losing to Microporous. F. 867. Additionally, Daramic assumed that it would no longer have to lower prices by {[redacted]} on {[redacted]} million square meters of separators in 2009. F. 867.

In October 2007, Mr. Hauswald gave a presentation entitled "Project Titan," regarding the acquisition of Microporous to the Polypore Board. F. 869. This presentation projected a business risk without the acquisition was that Daramic would lose market share of {[redacted]} and would lose {[redacted]} in EBITDA over five years by fighting against Microporous' Phase III expansion. F. 871. The Project Titan Board presentation revealed that the impact on Daramic's long-range planning ("LRP") EBITDA without the acquisition would be a loss of {[redacted]} F. 872. Mr. Hauswald's speaker notes for the October 2007 Project Titan Board presentation showed, by customer, the volume of business Daramic was projected to lose to Microporous over the next four years, if it did not acquire Microporous. F. 873. Hauswald projected Daramic would lose industrial at

EnerSys, industrial and automotive at East Penn Battery, and automotive at both JCI Europe and JCI Americas. F. 873. The total volume of business that Daramic was predicted to lose to Microporous at these customers was {[redacted]} which would result in a cumulative four-year loss of volume of {[redacted]} million square meters. F. 873.

b. Daramic acquired Microporous to avoid having to lower prices and to gain the ability to raise prices

Daramic's documents show that it believed that, absent the acquisition, it would have to lower prices and build low cost facilities to compete on price with Microporous. F. 876. The October 2007 Board presentation speaker notes stated under the heading, "No Acquisition - Sales volume loss and aggressive approach to block MP phase 3 expansion," that without an acquisition Daramic would "[t]arget specific MP customers with minimum {[redacted]} price reduction" and that Daramic would "[b]uild low cost production line to compete on price." F. 876.

Conversely, Daramic's documents show that it believed that, if it did acquire Microporous, it would be able to increase prices. Daramic's 2008 budget documents assumed that if Daramic acquired Microporous, it would be able to institute a {[redacted]} price increase to noncontract customers on industrial separators in 2010, resulting in a total increase of {[redacted]} million in EBITDA for Daramic in 2010. F. 880. The Polypore Board documents also indicated that Daramic planned to gain {[redacted]} million in additional EBITDA by phasing out its low margin Daramic HD production in Owensboro with CellForce in 2009, and increasing the market price on HD in 2010. F. 881. Approximately four days before the acquisition, the due diligence team provided the Board with a presentation that again included as an acquisition benefit the {[redacted]} price increase on industrial products in 2010. F. 861.

The evidence, found in F. 853-81, and summarized above "indicating the purpose of the merging parties," *Whole Foods*, 548 F.3d at 1047, is further persuasive evidence that the probable effects of Daramic's acquisition are harmful to competition.

6. Summary

Complaint Counsel presented convincing evidence that the market share and HHI statistics give rise to a presumption of illegality; that Daramic purchased its only competitor in two of four markets, the only competitive restraint in one market, and a competitor in a market where only two participants remain; that Daramic announced price increases after the acquisition; and that Daramic purchased Microporous with the intention of eliminating a competitor, protecting Daramic's market share, and acquiring the ability to raise prices. Accordingly, Complaint Counsel has demonstrated a reasonable probability that the acquisition will substantially lessen competition in the future. The analysis next turns to the defenses asserted by Respondent.

E. Respondent's Defenses

Complaint Counsel has shown that the loss of competition is a sufficiently probable and imminent result of Daramic's acquisition of Microporous. Respondent has presented evidence to try to show that the acquisition is not likely to create or enhance existing market power. Specifically, Respondent argues that actual entry into the relevant markets would be timely, likely, and sufficient. RB at 30-35. In addition, Respondent argues that the existence of power buyers in the battery separator industry have promoted entry and have the ability to prevent anticompetitive effects. RB at 35-44. Respondent also argues that efficiencies that have been implemented since the acquisition are beneficial to the marketplace and to the consumers in it, such that the merger is not likely to be anticompetitive. RB at 44-46. Lastly, Respondent argues that, had the acquisition not occurred, Microporous would no longer be an existing competitive entity or, at best, would not be a viable competitive entity.

Evidence and arguments presented in support of these defenses has been fully considered. For the reasons more fully described below, none of these defenses prevail.

1. Entry will not counteract the anticompetitive effects of the acquisition

a. Overview

Even in highly concentrated markets, such as the relevant markets in the instant case, "if there is sufficient ease of entry, enough firms can enter to compete with the merging firms, undercutting any of the likely anti-competitive effects of the proposed mergers. In other words, entry is one way in which post-merger pricing practices can be forced back down to competitive levels." *Cardinal Health*, 12 F. Supp. 2d at 55. "[I]f alternative sources of supply could enter the market with relative ease, then no hypothetical monopolist or cartel could achieve or maintain supra-competitive pricing without attracting new entrants. *See* Statements of the Federal Trade Commission Concerning Horizontal Mergers, 4 Trade Reg. Rep. (CCH) ¶ 13,200 at 20,902, § III (A)(1) (if entry is easy 'it is unlikely that market power, whether individually or collectively exercised, will persist for long')." *United States v. United Tote, Inc.*, 768 F. Supp. 1064, 1072 (D. Del. 1991). *See also In re Echlin Mfg. Co., Inc.*, No. 9157, 105 F.T.C. 410, 1985 FTC LEXIS 46, at *25 (June 28, 1985) (stating that "[a]n attempt to exercise market power in an industry without entry barriers would cause new competitors to enter the market. This additional supply would drive prices back to the competitive level"). Entry can be demonstrated either by new firms entering the relevant market or via expansion into the relevant markets by existing firms. *See Baker Hughes*, 908 F.2d at 988-89 (affirming finding of entry where evidence showed, among other things, that at least two companies had entered the United States market immediately prior to the challenged acquisition and that a number of firms competing in Canada and other countries were likely to do so).

Determining whether there is ease of entry hinges upon an analysis of the barriers to new firms entering the market or to existing firms expanding into the relevant market. *Cardinal Health*, 12 F. Supp. 2d at 55 (citing *Baker Hughes*, 908 F.2d at 987). Post-acquisition evidence is properly considered in determining whether entry is likely to avert any anticompetitive effects. *See Chicago Bridge*, 2005 FTC LEXIS 215, at **18. *See also Lektro-Vend Corp. v. The Vendo Co.*, 660 F.2d 255, 276 (7th Cir. 1981) (holding that post-acquisition evidence can be an important indicator of probability of anticompetitive effects where the evidence is such that it could not reflect deliberate manipulation by the merged companies).

A fundamental step in determining ease of entry is timeliness. *See Cardinal Health*, 12 F. Supp. 2d at 55 ("The first step in determining ease of entry is timeliness."). Entry must also be proven to be "*likely*, and *sufficient* in its magnitude, character and scope to deter or counteract the competitive effects of concern." *Cardinal Health*, 12 F. Supp. 2d at 55 (quoting *Merger Guidelines* § 3.0).

As more fully demonstrated below, the evidence shows that the relevant markets are affected by significant entry barriers, that entry has not occurred since the merger, and that it is unlikely that entry will be timely or sufficient to counteract the anticompetitive effects of the merger.

b. Entry barriers

Entry barriers, as stated in *In re Chicago Bridge*, have been explained as follows:

> Expertise in the industry, a fair amount of capital, a positive reputation, and possession of specialized equipment are all barriers to entry. *Fruehauf Corp. v. FTC,* 603 F.2d 345, 357 (2d Cir. 1979); *Cardinal Health*, F. Supp. 2d at 58; *United States v. Blue Bell, Inc.,* 395 F. Supp. 538, 549 (M.D. Tenn. 1975). . . . In some markets, "the need for reliability is so great and the consequences of new product failure so dire that, even if the competitive nature of the market deteriorated, consumers would still be reluctant to switch to new entrants." *Tote,* 768 F. Supp. at 1076 (finding proven ability to provide reliable systems and service an important factor in a racetrack's selection of a totalisator supplier to preserve the track's revenue and goodwill). The unwillingness of customers to use a company with an unproven track record is a barrier to entry. *See Tote,* 768 F. Supp. at 1078.

In re Chicago Bridge & Iron Co., No. 9300, 138 F.T.C. 1024, 2003 FTC LEXIS 96, at **242-43 (June 18, 2003), *aff'd,* 2005 FTC LEXIS 215 (Jan. 6, 2005), *aff'd*, 534 F.3d 410 (5th Cir. 2008).

Moreover, entry barriers need not reach some predetermined level before an anticompetitive effect becomes possible. *Fruehauf Corp. v. FTC*, 603 F.2d 345, 357 (2d Cir. 1979); *accord FTC v. Bass Bros. Enters.*, 1984 U.S. Dist. LEXIS 16122, at *67 (N.D. Ohio 1984). Impediments to entry that do not rise to the level of absolute barriers to entry may nevertheless permit the exercise of market power for substantial periods of time. *In re B.F. Goodrich Co.*, No. 9159, 110 F.T.C. 207, 1988 FTC LEXIS 16, at *33 (March 15, 1988). Courts and the Commission include as barriers to entry any condition that necessarily delays entry into a market for a significant period of time and, thus, allows market power to be exercised in the interim. *Id*; *In re Echlin Mfg. Co.,* 1985 FTC LEXIS 46, at *26 n.4 (stating that barriers to entry encompass significant delays encountered by entrants). Consistent with these principles, the Merger Guidelines state that entry must be timely, which is defined as entry that is "'achieved *within two years* from initial planning to significant market impact.'" *Cardinal Health*, 12 F. Supp. 2d at 55 (quoting *Merger Guidelines* § 3.2); *United Tote*, 768 F. Supp. at 1079 (citing *Merger Guidelines* and stating that entry will be considered "easy" if can be successfully accomplished within a two-year time period). The time assessment properly includes the time for study, development, and debugging to achieve a "truly competitive" product. *See United Tote*, 768 F. Supp. at 1074-75.

Complaint Counsel contends that the relevant markets are characterized by high barriers to entry, including high capital costs to achieve necessary scale-based benefits, experience and learning effects, specialized expertise and the value of reputation or brand. CCB at 35. Complaint Counsel further asserts that these entry barriers, combined with such requirements as facility construction, product development and product testing, means that entry would not be timely under the Guidelines. *Id.* at 35, 37-38. Respondent counters that entry barriers are low, that industry technology is widely known and not proprietary, and that new production lines can be installed and products tested in less than two years. RB at 31-32.

As more fully set forth below, the evidence establishes that there are significant barriers to entry into the relevant markets, including the needs for millions of dollars in capital investment, specialized equipment, technical expertise and "know-how" that is not widely available, and a favorable reputation with customers. Moreover, the time required to surmount these barriers, including to develop and test products and achieve the customer validation necessary to make product sales, exceeds two years. Under the applicable legal principles, such evidence belies a conclusion that there is ease of entry.

(i) Capital investment

The relevant costs of entry are "'economic costs measured at the time of entry;' that is, the costs that each firm -- whether an incumbent or a prospective entrant -- confronts at the time of its entry effort." *In re B.F. Goodrich Co.*, 988 FTC LEXIS 16, at *31-32 (quoting in part *In re Echlin Mfg. Co.*, 1985 FTC LEXIS 46, at *30). The approximate cost of constructing a battery separator production line is $1 per square meter of production capacity. Thus, building a 6 to 8 square meter production line will generally cost approximately $6 to $8 million, or more when including land and/or production facilities. F. 925. A single calender roll can cost over $60,000, and multiple rolls are typically required. F. 926. Acquiring land and constructing a facility for manufacturing are additional investment costs. F. 967, 1098.

In order to be competitive and profitable, however, the evidence also shows that entrants must invest additional sums in order to obtain sufficient production scale. *See* F. 928 (scale is a barrier to entry). For example, an individual PE line with annual production capacity of 3 million square meters is "too small" to operate profitably because the profit margin of the battery separator industry is very small. F. 966. Similarly, when Asian manufacturer BFR was operating just two PE separator lines, its capacity of {[redacted]} because of the larger cost of investment to buy the land and to build the building and the lines. F. 967. In addition, significant scale is required to meet the demands of large battery manufacturers. F. 929. Accordingly, an entrant can expect to invest well in excess of $8 million in order to be profitable in the relevant markets. As Daramic's own documents recognize, scale is a competitive advantage, F. 964, 968, and the "capital investment needed to achieve the scale required to supply the large battery manufacturers" is a barrier to entry. F. 929. *See In re B.F. Goodrich Co.*, 1988 FTC LEXIS 16, at *44 (finding that substantial minimum efficient scale requirements in the industry would be likely to impede entry, and that new entrant would have to achieve a high sales level to avoid suffering significant cost disadvantage relative to other firms); *see also Cardinal Health*, 12 F. Supp. 2d at 57 (holding that the sheer economies of scale defendants possessed served as a barrier to new entrants attempting to grow and compete).

(ii) Technical expertise and "know-how"

The technology of making microporous membranes for battery separators is a very complicated technology. F. 959. One person cannot create a turnkey PE line, because the process is too complicated. It requires a team of several members with prior experience in PE production. F. 940-41. Engineers are required because the line has many different sections and many different manufacturing steps with each step needing a special technology. F. 941. For example, chemical engineering is needed for the production process, mechanical engineering for automation issues, mechanical engineering for equipment design, and environmental engineering to address environmental issues. F. 941. Good engineering also helps reduce manufacturing costs. F. 943. In addition, a good technical team is required in order to redesign and improve battery separator products, which is necessary for a potential entrant to compete with large firms such as Daramic and Entek. F. 960, 963. *See United States v. Ivaco, Inc.*, 704 F. Supp. 1409, 1420 (W.D. Mich. 1989) (including as entry barrier the fact that entrant would have to develop a machine that surpasses those currently on the market in order to compete against existing suppliers).

Learning how to build a battery separator line is an ongoing process where one learns day-by-day. F. 935. The installation process is modified as defects and problems are discovered, so that each new line should be better than the prior lines. F. 935. For example, Mr. Kung of BFR has refined his designs for a PE separator production line over the years. F. 937. Similarly, the lessons that Microporous learned from the early manufacturing of CellForce in Piney Flats, Tennessee, were used when setting up its lines in Austria, so as to avoid making the same mistakes. F. 945.

A skilled workforce is required to run a battery separator plant effectively and to meet customers' needs. Workers on the line coordinate several different pieces of equipment with different functions, and to ensure the product is formulated to the customer's exact specifications, a worker must know how to set the proper conditions for pressures, temperatures, and speeds. F. 946-48. When Microporous bought a production line from Jungfer, it sent workers over to Austria for training. F. 949. Microporous also decided to hire the Jungfer engineer who designed the line, Peter Gaugl, as an "insurance policy" to get the line operating quickly and correctly. F. 949. Indeed, one of the reasons for choosing Austria for Microporous' expansion plan was so that Microporous could hire former Jungfer employees who were familiar with PE battery separator production. F. 950.

Similarly, when Daramic decided to relocate the Jungfer lines it had purchased from Austria to Thailand, it sent former Jungfer personnel from Austria who were familiar with the equipment and had experience setting up PE lines of that type. F. 944. Having personnel skilled in producing rubber separators was important to Daramic in its acquisition of Microporous, because the rubber market was a new market and a new technology for Daramic. F. 957. The importance of skilled personnel is also demonstrated by the fact that, even though during the Owensboro strike Daramic brought its own management and employees over from Europe to help run the manufacturing lines, the separators produced on those lines during the strike had quality issues and the number of defects rose significantly. F. 952-56.

Battery separator manufacturing technology is not only highly technical, but it is also not widely available. According to former Microporous, and now Daramic employee, Peter Gaugl, who built the PE/CellForce line for Microporous at Piney Flats in 2000, Mr. Kung of BFR, two former Jungfer employees – Dr. Winkler and Mr. Duya – and "certain people at Daramic as well as at Entek" could design and install a production line. F. 12, 939, 980. *Compare United States v. Gillette Co.*, 828 F. Supp. 78 (D.D.C. 1993), cited by Respondent, RB at 32, in which the court specifically found "ample evidence that the mechanics of fountain pen design are readily available, thus leaving no technological barriers to entry into the market." 828 F. Supp. at 84. Moreover, there are proprietary barriers to acquisition of certain technology and processes. For example, CellForce technology is patent protected until 2019. F. 932. Daramic viewed the Jungfer manufacturing process it acquired as sufficiently proprietary to protect against its use by competitors, and sued Microporous hoping to prevent its use in Europe. F. 933. *See also* F. 934 (Microporous and Daramic each protect production line specifications and consider them proprietary).

Technical expertise is very important to battery manufacturer customers when choosing a supplier, including for the purposes of innovation, customer support, and collaborative engineering. F. 961-62, 971, 1089, 1104. For example, one of the reasons EnerSys declined to get involved in helping {[redacted]} F. 961. EnerSys saw providing capital to an entity without expertise in the PE market as too high a risk. F. 961. Defects or delays in supply costs customers money, in terms of efficiency losses at plants as well as warranty claims on batteries. F. 953-56, 1059. Because PE battery separator plants make continuous improvements in efficiency and quality over time, an experienced producer is in a better competitive position than a start-up firm. F. 958. *See United Tote*, 768 F. Supp. at 1072-73 (holding that technical performance requirements, combined with customer demand for 100% system reliability, constituted barrier to timely entry).

(iii) Reputation

It is well-recognized that a company's reputation for expertise, quality, and success in the relevant markets can constitute an impediment to entry by others. *Chicago Bridge*, 534 F.3d at 437 (stating that reputation served as a proxy for firms' experience and success in building LNG projects in the United States); *Cardinal Health*, 12 F. Supp. 2d at 57 (noting that strength of reputation that the defendants possessed, in relation to competitors, constituted barrier to entrants' ability to compete). In the instant case, Daramic's own documents acknowledged that reputation is a barrier to entry. F. 928-29. Furthermore, battery manufacturer EnerSys testified that a good reputation is one of the things it looks for in a potential supplier, and that it was willing to try Microporous' CellForce product when it was offered because Microporous already had a great reputation with EnerSys' European and former Hawker personnel for customer focus, competitive pricing, and technical superiority. F. 970-71. Exide also perceived that Microporous had a very good reputation in the marketplace. F. 972. *See United Tote*, 768 F. Supp. at 1076 (holding that reputation was a barrier to entry where "proven ability to provide reliable systems and service" was an important factor in customer's choosing supplier).

(iv) Time required for entry

- ***In general***

Complaint Counsel's expert, Dr. Simpson, correctly concluded that the overall time required to obtain tangible assets, such as those possessed by Microporous, including production facilities, an effective product that is qualified by customers, a technical workforce that could troubleshoot and innovate, and an effective sales force, as well as intangible assets such as "know-how" and a favorable reputation with customers, would require at least several years. F. 923, 973. Some of these assets need to be acquired sequentially. F. 923. As Dr. Simpson explained, "you can't test a product until you develop a product and you can't get learning by doing until you're actually producing the product and figuring out through producing it how to make it more efficiently." F. 923. Some assets can be acquired simultaneously, such as product development and product testing. F. 973. Regardless of how the time period for acquisition is measured, according to Dr. Simpson, entry would require several years. F. 973. Moreover, Daramic's use of exclusive contracts (*see, e.g.,* F. 820-48) can further impede entry by depriving the entering firm of potential sales. F. 973

- ***Constructing the means of production***

On average, it takes an experienced PE line builder approximately 18 to 20 months to design, equip, install and "de-bug" a PE battery separator line. F. 974-75. This timeline assumes an existing facility, and, therefore, does not include the time required for an entrant to engage in planning, acquire land, if necessary, and to design and construct a facility to house the line. F. 974-75; *see also* F. 984 ("turnkey" line took 18 months to construct), F. 988-90 (including business plan, facility acquisition, and construction, Microporous' Austrian plant took over two years to begin producing product). In addition, fully training a line workforce takes approximately six months. F. 985. While 18 to 20 months is an average to build a line, in practice, the total time period required to begin producing product for commercial sales is longer. For example, Microporous first began its plans to build a new plant in Europe in early 1999. F. 986. However, it was not until 2004 to 2005 that serious efforts were underway. F. 986. In January 2006, Microporous prepared its business plan for the expansion and ordered the long lead-time items for its new lines in December of 2006. F. 988-89. The construction of the plant building began in February 2007. F. 990. Commercial product was first produced from the Feistritz plant in March 2008, and the Feistritz plant started operations on a regular schedule in June 2008, although as of January 2009, the Austrian facility was still going through a learning curve. F. 990, 992.

- ***Developing and testing product***

The experiences of Daramic and Microporous show that developing a profitable, competitive separator product takes several years, even for established and experienced manufacturers.

Microporous' development of the CellForce product took many years. F. 995. CellForce was initially developed by Microporous in 1995 to 1996. F. 995. Microporous installed its "turnkey" production line that it obtained from Jungfer in 1999 and began producing CellForce on a production line at its Piney Flats facility in early 2001. F. 995. It took more than a year for Hawker/EnerSys, the first CellForce customer, to complete its testing and approval process and to begin buying commercial quantities. F. 1002. Trojan Battery, the second CellForce customer, did not begin buying commercial quantities until 2002, after completing nearly two years of testing and several additional months of trouble-shooting. F. 1002-03. Significantly, Microporous did not begin making profits on its investment in CellForce until 2004, approximately two to three years after it began selling commercial quantities of CellForce to Hawker/EnerSys. F. 996.

Similarly, Microporous worked on entering the SLI market for years. F. 649-51, 684-90, 694-722. For example, Microporous provided a PE SLI sample to JCI in 2003, but the sample did not perform sufficiently and was not qualified by JCI. F. 651. JCI reengaged in discussions with Microporous in 2005 about possible supply of PE SLI separators from Microporous to JCI in the United States and in Europe. F. 684-85, 687.

Subsequent to JCI's 2005 discussions with Microporous, JCI tested Microporous' PE SLI separators a second time after Microporous had improved the manufacturing process. F. 688. This second time, the problems that had been encountered by JCI in its earlier testing of Microporous separators were fixed. F. 688. Thereafter, JCI was comfortable that Microporous could produce an SLI separator that JCI could use, and JCI qualified Microporous' product for use in 2007. F. 689-90. Thus, it took several years, from 2003 until 2007, for Microporous to reach the point of entry with JCI.

Daramic spent many years trying to develop a battery separator that would work well in deep-cycle applications. F. 993. Daramic began testing different additives for a new deep-cycle separator as early as 1999. F. 993. This project evolved over time, beginning with the development of Daramic DC, which went to market in 2002, and culminated in the development of Daramic HD. F. 993. Daramic began testing Daramic HD, as a replacement for Daramic DC, in 2003. F. 993. Daramic expected customer qualification of Daramic HD for use in deep-cycle batteries to take more than 18 months. F. 1024. It was not until 2005 that Daramic made its first commercial sales of Daramic HD. F. 993. In 2005, however, Daramic was making very little gross margin on Daramic HD because of the manufacturing costs and the market price it had to set in order to get customers to switch from Microporous' deep-cycle battery separators to Daramic HD. F. 994.

- ***Testing and qualification of product by customers***

As indicated above, battery manufacturers test and validate separator products before purchasing commercial quantities. Battery manufacturers generally provide customers with a warranty against material, workmanship and manufacturing defects for a period of time. F. 1001. If a battery has a bad component, such as a separator, the warranty may require the manufacturer to replace the defective battery with a new battery. F. 1001. Failing to test a battery separator in the battery prior to sale is risky, since doing so increases the risk of warranty claims for quality issues. F. 1001.

In general, testing of new separator product typically involves testing both the separator material itself and the battery's performance using the material, including life-cycle measurement. F. 1001, 1007. Validation will typically rely on results of laboratory testing and, if the results of lab testing warrant, field testing. F. 1004-05, 1018-20. A battery manufacturer will also test and qualify a separator when it switches backweb thickness. F. 1008.

Use of a new separator also requires the battery manufacturer to understand and tweak the battery manufacturing machines to be able to run a different product. F. 1006. After a separator is qualified by testing, a battery manufacturer must also make sure the separator can run on the battery manufacturing lines. F. 1006.

To better illustrate the required procedure, at EnerSys, the process for testing and validating a new separator product involves preliminary material tests of separator samples, which are typically made in a laboratory, and subsequent tests of production samples in actual batteries. F. 1004. The preliminary tests involve testing the separator material in puncture, shrinkage and electrical resistance tests, as well as analyzing its brittleness and composition, *i.e.*, particularly oil. If the separator samples pass these preliminary tests, EnerSys will request the potential supplier to provide production samples, *i.e.*, separators made on the supplier's production line. F. 1004. After receiving production samples from a potential separator supplier, EnerSys builds test batteries with the new separators. These test batteries undergo performance and battery life tests. F. 1005. The performance tests essentially analyze whether the battery with the new separator will generate the electrical current specified for the battery. F. 1005. The battery life tests are time-consuming because they are designed to determine whether the battery will perform well for the duration of the battery's warranty period. F. 1005. These tests involve placing the test batteries in a box that has an elevated temperature, which helps age the battery. F. 1005. Life-cycle testing and testing of production samples can be conducted concurrently. F. 1007.

