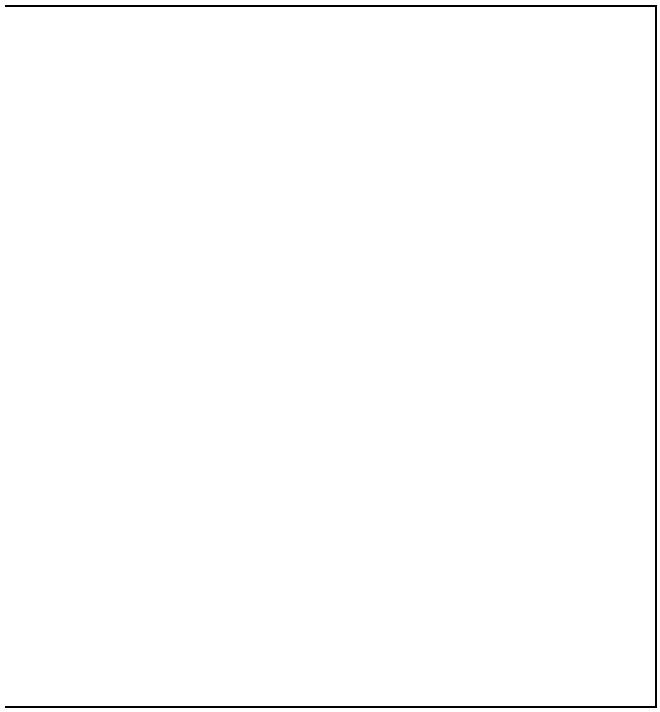

Statutes and Regulations

Other Authorities

INTRODUCTION

At the trial of this case, Complaint Counsel presented testimony from TiO2 customers and producers—including Respondents' own employees. We presented contemporaneous documents from Respondents' files. And we presented expert testimony based on Respondents' own data, documents, and testimony. All of that evidence was consistent in demonstrating that:

1. North American customers have a strong preference for chloride TiO2 and are willing to pay substantially higher prices for it;
2. North American TiO2 customers are unable to defeat those higher prices by buying chloride TiO2 outside North American and bringing it home;
3. The merger will create the largest supplier of chloride TiO2 in North America, resulting in a significant increase in concentration. Indeed, the top two firms (Tronox and Chemours) will control almost 75% of the market;
4. Tronox and Cristal have reduced output in the past, recognize that doing so results in higher prices for chloride TiO2, and will have even greater incentives to reduce output if they merge;
5. The merger will make it easier for the remaining TiO2 suppliers to tacitly coordinate in a market with a history of coordination;
6. Entry or expansion that would counteract the competitive harm is unlikely because of the time needed, expense, and significant barriers to entry; and
7. Any efficiencies from the merger are highly uncertain, and unlikely to benefit North American customers. Even Respondents' CEO acknowledges that any efficiencies from the merger will come in foreign markets.

This case goes to the heart of what Section 7 of the Clayton Act was intended to prohibit. The merger will result in a significant increase in concentration in a market with a history of anticompetitive conduct, making such conduct easier and more likely to harm customers in the future. Complaint Counsel's strong prima facie case established a presumption of anticompetitive effects, and then bolstered that presumption with additional evidence. By contrast, Respondents have relied on self-serving testimony from Tronox employees, and paid expert testimony that is inconsistent with the fact testimony and Respondents' own documents. This Court should block the proposed merger as unlawful under Section 7 of the Clayton Act and Section 5 of the FTC Act.

Indeed, the evidence showed that this merger will have direct, and predictable, anticompetitive effects. But the Court does not need to try to predict what will happen if this merger goes through; Tronox has already said what will happen: prices will go up. It said so directly to one of its customers, PPG. As PPG's witness Paul Malichky testified at trial, he met with two Tronox executives—John Romano and Ian Mouland—shortly after the merger was announced. Mr. Romano told him directly that Tronox planned to increase PPG's prices:

> Q. And what specifically did Mr. Romano tell you about what they were planning to do with price?
>
> A. They were planning on raising the Cristal

This merger is consistent with that strategy. Indeed, Tronox is well aware that its acquisition of Cristal will reduce competition in the market—to the benefit of all TiO2 suppliers. Just after the acquisition was announced, Tom Casey and Peter Huntsman (the Chairman of Tronox competitor Venator) congratulated each other on the deal, noting that it would benefit not only Tronox, but all of the other TiO2 competitors as well. (CCFF ¶ 706).

Respondents cannot rebut Complaint Counsel's prima facie case. Instead, they primarily argue that the anticomp

customers are unable to turn to TiO2 produced in China to defeat a price increase. Therefore, entry or expansion by Chinese TiO2 producers is unlikely to offset the competitive harm from the acquisition.