The evidence shows that completion of customer testing and validation of products for the relevant markets varies. Full testing of battery separators for motive and

UPS batteries takes two to three years to complete. F. 1011-13. Product testing for deep-cycle batteries may be completed in 18 to 24 months, depending on how frequently the battery is cycled from charge to discharge. F. 1015-17, 1019-20. In general, completing testing for SLI separators takes less time than for other applications. Life-cycle testing for transportation battery separators can be expected to take up to nine months, and field testing to take one year. F. 1025.

(v) Summary of barriers to entry

The relevant markets in this case are characterized by substantial barriers to entry. The most significant of these are the many millions of dollars in capital investment required to achieve sufficient scale to compete, and the several years that are required to plan, construct, and debug production facilities, develop and test products, obtain customer validation and achieve a favorable reputation. "As the time and expenditures needed to overcome barriers and impediments to entry increase, the likelihood that a given acquisition will have anticompetitive effects, . . . increases as well." *In re B.F. Goodrich Co.*, 1988 FTC LEXIS 16, at *34. Accordingly, the barriers to entry in the relevant markets prevent a conclusion that there is ease of entry in the relevant markets at issue. *See Fruehauf Corp.*, 603 F.2d at 358 (holding that Commission's finding of initial capital costs in excess of 10 million dollars was substantial evidence supporting conclusion that capital costs were substantial and significant barrier); *United Tote*, 768 F. Supp. at 1079 (concluding that because entry into relevant market with a competitive product would be costly and time consuming, threat of entry would not pose a significant constraint on price increases in the market); *Ivaco*, 704 F. Supp. at 1420 (entry difficult where it would take approximately three years and cost between 2.5 and 3 million dollars). *Compare United States v. Calmar, Inc.*, 612 F. Supp. 1298, 1306 (D.N.J. 1985) (holding that entry was easy where it would take a year and a half and cost approximately half a million dollars); *In re Echlin Mfg. Co.*, 1985 FTC LEXIS 46, at *21, *40, *45 (noting that entry would take as little as 500 dollars and less than a year to successfully enter the market, and concluding entry was easy).

c. Actual and potential entrants

Respondent contends that entry has occurred in the relevant markets, or is likely. RB at 31-33. The history of entry into the relevant market is a central factor in assessing the likelihood of entry in the future. *See* Guidelines § 3.1; *Baker Hughes,* 908 F.2d at 988; *United States v. Waste Management, Inc.*, 743 F.2d 976, 982 (2d Cir. 1984); *United Tote,* 768 F. Supp. at 1080-82; *Cardinal Health*, 12 F. Supp. 2d at 56. *See also Chicago Bridge*, 2005 FTC LEXIS 215, at **18 n.45 (quoting 2A Areeda, Hovenkamp & Solow, Antitrust Law ¶ 420b at 60 (2d ed. 2002) ("The only truly reliable evidence of low barriers is repeated past entry in circumstances similar to current conditions.")); *In re B.F. Goodrich Co.*, 1988 FTC LEXIS 16, at *40 (noting that history of lack of de novo entry supported conclusion that entry barriers were high). "The Guidelines state that entry is to be considered 'likely if it would be profitable at premerger prices, and if such prices could be secured by the entrant.' Guidelines § 3.3." *Cardinal Health*, 12 F. Supp. 2d at 56.

In the instant case, there is not a history of easy entry. Indeed, while Entek supplied separators for industrial applications more than a decade ago, it has essentially exited that business. F. 1027, 1040. Moreover, the experiences of Microporous in entering the SLI market and trying to enter the UPS market, and Daramic in entering the deep-cycle market, described in F. 457-501, 617-28, 638-722, only confirm that entry into the relevant markets is not easy; their efforts, over many years, required the devotion of considerable resources to planning, obtaining specialized equipment, product development, and product testing, among other necessities. *Compare United States v. Syufy, Enters.*, 903 F.2d 659, 666 n.11 (9th Cir. 1990) (holding that entry was easy where new competitor in movie distribution business not only successfully entered market in less than two years, but also was operating more first-run screens).

Respondent asserts that Entek, as well as various Asian manufacturers, are likely entrants. Entek is not a participant in any of the relevant product markets except SLI. F. 382-83, 393-397, 425, 1031-32, 1034, and the evidence demonstrates that Entek is unlikely to enter the deep-cycle, motive or UPS battery separator markets within the next two years. F. 398, 400-03, 1028-30, 1033, 1037-38, 1041, 1043-44, 1048. First, Entek has repeatedly declined opportunities to expand into these markets, due to the cost of entry, and because Entek is committed to a strategy that focuses on selling for the SLI market. F. 395-98, 400,1029-31, 1033-39, 1041. Moreover, in order to enter the deep-cycle market at a level sufficient to restore the pre-acquisition competitive environment, Entek would need to develop a reliable product, modify its production line, get qualified by customers, and then gain the learning by doing necessary to be efficient. F. 1047. This is unlikely to happen within two years. F. 973, 1028. {[redacted]} F. 1049-50.

Respondent next claims that various Asian manufacturers have entered, or are likely entrants. RB at 32. According to Respondent, Asian separator makers are "aggressive" global competitors, which are considered to be "equal" to their North American counterparts in terms of quality, technology and capability, and that many have been qualified by North American battery makers. RB at 32-33. The evidence demonstrates, however, that Asian separator manufacturers are not currently supplying any of the relevant product markets in North America. F. 334, 442, 446-450, 1062, 1064, 1069, 1078. Respondent maintains that an Asian manufacturer could build a production line in 16 to 18 months, and obtain product qualification "well within" the two-year time frame, and operate profitably in the North American market. RB at 32-33. Again, the evidence is to the contrary.

In fact, as set forth above, it takes more than two years to build a production line, complete testing, and obtain customer validation of products. In addition, battery manufacturers do not consider the quality of Asian-produced separators to be in line with American standards. F. 1061, 1082, 1088-89, 1101. *See also* F. 1065 (Daramic rated Anpei {[redacted]}); F. 1075-77 ({[redacted]}). For example, Exide believes that the infrastructure, technology and "know-how" is not present in the manufacturing operations of Asian suppliers and that Asian manufactured separators do not meet the standards of American consumers for American cars. F. 1089. *See also* F. 963 {[redacted]; F. 1066 {[redacted]} EnerSys believes that, other than {[redacted]} does not have the technical expertise in making separators, setting up lines, and handling technical issues. F. 1103. If {[redacted]} EnerSys would consider {[redacted]} to be on "shaky ground." F. 1103. Finally, while some battery manufacturers have performed some testing on material produced by some Asian manufacturers, full testing has not been completed and, as to some Asian manufacturers, testing that was performed has yielded inadequate results. F. 1061, 1081-83, 1095, 1102. Contrary to Respondent's assertions, the evidence does not show that any Asian battery separator manufacturer has been qualified for use in any of the relevant product markets. *See, e.g.,* F. 1102 (qualification process for {[redacted]} "just getting started" at EnerSys); F. 1108 (East Penn Battery approved Anpei separator for use in lawn mower battery). Even {[redacted]} F. 445, 1111.

Asian battery separator makers face additional barriers to being able to compete in the relevant markets. Purchasing Asian products for the North American markets is more costly, due among other things, to import charges, higher shipping costs, and additional warehousing costs. F. 314, 316-19, 337, 341-42, 1060, 1084, 1094, 1096, 1100, 1102, 1104, 1110. Language barriers are also an issue. F. 1091. In addition, {[redacted]} battery customers may be reluctant to contract with {[redacted]} F. 1050, 1085. In light of these and other significant entry barriers, such as small scale production, F. 1057, 1069, 1072, 1082, and lack of positive reputation, F. 1061, 1082, 1088, 1101, timely entry by any Asian battery separator with a "truly competitive" product is unlikely. *United Tote*, 768 F. Supp. at 1075. F. 1063; *see also* F. 967 ({[redacted]} of its PE manufacturing operations).

Battery manufacturers testified that they have considered, or would consider, Asian-made battery separators for the North American market, and some have engaged in discussions with various Asian suppliers, including consideration of quotes. F. 1081-82, 1090, 1092, 1094, 1096, 1108-09. However, "the mere fact that a customer may try to develop an additional supplier in an attempt to enhance competition does not mean that the competition lost from an acquisition has been replaced." *In re Chicago Bridge*, 2005 FTC LEXIS 215, at **174; *see also id.* at **117 (noting that unless customers were willing to consider bidders from the alleged potential entrants, LNG tank customers in the United States would have no choice other than CB&I. Thus, such consideration showed little more than a refusal to throw themselves on CB&I's mercy). Despite consideration of Asian suppliers, it remains unlikely that battery manufacturers will purchase Asian made battery separators for the North American market in the next two years. F. 1063, 1087, 1093, 1097, 1099, 1102, 1105, 1110-12. For example, JCI, {[redacted]} F. 1111. Exide does not foresee buying {[redacted]} in the next two years. F. 1087.

Even if entry were deemed to be timely and likely, however, entry must also be at a level sufficient to counter the anticompetitive effects of the merger. *Cardinal Health*, 12 F. Supp. 2d at 58 (quoting *Merger Guidelines* § 3.0) ("[T]imely and likely entry must also 'be sufficient to return market prices to their premerger levels.'"). Respondent contends, that for entry to sufficiently replace the loss of competition due to the merger, an entrant need only "replace one small PE line in the North American market" because this was the extent of "Microporous' scale." RB at 32. This assertion lacks legal or factual support. For entry to be sufficient, it has to be of a "sufficient scale" adequate to constrain prices and break entry barriers. *Chicago Bridge*, 534 F.3d at 429. The potential entrant must be of a sufficient scale to compete on the same playing field as the incumbent in order to be able to constrain the likely anticompetitive effects. *Id.* Respondent's citation to *In re B.F. Goodrich*, 110 F.T.C. at 345, refers to the divestiture order in that case and is immaterial to the determination of sufficiency of entry in this case. Moreover, as Dr. Simpson indicated, replacing Microporous as a competitive constraint would require an entrant to possess numerous tangible assets, including production facilities, an effective product that was qualified by customers, a technical workforce that could troubleshoot and innovate, and an effective sales force, as well as intangible assets such as "know-how" and a favorable reputation with customers. F. 923, 973. As set forth above, the evidence shows that Asian manufacturers do not presently possess such assets for the relevant markets, and that they are unlikely to acquire such assets within two years.

Finally, contrary to Respondent's argument, RB at 34-35, the evidence does not warrant a conclusion that battery makers will vertically integrate with, or sponsor entry into the relevant markets by, Asian separator manufacturers, within the applicable time frame or on a sufficient scale to counter the anticompetitive effects of the merger. F. 1113-26. For example, Exide has never considered entering a joint venture with any separator manufacturer, nor is Exide interested in investing money in a battery separator manufacturer. F. 1126. In addition, East Penn Battery has never considered investing capital in an Asian supplier of PE, and East Penn Battery does not have any current plans to enter a joint venture with any battery separator manufacturer or to sponsor the entry of any battery separator manufacturer. F. 1125. Further, East Penn Battery does not have any plans to vertically integrate and manufacture separators in-house. F. 1125. Exide has not agreed to sponsor Entek in expanding into separators for industrial applications. F. 1033, 1035. EnerSys considered {[redacted]} F. 1124. {[redacted]} F. 1123, the preponderance of the evidence, as described above, is that neither sponsored entry nor vertical integration is likely to restore competition in the relevant markets. *See Chicago Bridge*, 534 F.3d at 430 n.10 ("[T]here is a high threshold applied to assertions as to whether a company can be considered a potential entrant for anti-trust purposes. . . . The more concentrated the market and the greater the threat posted by the challenged practice, the more convincing must be the evidence of likely, timely, and effective entry.") (citation omitted).

2. Power buyers will not counteract the anticompetitive effects of the acquisition

Respondent argues that "power buyers" have the ability to prevent anticompetitive effects. RB at 35-36. Complaint Counsel responds that North American customers are captive to Daramic's pricing and supply decisions and that there is no evidence that characteristics in the separator industry are "so much greater . . . than in other industries that they rebut the normal presumption." CCRB at 22, 26 (citing *Heinz*, 246 F.3d at 724). For the reasons which follow, Respondent's argument fails.

The "power buyer" defense is grounded in the theory that large, sophisticated buyers may have the bargaining power to resist anticompetitive price increases and, thereby, counter anticompetitive effects of a merger. In *Baker Hughes,* upon which Respondent relies, the Court of Appeals for the D.C. Circuit relied upon the findings of the district court regarding the buyers' sophistication and large order sizes, coupled with their ability to "closely examine available options" while "typically insist[ing] on multiple, confidential bids for each order," as convincing evidence of bargaining power, which would allow customers to resist anticompetitive price increases that might result from the merger. *Baker Hughes*, 908 F.2d at 986-87. In *Baker Hughes*, the court also found that defendants had additionally provided compelling evidence of ease of entry into the market. *Id.* at 987. "'Although the courts have not yet found that power buyers alone enable a defendant to overcome the government's presumption of anti-competitiveness, courts have found that the existence of power buyers can be considered in their evaluation of an antitrust case, along with such other factors as the ease of entry and likely efficiencies.'" *Chicago Bridge*, 534 F.3d at 440 (citing *Cardinal Health*, 12 F. Supp. 2d at 58; 4 Areeda & Hovenkamp, at ¶ 943c).

Respondent contends that three battery manufacturers – JCI, EnerSys and Exide – are power buyers. RB at 36-44. However, Respondent does not delineate the product markets in which these manufacturers are ascribed as being power buyers. *Id.* Complaint

Counsel, in its reply, similarly argues generally that "North American customers are captive to Daramic's pricing and supply decisions," CCRB at 26, without regard to the product markets in which the customers operate. *See also* CCRB at 37 ("Daramic's repeated mantra that the relevant product markets have 'power buyers' is unsupported.").

"At a basic level, customers must have alternative suppliers in order to have any real bargaining power." *Chicago Bridge*, 2005 FTC LEXIS 215, at **195. For example, in *Country Lake Foods*, relied upon by Respondent, the district court found defendants' power buyer argument persuasive where "substantial buyers" of the relevant product could and would turn to alternative suppliers just outside the relevant geographic market. *Country Lake Foods*, 754 F. Supp. at 672-73, 679. *See also In re American General Ins. Co.*, No. 8847, 89 F.T.C. 557, 1977 FTC LEXIS 167, at *184-85 (June 28, 1977), *rev'd on other grounds*, *American General Ins. Co. v. FTC*, 589 F.2d 462 (9th Cir. 1979) (where respondent challenged the ALJ's failure to take into account the sophistication of agents, the Commission held: "we fail to see how the agents' perspicacity in locating alternatives can immunize them from market power. Wise choices among alternatives depend in the first instance on the existence of those alternatives.").

In the deep-cycle, motive, and UPS markets, as a result of the acquisition of Microporous, customers have no alternative suppliers to Daramic. Section III D 4 a, *supra*. Therefore, as in *Chicago Bridge*, "the buyers in this case have no real alternatives to the monopolist" and, thus, do not have "any real ability to thwart price increases post-merger." 2005 FTC LEXIS 215, at **196-97. It is only in the SLI market where customers have an alternative to Daramic. Section III D 4 b, *supra*. Accordingly, Respondent's argument that customers exercise buyer power is evaluated only with respect to the SLI market.

In support of its claim that JCI is a power buyer, Respondent points to evidence that JCI, the largest battery manufacturer in the world, no longer buys its separators from Daramic, having instead entered into a long-term supply contract with Entek. Respondent notes also that {[redacted]} RB at 36. Respondent asserts that JCI is powerful enough to have {[redacted]

[redacted]} in the SLI market, thereby counteracting any possible anticompetitive effects of Daramic's acquisition of Microporous. RB at 36.

The evidence does not demonstrate that JCI is a power buyer within the meaning of applicable case law. First, JCI {[redacted]} F. 339, 1111. Moreover, the evidence does not indicate that JCI plans to {[redacted]} *See* RFF 491-500, 1114-19. In addition, {[redacted]} the evidence indicates that {[redacted]} may actually strengthen Daramic's position with other manufacturers, such as Exide and EnerSys. {[redacted]} F. 1115. {[redacted]} F. 1050, 1085.

With regard to EnerSys, which on January 14, 2010, filed a Form 8-K with the Securities and Exchange Commission ("SEC") announcing the purchase of certain assets and assumption of certain liabilities of the Douglas Battery Manufacturing Company, F. 59, Respondent states that Daramic has agreed to myriad terms beneficial to EnerySys and that Daramic's pricing for PE separators for EnerSys was the result of extensive contract negotiation. RB at 39. Respondent argues that {[redacted]} (discussed in subsection 1, above) demonstrate the power that buyers in the battery separator industry have to control the competitive atmosphere of their supply. RB at 40. As discussed below, this evidence does not support Daramic's assertion that EnerSys is a power buyer.

In support of its argument that Exide is a power buyer, Respondent asserts that although Exide, either the largest or second largest battery manufacturer in the world, entered into a negotiated ten-year supply agreement with Daramic in 1999 as part of the purchase of Exide's Corydon separator facility, Exide has still been able to repeatedly negotiate for itself better terms, has managed to avoid price increases, and has breached the terms of those agreements. RB at 42-44. Respondent further claims, based upon evidence adduced in the reopened hearing of November 12, 2009, that most recently Exide has been {[redacted]} RBROH at 13.

Respondent overstates the significance of the evidence adduced at the reopened hearing of November 12, 2009 to its asserted power buyer defense. Evidence adduced at that hearing demonstrates that, beginning in June 2009, and pursuant to the supply contract between Exide and Daramic, Exide began {[redacted]} F. 746. The evidence further shows, however, that Exide's purpose {[redacted]} and was not to enable Exide to replace Daramic with another supplier. F. 747. Exide's purpose in this regard was communicated to Daramic. F. 747 (Daramic acknowledging its "understanding" that Exide {[redacted]}). In addition, on January 19, 2010, Respondent filed a Form 8-K with the SEC announcing that Daramic entered into a new evergreen supply agreement with Exide. F. 749. As discussed below, this evidence does not support Daramic's assertion that Exide is a power buyer.

In the SLI market, there is only one alternative to Daramic. In the deep-cycle, motive and UPS markets, there are no alternatives to Daramic. Accordingly, the evidence cannot support Respondent's power buyer defense. As in *Chicago Bridge*, "this case is unlike *Baker Hughes*, . . . where there were ample available alternatives for customers in a market with low entry barriers." *Chicago Bridge,* 534 F.3d at 440.

Further, also as in *Chicago Bridge*, "there is no history nor other indication that customers who formerly relied on [the acquiring and the acquired company] will undertake to [manufacture the product] on their own." 534 F.3d at 439; F. 1113-20 (no vertical integration). "The absence of such evidence, together with the lack of evidence of adequate entry of competitors, undermine the basic premise for this defense." *Id.*

Contrary to Respondent's argument, the fact that EnerSys and Exide have each considered obtaining supply from some Asian separator manufacturers does not demonstrate that such manufacturers are available alternatives. *In re Chicago Bridge*, 2005 FTC LEXIS 215, at **174; *see also id.* at **117. Furthermore, the evidence, as discussed in Section III E 1 c, *supra*, indicates that Exide does not foresee {[redacted]} Asia in the next two years, and that Asian separator manufacturers are not now, or likely in a timely fashion to become, meaningful alternatives to Daramic in the North American SLI market.

Further undermining Respondent's power buyer defense is evidence that shows the power that Daramic has exerted over its customers. For example, Daramic admitted in its own strategic planning document that "[b]attery manufacturers lack purchasing power despite their scale due to limited number of suppliers." F. 435. Daramic acknowledged "strong-arming" JCI into the January 2004 {[redacted]} F. 677, 680; *see also* F. 678 (Daramic document noting, "[u]nder pressure, JCI signed the proposed contract). Daramic's post-acquisition supply proposals to Exide are {[redacted]} than what Exide was paying pre-acquisition. F. 905. Exide's analysis shows that it will {[redacted]} F. 905.

Without ample alternatives to turn to and with high barriers to entry or expansion (*see* Sections III D 4, III E 1, *supra*), Respondent's power buyer defense does not overcome Complaint Counsel's strong showing of reasonably likely anticompetitive effects in the four relevant product markets.

3. Efficiencies will not counteract the anticompetitive effects of the acquisition

Courts and the Commission recognize that efficiencies resulting from a merger can constitute a means of rebutting the government's *prima facie* case that a merger will substantially lessen competition. *University Health*, 938 F.2d at 1223; *Heinz*, 246 F.3d at 720; *In re Evanston*, 2007 FTC LEXIS 210, at *191-92 ("The defendant has the burden of production to show that efficiencies offset any likely anticompetitive effects of the increase in market power produced by the merger."). "A defendant who seeks to overcome a presumption that a proposed acquisition would substantially lessen competition must demonstrate that the intended acquisition would result in significant economies and that these economies ultimately would benefit competition and, hence, consumers." *University Health*, 938 F.2d at 1223.

Efficiencies almost never justify a merger to monopoly or near-monopoly. *Heinz*, 246 F.3d at 720 (quoting *Merger Guidelines* § 4). Where, in the instant case, the HHI is well above 1800 in all four product markets and the HHI increase is well above 100 in two of the four markets, "extraordinary" efficiencies must be shown. *Heinz*, 246 F.3d at 720 (quoting 4A Areeda and Hovenkamp, Antitrust Law ¶ 971f at 44 (2d ed. 1998)). A showing of extraordinary efficiencies is appropriate in such strong statistical cases because "the likelihood of a significant price increase is particularly large, and there is less competition present to ensure that the benefit of efficiencies will flow to consumers even in the relatively long run." Areeda, *supra*, at 44-45. Moreover, claimed efficiencies must stand up to "rigorous analysis" in order to ensure that they are more than mere speculation. *Heinz*, 246 F.3d at 721. As the Commission stated in *In re Evanston Northwestern Healthcare*, the claimed efficiencies must be:

> (1) verifiable; (2) merger-specific, *i.e.*, ones that could not practicably be achieved without the proposed merger; and (3) greater than the transaction's substantial anticompetitive effects. *See Merger Guidelines* § 4; *see also Heinz*, 246 F.3d at 721-22 (finding that, among other things, asserted efficiencies must be "merger-specific"); *University Health*, 938 F.2d at 1223 ("speculative, self-serving assertions" will not suffice); *Staples*, 970 F. Supp. at 1089-90 (rejecting claimed efficiencies that were "unverified" and not supported by "credible evidence").

2007 FTC LEXIS 210, at *226-27. Applying the above principles to the instant case, Respondent's efficiency defense is without merit.

In support of its efficiencies defense, Respondent relies on evidence that, since the acquisition: Daramic has saved an annualized amount of approximately {[redacted]} in raw materials costs due to including Microporous' volume in Daramic's purchasing agreements, F. 1139; after procedures implemented by Daramic, CellForce line yields have increased from 76% to over 90%, F. 1142; Daramic has implemented procedures at Microporous facilities to reduce waste and energy consumption and to recycle, F. 1144; Daramic has also reduced the number of employees since the acquisition, F. 1141; Daramic has {[redacted]} F. 1143. Together, this evidence does not amount to "extraordinary" efficiencies that are of sufficient magnitude to offset the anticompetitive effects of the Microporous acquisition. F. 1147.

Respondent has failed to quantify its efforts to recycle, reduce waste, reduce energy usage, {[redacted]} F. 1143-44. Respondent also has not demonstrated that such claimed efficiencies could not have been achieved without the merger and its concomitant anticompetitive effects. *See Heinz,* 246 F.3d at 722 (rejecting efficiencies defense based on claimed product improvements). For the same reason, evidence of improvements in CellForce yields does not suffice, even though such improvements appear to have been quantified by Respondent. F. 1142. Similarly, Respondent's reduction in duplication of employees and achievement of volume savings in raw material costs do not rise to the level of significant economies that offset the anticompetitive effects of the merger. *See University Health*, 938 F.2d at 1223; *In re Evanston*, 2007 FTC LEXIS 210, at * 226-27. To be sure, the evidence presented does not meet the standard of "extraordinary" efficiencies necessary to justify the merger in this case, where, in all four markets, the HHI is well above 1800 and, in two markets, the HHI increase is well above 100. *See Heinz*, 246 F.3d at 720. Respondent's reliance upon *FTC v. Tenet Health Care Corp.*, 186 F.3d 1045 (8th Cir. 1999) is unavailing. In that case, unlike the instant case, the district court erroneously refused to consider evidence that the claimed efficiencies had procompetitive effects, and moreover, unlike the instant case, "the evidence show[ed] that the merged entity may well enhance competition. . . ." *Id.* at 1055.

Most importantly, and in contrast to *Tenet Health*, Respondent has failed to demonstrate that any of the asserted cost savings upon which it relies have been passed on to consumers, and that, therefore, the merger is procompetitive. Indeed, Respondent's expert did not even analyze whether any efficiencies gained since the acquisition have been passed on to consumers. F. 1145. In this respect, the instant case is readily distinguishable from *United States v. Country Lake Foods*, 754 F. Supp. at 680, a case relied upon by Respondent, in which there was ample evidence that the claimed efficiencies would result in greater price competition in the marketplace. *See also In re American Medical Int'l.*, No. 9158, 104 F.T.C. 1, 1984 FTC LEXIS 11, at *516 (Jul. 2, 1984) (holding that efficiencies defense failed because even assuming "that these cost savings can be realized, [respondent did] not establish that they will necessarily inure to the benefit of consumers").

For all the foregoing reasons, Respondent's efficiencies defense must fail.

4. Microporous' financial condition does not weigh against finding anticompetitive effects of the acquisition

Respondent contends that Microporous was in a "precarious financial position" at the time of the acquisition, and that this condition has been exacerbated by current economic conditions. RB at 47-51. According to Respondent, such financial weakness is evidence weighing against a finding that the acquisition is reasonably likely to have an adverse effect on competition, irrespective of whether the evidence is sufficient to establish a "failing firm" defense. As support for this theory, Respondent cites *General Dynamics*, 415 U.S. at 503-04, among other cases, and relies principally on *FTC v. Arch Coal*, 329 F. Supp. 2d at 158.

In *Evanston Northwestern Healthcare*, the Commission explained its approach to the "financially weakened company" defense as follows:

> In *General Dynamics*, the Supreme Court held that the market share statistics used by the government to challenge the merger of two coal companies were insufficient to sustain its case because, by failing to take into account the fact that the acquired firm's coal reserves were depleted or committed under long-term contracts, those statistics overestimated the acquired firm's ability to compete in the future. 415 U.S. at 500-04. Several courts have applied the *General Dynamics* rationale in ruling that evidence of the acquired firm's weakened financial condition, among other factors, may rebut the government's statistical showing of anticompetitive market concentration. *See Kaiser Aluminum & Chem. Corp. v. FTC*, 652 F.2d 1324, 1337-41 (7th Cir. 1981); *FTC v. National Tea Co.*, 603 F.2d 694, 698-700 (8th Cir. 1979); *FTC v. Arch Coal, Inc.*, 329 F. Supp. 2d 109, 153-54 (D.D.C. 2004). These courts have generally cautioned, however, that "[f]inancial weakness, while perhaps relevant in some cases, is probably the weakest ground of all for justifying a merger," and "certainly cannot be the primary justification" for permitting one. *Kaiser Aluminum*, 652 F.2d at 1339, 1341; *accord Arch Coal*, 329 F. Supp. 2d at 154.

In re Evanston, 2007 FTC LEXIS 210, at *216-17 (footnote omitted).

As the Eleventh Circuit held in *FTC v. University Health*: "[W]e will credit such a defense only in rare cases, when the defendant makes a substantial showing that the acquired firm's weakness, which cannot be resolved by any competitive means, would cause that firm's market share to reduce to a level that would undermine the government's prima facie case." 938 F.2d at 1221. *See also In re Pillsbury Co.*, No. 9091, 93 F.T.C. 966, 1979 FTC LEXIS 323, at *153 (June 15, 1979) (rejecting interpretation of *General Dynamics* that financial weakness is a defense to otherwise illegal merger; but even if some sort of defense outside failing company context, it "should rarely, if ever, be followed"). As discussed below, Respondent's "financially weakened company" defense is not supported by the facts, or by the cases on which Respondent relies.

Respondent's assertion that Microporous was "capital constrained," RFOF 427, is not supported by the evidence. The evidence relied upon by Respondent shows only that, as of December 31, 2007, Microporous had outstanding debt of approximately $46 million, which included debt for the purchase of the Jungfer line for the Piney Flats expansion in 2001 and for the 2007 Feistritz expansion. F. 1129. However, the evidence also shows that in the years leading up to the acquisition, Microporous' sales had been steadily growing. F. 1127. Its EBITDA for 2007 was {[redacted]} F. 1127. Daramic's own downwardly adjusted financial projections for Microporous still showed a healthy company, with {[redacted]} F. 1127. In addition, at the time of the acquisition, Microporous had completed an expansion into Europe, F. 770-72, 778, and had obtained a valuable contract with EnerSys to help fill the Feistritz capacity, as well as offers for backfilling its CellForce production line at Piney Flats. F. 787-90, 1136-37. Furthermore, Microporous was negotiating with Exide for substantial business in SLI, negotiations which would have continued, but for the acquisition. F. 694-716. While Microporous carried debt, F. 1129, and was concerned about cost control and improving margins, F. 1131-32, Microporous had plans in place to address these issues. F. 1132. IGP intended to continue efforts to grow Microporous' business, and would have continued to own Microporous if the merger had not gone through. F. 1134. Furthermore, Microporous had not been for sale to the general public. Rather, Daramic had approached Microporous regarding acquiring it. F. 1133.

The foregoing evidence does not support a "financial weakness" defense. In *Evanston Northwestern Healthcare*, the Commission rejected the respondent's contention that the acquiree hospital was in a weakened financial position, even though the acquiree hospital had long term debt. Indeed, the Commission concluded that the hospital was essentially sound even though it had experienced operating losses, a fact not present in this case. *In re Evanston,* 2007 FTC LEXIS 210, at *221. Also, as in this case, the acquiree had historically been profitable, management believed it could continue to operate independently, and there was no urgency to merge. *Id.*

The financial conditions of the acquired companies in the cases upon which Respondent relies are readily distinguishable from the financial condition of Microporous at the time of the acquisition. In *Arch Coal*, for example, the evidence showed that the acquiree was actively seeking necessary capital to cover significant shortfalls and that, due to the acquiree's poor financial profile, conventional financing was unlikely. 329 F. Supp. 2d at 156. Moreover, the acquiree had been actively seeking a buyer and Arch was the only satisfactory choice. None of these facts are present in the instant case.[7] Also distinguishable is *United States v. Int'l Harvester Co.*, 564 F.2d 769 (7th Cir. 1977), in which the Seventh Circuit upheld a partial acquisition under a stock purchase agreement. The evidence in that case showed that the liabilities of the acquired company exceeded its assets; it was struggling with operating losses; and was burdened by above-market, high interest debt. *Id.* at 774-75. Because of its financial condition, the acquired company was unable to secure any additional lines of credit to meet its capital needs and sought out an injection of capital. *Id.* at 776.[8] In the present case, the evidence, as described above, shows that Microporous was profitable in the years preceding the acquisition, was not suffering losses, was not overburdened by debt, and did not need a buyer. *Compare also Lektro-Vend Corp.*, 660 F.2d at 275-76 (affirming rejection of Section 7 claim, in part because acquired entity was financially weak at time of acquisition, where evidence showed years of declining market share and acquisition was for purpose of stemming the decline).

Respondent further asserts that, had Microporous stayed independent, its "precarious financial position" would have only gotten worse. Respondent points to testimony that both the Piney Flats and Feistritz plants are currently under capacity. *See e.g.,* RFOF 425. However, as noted in *General Dynamics*, 415 U.S. at 504, the probative value of post-acquisition evidence is "extremely limited," and cannot be given "too much weight" when it is subject to manipulation by the acquiring company. The evidence regarding the current operating capacity of Piney Flats falls into this category. For example, {[redacted]} were set to be switched to Piney Flats in March

[7] Also significant is that the statistical case in *Arch Coal* was found to be weak, while in this case, the statistical evidence is strong.

[8] In addition, after the stock purchase agreement and injection of capital, the two companies continued to compete, which forced greater price competition in the relevant market. 564 F.2d at 778. In the instant case, in contrast, the evidence shows that the acquisition has constrained price competition. *See* Section III D 4, *supra.*

2008, but Daramic requested that {[redacted]} F. 1138. Thus, absent the acquisition, it is likely that {[redacted]} F. 1138. Indeed, with the 2007 amendment to the EnerSys/Microporous agreement, Microporous had {[redacted]} F. 1136.

Moreover, Respondent's forecasts for the net income of the Piney Flats and Feistritz plants, absent the acquisition, *see* RFOF 426, are too speculative and fail to take into account steps an independent Microporous might have taken to fill its capacity in competition with Daramic. For example, the contract with EnerSys filled one line at Feistritz and Microporous was working to sell PE separators from the second Feistritz line to several SLI battery manufacturers. F. 1137. In addition to Exide and JCI, there were 35 to 40 smaller SLI battery manufacturers in Europe, many of whom were good customer prospects because they liked Microporous' PE technology, which was based on Jungfer's technology. F. 1137. Some of these manufacturers had formerly purchased separators from Jungfer when it was still in business. F. 1137.

Respondent has not demonstrated that Microporous was a failing firm under the requirements of a failing firm defense. For all the foregoing reasons, Respondent's "financially weakened company" defense is rejected.

5. Summary

The evidence presented by Respondent on entry, power buyers, efficiencies, and Microporous' financial condition fails to offset the preponderance of the evidence of reasonably likely anticompetitive effects, as proved by Complaint Counsel. Accordingly, Complaint Counsel has met its burden of proving that the effect of Daramic's acquisition of Microporous may be substantially to lessen competition in the deep-cycle, motive, UPS, and SLI separator markets in North America. Therefore, Complaint Counsel has proved Count I of the Complaint, that, through its acquisition of Microporous, Respondent violated Section 7 of the Clayton Act and Section 5 of the FTC Act. Before turning to the remedy for the violation of Section 7, the Complaint's additional charges are addressed.

F. Counts II and III

In addition to the case against Respondent charging that the effect of the acquisition may be substantially to lessen competition or tend to create a monopoly in violation of Section 7 of the Clayton Act, 15 U.S.C. § 18, the Complaint charges Respondent with unfair methods of competition in or affecting commerce in violation of Section 5 of the FTC Act, 15 U.S.C. § 45. Complaint ¶¶ 50-53.

Count III, Monopolization, charges that Daramic has, through the acquisition, and the other conduct alleged in the Complaint, engaged in unfair methods of competition in or affecting commerce in violation of Section 5 of the FTC Act, 15 U.S.C. § 45. Complaint ¶¶ 52, 53. The Complaint alleges that Daramic engaged in certain conduct to preclude or deter Microporous from expanding or otherwise achieving sufficient scale, and thereby destroy competition and increase its market dominance. Complaint ¶ 46.

Count II, Unfair Method of Competition, charges that Daramic has, through the acquisition, and the other conduct alleged in the Complaint, engaged in unfair methods of competition in or affecting commerce in violation of Section 5 of the FTC Act, 15 U.S.C. § 45. Complaint ¶¶ 50, 51. The Complaint alleges that "Daramic entered into a joint marketing agreement in 2001 with Hollingsworth & Vose, a firm that manufactures absorbed-glass-mat battery separators, in order to prevent them from entering the PE separator market." Complaint ¶ 47.

Unfair methods of competition under Section 5 of the FTC Act include any conduct that would violate Sections 1 or 2 of the Sherman Act. *See, e.g.*, *California Dental Assn. v. FTC*, 526 U.S. 756, 762 & n.3 (1999); *FTC v. Cement Inst.*, 333 U.S. 683, 694 (1948); *Fashion Originators' Guild v. FTC*, 312 U.S. 457, 463-64 (1941). Although the Commission does not directly enforce the Sherman Act, conduct that violates the Sherman Act is generally deemed to be a violation of Section 5 of the FTC Act as well, and principles of antitrust law developed under the Sherman Act apply to Commission cases alleging unfair competition. *E.g., Fashion Originators' Guild, Inc.*, 312 U.S. at 463-64; *FTC v. Indiana Fed'n of Dentists*, 476 U.S. 447, 451-52 (1986); *Rambus Inc. v. FTC*, 522 F.3d 456, 462 (D.C. Cir. 2008), *cert. denied*, 129 S. Ct. 1318 (2009); *California Dental Ass'n*, 121 F.T.C. 190, 292 n.5 (1996).

Both Counts II and III charge that Daramic, through the acquisition, violated Section 5 of the FTC Act. These allegations are derived from the alleged violation of Section 7 of the Clayton Act. *See FTC v. Cement Inst.*, 333 U.S. at 694. The Commission held in *Chicago Bridge*, that the allegation that the acquisition is also a Section 5 violation "does not require an independent analysis." *In re Chicago Bridge*, 2005 FTC LEXIS 215, at **8 n.23; *Chicago Bridge*, 534 F.3d at 423 n.5 ("The appeal at issue primarily concerns section 7 of the Clayton Act as section 5 of the FTC Act is, as the Commission determined and the parties do not contest, a derivative violation that does not require independent analysis."). Accordingly, no further analysis on whether the acquisition violates Section 5 of the FTC Act is necessary.

However, the Complaint also charges that Daramic has engaged in unfair methods of competition, in violation of Section 5 of the FTC Act, through other conduct alleged in the Complaint. Complaint ¶¶ 50-53. The challenged "other" conduct is analyzed below.

1. Count III: Monopolization

In its post-trial brief, Complaint Counsel asserts that "Daramic's pattern of coercive and exclusionary behavior to obtain or maintain monopoly status in *several relevant markets* through its exclusionary bargaining and contracting arrangements violates Section 5 [of the FTC Act]." CCB at 50 (emphasis added). Complaint Counsel argues that "[d]uring 2006 and 2007, Daramic coerced, pressured, and induced customers – large and small – to enter into exclusive dealing agreements with Daramic, and as a consequence, to accept contract terms that weakened Microporous, harmed the competitive process, and injured consumers of battery separators." *Id.* Although the Complaint charges Respondent only with monopolization, in its post-trial briefs, Complaint Counsel argues additionally that Daramic engaged in attempted monopolization. CCB at 50-51.

Complaint Counsel did not advance the proposition that the acquisition itself of Microporous constitutes a violation of Section 5 of the FTC Act applying Sherman Act 2 principles. To the extent that the acquisition of Microporous created a monopoly, that conduct is addressed, and remedied, by the finding of liability under Section 7 of the Clayton Act (making unlawful acquisitions, the effect of which "may be substantially to lessen competition, *or* tend to create a monopoly") and the Order entered herewith. As noted above, a finding of liability under Section 7 of the Clayton Act requires no independent analysis under Section 5 of the FTC Act.

Respondent asserts that Complaint Counsel has not shown that Daramic had or has monopoly power in any alleged market. RB at 51-52. Respondent further asserts that Complaint Counsel failed to show that Daramic engaged in exclusionary conduct. RB at 52-55.

The analysis which follows addresses the monopolization claims advanced by Complaint Counsel in its post-trial brief and reply brief. The analysis does not specifically address certain claims made in proposed findings of fact submitted by Complaint Counsel under the heading, "Monopolization," but which Complaint Counsel did not further advance in support of its monopolization charge in its post-trial briefing. Those claims, relating to Daramic's January 2007 contract proposal to Exide; an asserted solicitation by Daramic of an agreement with Microporous not to enter the SLI market in exchange for Daramic's deep-cycle technology; and the purported use of hard ball strategies by Daramic in contract negotiations, have, however, been fully considered and are rejected as without sufficient evidentiary or legal support.[9]

a. Legal standard

Monopolization requires proof of "(1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as

---

[9] An example of what Complaint Counsel charges in its proposed findings as "hardball" tactics is Daramic's contract negotiations with JCI. These JCI contract negotiations pertained to SLI. F. 652-83. As discussed herein, Daramic has neither monopoly power nor a dangerous probability of achieving monopoly power in the SLI market. Therefore, this conduct does not support a charge of monopolization.

distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident." *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966). Attempted monopolization requires proof: "(1) that the defendant has engaged in predatory or anticompetitive conduct with (2) a specific intent to monopolize and (3) a dangerous probability of achieving or obtaining monopoly power." *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 456 (1993).

b. Possession of monopoly power in the relevant markets

(i) Relevant markets

Establishing the relevant market is the first step in assessing whether a respondent possesses monopoly power. *Spectrum Sports,* 506 U.S. at 456 ("without a definition of th[e relevant] market there is no way to measure the defendant's ability to lessen or destroy competition"). Complaint Counsel "carries the burden of describing a well-defined relevant market, both geographically and by product, which the defendants monopolized." *H.J., Inc. v. Int'l Tel. & Tel.*, 867 F.2d 1531, 1537 (8th Cir. 1989). Complaint Counsel has clearly described and proved that the geographic market is North America and that there are four relevant product markets: deep-cycle, motive, UPS, and SLI battery separators for flooded, lead-acid batteries. Section III C, *supra*.

(ii) Monopoly power

Monopoly power is defined as "the power to control prices or exclude competition." *Du Pont*, 351 U.S. at 391. "[M]onopoly power may be inferred from a firm's possession of a dominant share of a relevant market that is protected by entry barriers." *United States v. Microsoft Corp.*, 253 F.3d 34, 51 (D.C. Cir. 2001) (en banc); *Re/Max Int'l, Inc. v. Realty One, Inc.*, 173 F.3d 995, 1016 (6th Cir. 1999) (stating that monopoly power may be established by showing a high market share within a defined market); *Grinnell Corp.*, 384 U.S. at 571 ("The existence of such power ordinarily may be inferred from the predominant share of the market.").

As stated by the Court of Appeals in *Spirit Airlines, Inc. v. Northwest Airlines, Inc.*:

> Judge Learned Hand enunciated what has become the classic explanation of when market share becomes large enough to constitute a monopoly: "over ninety . . . percentage is enough to constitute a monopoly; it is doubtful whether sixty or sixty-four percent would be enough; and certainly thirty-three percent is not." In *Eastman Kodak*, the Court cited its earlier precedent that possession of "over two-thirds of the market is a monopoly."

431 F.3d 917, 935-36 (6th Cir. 2005) (quoting *United States v. Aluminum Co. of America*, 148 F.2d 416, 424 (2nd Cir. 1945); *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 481 (1992)). Market shares in excess of 90% are sufficient to support a finding of monopoly power. *E.g.*, *Grinnell*, 384 U.S. at 571; *American Tobacco Co. v. United States*, 328 U.S. 781, 797 (1946); *Aluminum Co. of America*, 148 F.2d at 429.

As found in Sections III D 2, 3, *supra*, at the time the challenged conduct occurred, Daramic had a near 90% share in the motive and a near 100% share in the flooded UPS battery separator markets in North America. The evidence also shows that Daramic had approximately a 10% share in the deep-cycle market in 2007, but that, with the acquisition of Microporous, Daramic holds a nearly 100% monopoly. *Id.* Thus, Complaint Counsel has proved a dangerous probability of achieving a monopoly in the deep-cycle market. Because barriers to entry are substantial (Section III E 1, *supra*), there exists at all relevant times a dangerous probability that Daramic's monopoly power will persist in each of these three markets. Accordingly, Respondent has monopoly power in the North American motive, UPS, and deep-cycle battery separator markets.

As found in Section III D 3, *supra*, at the time the challenged conduct occurred, in the SLI market, Daramic had 48.4% and 47% share of the market in 2007 and 2006. The other 51.6% and 53.0% share of the market in 2007 and 2006 was held by Entek. If, as according to Judge Learned Hand, it is doubtful that 60 or 64 percent would be enough, it is even more doubtful that less than 50 percent would be enough to constitute monopoly power. Reviewing numerous cases and considering the relevant economics, the Areeda treatise concludes: "We believe 70 or 75 percent to be a reasonable minimum for a 'well defined' market." IIIB Phillip Areeda & Herbert Hovenkamp, Antitrust Law ¶ 801(a)1 at 384 (3rd ed. 2008).

Further, the evidence presented on market shares in 2006 and 2007 is undermined by recent changes in the SLI market. JCI, the largest manufacturer of flooded lead-acid batteries in the world, and one of only three major automotive battery manufacturers in the United States, entered into a long-term contract with Entek in 2007 to be an exclusive supplier to JCI in the Americas and Europe. F. 734. On January 1, 2009, Daramic lost {[redacted]} of JCI's business to Entek when JCI's contract with Daramic expired. F. 736. Exide, with the largest battery plant in North America, has, in 2009, been taking steps to move some of its SLI business from Daramic to Entek. F. 745. Exide intends to purchase {[redacted]} of its SLI needs after 2009 from Entek. F. 745. On January 19, 2010, Respondent filed a Form 8-K with the SEC announcing that Daramic entered into a new evergreen supply agreement with Exide. F. 749.

There is no indication that Daramic lost JCI as a customer or lost sales from Exide to Entek purposefully in order to "improve [its] litigating position." *See Hospital Corp.*, 807 F.2d at 1384. These losses significantly weaken Daramic's position in the SLI market. One court has commented that, "in evaluating monopoly power, it is not market share that counts, but the ability to maintain market share." *United States v. Syufy Enters.*, 903 F.2d at 665-66.

The evidence shows that Daramic had less than approximately 50% of the SLI market in 2007, and that Daramic is not maintaining that share. , therefore, Because Daramic did not have monopoly power or a dangerous probability of achieving monopoly power in the SLI market, Complaint Counsel has not proved a basic element of its monopolization charge with respect to any conduct occurring in the SLI market. Accordingly, conduct occurring in only the SLI market cannot support Complaint Counsel's monopolization or attempted monopolization charges. Thus, only conduct occurring in the three markets in which Respondent has monopoly power – deep-cycle, motive, and UPS – is analyzed in evaluating whether the challenged conduct constitutes unlawful monopolization. For purposes of analyzing the monopolization claim, these three markets are referred to in only this Section of the Initial Decision as the "non-SLI markets."

c. Exclusionary Conduct

"It is settled law that the mere existence of a monopoly does not violate the Sherman Act." *Rambus*, 522 F.3d at 463. The offense of monopolization additionally requires "the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historical accident." *Verizon Communs., Inc. v. Trinko*, 540 U.S. 398, 407 (2004).

A firm violates Section 2 when it maintains or attempts to maintain a monopoly by engaging in exclusionary conduct. *Microsoft*, 253 F.3d at 58. Exclusionary conduct is "'behavior that not only (1) tends to impair the opportunities of rivals, but also (2) either does not further competition on the merits or does so in an unnecessarily restrictive way.'" *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 605 n.32 (1985) (quoting 3 P. Areeda & D. Turner, Antitrust Law 78 (1978)). "Generally, a finding of exclusionary conduct requires some sign that the monopolist engaged in behavior that – examined without reference to its effects on competitors – is economically irrational." *Stearns Airport Equip. Co. v. FMC Corp.*, 170 F.3d 518, 523 (5th Cir. 1999); *see also Aspen Skiing*, 472 U.S. at 608, 610-11 (finding conduct exclusionary where defendant failed "to offer any efficiency justification whatever for its pattern of conduct").

In evaluating alleged exclusionary conduct, "[t]he key factor courts have analyzed in order to determine whether challenged conduct is or is not competition on the merits is the proffered business justification for the act." *Stearns Airport*, 170 F.3d at 522; *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039, 1062 (8th Cir. 2000) ("A Section 2 defendant's proffered business justification is the most important factor in determining whether its challenged conduct is not competition on the merits."). Where "the conduct has no rational business purpose other than its adverse effects on competitors, an inference that it is exclusionary is supported." *Stearns Airport*, 170 F.3d at 522.

Complaint Counsel's argument in support of its monopolization charge is that Daramic used exclusive contracts with customers to weaken Microporous. CCB at 55-56. Complaint Counsel states that one measure of the effectiveness of Daramic's anticompetitive campaign is that in 2008, Daramic's exclusive contracts covered 70% of the motive market." CCB at 55. As analyzed below, however, these contracts do not constitute exclusionary conduct.

"Exclusive dealing arrangements are essentially requirements contracts, whereby the buyer agrees to purchase exclusively the product of the contracting supplier." *Servicetrends, Inc. v. Siemens Medical Systems, Inc.* 870 F. Supp. 1042, 1064 (N.D. Ga. 1994) (disussing Sherman Act Section 1 claim). "The antitrust problem that courts have found lurking in requirements contracts grows out of their tendency to 'foreclose' other sellers from the market by 'tying up' potential purchases of the buyer." *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 236 (1st Cir. 1983) (Breyer, J.); *Servicetrends,* 870 F. Supp. at 1064 ("[M]any ordinary supply contracts, motivated by legitimate business needs, inevitably foreclose some competing seller from a portion of the market."). However, as explained in *Barry Wright:*

> virtually *every* contract to buy "forecloses" or "excludes" alternative sellers from some portion of the market, namely the portion consisting of what was bought .... Thus, in determining "the probable effect of the contract on the relevant area of effective competition," [courts] are to take into account both the extent of the foreclosure and the buyer's and seller's business justifications for the arrangement. [Courts] must look both to the severity of the foreclosure (a fact which, other things being equal, suggests anticompetitive harm) and the strength of the justifications.

724 F.2d at 236-37 (quoting *Tampa Electric*, 365 U.S. at 329, 334-35). *Accord Microsoft*, 253 F.3d at 69.

(i) Summary of the evidence on the challenged conduct

Complaint Counsel points to what it calls four key examples of Daramic's "monopolistic conduct":

(1) Daramic's conduct in September 2006 in declaring a force majeure under the then-existing contract between Daramic and EnerSys, allegedly as leverage to negotiate a contract renewal with EnerSys in the motive separators market;

(2) The "MP Plan," which Complaint Counsel describes as steps Daramic took to respond to Microporous' threat to Daramic's automotive and motive power business in the United States and Europe, culminating in exclusive or nearly exclusive supply contracts with Crown Battery, Douglas Battery, and East Penn Battery;

(3) Daramic's 2007 bid to Exide where, in response to Exide's RFP for all of Exide's battery separator requirements globally, which includes motive, automotive SLI, industrial, golf cart, and specialty, Daramic submitted a bid for 100%, 75% and 25% of Exide's separator requirements, but did not submit a bid to supply 50% of Exide's separator requirements; and

(4) Daramic's 2007 contract extension negotiations with Fiamm, a European automotive battery manufacturer.