As a result, Complaint Counsel asks this Court for a ruling that the Proposed Acquisition, if consummated, would violate Section 5 of the FTC Act and Section 7 of the Clayton Act and for an Order requiring that Tronox and Cristal cease and desist from consummating the Proposed Aition.

423 (5th Cir. 2008)). "Congress used the words 'may be substantially to lessen competition' . . . to indicate that its concern was with probabilities, not certainties." Heinz, 246 F.3d at 713 (quoting Brown Shoe Co. v. United States, 370 U.S. 294, 323 (1962)); Staples 2016, 190 F. Supp. 3d at 115; see California v. Am. Stores Co., 495 U.S. 271, 284 (1990) ("Section 7 itself creates a relatively expansive definition of antitrust liability: To show that a merger is unlawful, a plaintiff need only prove that its effect 'may be substantially to lessen competition.'"). As a result, "certainty, even a high probability, need not be shown." FTC v. Elders Grain, Inc., 868 F.2d 901, 906 (7th Cir. 1989). Instead, an acquisition violates Section 7 if it "create[s] an appreciable danger of [collusive practices] in the future. A predictive judgment, necessarily probabilistic and judgmental rather than demonstrable, is called for." Heinz, 246 F.3d at 719 (quoting Hosp. Corp. of Am. v. FTC, 807 F.2d 1381, 1389 (7th Cir. 1986)) (second alteration in original). Where uncertainty exists as to the likelihood of harm, "doubts are to be resolved against the transaction." Elders Grain, 868 F.2d at 906; see Brown Shoe, 370 U.S. at 323.

Courts often analyze whether an acquisition creates a danger of anticompetitive consequences by determining "(1) the 'line of commerce' or product market in which to assess the transaction, (2) the 'section of the country' or geographic market in which to assess the transaction, and (3) the transaction's probable effect on competition in the product and geographic markets." FTC v. Staples, Inc., 970 F. Supp. 1066, 1072 (D.D.C. 1997) (Staples . 294, 323 (1962)

National Industrialization Company ("Tasnee") and The National Titanium Dioxide Company. (CCFF ¶ 8). Cristal owns and operates five chloride TiO2 plants, two of which are located in Ashtabula, Ohio, one in Yanbu, Saudi Arabia, one in Stallingborough, United Kingdom, and one in Bunbury, Australia. (CCFF ¶ 9). Cristal owns and operates three sulfate TiO2 plants, located in Thann, France, Bahia, Brazil, and its Tikon plant located in China. (CCFF ¶ 10). Cristal also owns and operates titanium feedstock mining assets in Australia, formerly known as Bemax, and a titanium feedstock mining asset in Paraiba, Brazil. (CCFF ¶¶ 11–12). In addition, Cristal owns a titanium feedstock smelter in Jazan, Saudi Arabia {[redacted]} (CCFF ¶ 13). Besides Tronox and Cristal, the only other producers of TiO2 in North America are Chemours, Venator and Kronos. (CCFF ¶ 376).

B. Titanium Dioxide (TiO2)

TiO2 is an essential pigment used to add whiteness, brightness, opacity, and durability to paints, industrial and automotive coatings, plastics, and other specialty products. (CCFF ¶ 14). The primary customers of TiO2 include paint and coatings manufacturers and plastic producers, who account for approximately 60% and 25% of the TiO2 consumed in North America, respectively. (CCFF ¶ 15). Paper and other specialty products, such as ink, food, cosmetics, and pharmaceuticals, use the remainder. (CCFF ¶ 15). For nearly all customers, there are no commercially reasonable substitutes for TiO2. (CCFF ¶ 16).

TiO2 is produced from titanium-containing ores through one of two manufacturing processes that extract TiO2 from ore: (1) the chloride process that uses chlorine; and (2) the sulfate process that uses sulfuric acid. (CCFF ¶ 17). The chloride process generally produces higher quality TiO2 with a bluer tint, compared to a yellower tint for TiO2 manufactured from

A. The Relevant Market Is the Sale of Chloride TiO2 to North American Customers

A relevant market has two components, reflecting the different dimensions of where competition occurs: (1) the relevant product market and (2) the relevant geographic market. “The

chloride TiO2 sales to customers in North America would find it profitable to impose a SSNIP.[8] (CCFF ¶¶ 134–42, 323–29). This analysis, combined with documents and testimony described below and in Complaint Counsel's Proposed Findings

sulfate TiO2, including a brighter, cleaner tint and superior coverage and durability. (CCFF ¶ 70) ({ [redacted] }); (CCFF ¶ 67) (True Value: Chloride TiO2 is "purer" than sulfate TiO2, which is "dirtier" and has a yellow tint); (CCFF ¶ 75) (PPG: "[S]ulfate carries iron with the product, and that decreases the durability in our final application.").[10] As major TiO2 producer Kronos explained:

> [Chloride TiO2 is] a superior product on its optical [] properties, whether . . . its color undertone or its tinting strength, durability, a whole host of different ways of evaluating a grade of TiO2, and chloride products tend to outperform sulfate products. (CCFF ¶ 92).