CCB at 55-59. As analyzed below, these actions do not constitute exclusionary conduct in the relevant markets in which Daramic has monopoly power or a dangerous probability of achieving monopoly power.

- ***The 2006 contract with EnerSys***

Complaint Counsel charges that Daramic was intent on securing exclusive dealing arrangements with its customers in order to weaken Microporous and that Daramic used its 90% market share in motive separators to force EnerSys to sign a contract with a higher price than EnerSys would have received from Microporous. Complaint Counsel further argues that Daramic declared force majeure as a tactic to coerce EnerSys into agreeing to an exclusive contract. CCB at 55-56. As summarized below and set forth at F. 1150-99, the evidence does not support these arguments.

EnerSys had entered into a three year supply contract with Daramic on May 21, 2004, through which EnerSys agreed to purchase {[redacted]} from Daramic. F. 1152. In late 2005 and early 2006, EnerSys and Microporous discussed the potential for Microporous to construct a new factory in Austria, and to displace Daramic as a supplier for most of the EnerSys plants in Europe. F. 1154. On February 10, 2006, Microporous and EnerSys executed a MOU which provided for Microporous to supply all of EnerSys battery plants in Europe and China, and most of its plants in North America, beginning in 2007. F. 1155-56. The MOU specified that EnerSys and Microporous would "begin negotiation and drafting of the {[redacted]} agreement with the good faith objective of completing the agreement no later than May 1, 2006." F. 1157. By spring 2006, Microporous management had not completed the process of obtaining Board approval for its capital investment in the Austrian plant. F. 1161. In May 2006, the MOU between Microporous and EnerSys expired. F. 1162. At the end of 2006, EnerSys was still unsure if the Microporous product would work in EnerSys' North American plants and qualification was uncertain. F. 1194. Therefore, the evidence demonstrates that, as of May 2006, when EnerSys entered into the challenged contract with Daramic, Microporous was not in a position to meet EnerSys' needs.

The evidence also does not establish that Daramic declared a force majeure event as a tactic to force EnerSys into an exclusive contract. Ticona, a company that makes {[redacted]}, the primary raw material used by Daramic, suffered an extensive fire in its production facility. F. 1177, 1180. As a result, Ticona notified Daramic in September 2006 that it was experiencing a force majeure event and Ticona anticipated that it would not be able to supply more than 50% of Daramic's demand for several months. F. 1181. Daramic anticipated, based on information received from Ticona, that its separator production would be impacted in the amount of approximately {[redacted]} square meters. F. 1183. Daramic, in turn, notified its customers, including EnerSys, that Daramic would need to allocate its separator production among its customers. F. 1178 ("[E]ffective immediately EnerSys will receive most likely 10 to 20%, if possible up to 50% of your normal material requirements for the next six to eight weeks. Based on the timing communicated to us by our vendor, our current best estimate is that this event will likely impact our ability to supply you with your full allocation of products through at least the middle of November."). At the time of Ticona's declaration of force majeure, Daramic could not supply all of its customers with PE separators with the reduced supply of {[redacted]} from Ticona. F. 1186. The evidence shows that the force majeure was a real event and that it was not "simply a tactic in Daramic's monopoly playbook," as characterized by Complaint Counsel. CCB at 57.

Subsequent to the force majeure event, EnerSys and Daramic agreed to a new supply contract orally and officially executed the contract extension on October 31, 2006. F. 1192. Under the new contract, EnerSys agreed to purchase 90% of its separator requirements for its North America facilities from Daramic and was able to contract with any company, including Microporous, to provide battery separators to EnerSys for its remaining requirements, and for each of its plants in any amount, as its contractual commitment to Daramic for those plants expired. F. 1193. At the end of 2006, EnerSys was still unsure if the Microporous product would work in the EnerSys North American plants and had concerns about whether Microporous had enough capital to enable it to supply other EnerSys plants. F. 1194.

EnerSys did, however, in January 2007, enter into a contract with Microporous for motive separators for EnerSys' facilities in Europe, Tennessee, and Mexico and amended the agreement in August 2007 to provide for Microporous to supply separators to EnerSys' remaining North American facility located in Richmond, Kentucky. F. 1196. In its Purchasing Outlook Economic Assumptions Fiscal Year 2009, EnerSys stated as one of its assumptions for fiscal year 2009: "All steps are in place to move all PE business to [Microporous'] CellForce as Daramic's contract expires for each location." F. 1198. Therefore, the evidence demonstrates that Microporous was not excluded.

- ***The MP Plan***

Complaint Counsel charges that Daramic executed a plan to approach Crown Battery, Douglas Battery, and East Penn Battery and offer each an all or nothing proposition: that is, contract with Daramic exclusively or near exclusively, and on a long-term basis, or no battery separators would be available from Daramic, and that by so doing, Daramic excluded Microporous from the motive and SLI markets. CCB at 58. Because Daramic did not have monopoly power in the SLI market or a dangerous probability of achieving monopoly power, evidence pertaining only to the SLI market is not analyzed.

With respect to East Penn Battery, the evidence shows that on January 7, 2008, East Penn Battery entered into a three-year contract with Daramic pursuant to which Daramic agreed to supply 90% of East Penn's Battery industrial PE needs at specified prices and East Penn Battery would receive {[redacted]} F. 833, 836. The percentages agreed to were based upon East Penn's Battery then-current purchasing habits. F. 834. At the time, East Penn Battery was purchasing motive separators from Microporous in an amount meeting less than 10% of its needs and wanted to continue to purchase 10% of its motive separators from Microporous. F. 834. Under its contract with Daramic for 90% of its industrial needs, East Penn Battery was not foreclosed from continuing to do so.

With respect to Crown Battery, the evidence shows that in December 2007, Crown Battery entered into a {[redacted]} supply agreement with Daramic for 100% of Crown Battery's requirements for polyethylene battery separators for lead-acid batteries for its motive and automotive power applications. F. 825. Crown Battery viewed the opportunity to lock in fixed prices as a good idea, had a twenty-year relationship with Daramic, and viewed Daramic as one of its best suppliers. F. 827. Conversely, Crown Battery did not have test results for Microporous' CellForce product and did not consider Microporous' product when negotiating the 2007 contract with Daramic. F. 829.

With respect to Douglas Battery, the evidence demonstrates that in January 2008, Douglas Battery entered into a {[redacted]} contract with Daramic for 100% of its total requirements for polyethylene battery separators. F. 844. The parties agreed that {[redacted]} and, thus, provided an enhancement to the contract. F. 845. Moreover, at the time of entering into the 2008 supply contract with Daramic, Douglas Battery was not engaged in any discussions with Microporous. F. 848. Douglas Battery had tested a golf cart battery separator manufactured by Microporous, but found it too brittle. F. 847. The battery that Douglas Battery makes for UPS stationary applications uses absorbed glass mat (AGM), and takes a different separator than was available from Microporous. F. 848. In addition, Douglas Battery had not discussed the supply of separators with Microporous since 2004. F. 846.

- ***The 2007 Exide Bid***

In 2007, Exide issued a Request for Proposal ("RFP") which called for each separator manufacturer to bid on all of Exide's PE needs globally at volumes of 25%, 50%, 75% and 100%. F. 1201. Exide did not define in the RFP how the supplier was to bid a lower percentage, whether by plant, product mix or otherwise. F. 1201. Exide gave the suppliers to whom it issued the RFP the "choice to quote on part or all or whatever they felt comfortable with . . . ." F. 1202. Daramic responded to Exide's 2007 RFP by quoting prices for 100%, 75% and 25% supply, but did not provide a bid as to 50% supply. F. 1203.

Of the five companies to which the RFP was submitted, only Daramic provided a quote that covered all of Exide's needs as set out in the RFP. F. 1208. Under Daramic's proposal, Exide's pricing, payment terms, credit limit and other terms degraded in each supply scenario less than 100% supply. F. 1207. While Exide claims it was not satisfied with the proposal it received from Daramic, Exide never made a counterproposal to Daramic's offer, and never asked Daramic to submit a new proposal or to specify the parts of the proposal that it considered insufficient. F. 1216.

The evidence establishes that Daramic did not provide Exide with a quote for 50% because the drop in volume to supply Exide with only 50% would not be economical for Daramic. F. 1206. Exide was Daramic's highest volume customer in 2007, and loss of volume from Exide would necessitate Daramic realigning its sourcing strategy. F. 1204.

The evidence is unclear whether Microporous submitted a response to Exide's RFP to supply Exide's motive needs. Rather, the evidence shows that after Exide issued its RFP, Exide and Microporous entered into an MOU on September 28, 2007 which stated: "Also to be agreed to by both parties is whether the individual lines [to be built by Microporous] . . . will produce SLI separators or industrial separators." F. 1211. Moreover, the evidence does establish that, at the time Exide issued its RFP, Exide had not even considered testing Microporous' CellForce. F. 1213.

- ***The Fiamm contract***

In negotiations with Fiamm, Fiamm misrepresented to Daramic the bid it had received from Microporous and presented Daramic with a "take it or leave it" proposal of a three-year contract, with some reduced pricing and no price increase in 2009. F. 1223, 1225. The lower prices represented a loss of {[redacted]} in contribution margin for Daramic. F. 1223. However, Daramic believed it was worth it to capture a guarantee of {[redacted]} million square meters of automotive product (SLI) and a {[redacted]} on the third largest battery manufacturer in Europe. F. 1223. This agreement relates to a product that is not in North America and, thus, outside the geographic market. Also, this agreement relates to a product in a market in which Daramic neither has monopoly power, nor a dangerous probability of achieving monopoly power. Accordingly, evidence relating to the Fiamm contract need not be evaluated further.

(ii) The challenged conduct is not exclusionary

For challenged conduct to be exclusionary, a rival must have been excluded. *See United States v. Dentsply Int'l, Inc.*, 399 F.3d 181, 191 (3d Cir. 2005) ("The test is . . . whether the challenged practices bar a substantial number of rivals or severely restrict the market's ambit."). *See also Omega Environmental, Inc. v. Gilbarco, Inc.*, 127 F.3d 1157, 1162 (9th Cir. 1997) (quoting *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 45 (1984) (O'Connor, J. concurring) (adjudicating a claim brought under Section 3 of the Clayton Act and stating "'[e]xclusive dealing is an unreasonable restraint on trade only when a significant fraction of buyers or sellers are frozen out of a market by the exclusive deal.'"); *Roland Machinery Co. v. Dresser Indus. Inc.*, 749 F.2d 380, 394 (7th Cir. 1984) (adjudicating a claim brought under Section 3 of the Clayton Act and stating that the plaintiff in an exclusive dealing case "must prove . . . that it is likely to keep at least one significant competitor of the defendant from doing business in a relevant market. If there is no exclusion of a significant competitor, the agreement cannot possibly harm competition.").

Complaint Counsel has not shown that Daramic's conduct was likely to keep Microporous from doing business in the non-SLI markets, because with respect to EnerSys and East Penn Battery, Microporous was not "frozen out." Microporous did contract with EnerSys in 2007 and EnerSys had steps in place to move all its PE purchases from Daramic to Microporous. Microporous did continue to supply East Penn Battery the amount which East Penn Battery insisted it wanted to purchase from Microporous, 10% of its industrial separators.

In addition, Complaint Counsel has not shown that Daramic's conduct was likely to keep Microporous from doing business in the non-SLI markets, because, with respect to EnerSys, in 2006, and Crown Battery and Douglas Battery, in 2007, the evidence shows that Microporous was not yet capable of supplying their motive battery separator needs. F. 1194 (At the end of 2006, EnerSys was still unsure if the Microporous product would work in the EnerSys North American plants and qualification was uncertain); F. 829 (Crown Battery did not consider switching to Microporous because it had no test results from them); F. 846-48 (Douglas Battery had no interest in purchasing from Microporous). Thus, Complaint Counsel has not proved that Daramic's long-term exclusive contracts were likely to keep Microporous out of the non-SLI markets. *See Dentsply*, 399 F.3d at 191.

With respect to Daramic's "refusal" to provide a bid on 50% of Exide's supply, such action does not appear to be "economically irrational," as required under *Stearns* to find exclusionary conduct. Although Daramic did not submit a bid for 50%, it did for 25%, 75%, and 100%. F. 1203. At the time Daramic submitted its response to Exide's 2007 RFP, Daramic was exploring other business opportunities which made offering a quote at 50% difficult for Daramic. F. 1205. As Exide's Gillespie recognizes, running a plant at 100% of its capacity is more economical than running a plant at 50% of its capacity. F. 1206. Moreover, the evidence does not establish that Microporous was excluded from supplying non-SLI separators to Exide, because Exide could have accepted Daramic's bid at lower levels and, more importantly, because Exide had not yet even considered testing Microporous' CellForce at the time of the RFP. F. 1213.

In addition to the lack of factual support, the cases relied upon by Complaint Counsel to support its monopolization charge also do not merit the conclusion that Daramic engaged in exclusionary conduct in this case. In *Microsoft*, the Court of Appeals held, "it is clear that in all cases [where an exclusive deal is challenged] the plaintiff must both define the relevant market and prove the degree of foreclosure." 253 F.3d at 69. There, Microsoft entered into exclusive deals with fourteen of the top fifteen Internet access providers ("IAPs") which ensured that the majority of all IAP subscribers were offered Microsoft's product, Internet Explorer, as the default or only browser, to the exclusion of Microsoft's rival, Netscape's Navigator. *Id.* at 70-71. In *Microsoft*, Netscape was already in the market as an Internet browser. *Id.* at 47. In *Dentsply*, the defendant manufacturer of prefabricated artificial teeth entered into exclusionary arrangements with dealers – the preferred distribution channel – to prevent the dealers from selling different manufacturers' products. *Dentsply*, 399 F.3d at 193-94. Again, in *Dentsply*, there were other manufacturers capable of, and in fact selling, the relevant product, who were foreclosed by the agreements.

To be clear, this is not to say that Microporous must have already been selling non-SLI separators to Douglas Battery, Crown Battery, and Exide for Daramic's exclusive contracts to have had an exclusionary effect. But, since the evidence in this case shows that these customers had not previously purchased motive separators from Microporous and that the reason they did not intend to do so was that Microporous' CellForce had not yet been qualified by them for use, Daramic's conduct should not be viewed as "excluding" Microporous. Because Daramic's conduct was not shown to exclude Microporous, Daramic's proffered business justifications are not further evaluated.

Complaint Counsel has not met its burden of proving that Respondent engaged in exclusionary conduct in the markets in which Respondent is found to have had monopoly power or a dangerous probability of obtaining monopoly power. Accordingly, Count III of the Complaint is DISMISSED.

2. Count II: Unreasonable Restraint of Trade

Count II of the Complaint charges Daramic with unreasonable restraint of trade in violation of Section 5 of the FTC Act. The Complaint alleges that Daramic entered into a 2001 Cross Agency Agreement ("Cross Agency Agreement") with Hollingsworth & Vose ("H&V"), a producer of absorptive glass mat ("AGM") battery separators for sealed lead-acid batteries. CCB at 63-64. Under the Cross Agency Agreement, the Complaint alleges, Daramic agreed not to make or sell AGM battery separators in the United States or anywhere in the world; in return, H&V agreed not to make or sell PE battery separators in the United States or anywhere in the world. CCB at 64.

Respondent replies that the Cross Agency Agreement was a legitimate sales joint venture between the companies. RRB at 37. Pursuant to the Cross Agency Agreement, Daramic was to promote the sale of H&V's AGM separators, while H&V was to promote the sale of Daramic's PE separators, Respondent asserts. RB at 56. Respondent also argues that Daramic, which makes PE separators, does not compete with H&V, which makes AGM separators, and, thus, since Daramic and H&V were not actual or potential competitors in the AGM and PE markets, the non-compete provisions in the H&V Agreement could not have had any adverse effects on competition and imposed no restraint of trade. RB at 56.

a. Summary of the evidence

Daramic and H&V entered into a Cross Agency Agreement that took effect on March 23, 2001 and continued for five years. F. 1243. Pursuant to the Cross Agency Agreement, Daramic was authorized to act as a non-exclusive sales agent for H&V products; and H&V was authorized to act as a non-exclusive sales agent for Daramic products. F. 1246. Also pursuant to the Cross Agency Agreement, Daramic agreed not to make or sell AGM battery separators anywhere in the world; and H&V agreed not to make or sell PE battery separators anywhere in the world ("non-compete provision"). F. 1243.

The Cross Agency Agreement was extended in 2006 for an additional three years, expiring in March 2009. F. 1257. The non-compete provision, memorialized in Sections 4(a) and 4(b) of the Cross Agency Agreement, was extended an additional five years following expiration of the Cross Agency Agreement, until March 2014. F. 1257. Thus, at this point, the agency relationship between Daramic and H&V has ceased. Only the non-compete provision survives.

The evidence at trial establishes that Daramic believed that H&V was interested in entering the PE separator industry. F. 1233, 1238, 1240. In order to block this competitive threat, Daramic approached H&V and proposed an "alliance" between the two companies. F. 1241. From the outset, the core of this arrangement was a set of mutual promises to stay out of one another's markets. F. 1240-45.

While Daramic and H&V were authorized, under the Cross Agency Agreement, to act as non-exclusive sales agents for each other's products anywhere in the world, the parties contemplated that there would be no cross-selling in any area or to any customer where a party already had sales representation. F. 1247. Because both H&V and Daramic already had full sales coverage of "the known customer base in the United States," at the time they entered their agreement, they looked abroad to "remote parts of the world" for potential joint sales opportunities. F. 1248-50. By the time it formally terminated in March 2009, the Cross Agency Agreement had generated a small volume of AGM separator sales by Daramic outside North America. F. 1251. H&V never made any sales of PE separators during the course of the Cross Agency Agreement. F. 1252.

The anticompetitive objective of the non-compete provision of the Cross Agency Agreement is evident through an internal email authored by Daramic's Vice President and General Manager:

A few years ago, H&V announced that they want to go into the PE business, and plan to make an acquisition (it was Exide) or build their own plant.
In order to stop them, we made a written agreement with them, through a partnership, saying that:
- we will work together where ever possible
- they will not go in the PE business
- we will not go in the glass business (AGM).

F. 1240.

b. Legal framework

Section 1 of the Sherman Act prohibits "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States . . . ." 15 U.S.C. § 1. Three elements must be established in order to prove a Section 1 violation: (1) the existence of a contract, combination, or conspiracy among two or more separate entities, that (2) unreasonably restrains trade, and (3) affects interstate or foreign commerce. *See, e.g.*, *Law v. NCAA*, 134 F.3d 1010, 1016 (10th Cir. 1998).

The non-compete provision of the Cross Agency Agreement is clearly a contract between Daramic and H&V. *See* F. 1243. Daramic admits that its conduct is in and affects interstate commerce. (Answer ¶ 3). Accordingly, with regard to Count II of the Complaint, the only issue to be decided is whether the non-compete provision of the Cross Agency Agreement unreasonably restrains trade.

The ban on contracts in restraint of trade extends only to unreasonable restraints of trade, *i.e.*, restraints that impair competition. *State Oil Co. v. Khan*, 522 U.S. 3, 10 (1997); *Chicago Bd. of Trade v. United States*, 246 U.S. 231, 238 (1918). The essential inquiry under Section 1 is "whether or not the challenged restraint enhances competition." *California Dental Ass'n*, 526 U.S. at 780; *Polygram Holding, Inc. v. FTC*, 416 F.3d 29, 35 (D.C. Cir. 2005).

The first step in evaluating a challenged restraint is to "determine whether it is obvious from the nature of the challenged conduct that it will likely harm consumers."

Polygram Holding, 416 F.3d at 35. "If so, then the restraint is deemed 'inherently suspect' and, unless the [respondent] comes forward with some plausible (and legally cognizable) competitive justification for the restraint, summarily condemned." *Id.* at 35-36.

The second step is to evaluate such justifications, which "may consist of plausible reasons why practices that are competitively suspect as a general matter may not be expected to have adverse consequences in the context of the particular market in question, or they may consist of reasons why the practices are likely to have beneficial effects for consumers." *Id.* at 36.

Applying this framework to the evidence in this case, Complaint Counsel has met its burden of showing that the non-compete provision of the Cross Agency Agreement is obviously likely to harm consumers. Respondent has asserted that it had a procompetitive justification for the restraint, arguing that it was necessary as part of a legitimate sales joint venture between the two companies. Complaint Counsel has also shown that the challenged restraint is not reasonably necessary to achieve the Respondent's procompetitive justifications and that those objectives may be achieved in a manner less restrictive of competition.

c. The agreement not to compete in each others' markets is an unreasonable restraint of trade

An agreement not to compete is inherently suspect. As consistently held by the Supreme Court, agreements between competitors to allocate territories to minimize competition are *per se* illegal. *United States v. Topco Associates, Inc.*, 405 U.S. 596, 608 (1972); *Palmer v. BRG of Georgia, Inc.*, 498 U.S. 46, 49 (1990); *Arizona v. Maricopa County Medical Society*, 457 U.S. 332, 344, n.15 (1982); *Nynex Corp. v. Discon, Inc.*, 525 U.S. 128, 134 (1998). "[W]hen there is an agreement not to compete in terms of price or output, 'no elaborate industry analysis is required to demonstrate the anticompetitive character of such an agreement.'" *NCAA v. Bd. of Regents*, 468 U.S. 85, 109 (1984).

Respondent argues that the non-compete provision of the Cross Agency Agreement is not likely to harm consumers because Daramic had no plans to produce AGM separators and H&V had no plans to produce PE separators. RB at 56. The evidence establishes, however, that H&V management viewed PE separators as a natural complement to its AGM business, as the products have many of the same customers. F. 1235. In addition, H&V actively considered entering the PE separator market at various times, including submitting a proposal to acquire PE separator assets from Exide. F. 1234, 1236. The evidence further establishes that Daramic believed H&V had plans to produce PE separators. F. 1241 (internal Daramic letter stating: "Because H&V threatened us of going in the PE separator business, we made a strategic alliance with them. We will not produce AGM, and they will not produce PE separator."). As a result of the Cross Agency Agreement, Daramic has not developed its own AGM separator, has been relegated to having to develop what it calls a "me too" product, and has been prevented from purchasing another AGM separator manufacturer. F. 1260.

Even without the evidence that Daramic believed H&V might compete in producing PE separators, the non-compete provision of the Cross Agency Agreement is inherently suspect. As explained in *Palmer*, the defendants in *Topco* had never competed in the same market, but had simply agreed to allocate markets. *Palmer*, 498 U.S. at 49. "Such agreements are anticompetitive regardless of whether the parties split a market within which both do business or whether they merely reserve one market for one and another for the other." *Palmer*, 498 U.S. at 49-50. "Based upon economic learning and the experience of the market," it is obvious that the non-compete provision of the Cross Agency Agreement, which reserves the PE market for Daramic and the AGM market for H&V, "likely impairs competition," and, thus, "is presumed unlawful." *See Polygram*, 416 F.3d at 36.

In order to avoid liability, Respondent must either identify some reason the restraint is unlikely to harm consumers or identify some competitive benefit that plausibly offsets the apparent or anticipated harm. *Polygram*, 416 F.3d at 36. In this regard, Respondent advances two reasons for the Cross Agency Agreement: (1) to allow Daramic and H&V to compete with a similar arrangement between Entek and Dumas;

and, (2) to allow Daramic and H&V to engage in joint sales and activities. RB at 56-58. Neither of these proffered reasons for the restraint of trade provides a procompetitive justification for the challenged restraint.

First, there is no evidence that Entek and Dumas (an AGM producer) did anything more than appear at trade shows together. F. 1242. The mere existence of an agreement between Entek and Dumas does not provide a legitimate justification for the Cross Agency Agreement entered into by Daramic and H&V.

Second, the joint marketing agreement was never implemented in any serious or commercially significant way. H&V made no sales on behalf of Daramic, and Daramic's sales of H&V products were insignificant. F. 1251-52. From the outset, the parties contemplated that there would be no cross-selling in any area or to any customer where a party already had sales representation and both H&V and Daramic already had full sales coverage of "the known customer base in the United States." F. 1248. In addition, the evidence shows that, while Daramic and H&V jointly hosted "customer appreciation nights" and shared booth space at annual industry conventions, Daramic acknowledged that the non-compete provision of the Cross Agency Agreement was not needed to do so. F. 1253-54. To enable the parties to jointly host customer appreciation events is not a serious foundation for a market allocation agreement. Lastly, while H&V and Daramic looked at joint research and development opportunities for new products, exchanged raw materials, and collaborated on what materials would work well together, such activity never progressed past the initial "concept." F. 1255. Accordingly, the joint marketing provision does not provide a plausible justification for the non-compete provision. *Cf. Palmer*, 498 U.S. at 47 (market division agreement judged per se illegal notwithstanding trivial licensing arrangement between parties); *Engine Specialties, Inc. v. Bombardier Ltd.*, 605 F.2d 1, 8 (1st Cir. 1979) (market allocation agreement judged per se illegal where contemplated collaboration was not implemented).

Furthermore, contrary to Respondent's argument, the Cross Agency Agreement did not require the non-compete provision to protect the passing of confidential information between Daramic and H&V. Respondent did not demonstrate that Daramic shared with H&V any of its trade secrets, know-how, or other intellectual property related to PE separator manufacturing or Daramic's internal pricing plans or marketing strategies related to future PE separator sales. *See* F. 1256. To the extent that legitimate confidentiality concerns might have arisen, each party's confidential information was protected in the Cross Agency Agreement by non-disclosure provisions. F. 1256. Thus, Daramic had less restrictive means than the non-compete provision to address its confidentiality concerns.

This horizontal market allocation agreement between Daramic and H&V is an obvious restraint of trade likely to harm consumers. There is no procompetitive justification for the non-compete provision. Therefore, Daramic's conduct violates Section 5 of the FTC Act. The appropriate remedy is addressed below.

G. Remedy

Complaint Counsel proved Count I of the Complaint, that Respondent's illegal acquisition violates Section 7 of the Clayton Act and Section 5 of the FTC Act. Complaint Counsel also proved Count II of the Complaint, that the non-compete clause in Respondent's Cross Agency agreement with H&V constitutes an unfair method of competition in violation of Section 5 of the FTC Act. Complaint Counsel has not proved Count III of the Complaint, monopolization in violation of Section 5 of the FTC Act. The Initial Decision first discusses the remedy for Daramic's unlawful agreement with H&V (Section III G 1) and then the remedy for Daramic's unlawful acquisition of Microporous (Section III G 2).

The provisions of the order proposed by Complaint Counsel, as well as Complaint Counsel's arguments in support of, and Respondent's arguments in opposition to, the proposed order have been carefully considered. As more fully discussed below, the order proposed by Complaint Counsel will be issued herewith as the Order in this case (hereafter "Order"), except that Paragraph VII of Complaint Counsel's proposed order will not be included. Complaint Counsel did not prove Count III of the Complaint (Monopolization) and, therefore, Paragraph VII of Complaint Counsel's proposed order is omitted. As so modified, the order proposed by Complaint Counsel is supported by the record and applicable case law.

1. Remedy for Count II

As a remedy for the unlawful restraint on competition contained in the Cross Agency Agreement with H&V, Complaint Counsel seeks an order requiring Respondent to:

> 1. . . . (a) modify and amend the H&V Agreement in writing to terminate and declare null and void, and (b) cease and desist from, directly or indirectly, . . . implementing or enforcing, the covenant not to compete set forth in Section 4 of the H&V Agreement, and all related terms and definitions, as that covenant applies to North America and to actual and potential customers within North America.
>
> 2. . . . [F]ile with the Commission the written amendment to the H&V Agreement ("Amendment") that complies with the requirements of the [above] Paragraph [1] . . . .

Section 4 of the Cross Agency Agreement between Daramic and H&V includes two paragraphs, which together comprise the unlawful market allocation agreement. F. 1244-45. Pursuant to Section 4(a), Daramic covenants not to make or sell AGM separators. F. 1244. Pursuant to Section 4(b), H&V covenants not to make or sell PE separators. F. 1245.

Intervenor H&V contends that the "essence of the government's claim against Daramic on the Cross Agency Agreement is that Daramic did not have a legitimate procompetitive purpose that could justify the restraint on H&V's competitive activities with respect to PE battery separators" and that "[i]t is the non-competition provision concerning the PE battery business [in Section 4(b)] – not the overarching Cross Agency Arrangement – that the government contends is an 'unfair method of competition.'" H&V Brief on Remedies, at 2. Accordingly, H&V argues that any order should be limited to Section 4(b) and preserve H&V's rights pursuant to Daramic's covenant in Section 4(a). H&V Brief on Remedies, at 9.

H&V also contends that it did not receive notice that its contractual rights were at stake because the Complaint did not name H&V as a party and did not allege unlawful conduct by H&V with respect to the Cross Agency Agreement's "ancillary restraints" on AGM competition in Section 4(a). *Id.* at 2. Moreover, according to H&V, Complaint Counsel informed H&V during discovery in this matter that H&V was not being targeted. *Id.* at 2, 8. In such circumstances, H&V argues, due process and limitations on the Commission's remedial authority prohibit an order that would nullify H&V's contract rights under Section 4(a) to keep Daramic out of the AGM business. Accordingly, H&V requests that any remedy be limited to nullifying Section 4(b), regarding Daramic's contractual right to keep H&V out of the PE market. *Id.* at 3.

Respondent maintains that Complaint Counsel has not proved that the non-compete provisions constitute an unlawful restraint, and, therefore, no remedy is warranted. Respondent's Response to H&V Brief on Remedies, at 1-4. Respondent argues in the alternative, however, that if Complaint Counsel prevails on the claim, Respondent opposes what it calls the "piecemeal" remedy urged by H&V, contending that H&V has failed to provide any legal authority for such a remedy. Respondent's Response to H&V Brief on Remedies, at 4.

Complaint Counsel also opposes H&V's arguments. Complaint Counsel asserts that the non-compete provision in Section 4 constitutes an unlawful, reciprocal agreement to stay out of each other's markets and that a remedy that nullifies that agreement is a reasonable and proper exercise of the Commission's broad remedial powers. Complaint Counsel's Reply Brief to H&V's Brief on Remedies, at 2, 4-5. Complaint Counsel further asserts that the Complaint, which included a notice of proposed relief, gave H&V adequate notice that its contractual rights under the Cross Agency Agreement were at issue, and that Complaint Counsel informed H&V repeatedly that it considered the non-compete provision to be unreasonably overbroad, but that H&V chose not to intervene and participate in the matter until after active litigation was concluded. *Id.* at 3. In addition, Complaint Counsel asserts that H&V's private rights, to the extent implicated by the proposed order, are not protected against the consequences resulting from the necessary restoration of competition. *Id.* at 4.

a. Permissible scope of remedy

The proper scope of remedy for an unreasonable restraint of trade was addressed in *In re Ky. Household Goods Carriers Association*, in which the Initial Decision stated:

> Pursuant to Section 5 of the Federal Trade Commission Act, upon determination that the challenged practice is an unfair method of competition, the Commission "shall issue . . . an order requiring such . . . corporation to cease and desist from using such method of competition or such act or practice." 15 U.S.C. § 45(b); *FTC v. Nat'l Lead Co.*, 352 U.S. 419, 428 (1957) (Commission is authorized "to enter an order requiring the offender to 'cease and desist' from using such unfair method."). The Supreme Court has held that the Commission has wide discretion in determining the type of order that is necessary to bring an end to the unfair practices found to exist, so long as the remedy selected has a reasonable relation to the proven violations. *Jacob Siegel Co. v. FTC*, 327 U.S. 608, 611 (1946); *National Lead*, 352 U.S. at 429. . . .

In re Ky. Household Goods Carriers Ass'n, No. 9309, 139 F.T.C. 404, 2004 FTC LEXIS 107, at **94 (June 21, 2004) (emphasis added), *aff'd*, 2005 FTC LEXIS 124 (June 21, 2005), *rev. denied*, 2006 U.S. App. LEXIS 21864 (6th Cir. 2006).

Thus, in *Kentucky Movers*, where Complaint Counsel proved that the respondent engaged in horizontal price fixing through the association's collective ratemaking practices, the appropriate remedy was an order requiring Respondent to cease and desist from such collective ratemaking in the future. Because it was determined that the existing tariffs had been based upon unlawful collective ratemaking, respondent there was required to take action to cancel or withdraw existing tariffs. 2004 FTC LEXIS 107 at **95. In the instant case, it has been determined that the non-compete provisions of Section 4 of the Cross Agency agreement constitute an unlawful market allocation agreement. Contrary to H&V's assertion, the provisions of 4(a) are not mere "ancillary restraints" to the unlawful provisions of Section 4(b). Rather, it is the entire market allocation agreement between the parties, encompassed by both provisions, that is unlawful. Accordingly, the appropriate remedy is to prohibit any continued performance of the non-compete agreement.

H&V's characterization of the Complaint as charging only a restraint of trade in the PE market, in which H&V does not compete, is, at best, incomplete. While the Complaint alleges that "Daramic entered into a joint marketing agreement in 2001 with Hollingsworth & Vose, a firm that manufactures absorbed-glass-mat battery separators, in order to prevent them from entering the PE separator market," the Complaint also clearly alleges that "[t]his agreement is, at a minimum, an overbroad agreement in restraint of trade, and may be an illegal market allocation agreement that is not justified by any legitimate business purpose." Complaint, ¶ 47. Whether H&V was an actual or potential competitor in the PE market is not determinative because, as noted above, "[s]uch agreements are anticompetitive regardless of whether the parties split a market within which both do business or whether they merely reserve one market for one and another for the other." *Palmer*, 498 U.S. at 49-50.

b. Notice and opportunity to be heard

H&V's assertion, that Complaint Counsel was obligated to make H&V a party, if the proposed order is to affect its rights, is without merit. Joinder is not mandatory because, as the Supreme Court has stated, in administrative proceedings devoted "to the protection and enforcement of public rights, there is little scope or need for the traditional rules governing the joinder of parties in litigation determining private rights." *Pepsico, Inc. v. FTC*, 472 F.2d 179, 188 (2d Cir. 1972) (quoting *National Licorice Co. v. NLRB*, 309 U.S. 350, 363 (1940)). Rather, it is well established that "in an agency proceeding seeking to vindicate public rights against a respondent, the private rights of other parties can be concluded if they have had notice and an opportunity to intervene." *Id.* at 188 n.10 (affirming Commission's refusal to dismiss complaint for failure to join indispensible parties). Thus, in *Pepsico*, the Court held that whether to join in an action all parties to certain challenged soda distribution contracts is within the Commission's discretion, and because Commission Rule 3.14 enabled parties to the challenged contracts to intervene in the action, a remedial order affecting such parties' rights under the contracts would still be binding. *Id.* at 184, 189-90. As the Commission decision in the *Pepsico* matter explained:

> Traditionally, of course, antitrust proceedings and decrees have taken little, if any, notice of third parties to any contract held to be in contravention of one of the antitrust laws perhaps because the vindication of public rights, even though they run counter to contractual rights between defendants and third parties, may be accomplished without joining these third parties. This reasoning is advanced by Professor Moore in 3A MOORE's FEDERAL PRACTICE, Section 19.10 at 2344.

In re Crush International Ltd., Nos. 8853-57, 8859, 80 F.T.C. 1023, 1972 FTC LEXIS 255, at *8 (Mar. 23, 1972).

The general due process cases upon which H&V relies reinforce the importance of notice and opportunity to be heard, and are, therefore, consistent with the foregoing authorities. Regardless of whether H&V believed that it was a "target" of the unfair competition claim in the Complaint, H&V cannot reasonably contend that it had no notice that its contractual rights might be affected by the litigation. The Complaint plainly charges that "Daramic entered into a joint marketing agreement in 2001 with Hollingsworth & Vose . . . to prevent them from entering the PE separator market." Complaint ¶ 47. As part of the Complaint, the Notice of Contemplated Relief seeks "an order that requires Daramic to cease and desist from the conduct, agreements, and attempt to enter agreements alleged in the Complaint." Thus, H&V was on notice that its contractual rights might be affected by the litigation.

During the litigation, H&V sought to protect its interests in discovery, as follows: H&V filed a stipulation regarding the treatment under the Protective Order Governing Discovery of certain of H&V's confidential information on February 4, 2009; H&V submitted three motions for *in camera* treatment of its materials on April 9, 2009, May 28, 2009, and June 16, 2009; and H&V filed a motion to quash the subpoenas *ad testificandum* served on H&V employees, Robert Cullen and Kevin Porter, on May 12, 2009.[10] Despite its extensive involvement in discovery issues, H&V did not seek to intervene to protect its rights with regard to the proposed order, pursuant to Commission Rule 3.14, until September 2, 2009, nearly one year after the Complaint was issued, and

[10] These H&V employees appeared through deposition testimony, as agreed to by the parties and approved by the Administrative Law Judge.

nearly three months after the adjudicative trial was concluded. Having chosen to delay asserting its right to be heard, H&V has no valid claim that such right was deprived.

Moreover, when H&V ultimately did move to intervene, after the trial, it was granted intervention for the "purpose of providing a brief and any proposed findings of fact on the issue of how the proposed remedy might affect H&V's rights under the Cross Agency Agreement." Order on Motion of Non-Party Hollingsworth &Vose for Leave to Intervene, September 23, 2009, at 3. H&V's proposed findings and arguments have been thoroughly considered, and for all the foregoing reasons, are rejected.

The relief for Daramic's unlawful agreement in violation of Section 5 of the FTC Act, as proposed by Complaint Counsel, is set forth in Paragraph VII of the Order. [11]

2. Remedy for Count 1

As a remedy for Respondent's illegal acquisition of Microporous, Complaint Counsel seeks an order requiring complete divestiture and other provisions to further the creation of a viable competitor. CCB at 68-78. As discussed below, complete divestiture is the appropriate remedy to most effectively "pry open to competition [the] market[s] that [have] been closed by [Respondent's] illegal restraints." *See United States v. E. I. Du Pont de Nemours & Co.*, 366 U.S. 316, 323 (1961). Accordingly, complete divestiture is required by the Order. In addition, a number of ancillary provisions included in the Order are crucial to establishing a viable entrant and, therefore, are necessary to replace competition lost from Daramic's acquisition of Microporous.

a. Applicable legal standards

As discussed in detail herein, Complaint Counsel has established that the acquisition of Microporous by Respondent may substantially lessen competition in the relevant markets and, thus, has established that Respondent violated Section 7 of the Clayton Act. Pursuant to Section 11(b) of the Clayton Act:

[11] The language of the Order requiring a unilateral "modification" and "amendment" to the contract was submitted by Complaint Counsel in the proposed order. Curiously, neither Respondent nor H&V addressed this specific issue.

> If upon such hearing the Commission . . . shall be of the opinion that any of the provisions of [Section 7] have been or are being violated, it shall . . . issue and cause to be served on such person an order requiring such person to cease and desist from such violations, and divest itself of the . . . assets, held . . . in the manner and within the time fixed by said order.

15 U.S.C. § 21(b).

Through Section 11 of the Clayton Act, Congress expressly directed the Federal Trade Commission to issue orders requiring that a violator of § 7 divest itself of the assets held in violation of the Clayton Act. *California v. American Stores Co.*, 495 U.S. 271, 284-85 and n.11 (1990); *FTC v. Western Meat Co.,* 272 U.S. 554, 559 (1926).

Under both the text of the Clayton Act and Supreme Court precedent, divestiture is the usual and proper remedy where a violation of § 7 has been found. *United States v. Du Pont*, 366 U.S. at 329 ("The very words of § 7 suggest that an undoing of the acquisition is a natural remedy."); *Ford Motor Co. v. United States*, 405 U.S. 562, 573 (1972) ("Complete divestiture is particularly appropriate where asset or stock acquisitions violate the antitrust laws."); *American Stores Co.*, 495 U.S. at 285 n.11 (noting that a person who is allowed to continue holding ownership over stock or assets that created a Section 7 violation would be engaging in a perpetual violation, and thus, divestiture is the only effective remedy). *See also El Paso Natural Gas,* 376 U.S. at 662 (directing the district court to order divestiture without delay). "Of the very few litigated § 7 cases which have been reported, most decreed divestiture as a matter of course." *Du Pont,* 366 U.S. at 330.

In addition, "it is well settled that once the Government has successfully borne the considerable burden of establishing a violation of law, all doubts as to the remedy are to be resolved in its favor." *Du Pont*, 366 U.S. at 334. In a merger case, absent "unusual circumstances," it is presumed that total divestiture of the acquired assets is the best means of restoring competition. *In re RSR Corp.*, No. 8959, 88 F.T.C. 800, 1976 FTC LEXIS 40, at *208 (Dec. 2, 1976), *aff'd*, *RSR Corp. v. FTC*, 602 F.2d 1317 (9th Cir. 1979). Accordingly, "the burden rests with respondent to demonstrate that a remedy other than full divestiture would adequately redress any violation which is found." *In re*

Fruehauf Corp., No. 8972, 1977 FTC LEXIS 9, at *3 n.1, 90 F.T.C. 891, 892 n.1 (Dec. 21, 1977); *In re Chicago Bridge*, 2003 FTC LEXIS 96, at **277.

"[E]xceptions to the general rule [of full divestiture] can be reasonably invoked . . . only when the proof of their probable efficacy is clear and convincing." *In re Diamond Alkalai, Co.*, No. 8572, 72 F.T.C. 700, 742, 1967 FTC LEXIS 44, at *88 (Oct. 2, 1967).

> In the absence of proof to the contrary the assumption of this Commission must be that "only divestiture can reasonably be expected to restore competition and make the affected markets whole again." Moreover, if an order of divestiture appears to the Commission to be in all likelihood the most effective available remedy, the Commission need not justify its order beforehand by showing that it will unquestionably restore competition.

Id. (citation omitted).

In this case, as more fully discussed below, Respondent has not presented compelling arguments or sufficient proof to depart from the usual remedy of full divestiture of the illegally acquired assets.

b. Complete divestiture is the appropriate remedy in this case

Respondent contends that complete divestiture in this case is overbroad, inappropriate, and punitive because it will not serve the "principal purpose of relief [which] is to restore competition to the state in which it existed prior to, and would have continued to exist but for, the illegal merger." RB at 58; RRB 39 (citing *In re B.F. Goodrich,* 1988 FTC LEXIS 16, at *138). Preliminarily, Respondent raises certain general objections to divestiture based on its assertions that Microporous was in a precarious financial position at the time of the acquisition and Microporous' survival was far from clear; that appropriate relief must consider the current downturn in the economy; and that, given these circumstances, complete divestiture, at no minimum price, is unnecessary and punitive. RB at 59-62; RRB 37-39. Specifically, Respondent objects to divestiture of: (1) the entire Piney Flats plant, as opposed to divestiture of a single PE line at the plant; (2) the Feistritz plant in Austria; and (3) the equipment Microporous purchased for an additional production line (the "line in boxes"). According to Respondent, a sufficient remedy is to divest a single PE line at Piney Flats. RB 62-67; RRB 40-43. Each of these assertions is discussed below.

(i) Respondent's general objections to complete divestiture

The record does not support Respondent's contention that Microporous was failing financially. *See* F. 1127-28; Section III E 3, *supra*. Moreover, to the extent Respondent's anticompetitive conduct contributed to any financial difficulties at Microporous, Respondent should not be allowed to rely on such difficulties as a basis for avoiding a complete remedy in this case. Respondent's additional argument, that divestiture must consider the current economic climate, also does not compel an order of less than full divestiture of Microporous. Respondent contends that neither the Piney Flats plant nor the Feistritz plant {[redacted]} that the Feistritz plant {[redacted]} RFOF 425, and that the "line in boxes" will only saddle a potential acquirer with additional unneeded equipment. RRB at 38. However, contrary to Respondent's arguments, such factors support ordering broad divestiture, in order to "ensure that the package of assets divested is sufficient to give its acquirer a real chance at competitive success." *In re Olin*, No. 9196, 113 F.T.C. 400, 1990 FTC LEXIS 234, at *65 (June 13, 1990), *rev. denied,* 986 F.2d 1295 (9th Cir. 1993).

Finally, Respondent's assertion that requiring divestiture in current economic conditions will result in a punitive "give away," RRB at 38, does not require a lesser remedy. As the Commission stated in *In re RSR Corp.*: "Certainly it cannot be forecast with absolute assurance that the divested [entity] will find a willing buyer and become the vigorous competitor it once was. But neither is there anything more than speculation to justify the opposite conclusion, and in a merger case we think that absent clear proof, which is generally likely to come only at the compliance stage when a good faith effort to divest has been made, the presumption should be that an acquired competitive entity can be viably restored to its preacquisition status." 1976 FTC LEXIS 40, at *210-11. In this case as well, it is speculation at this stage whether a buyer can be found, and whether the price will amount to a "punitive" give-away. The mere fact that divestiture may have an adverse economic impact on Respondent does not compel a lesser remedy. *See Du Pont*, 366 U.S. at 326 ("[C]ourts are authorized, indeed required, to decree relief effective to redress the violations, whatever the adverse effect of such a decree on private interests. Divestiture is itself an equitable remedy designed to protect the public interest.").

(a) The Piney Flats plant

Respondent objects to divestiture of the Ace-Sil and Flex-Sil production lines at the Piney Flats plant because, according to Respondent, neither product is within the relevant product market. Moreover, Respondent argues, Flex-Sil does not compete with any Daramic product. Therefore, Respondent argues, divestiture of lines that produce these products is not necessary to restore competition. RB at 60-62. These arguments are without merit.

Contrary to Respondent's assertions, the evidence shows that Flex-Sil does compete in the relevant deep-cycle product market. F. 371, 464-71, 502-510. Moreover, Ace-Sil is important to the production of CellForce, which is a product in the relevant markets and competes directly with Daramic HD, because Ace-Sil dust is used to make CellForce. F. 45, 148, 198, 233, 257, 387, 415. Furthermore, the Commission has ordered divestiture in consummated merger cases where violations of the Clayton Act have been found, even where products outside the relevant market are implicated. For example, in *In re Chicago Bridge*, 2005 FTC LEXIS 215, at **214-16, the Commission ordered complete divestiture of what CB&I acquired, including both the former PDM Engineered Construction Division, which made the relevant products, and its former water division, which made products outside the relevant market. Similarly, *In re Olin,* 1990 FTC LEXIS 234, at *63-65, the Commission ordered the respondent to divest a facility that manufactured both the relevant product and a product outside the relevant market. Thus, even if Ace-Sil and Flex-Sil were outside the relevant markets, a conclusion contrary to the evidence, this fact alone would not prevent divestiture of facilities used to make these products. To the contrary, as noted in *In re Olin*, such broad divestiture helps "ensure that the package of assets divested is sufficient to give its acquirer a real chance at competitive success." 1990 FTC LEXIS 234, at *65.

(b) The Feistritz plant

Respondent contends that because the Feistritz plant is located in Europe, it is beyond the jurisdiction of the FTC to order its divestiture. RB at 62. Respondent also asserts that the Feistritz plant is not subject to divestiture because it is located outside the relevant geographic market of North America. *Id.* Respondent is incorrect on both counts.

As noted in Section III A above, the FTC jurisdiction in this matter arises from Respondent's activities in or affecting interstate commerce, the FTC's power to determine the legality of the acquisition, and its power to order divestiture if a violation is found. 45 U.S.C. § 5 (a); 15 U.S.C. § 21(b). It has already been determined that there is jurisdiction over Respondent and the subject matter of this proceeding. *See* Section III A, *supra*. An order of divestiture would arise from, and be directed to, the conduct of Respondent, a domestic corporation. Accordingly, Respondent's reliance on the Foreign Trade Antitrust Improvements Act ("FTAIA"), which governs foreign conduct affecting United States commerce, is misplaced.

Divestiture orders against domestic corporations have included a requirement to divest foreign assets, where appropriate to restore competition lost through an illegal acquisition. *See Yamaha Motor Co., Ltd. v. FTC*, 657 F.2d 971, 982 (8th Cir. 1981) (affirming Commission's order that respondent divest foreign stock acquired in violation of Clayton Act); *In re Chicago Bridge & Iron Co.*, No. 9300, 140 F.T.C. 1152, 1169-70, 2005 FTC LEXIS 216, at **14-15 (Aug. 30, 2005) (modifying final order to specify divestiture of foreign assets if necessary to restore competition in the relevant markets). *See also United States v. National Lead Co.*, 332 U.S. 319, 363 (1947) (affirming district court order to present plan to divest stockholdings and financial interests in foreign companies, based upon findings that such acquisitions were part and parcel of unlawful territorial allocation agreements).

Similarly, just as divestiture orders can reach products outside the relevant product market where appropriate to restore competition, the law does not protect an asset located outside the relevant geographic market against divestiture. Rather, as the above-cited cases clearly indicate, the relevant issue is not where the assets are located, but whether divestiture of the assets will contribute to restoring competition lost through the acquisition. For example, in *In re Chicago Bridge*, the respondent petitioned the Commission to reconsider and to modify the final order, *inter alia*, to expressly remove foreign assets from the scope of the required divestiture. The Commission acknowledged that the Commission's Opinion focused on competition in the United States market, but noted that "the possibility exists that some foreign assets may be necessary for an acquirer to compete effectively." 2005 FTC LEXIS 216, at **15. Accordingly, the final order was modified "to include language that ensures such assets are available if they are needed to ensure the viability of the Relevant Business but makes clear that CB&I need include foreign assets only to the extent they are necessary for an acquirer to compete in the Relevant Markets." *Id.*

In the instant case as well, the Feistritz plant, while itself outside the relevant North American market, is nevertheless a necessary asset to enable an acquirer to compete in that market. F. 1261. The evidence shows that the ability to supply a battery manufacturer's needs on a global basis is important to customers. F. 282, 1276. The availability of local supply reduces freight costs and lead-times, and also reduces other costs of more distant supply, such as inventory and warehousing costs. F. 286-90, 298. In addition, local supply enables the supplier to meet with the customer and to respond if technical or quality issues arise, which is also important to customers. F. 291-93. Logistic considerations including shipping costs to the customer, reductions in lead-times, as well as pure customer preference, framed the basis of Microporous' decision to expand into Europe. F. 301. Moreover, the scale of production provided by multiple plants is important to customers. F. 282, 297, 1272-73. For example, the 2007 EnerSys contract with Microporous was conditioned on Microporous building an additional facility in Europe, both to serve EnerSys' European business locally and to ensure

Microporous had the capacity to meet EnerSys' European and North American supply needs. F. 300, 1277-79.