North American consumers demand the brighter whites and colors, durability, and better coverage that only chloride TiO2 can provide. (CCFF ¶¶ 41, 303) ({ [redacted] }); (CCFF ¶ 306) ({ [redacted] }); (CCFF ¶ 47) ({ [redacted] }).

Due to chloride TiO2's superior performance characteristics and the demands of North American consumers, North American TiO2 customers—such as paint and coatings companies and plastics manufacturers—overwhelmingly buy chloride TiO2, and do not consider sulfate TiO2 to be suitable substitute. Sherwin-Williams, which manufactures both architectural and

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purchasing behavior and choices," "how they would likely respond to a price increase," and "the relative attractiveness of different products and suppliers." Merger Guidelines § 2.2.2.

[10] See also, e.g., (CCFF ¶¶ 18, 70) ({ [redacted] }); (CCFF ¶ 74) (Kronos: sulfate TiO2 produces a yellowish undertone compared to chloride TiO2, which has "a brighter white to it"); (CCFF ¶ 75) (Sherwin-Williams: "[T]he chemistry of sulfate TiO2 may result in less coverage and less durability than chloride TiO2").

¶ 106) (Sherwin-Williams: "Typically in Europe colors are premade in the manufacturing environment so you have the ability to overcome variation in color by adjusting in the plant. In the North America[n] market, all the paint companies tint at point of sale . . . ."; there are "a lot of prepackaged colors in South America."); (CCFF ¶ 106) ({ }).[14] Sulfate TiO2 cannot be used in these paints because point-of-sale tinting requires a consistent color base that only chloride TiO2 can provide. (CCFF ¶¶ 105-108) (Sherwin-Williams: describing tinting and explaining that Sherwin-Williams has been unable to get consistent results with sulfate TiO2);[15] (CCFF ¶ 108) ({ }).

The very small amount of sulfate TiO2 that is used in North America is { } (CCFF ¶¶ 52, 54-57, 61). To switch to sulfate TiO2, even for limited quantities and product lines, North American customers currently purchasing chloride TiO2 would need to reformulate their product lines and complete extensive testing to qualify the sulfate TiO2, a process that would be costly and could take several years to complete. (CCFF ¶¶ 93-104); see also (CCFF ¶ 98) ({ }).[16]

That chloride TiO2 and sulfate TiO2 are not close substitutes in North America is demonstrated by North American customers' consistent reliance on chloride TiO2, despite paying a premium for it. On average, {

[14] See (CCFF ¶ 105) (Masco: explaining tint system for Behr paints and noting that majority of paints Masco sells are tinted in-store).
[15] See also (CCFF ¶ 108) (Sherwin-Williams: explaining that point-of-sale tinting requires chloride TiO2 in order "to achieve the color palette reliably that the customers expect, it has to be a bright white, a clean white product.").
[16] See also (CCFF ¶ 94) (Kronos: testifying that it is "pretty rare" for customers to reformulate from chloride to sulfate TiO2, and that doing so "would entail a significant amount of work, a lot of trials, a complete reformulation of their product and grade . . . . ").

[redacted] (CCFF ¶ 117).[17] Despite this, [redacted] (CCFF ¶ 117). For example, Sherwin-Williams has consistently paid more for chloride TiO2 because chloride TiO2 is necessary to "consistently meet [its] customers' requirements for quality and performance." (CCFF ¶ 128). Even when sulfate TiO2 was 40% cheaper than chloride TiO2, [redacted] (CCFF ¶ 127). Sherwin-Williams explained that [redacted] (CCFF ¶ 128).

Other customers confirm that they have not and will not switch to sulfate TiO2, even in the face of a significant price differential with chloride TiO2. For example, [redacted] (CCFF ¶¶ 34, 124); see also e.g., (CCFF ¶ 50) ("[T]he only way that Deceuninck would even consider sulfate TiO2 would be if chloride TiO2 was unavailable."); (CCFF ¶ 130) ([redacted]).

Consistent with that reality, North American customers do not attempt to use sulfate TiO2 prices as leverage to negotiate for better chloride TiO2 pricing. As [redacted]

[17] See also (CCFF ¶ 112) (Sherwin-Williams: chloride TiO2 was typically more expensive than sulfate TiO2 from 2012 to 2017, with sulfate TiO2 as much as 40% cheaper.).

(CCFF ¶ 119 (Tronox Q4 2013 Earnings Call)).[18] During a 2013 question and answer session with investors, Tronox reiterated that sulfate TiO2 was not a meaningful substitute for chloride TiO2 in North America:

[redacted]

(CCFF ¶ 120) (emphasis added).

Likewise, the other major producers also recognize the important differences between chloride and sulfate TiO2, and that customers in North America would not substitute between them in most applications. E.g., (CCFF ¶ 41) (Kronos: explaining that North American customers have an "overwhelming preference" for chloride TiO2 because it is needed to achieve the necessary product quality); (CCFF ¶ 113) ([redacted]); (CCFF ¶ 74) ([redacted]).

As all of the foregoing evidence makes clear, sulfate TiO2 is not a suitable substitute for chloride TiO2 for North American customers.

[18] At trial, Tronox's Vice President of Investor Relations testified that statements to investors are made on behalf of Tronox as a whole and that the company uses its best efforts to ensure that its statements to investors are accurate, complete, and not misleading. (CCFF ¶ 462).

2. The Relevant Geographic Market is North America

The Supreme Court has defined the relevant geographic market as the region "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); FTC v. Cardinal Health, Inc., 12 F. Supp. 2d 34, 49 (D.D.C. 1998) (citation omitted). The Court further elaborated in United States v. Philadelphia National Bank that the "proper question" is "not where the parties 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.

With those principles in mind, the Commission has held that where "suppliers can set prices based on customer location, and customers cannot avoid targeted price increases through arbitrage," the relevant geographic market may be defined around the locations of customers, not suppliers. In re Polypore Int'l Inc., 150 FTC 586 at *16 (2010), aff'd sub nom., Polypore Int'l, Inc. v. FTC, 686 F.3d 1208 (11th Cir. 2012) (applying Merger Guidelines § 4.2.2).

That is the case here. As in Polypore, TiO2 producers know their customers' locations, and take advantage of that by pricing regionally (i.e., price discriminate). Moreover, a SSNIP by a hypothetical monopolist controlling all sales of chloride TiO2 to North American customers[19] would not be defeated by those customers turning outside of North America, through arbitrage, to purchase chloride TiO2. (See CCFF ¶¶ 138, 139, 640).

i. TiO2 Suppliers Price Discriminate Based on Customer Location

For geographic price discrimination to be feasible, suppliers must be able to distinguish among customers based on customer location. Merger Guidelines § 3. Here, it is undisputed

[19] The North American market is defined as the United States and Canada. Market participants typically group Mexico in their Latin American markets, in part because TiO2 prices and purchasing decisions there are more similar to those in other Latin American countries than in the United States and Canada. See, e.g., (CCFF ¶¶ 139-143). Significantly, TiO2 produced in Mexico at Chemours's Altamira facility, for example, that is sold to North American customers is included in the relevant market for market definition purposes.

that North American chloride TiO2 suppliers know the locations of their customers and, indeed, deliver TiO2 to them, typically pricing on a delivered basis. For example, paint maker Masco testified at trial that {

}

Examples of internal documents from Respondents, including many presented at trial, corroborate this testimony about differential regional pricing.

1. [redacted] (CCFF ¶ 203).
2. [redacted]**}** (CCFF ¶202)
3. [redacted]**}** (CCFF ¶220)
4. [redacted]**}** (CCFF ¶ 201)
5. **{**[redacted]**}** (CCFF ¶ 177).
6. **{**[redacted]**"}** (CCFF ¶ 216).
7. [redacted] (CCFF ¶ 151).
8. {[redacted]**}** (CCFF ¶ 204).
9. [redacted] (CCFF ¶ 207).

Consistent with Respondents' internal documents, Tronox's then-CEO Tom Casey told investors: "[A]re there different prices in the regional markets in which we do business? The answer to that question is yes. The European and Asian market prices and the Latin American market prices are relatively closely bunched, with the North American price staying somewhat higher." (CCFF ¶ 252). In another investor call, he commented that "[w]e do not see that exports

from China or from Europe are playing a material role in the competitive balance, particularly in the North American market." (CCFF ¶ 204). And in response to a query from an analyst about how North American prices compared to those elsewhere, he commented that "[o]ur view as I said . . . is that prices in Europe and in Asia were lower than prices in the United States and the other North American markets." (CCFF ¶ 257).