Respondent also contends that the Feistritz plant should not be included in the divestiture order because it had not begun operating at the time of the acquisition, and therefore was not "part of" the acquisition. RB at 62. Contrary to Respondent's assertion, the Feistritz plant was, indeed, part of the acquisition. F. 1264. In *In re RSR Corp.*, the Commission required divestiture of a pre-merger plant owned by the acquired company, even though the plant was not completed at time of merger, as well as a plant that manufactured a product outside the relevant product market. *In re RSR Corp.*, 1976 FTC LEXIS 40, at *218-19. The Commission held that including the plant as part of a broad divestiture order was required to restore competition in the relevant market, and the Ninth Circuit affirmed. *Id.*; *see* 602 F.2d at 1326. The facts in the instant case are even stronger than in *RSR*. In this case, at the time of the acquisition, the two lines planned for the facility had been completed. F. 778. There were approximately 15 employees working at the plant, F. 1265, and the plant began producing products within the first week after the acquisition. F. 1266. In these circumstances, and given the fact that Microporous planned the Feistritz plant in order to be more competitive in the relevant markets, F. 768-72, there is no valid basis for concluding that the Feistritz plant should not be divested.

Respondent further argues that including the Feistritz plant would not add to the viability of a new company, but, in fact, make the divestiture package less attractive to potential buyers. RB 62, 64-66. Specifically, Respondent relies on evidence: (1) that, at the time of the acquisition, Microporous had no contracts in place committing the second line at the Feistritz plant, and that the Exide MOU had expired; (2) that the Feistritz plant is operating at less than capacity; and (3) that, if not for the transfer of orders from Daramic's Potenza plant to Feistritz, the capacity level would only be about {[redacted]} *Id.*; *see* F. 710, 1267, 1281, 1284-86. However, it is neither necessary, nor appropriate to speculate as to the viability of a divestiture package. Rather, "in a merger case [the Commission thinks] that absent clear proof, which is generally likely to come only at the compliance stage when a good faith effort to divest has been made, the presumption should be that an acquired competitive entity can be viably restored to its preacquisition status." *In re RSR Corp.*, 1976 FTC LEXIS 40, at *210-11. The evidence in this case does not demonstrate "that a smaller set of assets than those illegally acquired . . . will suffice to restore competition, and what we know with certainty is that this [preacquisition] combination of assets has made a saleable package in the past." *In re Chicago Bridge*, 2005 FTC LEXIS 215, at **215. *See also In re Crown Zellerbach Corp.*, No. 6180, 54 F.T.C. 769, 808, 1957 FTC LEXIS 22 (Dec. 26, 1957) (rejecting order allowing piecemeal sale of acquired company's assets), *aff'd*, 296 F.2d 800 (9th Cir. 1961).

For all the foregoing reasons, the Feistritz plant should be, and is, included in the divestiture Order.

(c) The line in boxes

Respondent also objects to divestiture of the equipment Microporous had purchased for the purpose of constructing a third manufacturing line, but which Microporous did not in fact construct prior to the acquisition (the "line in boxes"). RB at 66; *see* F. 1268. Part of the equipment remains in boxes in Austria, and part of it is in Piney Flats. F. 1269. A pinhole detector that Microporous purchased is being used in Piney Flats in production. The extruder purchased by Microporous is in a semi-finished stage at the supplier. F. 1270.

Respondent states that the plan to build the third line was put on hold at the time of the acquisition. RB at 66. Moreover, Respondent argues that requiring divestiture of the line in boxes, when neither Piney Flats nor Feistritz are operating at full capacity, will further detract from the attractiveness and viability of the divestiture. RRB at 38. As noted above, the presumption is that full divestiture is the appropriate remedy to restore competition to the state that existed at the time of the acquisition. Speculation that the divestiture package will be unattractive to buyers or not allow a new buyer to be a viable competitor does not defeat that presumption. *See In re Chicago Bridge*, 2005 FTC LEXIS 215, at **215; *In re RSR Corp.*, 1976 FTC LEXIS 40, at *210-11.

Accordingly, the line in boxes is included in the divesture Order.

(ii) **Alternative remedy of partial divestiture of single PE line**

Respondent asserts that partial divestiture, consisting of a single PE line at Piney Flats, is sufficient to restore competition in this case. RB at 66-67. As discussed above, however, production facilities manufacturing Ace-Sil and Flex-Sil at the Piney Flats plant, the Feistritz Plant, and the line in boxes should be divested, in order to restore competition to the state it was in prior to the acquisition, and to re-create an entity capable of competing in the marketplace. *See also* F. 1261.[12] For these reasons, partial divestiture of a single PE line – particularly when the line is housed on the same property, in a building adjacent to related manufacturing facilities – cannot suffice. *See In re Chicago Bridge*, 2003 FTC LEXIS 96, at **280-81 (noting that complete divestiture of closely interrelated business operations is appropriate).

3. **Summary of Order**

a. **Divestiture provisions**

Paragraph II of the Order requires complete divestiture of Microporous, including the Feistritz plant and the line in boxes. (Order ¶¶ I.AA, II.A, II.B).[13] These provisions, as discussed above, are a necessary and appropriate remedy for the illegal acquisition. Also included in the divesture provisions of Paragraph II is a provision for the assignment of contracts to the acquirer to ensure that the acquirer ("Newco") will have a base of business consistent with its ongoing operations at the time of divestiture. (Order ¶ II). A similar provision was included in the final order in *Chicago Bridge*, 138 F.T.C. at 1165.

---

[12] Respondent's assertion that it should retain CellForce, and divest Daramic HD, as a way of resolving the problem of access to Ace-Sil dust for the manufacture of CellForce, merits little discussion. Suffice it to say that Respondent has failed to prove that allowing Polypore to maintain all of Microporous' products and all but one of its production lines would effectively restore competition. Moreover, Respondent cites no authority that would permit an antitrust violator to maintain the fruits of its acquisition and to divest one of its own products instead.

[13] Paragraph I of the Order contains applicable definitions and is not separately analyzed herein.

Respondent is required to divest technology and other intellectual property, limited to what it acquired from Microporous in the acquisition, together with any additions and improvements since the acquisition. (Order ¶ II.A). This requirement is necessary to restore competition to the state in which it would likely have continued to exist "but for" the illegal merger.

Respondent must also grant the acquirer a perpetual, worldwide, royalty-free license to use any Daramic technology that Respondent introduced into use at the former Microporous plants after the acquisition to ensure that those plants can continue to operate post-divestiture without disruption. (Order ¶ II.C.4). This requirement is necessary since there would be no effective way to purge certain information, such as best practices, from the minds of personnel involved in those operations who might become employees of the acquirer in connection with the divestiture. The requirement that Daramic must covenant not to sue the acquirer over any technology that it owns or licenses at the point of divestiture, including the Jungfer technology (Order ¶ II.F.1.), is necessary to ensure that Newco's ability to compete in the relevant markets is not impeded.

The potential provision of transitional services if needed by the acquirer (Order ¶ II.F.3), and the removal of impediments to the acquirer's ability to recruit and hire employees of "Microporous," including non-compete agreements (Order ¶ II.D.2), are also necessary to ensure the viability of Newco immediately following divestiture. Prior to the acquisition, Microporous had an entire infrastructure to provide shared services to the plants, including administrative, payroll, information technology and human resources, which are now being provided by Respondent. Accordingly, it is reasonable to require Respondent to continue to provide these services for a transitional period if necessary. A similar provision was also included in the final order in *Chicago Bridge*, 138 F.T.C. at 1166-69.

The removal of non-compete agreements is necessary to allow the acquirer to hire and utilize the personnel working at the Microporous plants who are now employed by Respondent, and is needed to ensure the viability of those plants post-divestiture. The requirement does not apply to all of Respondent's employees, only to those who worked at Microporous before the acquisition and those who have worked in the former Microporous plants after the acquisition. (Order ¶¶ I.EE, II.D.2.). The final order in *Chicago Bridge* included a similar provision. 138 F.T.C. at 1165-66, 1173 & n.592.

b. Ancillary provisions

"In Section 7 cases, the principal purpose of relief is to restore competition to the state in which it existed prior to, and would have continued to exist but for, the illegal merger.'" *In re B.F. Goodrich Co.*, 110 F.T.C. 207, 345 (1988) (quoting *In re RSR Corp.*, 88 F.T.C. 800, 893 (1976)). The Commission is "clothed with wide discretion in determining the type of order that is necessary to bring an end to the unfair practices found to exist." *FTC v. Nat'l Lead Co.*, 352 U.S. 419, 428 (1957). It has "wide latitude for judgment and the courts will not interfere except where the remedy selected has no reasonable relation to the unlawful practices found to exist." *Id.* (internal quotations omitted). Further, the Supreme Court has recognized that "[t]he relief which can be afforded" from an illegal acquisition "is not limited to the restoration of the status quo ante." *Ford Motor Co.*, 405 U.S. at 573 n.8. "There is no power to turn back the clock. Rather, the relief must be directed to that which is 'necessary and appropriate in the public interest to *eliminate the effects* of the acquisition offensive to the statute.'" *Id.* Thus, in addition to the provisions in the Order requiring divestiture, the Order contains a number of ancillary provisions designed to restore competition lost through Daramic's illegal conduct.

Paragraph III of the Order provides for the appointment of a Monitor Trustee to make sure that Respondent complies with the requirements of the Order. Paragraph IV provides for a Divestiture Trustee in the event Respondent does not divest within the required time frame. Paragraph V of the Order requires Respondent to maintain the viability and competitiveness of Microporous pending divestiture. These are standard provisions in Commission divestiture orders. *See Chicago Bridge*, 138 F.T.C. at 1024.

Paragraph VI of the Order allows customers to reopen and negotiate or terminate contracts entered into by Daramic in the exercise of market power. This provision is necessary to prevent Respondent from continuing to reap the benefits of its illegal acquisition. Paragraph VI does not require across-the-board termination of customer contracts, but rather provides customers with the option to reopen and renegotiate or terminate the contracts they were forced to enter into with Daramic during a period in which it unlawfully exercised its market power. This provision is necessary to prevent Daramic from continuing to reap the benefits of its unlawful conduct. The provision in the Order is narrower than what the Commission required in the final order in *In re North Texas Specialty Physicians*, No. 9312, 140 F.T.C. 715, 785, 2005 FTC LEXIS 206, at *8 (Nov. 29, 2005), because it does not require Respondent to terminate all contracts, but instead leaves it up to the customer to determine whether to opt for reopening.

Paragraph VII of the proposed order is advocated by Complaint Counsel as a provision, "[i]n addition to the merger-specific relief requested," to require Respondent to cease and desist from any other practice that is found to be an unfair method of competition or an unreasonable restraint of trade. CCB at 76-77. The provisions sought in Paragraph VII of the proposed order relate to the conduct that Complaint Counsel charged as, but did not prove to be, exclusionary conduct. Because Count III of the Complaint relating to monopolization was dismissed, Paragraph VII of the proposed order is not adopted in the Order.

With the deletion of Paragraph VII from the proposed order, the remainder of the Order is renumbered. Paragraph VII of the Order (Paragraph VIII of the proposed order) requires Daramic to undo the H&V Agreement and to refrain from entering similar agreements in the future. Section III G 1, *supra*.

Paragraph VIII of the Order (Paragraph IX of the proposed order) prohibits Respondent from introducing any battery separator using cross-linked rubber for a period of two years following the divestiture. Microporous' pre-acquisition use of cross-linked rubber technology in its battery separators distinguished Microporous' products from Daramic's. This technology, which was exclusively Microporous' before the acquisition, will be divested pursuant to the Order. To assure that the viability of the divestiture is not undermined from the outset by Daramic's introduction of a product improperly based on

Microporous technology, a brief moratorium period of two years on any such product introduction is reasonable.

The remaining provisions of the Order are standard reporting, notice, compliance monitoring and sunset provisions that are typically required in Commission orders. (Order ¶¶ IX-XIII); *see Chicago Bridge,* 138 F.T.C. at 1197-99; *In re North Texas Specialty Physicians*, 140 F.T.C. at 787-88.

4. Conclusion

Upon consideration of the entire record, relief designed to remedy the violations found to exist is hereby ordered. The Order is designed to restore competition as it existed prior to the Respondent's unlawful conduct and to remedy the anticompetitive effects arising therefrom.

IV. SUMMARY OF CONCLUSIONS OF LAW

1. The Commission has jurisdiction over Respondent Polypore International, Inc. ("Respondent" or "Polypore") 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).

2. Respondent is, and at all times relevant herein, has been, engaged in "commerce" as defined in Section 1 of the Clayton Act, as amended, 15 U.S.C. § 12, and is a corporation whose business is in or affects "commerce" as defined in Section 4 of the Federal Trade Commission Act, as amended, 15 U.S.C. § 44.

3. On February 29, 2008, Daramic Acquisition Corporation, a subsidiary of Polypore, acquired Microporous from Industrial Growth Partners II L.P. and other stockholders (the "acquisition"). The acquisition is a transaction subject to Section 7 of the Clayton Act, 15 U.S.C. § 18, and Section 5 of the FTC Act, 15 U.S.C. § 45.

4. Section 7 of the Clayton Act prohibits acquisitions, the effect of which "may be substantially to lessen competition, or tend to create a monopoly." 15 U.S.C. § 18. "Section 11(b) of the Clayton Act, 15 U.S.C. § 21(b), expressly vests the Commission with jurisdiction to determine the legality of a corporate acquisition under Section 7 and, if warranted, to order divestiture."

5. Section 7 of the Clayton Act prohibits acquisitions, "where in any line of commerce or in any activity affecting commerce in any section of the country, the

effect of such acquisition may be substantially to lessen competition, or tend to create a monopoly." 15 U.S.C. § 18.

6. The appropriate lines of commerce within which to evaluate the probable competitive effects of the acquisition are: (1) deep-cycle; (2) motive; (3) uninterruptable power supply ("UPS"); and (4) starting, lighting, and ignition ("SLI" or "automotive") battery separators for flooded lead-acid batteries.

7. The appropriate section of the country within which to evaluate the probable competitive effects of the acquisition is North America.

8. Complaint Counsel has established that there is a reasonable probability that Respondent's acquisition of Microporous will substantially lessen competition in the deep-cycle, motive, UPS and SLI battery separator markets in North America.

9. The government can establish a presumption that a transaction will substantially lessen competition by showing that an acquisition will lead to undue concentration in the relevant market. However, market share and concentration data provide only the starting point for analyzing the competitive impact of a merger. Other market factors that pertain to competitive effects are also assessed.

10. Daramic's acquisition of Microporous resulted in a merger to monopoly in the deep-cycle and motive markets, with Daramic attaining a 100% share of each market. Thus, the acquisition is presumptively illegal because it resulted in a merger of the only two competitors in these relevant markets.

11. Although Microporous did not have market shares in either the UPS or SLI markets at the time of the acquisition, Microporous was a competitive threat to Daramic in the UPS market and a competitor in the SLI market. Daramic's acquisition of Microporous has the anticompetitive effect of eliminating Microporous as a competitive constraint.

12. With the acquisition, the UPS market continues to be a monopoly, with Daramic having a 100% market share.

13. With the acquisition, the SLI market remains a duopoly, with Daramic having nearly a 50% market share.

14. Complaint Counsel has demonstrated unilateral anticompetitive effects in the deep-cycle, motive, and UPS markets, in which Daramic has a monopoly. Daramic has exerted unilateral market power in these markets since the acquisition.

15. Complaint Counsel has shown that Daramic's acquisition of Microporous has had unilateral anticompetitive effects in the SLI market as to battery manufacturers

which had been working with, and looking to, Microporous as an independent supplier of SLI separators.

16. With the elimination of Microporous from the SLI market, the SLI market continues to be a duopoly, for which there is a strong presumption of coordinated anticompetitive effects.

17. Post-acquisition price increases add to the strong presumption that a merger to monopoly in three markets, and from three to two competitors in the SLI market, will lead to anticompetitive effects. Daramic has failed to rebut these presumptions and the additional evidence that supports them.

18. Evidence indicating the purpose of the merging parties is an aid in predicting the probable future conduct of the parties and, thus, the probable effects of the merger, and Daramic's documents show that Daramic acquired Microporous with the intent to eliminate a competitor and to protect Daramic's market share; to avoid having to lower prices; and, to gain the ability to raise prices.

19. For entry to counteract the anticompetitive effects of an acquisition, entry must not only be timely, but must also be likely, and sufficient in its magnitude, character and scope to deter or counteract the competitive effects of concern.

20. In highly concentrated markets, if there is sufficient ease of entry, enough firms can enter to compete with the merging firms, undercutting any of the likely anticompetitive effects of the proposed merger.

21. A fundamental step in determining ease of entry is timeliness. Timely entry is entry that is achieved within two years from initial planning to significant market impact.

22. There are significant barriers to entry into the relevant markets, including the needs for millions of dollars in capital investment required to achieve sufficient scale to compete, specialized equipment, technical expertise and "know-how" that is not widely available, and a favorable reputation with customers. The time required to surmount these barriers, as well as to plan, construct, and debug production facilities, develop and test products, and obtain product validation by customers necessary to make product sales, exceeds two years.

23. Entry into the relevant markets will not counteract the anticompetitive effects of the acquisition.

24. Respondent presented a "power buyer" defense. The power buyer defense is grounded in the theory that large, sophisticated buyers may have the bargaining power to resist anticompetitive price increases and, thereby, counter anticompetitive effects of a merger. At a basic level, however, customers must have alternative suppliers in order to have any real bargaining power.

25. As a result of the acquisition, in the deep-cycle, motive, and UPS markets, customers can purchase only from Daramic, and in the SLI market, customers can purchase only from Daramic or one other supplier. In addition, barriers to entry are high and entry is unlikely. Therefore, the buyers in this case do not have any real ability to counter the anticompetitive effects of the acquisition.

26. Respondent failed to sustain its power buyer defense.

27. Respondent presented an efficiencies defense. A proponent of an efficiencies defense must demonstrate that the intended acquisition would result in significant economies and that these economies ultimately would benefit competition and, hence, consumers.

28. Claimed efficiencies must be: (1) verifiable; (2) merger-specific, *i.e.*, ones that could not practicably be achieved without the proposed merger; and (3) greater than the transaction's substantial anticompetitive effects.

29. Efficiencies almost never justify a merger to monopoly or near-monopoly. A showing of extraordinary efficiencies is necessary in such strong statistical cases because the likelihood of a significant price increase is particularly large, and there is less competition present to ensure that the benefit of efficiencies will flow to consumers even in the relatively long run.

30. Respondent has failed to sustain an efficiencies defense.

31. Respondent presented a defense based on the asserted weakened financial condition of Microporous at the time of the acquisition. Evidence of the acquired firm's weakened financial condition, among other factors, may rebut the government's statistical showing of anticompetitive market concentration.

32. Respondent's "financially weakened company" defense is not supported by the facts, or by the cases on which Respondent relies.

33. The evidence presented by Respondent on entry, power buyers, efficiencies, and Microporous' financial condition fails to offset the preponderance of the evidence of reasonably likely anticompetitive effects, as proved by Complaint Counsel.

34. Complaint Counsel has met its burden of proving that the effect of Respondent's acquisition of Microporous may be substantially to lessen competition in the deep-cycle, motive, UPS, and SLI separator markets in North America. Therefore, Complaint Counsel has proved Count I of the Complaint, that, through its acquisition of Microporous, Respondent violated Section 7 of the Clayton Act and Section 5 of the FTC Act.

35. Section 5 of the FTC Act prohibits unfair methods of competition, which include any conduct that would violate Sections 1 or 2 of the Sherman Act.

36. The charge of monopolization requires proof of: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.

37. Attempted monopolization requires proof: (1) that the defendant has engaged in predatory or anticompetitive conduct with (2) a specific intent to monopolize and (3) a dangerous probability of achieving or obtaining monopoly power.

38. Monopoly power is defined as the power to control prices or exclude competition. Monopoly power may be inferred from a firm's possession of a dominant share of a relevant market that is protected by entry barriers.

39. At the time the alleged conduct occurred, Respondent had monopoly power in the motive and UPS markets and a dangerous probability of achieving monopoly power in the deep-cycle market. Because barriers to entry are substantial, there exists at all relevant times a dangerous probability that Daramic's monopoly power will persist.

40. At the time the alleged conduct occurred, Respondent did not have monopoly power or a dangerous probability of achieving monopoly power in the SLI market.

41. The mere existence of a monopoly does not violate the Sherman Act. The offense of monopolization additionally requires the willful acquisition or maintenance of that power, as distinguished from growth or development as a consequence of a superior product, business acumen, or historical accident.

42. A firm violates Section 2 of the Sherman Act when it maintains or attempts to maintain a monopoly by engaging in exclusionary conduct.

43. In evaluating alleged exclusionary conduct, the key factor is whether challenged conduct is or is not competition on the merits. The most important factor in determining whether challenged conduct is not competition on the merits is the proffered business justification for the act.

44. Exclusive dealing arrangements are essentially requirements contracts, whereby the buyer agrees to purchase exclusively the product of the contracting supplier. Requirements contracts have anti-trust implications because they have a tendency to foreclose or exclude other sellers from the market by tying up potential purchases of the buyer.

45. Complaint Counsel has not met its burden of proving that Respondent engaged in exclusionary conduct in the markets in which Respondent is found to have had monopoly power or a dangerous probability of achieving monopoly power, because the evidence does not show that Daramic's conduct was likely to foreclose Microporous from doing business in those markets. Accordingly, Count III of the Complaint is dismissed.

46. Section 1 of the Sherman Act prohibits "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States . . . ." 15 U.S.C. § 1. Three elements must be established in order to prove a Section 1 violation: (1) the existence of a contract, combination, or conspiracy among two or more separate entities, that (2) unreasonably restrains trade, and (3) affects interstate or foreign commerce.

47. The first step in evaluating a challenged restraint is to determine whether it is obvious from the nature of the challenged conduct that it will likely harm consumers. When there is an agreement not to compete in terms of output, no elaborate industry analysis is required to demonstrate the anticompetitive character of such an agreement. Agreements between competitors to allocate territories to minimize competition have consistently been found to be *per se* illegal.

48. Where a restraint is found to be inherently suspect, in order to avoid liability, a respondent must either identify some reason the restraint is unlikely to harm consumers or identify some competitive benefit that plausibly offsets the apparent or anticipated harm.

49. Complaint Counsel has met its burden of showing that the non-compete provision of the Cross Agency Agreement between Daramic and Hollingsworth & Vose ("H&V") pursuant to which each agreed not to enter each other's markets constitutes a horizontal market allocation agreement that is an obvious restraint of trade likely to harm consumers. Respondent has failed to show a procompetitive justification for the non-compete provision. Therefore, Complaint Counsel has met its burden of proof in support of Count II of the Complaint.

50. In an agency proceeding seeking to vindicate public rights against a respondent, the private rights of other parties can be concluded if they have had notice and an opportunity to intervene. Intervenor H&V had adequate notice that relief sought in this case would affect its rights under the Cross Agency Agreement. H&V also had the opportunity to be heard in the case, pursuant to Commission Rule 3.14 allowing intervention, and did intervene after the conclusion of the trial to submit a brief and proposed findings on remedy.

51. The appropriate remedy for the violation in Count II of the Complaint is to prohibit any continued performance of the unlawful horizontal market allocation

agreement embodied by the non-compete provisions of the Cross Agency Agreement.

52. Divestiture is the proper remedy for the unlawful acquisition demonstrated under Count I.

53. Complete divestiture of all assets acquired in the acquisition is required to restore competition as it existed prior to the acquisition.

54. Relief designed to restore competition as it existed prior to the acquisition is appropriate.

55. Relief that is not designed to restore competition, but is designed solely to remedy alleged monopolistic conduct charged under Count III, which Complaint Counsel did not prove, and which is dismissed, is not included in the Order.

56. The Order entered herein is necessary and appropriate to remedy the violations of law found to exist.

ORDER

I.

IT IS ORDERED that, as used in the Order, the following definitions shall apply:

A. "Acquirer" means any Person approved by the Commission pursuant to this Order to acquire Microporous.

B. "Acquisition" means the acquisition of all of the outstanding shares of Microporous by Respondent Polypore pursuant to a Stock Purchase Agreement dated February 29, 2008.

C. "Acquisition Date" means February 29, 2008.

D. "Battery Separator(s)" means porous electronic insulators placed between positively and negatively charged lead plates in flooded lead-acid batteries to prevent electrical short circuits while allowing ionic current to flow through the separator.

E. "Books and Records" means all originals and all copies of any operating, financial or other books, records, documents, data and files relating to Microporous, including, without limitation: customer files and records, customer lists, customer product specifications, customer purchasing histories, customer service and support materials, Customer Approvals and Information; accounting records; credit records and information; correspondence; research and development data and files; production records; distributor files; vendor files, vendor lists; advertising, promotional and marketing materials, including website content; sales materials; records relating to any employee who accepts employment with the Acquirer; educational materials; technical information, data bases, and other documents, information, and files of any kind, regardless whether the document, information, or files are stored or maintained in traditional paper format, by means of electronic, optical, or magnetic media or devices, photographic or video images, or any other format or media; *provided, however,* that where documents or other materials included in the Books and Records to be divested with Microporous contain information: (1) that relates both to Microporous and to Polypore's Retained Assets or its other products or businesses and cannot be segregated in a manner that preserves the usefulness of the information as it relates to Microporous; or (2) for which the relevant party has a legal obligation to retain the original copies, the relevant party shall be required to provide only copies or relevant excerpts of the documents and materials containing this information. In instances where such copies are provided to the Acquirer, the relevant party shall provide the Acquirer access to original documents under circumstances where copies of the documents are insufficient for evidentiary or regulatory purposes. The purpose of this proviso is to ensure that Polypore provides the Acquirer with the above-described information without requiring Polypore to divest itself completely of information that, in content, also relates to its Retained Assets or its other products or businesses.

F. "Commission" means the Federal Trade Commission.

G. "Confidential Business Information" means any non-public information relating to Microporous either prior to or after the Effective Date of Divestiture, including, but not limited to, all customer lists, price lists, distribution or marketing methods, or Intellectual Property relating to Microporous and:

1. Obtained by Respondent prior to the Effective Date of Divestiture; or,

2. Obtained by Respondent after the Effective Date of Divestiture, in the course of performing Respondent's obligations under any Divestiture Agreement;

Provided, however, that Confidential Business Information shall not include:

1. Information that Respondent can demonstrate it obtained prior to the Acquisition Date, other than information it obtained from Microporous during due diligence pursuant to any confidentiality or non-disclosure agreement;

2. Information that is in the public domain when received by Respondent;

3. Information that is not in the public domain when received by Respondent and thereafter becomes public through no act or failure to act by Respondent;

4. Information that Respondent develops or obtains independently, without violating any applicable law or this Order; and

5. Information that becomes known to Respondent from a third party not in breach of applicable law or a confidentiality obligation with respect to the information.

H. "Contracts" means all contracts or agreements of any kind related to Microporous, and all rights under such contracts or agreements, including:

Microporous Customer Contracts, leases, software licenses, Intellectual Property licenses, warranties, guaranties, insurance agreements, employment contracts, distribution agreements, product swap agreements, sales contracts, supply agreements, utility contracts, collective bargaining agreements, confidentiality agreements, and non-disclosure agreements.

I. "Customer" means any Person that is a direct or indirect purchaser of any Battery Separator.

J. "Customer Approvals and Information" means, with respect to any Microporous Battery Separator(s):

1. All consents, authorizations and other approvals, and pending applications and requests therefor, required by any Customer applicable or related to the research, development, manufacture, finishing, packaging, distribution, marketing or sale of any Battery Separator; and,

2. All underlying information, data, filings, reports, correspondence or other materials used to obtain or apply for any of the foregoing, including, without limitation, all data submitted to and all correspondence with the Customer or any other Person.

K. "Daramic Battery Separator(s)" means any Battery Separators manufactured or sold by Respondent as of the day before the Acquisition Date, and any Battery Separators manufactured or sold by Respondent after the Acquisition Date that do not utilize any Microporous Intellectual Property other than Shared Intellectual Property.

L. "Direct Cost" means the cost of direct material and direct labor used to provide the relevant assistance or service.

M. "Divestiture Agreement" means any agreement(s) between Respondent (or between a Divestiture Trustee appointed under this Order) and the Acquirer approved by the Commission, that effectuate the divestiture of Microporous required by Paragraphs II. or IV. of this Order, to accomplish the purpose and requirements of this Order, as well as all amendments, exhibits, attachments, agreements and schedules thereto, including, but not limited to, any Technical Assistance Agreement or Transition Services Agreement.

N. "Divestiture Trustee" means a Person appointed pursuant to Paragraph IV. of this Order to accomplish the divestiture of Microporous.

O. "Effective Date of Divestiture" means the date on which the divestiture of Microporous to an Acquirer pursuant to the requirements of Paragraph II.

or IV. of this Order is completed.

P. "Employee Information" means the following, to the full extent permitted by applicable law:

1. A complete and accurate list containing the name of each Microporous Employee;

2. With respect to each such employee, the following information:

a. The date of hire and effective service date;

b. Job title or position held;

c. A specific description of the employee's responsibilities related to Microporous Battery Separators; *provided, however,* in lieu of this description, Respondent may provide the employee's most recent performance appraisal;

d. The base salary or current wages;

e. The most recent bonus paid, aggregate annual compensation for Respondent's last fiscal year and current target or guaranteed bonus, if any;

f. Employment status (i.e., active or on leave or disability; full-time or part-time); and

g. Any other material terms and conditions of employment in regard to such employee that are not otherwise generally available to similarly situated employees; and

3. At the proposed Acquirer's option, copies of all employee benefit plan descriptions (if any) applicable to the relevant employees.

Q. "Feistritz Plant" means all property and assets, tangible and intangible, owned, leased, or operated by Respondent and located or used in connection with the research, development, manufacture, finishing, packaging, distribution, marketing or sale of any one or more of the Microporous Battery Separators at the former Microporous facility in Feistritz, Austria, at any time between the Acquisition Date and the Effective Date of Divestiture, including, but not limited to:

1. All real property interests (including fee simple and leasehold interests), including all rights, easements and appurtenances, together with all buildings, structures, facilities (including R&D

and testing facilities), improvements, and fixtures, including, but not limited to, all Battery Separator production lines (including the two (2) production lines for polyethylene (PE) and/or CellForce Battery Separators);

2. All Tangible Personal Property;

3. All governmental approvals, consents, licenses, permits, waivers, or other authorizations, to the extent assignable; and

4. Inventories existing as of the Effective Date of Divestiture.

Provided, however, that the definition of "Feistritz Plant" shall not include any assets used solely to manufacture Daramic Battery Separators.

R. "Force Majeure Event" means whatever events, actions, occurrences or circumstances have been identified or specified as constituting "force majeure" or a "force majeure event" in a contract or agreement between the Respondent and a Customer for the supply of Battery Separators.

S. "Governmental Entity(ies)" means any federal, provincial, state, county, local, or other political subdivision of the United States or any other country, or any department or agency thereof.

T. "H&V Agreement" means the Cross Agency Agreement dated March 23, 2001, between Daramic, Inc. and Hollingsworth & Vose Company, and all amendments (including, but not limited to, the Renewal dated March 23, 2006), exhibits, attachments, agreements, and schedules thereto.

U. "Intellectual Property" means Patents, Manufacturing Technology, Know-How, and Trade Names and Marks.

V. "Inventories" means:

1. All inventories, stores and supplies of finished Battery Separators and work in progress; and,

2. All inventories, stores and supplies of raw materials and other supplies related to the research, development, manufacture, finishing, packaging, distribution, marketing or sale of any Battery Separators.

W. "Jungfer Technology" means all Intellectual Property owned or licensed by Respondent as a result of its acquisition of Separatorenerzeugung GmbH ("Jungfer") on November 16, 2001.

X. "Know-How" means all know-how, trade secrets, techniques, systems, software, data (including data contained in software), formulae, designs, research and test procedures and information, inventions, processes, practices, protocols, standards, methods (including, but not limited to, test methods and results), customer service and support materials, and other confidential or proprietary technical, technological, business, research, development and other materials and information related to the research, development, manufacture, finishing, packaging, distribution, marketing or sale of Battery Separators, and all rights in any jurisdiction to limit the use or disclosure thereof, anywhere in the world.

Y. "Line in Boxes" means all property and assets, tangible and intangible, related to any capacity expansions proposed, planned or under consideration by Microporous as of the Acquisition Date, including, but not limited to, all engineering plans, equipment, machinery, tooling, spare parts, and other tangible property, wherever located, relating to a proposed, planned or contemplated capacity expansion to be accomplished through installation of an additional Battery Separator production line at the Piney Flats Plant.

Z. "Manufacturing Technology" means all technology, technical information, data, trade secrets, Know-How, and proprietary information, anywhere in the world, related to the research, development, manufacture, finishing, packaging or distribution of Battery Separators, including, but not limited to, all recipes, formulas, formulations, blend specifications, customer specifications, equipment (including repair and maintenance information), tooling, spare parts, processes, procedures, product development records, trade secrets, manuals, quality assurance and quality control information and documentation, regulatory communications, and all other information relating to the above-described processes.

AA. "Microporous" means Microporous Holding Corporation, a corporation organized, existing and doing business under and by virtue of the laws of the State of Delaware, with its offices and principal place of business as of the Acquisition Date located at 100 Spear Street, Suite 100, San Francisco, CA 94111, and its joint ventures, subsidiaries, divisions, groups, and affiliates (including, but not limited to, Microporous Products, L.P. and Microporous Products, GmbH) controlled by Microporous Holding Corporation, and all assets of Microporous Holding Corporation acquired by Respondent in connection with the Acquisition, including, but not limited to:

1. All of Respondent's rights, title and interest in and to the following property and assets, tangible and intangible, wherever located, and any improvements, replacements or additions thereto that have been created, developed, leased, purchased, or otherwise acquired

by Respondent after the Acquisition Date, relating to the research, development, manufacture, finishing, packaging, distribution, marketing, or sale of Microporous Battery Separators:

a. the Piney Flats Plant;

b. the Feistritz Plant;

c. the Line in Boxes;

d. Microporous Intellectual Property;

e. Contracts; and

f. Books and Records; and

2. All rights to use Shared Intellectual Property pursuant to a Shared Intellectual Property License;

BB. "Microporous Battery Separator(s)" means all Battery Separators in which Microporous was engaged in research, development, manufacture, finishing, packaging, distribution, marketing or sale as of the Acquisition Date, and all Battery Separators distributed, marketed or sold after the Acquisition Date using any Microporous Trade Names and Marks.

CC. "Microporous Copyrights" means all rights to all original works of authorship of any kind, both published and unpublished, relating to Microporous Battery Separators and any registrations and applications for registrations thereof and all rights to obtain and file for copyrights and registrations thereof.

DD. "Microporous Customer Contracts" means all open purchase orders, contracts or agreements or Terminable Contracts for Microporous Battery Separators or for Battery Separators being supplied from the Piney Flats Plant or the Feistritz Plant at any time between the Acquisition Date and the Effective Date of Divestiture except for Daramic Battery Separators.

EE. "Microporous Employee(s)" means any Person:

1. Employed by Microporous as of the Acquisition Date;

2. Employed at the Piney Flats Plant at any time between the Acquisition Date and the Effective Date of Divestiture; or

3. Employed at the Feistritz Plant at any time between the Acquisition Date and the Effective Date of Divestiture.

FF. "Microporous Intellectual Property" means all rights, title and interest in and to all:

1. Microporous Patents;

2. Microporous Manufacturing Technology;

3. Microporous Know-How;

4. Microporous Trade Names and Marks;

5. Microporous Copyrights; and

6. All rights in any jurisdiction anywhere in the world to sue and recover damages or obtain injunctive relief for infringement, dilution, misappropriation, violation or breach, or otherwise to limit the use or disclosure of any of the foregoing.

GG. "Microporous Know-How" means all Know-How relating to the research, development, manufacture, finishing, packaging, distribution, marketing, or sale of Microporous Battery Separators or otherwise used in connection with Microporous.

HH. "Microporous Manufacturing Technology" means all Manufacturing Technology relating to the research, development, manufacture, finishing, packaging, distribution, marketing, or sale of Microporous Battery Separators or otherwise used in connection with Microporous.

II. "Microporous Patents" means all Patents relating to the research, development, manufacture, finishing, packaging, distribution, marketing, or sale of Microporous Battery Separators or otherwise used in connection with Microporous.

JJ. "Microporous Trade Names and Marks" means all Trade Names and Marks relating to the research, development, manufacture, finishing, packaging, distribution, marketing, or sale of Microporous Battery Separators or otherwise used in connection with Microporous, including, but not limited to, all rights to commercial names, "doing business as" (d/b/a/) names, service marks and applications for or using the words: "Microporous," "Amerace," "CellForce," "FLEX-SIL,""ACE-SIL;" and all rights in internet web sites and internet domain names using any of the above.

KK. "Monitor Trustee" means a Person appointed with the Commission's approval to oversee the divestiture requirements of this Order, including Respondent's compliance with the Order's requirements.

LL. "Patent(s)" means all patents, patents pending, patent applications and statutory invention registrations, including reissues, divisions, continuations, continuations-in-part, substitutions, extensions and reexaminations thereof, all inventions disclosed therein, all rights therein provided by international treaties and conventions, and all rights to obtain and file for patents and registrations thereto, anywhere in the world.

MM. "Person" means any individual, partnership, joint venture, firm, corporation, association, trust, unincorporated organization, joint venture, or other business or governmental entity, and any subsidiaries, divisions, groups or affiliates thereof.

NN. "Piney Flats Plant" means all property and assets, tangible and intangible, owned, leased, or operated by Respondent and located or used in connection with the research, development, manufacture, finishing, packaging, distribution, marketing or sale of any one or more of the Microporous Battery Separators at the former Microporous facility in Piney Flats, Tennessee, at any time between the Acquisition Date and the Effective Date of Divestiture, including, but not limited to:

1. All real property interests (including fee simple and leasehold interests), including all rights, easements and appurtenances, together with all buildings, structures, facilities (including R&D and testing facilities), improvements, and fixtures, including, but not limited to, all Battery Separator production lines (including the three (3) production lines for Ace-Sil, Flex-Sil, and polyethylene (PE) and/or CellForce Battery Separators), pilot lines and test lines;

2. All Tangible Personal Property;

3. All governmental approvals, consents, licenses, permits, waivers, or other authorizations, to the extent assignable; and

4. Inventories existing as of the Effective Date of Divestiture.

Provided, however, that the definition of "Piney Flats Plant" shall not include any assets used solely to manufacture Daramic Battery Separators.

OO. "Polypore" or "Respondent" means Polypore International, Inc., its directors, officers, employees, agents, representatives, predecessors, successors, and assigns; and its joint ventures, subsidiaries, divisions, groups and affiliates controlled by Polypore International, Inc. (including, but not limited to, Daramic, LLC), and the respective directors, officers, employees, agents, representatives, predecessors, successors, and assigns of each.

PP. "Releasee(s)" means the Acquirer, any entity controlled by or under common control with the Acquirer, and any licensees, sublicensees, manufacturers, suppliers, and distributors of the Acquirer ("affiliates"); and any Customers of the Acquirer or of affiliates of the Acquirer.

QQ. "Retained Asset(s)" means:

1. Any property(ies) or asset(s), tangible or intangible:

 a. That were owned, created, developed, leased, or operated by Polypore prior to the Acquisition; or

 b. That relate(s) solely to any Polypore product, service or business except what is included in the definition of Microporous under this Order; and

2. Polypore's right to use, exploit, and improve Shared Intellectual Property; *provided, however*, that Polypore shall have no right to hinder, prevent, or enjoin the Acquirer's use, exploitation, or improvement of Shared Intellectual Property, or to use without the Acquirer's consent any improvements after the Effective Date of Divestiture to the Shared Intellectual Property by the Acquirer.

RR. "Retention Bonus" means the compensation provided for each of the Microporous Employees.

SS. "Shared Intellectual Property" means any Intellectual Property that is a Retained Asset or that has been used by Respondent in connection with a Retained Asset that was also used in connection with the research, development, manufacture, finishing, packaging, distribution, marketing, or sale of Microporous Battery Separators or otherwise used in connection with Microporous at any time between the Acquisition Date and the Effective Date of Divestiture.

TT. "Shared Intellectual Property License" means: (i) a worldwide, royalty-free, perpetual, irrevocable, transferrable, sublicensable, non-exclusive license to all Shared Intellectual Property owned by or licensed to Respondent for any use, and (ii) such tangible embodiments of the licensed rights (including but not limited to physical and electronic copies) as may be necessary to enable the Acquirer to utilize the licensed rights.

UU. "Tangible Personal Property" means all machinery, equipment, spare parts, tools, and tooling (whether customer specific or otherwise); furniture, office equipment, computer hardware, supplies and materials;

vehicles and rolling stock; and other items of tangible personal property of every kind whether owned or leased, together with any express or implied warranty by the manufacturers, sellers or lessors of any item or component part thereof, and all maintenance records and other documents relating thereto.

VV. "Technical Services Agreement" means the provision by Respondent Polypore at Direct Cost of all advice, consultation, and assistance reasonably necessary for any Acquirer to receive and use, in any manner related to achieving the purposes of this Order, any asset, right, or interest relating to Microporous.

WW. "Terminable Contract(s)" means all contracts or agreements and rights under contracts or agreements between the Respondent and any Customer(s) for the supply of any Battery Separator in or to North America (including the entirety of any contract or agreement that includes in the same contract or agreement the supply of Battery Separators both inside and outside North America) in effect at any time between the date the Order becomes final and the Effective Date of Divestiture; *provided, however,* that "Terminable Contracts" does not include any contracts or agreements between Microporous and any Customer(s) for the supply of any Battery Separator that was entered into prior to the Acquisition Date, except to the extent such contract or agreement was amended or modified, including changes to the pricing terms, after the Acquisition Date; *provided further, however,* that such amended or modified portion of such contract or agreement shall be considered a "Terminable Contract."

XX. "Trade Names and Marks" means all trade names, commercial names and brand names, all registered and unregistered trademarks, including registrations and applications for registration thereof (and all renewals, modifications, and extensions thereof), trade dress, logos, service marks and applications, geographical indications or designations, and all rights related thereto under common law and otherwise, and the goodwill symbolized by and associated therewith, anywhere in the world.

YY. "Transition Services Agreement" means an agreement requiring Respondent Polypore to provide at Direct Cost all services reasonably necessary to transfer administrative support services to the Acquirer of Microporous, including, but not limited to, such services related to payroll, employee benefits, accounts receivable, accounts payable, and other administrative and logistical support.

II.

IT IS FURTHER ORDERED that:

A. Not later than six (6) months after the date the divestiture provisions of this Order become final, Respondent shall divest Microporous, absolutely and in good faith, and at no minimum price, to an Acquirer that receives the prior approval of the Commission and in a manner, including pursuant to a Divestiture Agreement, that receives the prior approval of the Commission.

B. Respondent shall comply with all terms of the Divestiture Agreement approved by the Commission pursuant to this Order, which agreement shall be deemed incorporated by reference into this Order, and any failure by Respondent to comply with any term of the Divestiture Agreement shall constitute a failure to comply with this Order. The Divestiture Agreement shall not reduce, limit or contradict, or be construed to reduce, limit or contradict, the terms of this Order; *provided, however,* that nothing in this Order shall be construed to reduce any rights or benefits of any Acquirer or to reduce any obligations of Respondent under such agreement; *provided further, however,* that if any term of the Divestiture Agreement varies from the terms of this Order ("Order Term"), then to the extent that Respondent cannot fully comply with both terms, the Order Term shall determine Respondent's obligations under this Order. Notwithstanding any paragraph, section, or other provision of the Divestiture Agreement, any failure to meet any condition precedent to closing (whether waived or not) or any modification of the Divestiture Agreement, without the prior approval of the Commission, shall constitute a failure to comply with this Order.

C. Prior to the Effective Date of Divestiture, Respondent shall:

1. Restore to Microporous any assets of Microporous as of the Acquisition Date that were removed from Microporous at any time between the Acquisition Date and the Effective Date of Divestiture, other than Battery Separators sold in the ordinary course of business and Inventories consumed in the ordinary course of business;

2. To the extent any fixtures or Tangible Personal Property have been removed from the Feistritz Plant, the Piney Flats Plant or the Line in Boxes after the Acquisition Date and not returned or replaced with equivalent assets, such fixtures or Tangible Personal Property shall be returned and restored to good working order suitable for use under normal operating conditions or replaced with equivalent assets;

3. Secure at its sole expense all consents and waivers from Persons that are necessary to divest any property or assets, tangible or intangible (including, but not limited to, any Contract), of

Microporous to the Acquirer; *provided, however,* that in instances where (i) Microporous Battery Separators are sold together with Daramic Battery Separators under the same Terminable Contract, Respondent shall only be required to obtain such consents and waivers from the Customer as necessary to divest that portion of the Terminable Contract pertaining to Microporous Battery Separators; or (ii) any Contracts (including, but not limited to, supply agreements) are utilized in connection with the manufacture of Microporous Battery Separators and Daramic Battery Separators under the same Contract, Respondent shall only be required to obtain such consents and waivers from the other contracting party as necessary to divest that portion of the Contract pertaining to Microporous Battery Separators; *provided further, however,* that if for any reason Respondent is unable to accomplish such an assignment or transfer of Contracts, it shall enter into such agreements, contracts, or licenses as are necessary to realize the same effect as such transfer or assignment; and

4. Grant to the Acquirer a Shared Intellectual Property License for use in connection with Microporous as divested pursuant to this Order.

D. Respondent shall take all actions reasonably necessary to assist the Acquirer in evaluating, recruiting and employing any Microporous Employees, including (at the Acquirer's option), but not limited to, the following:

1. Not later than thirty (30) days before the execution of a Divestiture Agreement, Respondent shall: (i) provide the Acquirer with a list of all Microporous Employees, and Employee Information for each Person on the list; (ii) provide any available contact information, including last known address for any Person formerly employed as a Microporous Employee whose employment terminated prior to execution of a Divestiture Agreement; (iii) allow the Acquirer an opportunity to interview any Microporous Employees personally, and outside the presence or hearing of any employee or agent of Respondent; and, (iv) allow the Acquirer to inspect the personnel files and other documentation relating to such Microporous Employees, to the extent permitted under applicable laws;

2. Respondent shall: (i) not directly or indirectly impede or interfere with the Acquirer's offer of employment to any Microporous Employee(s); (ii) not directly or indirectly attempt to persuade, or offer any incentive to, any Microporous Employee(s) to decline employment with the Acquirer; (iii) remove any contractual impediments and irrevocably waive any legal or equitable rights it

may have that may deter any Microporous Employee from accepting employment with the Acquirer, including, but not limited to, any non-compete or confidentiality provisions of employment or other contracts with Respondent; *provided, however,* that Respondent may enforce confidentiality provisions related to Daramic Battery Separators; and,

3. Respondent shall: (i) continue to extend to any Microporous Employees, during their employment prior to the Effective Date of Divestiture, all employee benefits offered by Respondent, including regularly scheduled or merit raises and bonuses, and regularly scheduled vesting of all pension benefits; (ii) pay a Retention Bonus to any Microporous Employee(s) to whom the Acquirer has made a written offer of employment who accepts a position with the Acquirer at the time of divestiture of Microporous.

E. For a period of two (2) years from the Effective Date of Divestiture, Respondent shall not:

1. directly or indirectly solicit or induce, or attempt to solicit or induce, any Microporous Employee who has accepted an offer of employment with, or who is employed by, the Acquirer to terminate his or her employment relationship with the Acquirer; or

2. hire or enter into any arrangement for the services of any Microporous Employee who has accepted an offer of employment with, or who is employed by, the Acquirer;

provided, however, Respondent may do the following: (i) advertise for employees in newspapers, trade publications, or other media not targeted specifically at any one or more of the employees of the Acquirer; (ii) hire any Microporous Employee whose employment has been terminated by the Acquirer; or (iii) hire a Microporous Employee who has applied for employment with Respondent, provided that such application was not solicited or induced in violation of this Order.

F. Respondent shall include in any Divestiture Agreement related to Microporous the following provisions:

1. Respondent shall covenant to the Acquirer that Respondent shall not join, file, prosecute or maintain any suit, in law or equity, either directly or indirectly through a third party, against the Acquirer or any Releasees under Intellectual Property that is owned or licensed by Respondent as of the Effective Date of Divestiture, including, but not limited to, the Jungfer Technology,

if such suit would have the potential to interfere with the Acquirer's freedom to practice in the research, development, manufacture, use, import, export, distribution, offer to sell or sale of Microporous Battery Separators;

2. Upon reasonable notice and request from the Acquirer to Respondent, Respondent shall provide, in a timely manner, at no greater than Direct Cost, assistance of knowledgeable employees of the Respondent to assist the Acquirer to defend against, respond to, or otherwise participate in any litigation related to the Microporous Intellectual Property or Shared Intellectual Property; and

3. At the option of the Acquirer:

   a. A Technical Services Agreement, *provided, however,* the term of any Technical Services Agreement shall be at the option of the Acquirer, but not longer than two (2) years from the Effective Date of Divestiture.

   b. A Transition Services Agreement, *provided, however,* the term of the Transition Services Agreement shall be at the option of the Acquirer, but not longer than two (2) years from the Effective Date of Divestiture;

   Provided, however, that Respondent shall not (i) require the Acquirer to pay compensation for services under such agreements that exceeds the Direct Cost of providing such goods and services, or (ii) terminate its obligation(s) under such agreements because of a material breach by the Acquirer of any such agreement in the absence of a final order by a court of competent jurisdiction, or (iii) seek to limit the damages (such as indirect, special, and consequential damages) which any Acquirer would be entitled to receive in the event of Respondent's breach of any such agreement.

G. Respondent shall:

1. submit to the Acquirer, at Respondent's expense, all Confidential Business Information;

2. deliver such Confidential Business Information as follows: (i) in good faith; (ii) as soon as practicable, avoiding any delays in transmission of the respective information; and (iii) in a manner that ensures its completeness and accuracy and that fully preserves its usefulness;

3. pending complete delivery of all such Confidential Business Information to the Acquirer, provide the Acquirer and the Monitor Trustee (if any has been appointed) with access to all such Confidential Business Information and employees who possess or are able to locate such information for the purposes of identifying the books, records, and files that contain such Confidential Business Information and facilitating the delivery in a manner consistent with this Order;

4. not use, directly or indirectly, any such Confidential Business Information (other than as necessary to comply with the following: (i) the requirements of this Order; (ii) the Respondent's obligations to the Acquirer under the terms of any Divestiture Agreement; or (iii) applicable Law);

5. not disclose or convey any such Confidential Business Information, directly or indirectly, to any Person except the Acquirer, the Monitor Trustee, or the Commission;

6. Respondent shall devise and implement measures to protect against the storage, distribution, and use of Confidential Business Information that is not expressly permitted by this Order. These measures shall include, but not be limited to, restrictions placed on access by Persons to information available or stored on any of Respondent's computers or computer networks; and

7. Respondent may use Confidential Business Information only (i) for the purpose of performing Respondent's obligations under this Order; or, (ii) to ensure compliance with legal and regulatory requirements; to perform required auditing functions; to provide accounting, information technology and credit-underwriting services, to provide legal services associated with actual or potential litigation and transactions; and to monitor and ensure compliance with financial, tax reporting, governmental environmental, health, and safety requirements.

H. The purpose of the divestiture of Microporous is to create an independent, viable and effective competitor in the markets in which Microporous was engaged at the time of the Acquisition Date, and to remedy the lessening of competition resulting from the Acquisition as alleged in the Commission's Complaint.

III.

IT IS FURTHER ORDERED that:

A. Within thirty (30) days after this Order becomes final, Respondent shall retain a Monitor Trustee, acceptable to the Commission, to monitor Respondent's compliance with its obligations and responsibilities under this Order, consult with Commission staff, and report to the Commission regarding Respondent's compliance with its obligations and responsibilities under this Order.

B. If Respondent fails to retain a Monitor Trustee as provided in Paragraph III.A. of this Order, a Monitor Trustee, acceptable to the Commission, shall be identified and selected by the Commission's staff within forty-five (45) days after this Order is final.

C. Respondent shall consent to the following terms and conditions regarding the powers, duties, authorities, and responsibilities of the Monitor Trustee selected under Paragraph III.A or III.B. of this Order:

   1. The Monitor Trustee shall have the power and authority to monitor Respondent's compliance with the terms of this Order and shall exercise such power and authority and carry out the duties and responsibilities of the Monitor Trustee pursuant to the terms of this Order in a manner consistent with the purposes of the Order and in consultation with Commission's staff.

   2. Within ten (10) days after the Commission's approval of the Monitor Trustee, Respondent shall execute an agreement that, subject to the approval of the Commission, confers on the Monitor Trustee all the rights and powers necessary to permit the Monitor Trustee to monitor Respondent's compliance with the terms of this Order in a manner consistent with the purposes of this Order. If requested by Respondent, the Monitor Trustee shall sign a confidentiality agreement prohibiting the use, or the disclosure to anyone other than the Commission (or any Person retained by the Monitor Trustee pursuant to Paragraph III.C.5. of this Order), of any competitively sensitive or proprietary information gained as a result of his or her role as Monitor Trustee, for any purpose other than performance of the Monitor Trustee's duties under this Order.

   3. The Monitor Trustee shall serve until the expiration of the period for Customers to seek reopening and renegotiation or termination of Terminable Contracts as provided in Paragraph VI. of this Order; *provided, however*, that the Commission may modify this period as may be necessary or appropriate to accomplish the

purposes of the Order.

4. Subject to any demonstrated legally recognized privilege, the Monitor Trustee shall have full and complete access to Respondent's personnel, books, documents, records kept in the normal course of business, facilities and technical information, and such other relevant information as the Monitor Trustee may reasonably request, related to Respondent's compliance with its obligations under the Order, including, but not limited to, its obligations related to Microporous assets. Respondent shall cooperate with any reasonable request of the Monitor Trustee and shall take no action to interfere with or impede the Monitor Trustee's ability to monitor Respondent's compliance with the Order.

5. The Monitor Trustee shall serve, without bond or other security, at the expense of Respondent on such reasonable and customary terms and conditions as the Commission may set. The Monitor Trustee shall have authority to employ, at the expense of the Respondent, such consultants, accountants, attorneys and other representatives and assistants as are reasonably necessary to carry out the Monitor Trustee's duties and responsibilities. The Monitor Trustee shall account for all expenses incurred, including fees for his or her services, subject to the approval of the Commission.

6. Respondent shall indemnify the Monitor Trustee and hold the Monitor Trustee harmless against any losses, claims, damages, liabilities, or expenses arising out of, or in connection with, the performance of the Monitor Trustee's duties, including all reasonable fees of counsel and other reasonable expenses incurred in connection with the preparations for, or defense of, any claim, whether or not resulting in any liability, except to the extent that such losses, claims, damages, liabilities, or expenses result from the Monitor Trustee's gross negligence or willful misconduct. For purposes of this Paragraph III.C.6., the term "Monitor Trustee" shall include all Persons retained by the Monitor Trustee pursuant to Paragraph III.C.5. of this Order.

7. Respondent shall provide copies of reports to the Monitor Trustee in accordance with the requirements of this Order and/or as otherwise provided in any agreement approved by the Commission.

8. The Monitor Trustee shall report in writing to the Commission (i) every sixty (60) days from the date the Monitor Trustee is appointed, (ii) at the time a divestiture package is presented to the

Commission for its approval, and (iii) at any other time as requested by the staff of the Commission, concerning Respondent's compliance with this order.

D. The Commission may, among other things, require the Monitor Trustee and each of the Monitor Trustee's consultants, accountants, attorneys and other representatives and assistants to sign an appropriate confidentiality agreement related to Commission materials and information received in connection with the performance of the Monitor Trustee's duties.

E. If at any time the Commission determines that the Monitor Trustee has ceased to act or failed to act diligently, the Commission may appoint a substitute Monitor Trustee in the same manner as provided in this Paragraph.

F. The Commission may on its own initiative, or at the request of the Monitor Trustee, issue such additional orders or directions as may be necessary or appropriate to assure compliance with the requirements of the Order.

G. Respondent shall cooperate with the Monitor Trustee appointed pursuant to this Paragraph in the performance any duties and responsibilities under this Order.

IV.

IT IS FURTHER ORDERED that:

A. If Respondent has not divested, absolutely and in good faith, Microporous within the time period or in the manner required by Paragraph II. of this Order, then the Commission may at any time appoint a Divestiture Trustee to divest Microporous to an Acquirer and in a manner, including pursuant to a Divestiture Agreement, that satisfies the purposes and requirements of this Order.

B. In the event that the Commission or the Attorney General brings an action pursuant to § 5(*l*) of the Federal Trade Commission Act, 15 U.S.C. § 45(l), or any other statute enforced by the Commission, for any failure by Respondent to comply with this Order, Respondent shall consent to the appointment of a Divestiture Trustee in such action. Neither the decision of the Commission to appoint a Divestiture Trustee, nor the decision of the Commission not to appoint a Divestiture Trustee, shall preclude the Commission or the Attorney General from seeking civil penalties or any other available relief, including a court-appointed trustee, pursuant to § 5(*l*) of the Federal Trade Commission Act, 15 U.S.C. § 45(l), or any other statute enforced by the Commission, for any failure by the Respondent to comply with this Order.

C. The Commission shall select the Divestiture Trustee, subject to the consent of Respondent, which consent shall not be unreasonably withheld. The Divestiture Trustee shall be a Person with experience and expertise in acquisitions and divestitures and may be the same Person as the Monitor Trustee appointed under Paragraph III. of this Order. If Respondent has not opposed, in writing, including the reasons for opposing, the selection of any proposed Divestiture Trustee within ten (10) days after notice by the staff of the Commission to Respondent of the identity of any proposed Divestiture Trustee, Respondent shall be deemed to have consented to the selection of the proposed Divestiture Trustee.

D. Within ten (10) days after appointment of the Divestiture Trustee, Respondent shall execute a trust agreement ("Divestiture Trustee Agreement") that, subject to the prior approval of the Commission transfers to the Divestiture Trustee all rights and powers necessary to effect the relevant divestiture, and to enter into any relevant agreements, required by this Order.

E. If a Divestiture Trustee is appointed by the Commission or a court pursuant to this Paragraph IV. of this Order, Respondent shall consent to, and the Divestiture Trustee Agreement shall include, the following terms and conditions regarding the Divestiture Trustee's powers, duties, authority, and responsibilities:

1. Subject to the prior approval of the Commission, the Divestiture Trustee shall have the exclusive power and authority to divest relevant assets or enter into relevant agreements pursuant to the terms of this Order and in a manner consistent with the purposes of this Order.

2. The Divestiture Trustee shall have twelve (12) months from the date the Commission approves the Divestiture Trustee Agreement described in this Paragraph IV. of this Order to divest relevant assets pursuant to the terms of this Order. If, however, at the end of the applicable twelve-month period, the Divestiture Trustee has submitted to the Commission a plan of divestiture, or believes that divestiture can be achieved within a reasonable time, such period may be extended by the Commission, or, in the case of a court-appointed trustee, by the court.

3. Subject to any demonstrated legally recognized privilege, the Divestiture Trustee shall have full and complete access to the personnel, books, records and facilities of Respondent related to Microporous or related to any other relevant information, as the Divestiture Trustee may request. Respondent shall develop such

financial or other information as the Divestiture Trustee may request and shall cooperate with the Divestiture Trustee. Respondent shall take no action to interfere with or impede the Divestiture Trustee's accomplishment of his or her responsibilities. At the option of the Commission, any delays in divestiture or entering into any agreement caused by Respondent shall extend the time for divestiture under this Paragraph IV. in an amount equal to the delay, as determined by the Commission or, for a court-appointed Divestiture Trustee, by the court.

4. The Divestiture Trustee Agreement shall prohibit the Divestiture Trustee, and each of the Divestiture Trustee's consultants, accountants, attorneys, and other representatives and assistants from disclosing, except to the Commission (and in the case of a court-appointed trustee, to the court) Confidential Business Information; *provided, however*, Confidential Business Information may be disclosed to potential acquirers and to the Acquirer as may be reasonably necessary to achieve the divestiture required by this Order. The Divestiture Trustee Agreement shall terminate when the divestiture required by this Order is consummated.

5. The Divestiture Trustee shall use commercially reasonable best efforts to negotiate the most favorable price and terms available in each contract that is submitted to the Commission, subject to Respondent's absolute and unconditional obligation to divest at no minimum price. The divestiture shall be made to, and a Divestiture Agreement executed with, an Acquirer in the manner set forth in Paragraph II. of this Order; *provided, however*, if the Divestiture Trustee receives bona fide offers from more than one acquiring entity, and if the Commission determines to approve more than one acquiring entity, the Divestiture Trustee shall divest to the acquiring entity or entities selected by Respondent from among those approved by the Commission, *provided further, however*, that Respondent shall select such entity within five (5) days of receiving notification of the Commission's approval.

6. The Divestiture Trustee shall serve, without bond or other security, at the expense of Respondent, on such reasonable and customary terms and conditions as the Commission or a court may set. The Divestiture Trustee shall have the authority to employ, at the expense of Respondent, such consultants, accountants, attorneys, investment bankers, business brokers, appraisers, and other representatives and assistants as are necessary to carry out the Divestiture Trustee's duties and responsibilities. The Divestiture Trustee shall account for all monies derived from the divestiture

and all expenses incurred. After approval by the Commission and, in the case of a court-appointed trustee, by the court, of the account of the trustee, including fees for his or her services, all remaining monies shall be paid at the direction of Respondent. The Divestiture Trustee's compensation shall be based at least in significant part on a commission arrangement contingent on the Divestiture Trustee's locating an Acquirer and assuring compliance with this Order. The powers, duties, and responsibilities of the Divestiture Trustee (including, but not limited to, the right to incur fees or other expenses) shall terminate when the divestiture required by this Order is consummated, and the Divestiture Trustee has provided an accounting for all monies derived from the divestiture and all expenses occurred.

7. Respondent shall indemnify the Divestiture Trustee and hold the Divestiture Trustee harmless against any losses, claims, damages, liabilities, or expenses arising out of, or in connection with, the performance of the Divestiture Trustee's duties, including all reasonable fees of counsel and other expenses incurred in connection with the preparation for, or defense of, any claim, whether or not resulting in any liability, except to the extent that such losses, claims, damages, liabilities, or expenses result from gross negligence, willful or wanton acts, or bad faith by the Divestiture Trustee. For purposes of this Paragraph, the term "Divestiture Trustee" shall include all Persons retained by the Divestiture Trustee pursuant to Paragraph IV.E.6. of this Order.

8. The Divestiture Trustee shall have no obligation or authority to operate or maintain Microporous.

9. The Divestiture Trustee shall report in writing to the Commission every two (2) months concerning his or her efforts to divest and enter into agreements related to Microporous, and Respondent's compliance with the terms of this Order.

F. If the Commission determines that the Divestiture Trustee has ceased to act or failed to act diligently, the Commission may appoint a substitute trustee in the same manner as provided in this Paragraph IV. of this Order.

G. The Commission or, in the case of a court-appointed trustee, the court, may on its own initiative or at the request of the Divestiture Trustee issue such additional orders or directions as may be necessary or appropriate to comply with the terms of this Order.

H. Respondent shall comply with all terms of the Divestiture Trustee Agreement, and any breach by Respondent of any term of the Divestiture

Trustee Agreement shall constitute a violation of this Order. Notwithstanding any paragraph, section, or other provision of the Divestiture Trustee Agreement, any modification of the Divestiture Trustee Agreement, without the prior approval of the Commission, shall constitute a failure to comply with this Order.

V.

IT IS FURTHER ORDERED that:

A. From the date this Order becomes final until the Effective Date of Divestiture, Respondent shall take such actions as are necessary to maintain the full economic viability, marketability, and competitiveness of Microporous, and shall prevent the destruction, removal, wasting, deterioration, sale, disposition, transfer, or impairment of Microporous and assets related thereto except for ordinary wear and tear, including, but not limited to, continuing in effect and maintaining Intellectual Property, Contracts, Trade Names and Marks, and renewing or extending any leases or licenses that expire or terminate prior to the Effective Date of Divestiture.

B. Respondent shall maintain the operations of Microporous in the ordinary course of business and in accordance with past practice (including regular repair and maintenance of the assets included within Microporous). Among other things as may be necessary, Respondent shall:

1. Maintain a work force at least as equivalent in size, training, and expertise to what was associated with Microporous prior to the Acquisition Date;

2. Assure that Respondent's employees with primary responsibility for managing and operating Microporous are not transferred or reassigned to other areas within Respondent's organizations except for transfer bids initiated by employees pursuant to Respondent's regular, established job posting policy;

3. Provide sufficient working capital to operate Microporous at least at current rates of operation, to meet all capital calls with respect to Microporous and to carry on, at least at their scheduled pace, all capital projects, business plans and promotional activities;

4. Make available for use by Microporous funds sufficient to perform all routine maintenance and all other maintenance as may be necessary to, and all replacements of, the assets of Microporous;

5. Use best efforts to preserve and maintain the existing relationships

with Customers, suppliers, vendors, private and Governmental Entities, and other Persons having business relations with Microporous; and

6. Except as part of a divestiture approved by the Commission pursuant to this Order, not remove, sell, lease, assign, transfer, license, pledge for collateral, or otherwise dispose of Microporous, *provided however,* that nothing in this provision shall prohibit Respondent from such activities in the ordinary course of business consistent with past practices.

VI.

IT IS FURTHER ORDERED that:

A. Respondent shall allow all Customers with Terminable Contracts the right and option unilaterally to reopen and renegotiate or to terminate their contracts, solely at the Customer's option, without penalty, forfeiture or other charge to the customer, and consistent with the requirements of this Order including the following:

1. No later than ten (10) days from the date this Order becomes final, Respondent shall notify all Customers with Terminable Contracts of their rights under this Order and, for each such Terminable Contract, offer the Customer the opportunity to reopen and renegotiate or to terminate their contract(s). Respondent shall send written notification of this requirement and a copy of this Order and the Complaint, by certified mail with return receipt requested to: (i) the person designated in the Terminable Contract to receive notices from Respondent; or (ii) the Chief Executive Officer and General Counsel of the Customer. Respondent shall keep a file of such return receipts for three (3) years after the date on which this Order becomes final.

2. No later that ten (10) days from the Effective Date of Divestiture, Respondent shall send written notification of the Effective Date of Divestiture to all Customers with Terminable Contracts, by certified mail with return receipt requested to: (i) the person designated in the Terminable Contract to receive notices from Respondent; or (ii) the Chief Executive Officer and General Counsel of the Customer. Respondent shall keep a file of such return receipts for three (3) years after the date on which this Order becomes final.

3. A Customer may exercise its option to reopen and renegotiate or terminate any Terminable Contract by sending by certified mail,

return receipt requested, a written notice to Respondent either to: (i) the address for notice stated in the Contract; or, (ii) Respondent's principal place of business at any time prior to five (5) years after the Effective Date of Divestiture. The written notice shall identify the Terminable Contract that will be reopened or terminated, and the date upon which any termination shall be effective; *provided, however,* that: (a) a Customer with more than one Terminable Contract who sends written notice with regard to less than all of its Terminable Contracts shall not lose its opportunity to reopen and renegotiate or terminate any remaining Terminable Contracts; (b) any Customer who reopens and renegotiates a Terminable Contract prior to the Effective Date of Divestiture shall have a further opportunity to reopen and renegotiate or terminate such Terminable Contract after the Effective Date of Divestiture at any time prior to five (5) years after the Effective Date of Divestiture; (c) Respondent shall not be obligated to reopen and renegotiate or terminate, as the case may be, a Terminable Contract on less than thirty (30) days' notice; and (d) any request by a Customer to reopen and renegotiate or terminate a Terminable Contract on less than thirty (30) days' notice shall be treated by Respondent as a request to reopen and renegotiate or terminate, as the case may be, effective thirty (30) days from the date of the request.

4. Respondent shall not directly or indirectly:

   a. Require any Customer to make or pay any payment, penalty, or charge for, or provide any consideration relating to, or otherwise deter, the exercise of the option to reopen and renegotiate or terminate or the reopening and renegotiation or termination of any Terminable Contract; or

   b. Retaliate against, or take any action adverse to the economic interests of, any Customer that exercises its right under the Order to reopen and renegotiate or terminate any Terminable Contract;

   provided, however, that Respondent may enforce Contracts, or seek judicial remedies for breaches of Contracts, based upon rights or causes of action that accrued prior to the exercise by a Customer of an option to terminate a Contract.

5. Respondent shall include in the Divestiture Agreement a requirement that the Acquirer shall allow all Customers with Terminable Contracts for Microporous Battery Separators the right and option unilaterally to reopen and renegotiate or to terminate

their contracts, solely at the Customer's option, without penalty, forfeiture or other charge to the Customer, and consistent with the requirements of this Paragraph of the Order as if the Terminable Contract remained with Respondent. Respondent shall include in the Divestiture Agreement a requirement that all Customers with Terminable Contracts for Microporous Battery Separators shall be third party beneficiaries of this provision of the Divestiture Agreement, with the right to enforce this provision independent of, and apart from, Respondent.

provided, however, that nothing in this Order will affect the rights and responsibilities under any Terminable Contract for any Customer who fails to notify Respondent or the Acquirer, as the case may be, within the time allotted in this Paragraph.

VII.

IT IS FURTHER ORDERED that:

A. Respondent shall:

1. Within fifteen (15) days after the date this Order becomes final: (a) modify and amend the H&V Agreement in writing to terminate and declare null and void, and (b) cease and desist from, directly or indirectly, or through any corporate or other device, implementing or enforcing, the covenant not to compete set forth in Section 4 of the H&V Agreement, and all related terms and definitions, as that covenant applies to North America and to actual and potential customers within North America.

2. Within thirty (30) days after the date this Order becomes final, file with the Commission the written amendment to the H&V Agreement ("Amendment") that complies with the requirements of Paragraph VII.A.1, it being understood that nothing in the H&V Agreement, currently or as amended in the future, or the Amendment shall be construed to reduce any obligations of the Respondent under this Order. The Amendment shall be deemed incorporated into this Order, and any failure by Respondent to comply with any term of such Amendment shall constitute a failure to comply with this Order. The Amendment shall not be modified, directly or indirectly, without the prior approval of the Commission.

B. Respondent shall cease and desist from, directly, indirectly, or through any corporate or other device, in or affecting commerce, as "commerce" is defined in the Federal Trade Commission Act, inviting, entering into or attempting to enter into, organizing or attempting to organize, implementing or attempting to implement, continuing or attempting to continue, soliciting, or otherwise facilitating any combination, agreement, or understanding, either express or implied, with any Person currently engaged, or that might potentially become engaged, in the development, production, marketing or sale of any Battery Separator, to allocate or divide markets, customers, contracts, lines of commerce, or geographic territories in connection with Battery Separators, or otherwise to restrict the scope or level of competition related to Battery Separators.

Provided, however, that it shall not, of itself, constitute a violation of this Paragraph for Respondent to enter into a *bona fide* and written joint venture agreement with any Person to manufacture, develop, market or sell a new Battery Separator, technology or service, or any material improvement to an existing Battery Separator, technology or service, in which both Respondent and the other Person contribute significant personnel, equipment, technology, investment capital or other resources, that prohibits such Person from selling products or services in competition with the joint venture in geographic markets in which the joint venture does business or competes for a reasonable period of time. *Provided further, however*, that Respondent shall, within ten (10) days after execution, file a true and correct copy of such joint venture agreement with the Commission.

VIII.

IT IS FURTHER ORDERED that, for a period of two (2) years from the Effective Date of Divestiture, Respondent shall not advertise, market or sell any Battery Separator utilizing cross linked rubber anywhere in the world.

IX.

IT IS FURTHER ORDERED that, no later than ten (10) days from the date on which this Order becomes final, Respondent shall provide a copy of this Order to each of Respondent's officers, employees, or agents having managerial responsibilities for any of Respondent's obligations under this Order.

X.

IT IS FURTHER ORDERED that Respondent shall notify the Commission at least thirty (30) days prior to:

A. any proposed dissolution of Respondent;

B. any proposed acquisition, merger or consolidation of Respondent; or

C. any other change in the Respondent, including, but not limited to, assignment and the creation or dissolution of subsidiaries, if such change might affect compliance obligations arising out of the Order.

XI.

IT IS FURTHER ORDERED that:

A. Within thirty (30) days after the date this Order becomes final and every thirty (30) days thereafter until the Effective Date of Divestiture, and thereafter every sixty (60) days until the Respondent has fully complied with the provisions of Paragraphs II., III., IV., V., and VI. of this Order, Respondent shall submit to the Commission (with simultaneous copies to the Monitor Trustee and Divestiture Trustee(s), as appropriate) verified written reports setting forth in detail the manner and form in which Respondent intends to comply, is complying, and has complied with the relevant provisions of this Order.

B. Respondent shall include in its compliance reports, among other things required by the Commission, a description of all substantive contacts or negotiations for the divestiture required by this Order, the identity of all parties contacted, copies of all material written communications to and from such parties, and all reports and recommendations concerning the divestiture, the Effective Date of Divestiture, and a statement that the divestiture has been accomplished in the manner approved by the Commission.

C. One (1) year from the date this Order becomes final on the anniversary of the date this Order becomes final, and annually until expiration or termination of Respondent's obligations under the Order, Respondent shall file verified written reports with the Commission setting forth in detail the manner and form in which it has complied and is complying with this Order. Respondent shall deliver a copy of each such report to the Monitor Trustee.

XII.

IT IS FURTHER ORDERED that, for purposes of determining or securing compliance with this Order, and subject to any legally recognized privilege, and upon written request and upon five (5) days notice to Respondent, Respondent shall, without restraint or interference, permit any duly authorized representative of the Commission:

A. access, during business office hours of Respondent and in the presence of counsel, to all facilities and access to inspect and copy all books, ledgers, accounts, correspondence, memoranda and all other records and documents in the possession or under the control of Respondent related to any matter contained in this Order, which copying services shall be provided by Respondent at the request of the authorized representative(s) of the Commission and at the expense of the Respondent; and

B. to interview officers, directors, or employees of Respondent, who may have counsel present, regarding such matters.

XIII.

IT IS FURTHER ORDERED that this Order shall terminate twenty (20) years from the date this Order becomes final.

ORDERED:

D. Michael Chappell
Chief Administrative Law Judge

Date: March 1, 2010