Customers and other producers share Respondents' view regarding the regional nature of TiO2 markets. At trial, Sherwin-Williams testified that **{** [redacted] **}** (CCFF ¶ 192). PPG similarly noted that **{** [redacted] **}** (CCFF ¶ 179). Both companies further explained that prices **{** [redacted] **}**. (CCFF ¶¶ 175, 192). Producers **{** [redacted] **}**. (CCFF ¶¶ 245, 227). As Kronos testified at trial, the company's **{** [redacted] **}** (CCFF ¶ 227).

Although regional prices vary relative to one another, over a five-year period, TiO2 prices in North America remained significantly higher than those elsewhere in the world. (CCFF ¶¶ 239–58). Respondents have consistently recognized that fact:

1. [redacted] **}** (CCFF ¶ 248).

2. In March 2013: "Markets in North America are still under pressure to decline since they are so much higher than other regions of the world, however, we are trying to hold on to the current price levels." (CCFF ¶ 249).

3. In November 2013: **{** [redacted] (CCFF ¶ 250).

4. In June 2016: **{** [redacted] **}** (CCFF ¶ 253).

5. In September 2016: **{** [redacted] **}** (CCFF ¶ 255).

6. In September 2016: **{** [redacted] **}** (CCFF ¶ 256).

7. Cristal seeking to increase **{** [redacted] **}** (CCFF ¶ 207).

Confirming these statements, both experts agree that North American customers consistently paid **{** [redacted] **}** from 2012 through at least 2016. (CCFF ¶ 236). Dr. Hill specifically analyzed pricing data for the chloride TiO2 prices charged by Tronox and Cristal for TiO2 manufactured in their North American facilities from 2012 through 2016. He found that **{** [redacted] **}** (CCFF ¶ 236).

ii. North American Customers Cannot Arbitrage Chloride TiO2

This persistent regional **{** [redacted] **}**. (CCFF ¶ 266). Consistent with this, a Cristal executive testified in 2012 that **{** [redacted]

American customers were unable to turn to foreign suppliers, for many of the same reasons North American customers cannot do so here, to defeat a discriminatory price increase through arbitrage. Id. The Commission affirmed, holding that where "customers cannot avoid targeted price increases through arbitrage, suppliers may be able to exercise market power over customers located in a particular geographic region, even if a price increase to customers located in other geographic regions would be unprofitable." Polypore, 150 FTC 586 at *16. The evidence supports a similar finding here.

iii. Respondents' Criticisms of a North American Market Are Unavailing

When confronted with the real-world evidence and Guidelines analysis offered by Complaint Counsel, Respondents seek to conflate the issues. Respondents first point to trade flows (i.e., that TiO2 is shipped internationally) as evidence of a global chloride TiO2 market. Resps.' Pretrial Br. at 16–19. But the existence of international trade does not define an antitrust market. Antitrust markets are based on whether customers can substitute to avoid a SSNIP. On that question, consistent with Merger Guidelines § 4.2.2, Complaint Counsel's market already includes all sales of chloride TiO2 delivered to North American customers from suppliers located anywhere in the world. (CCFF ¶ 141). Imports account for only {[redacted]}% of such sales, belying Respondents' contention that imports to North America are competitively significant.[23] (CCFF ¶ 141). And as discussed above, the significant and persistent gaps in price between {[redacted]}. (CCFF ¶¶ 264, 266, 635).

[23] Respondents also claim that imported TiO2 accounts for over 24% of North American sales, Resps.' Pretrial Br. at 17, but this figure includes anatase TiO2, which Respondents concede is not at issue in this case. Resps.' Pretrial Br. at 4, n.1. As Dr. Hill calculated, rutile TiO2 imports comprise about [redacted]% of North American consumption. (CCFF ¶ 141).

the location of the supplier making those sales”

To assess an acquisition's presumptive illegality, courts first consider Respondents' shares of the relevant market, and then employ a statistical measure of market concentration called the Herfindahl-Hirschman Index ("HHI"). Heinz, 256 F.3d at 716; Sysco, 113 F. Supp. 3d at 52. The HHI calculates market concentration by adding the squares of each market participant's individual market share. See Staples 2016, 190 F. Supp. 3d at 128; Sysco, 113 F. Supp. 3d at 52. "Sufficiently large HHI figures establish the FTC's prima facie case that a merger is anti-competitive." Heinz, 246 F.3d at 716; see Staples 2016, 190 F. Supp. 3d at 128; Sysco, 113 F. Supp. 3d at 52.

An acquisition is presumptively anticompetitive if it increases the HHI by more than 200 points and results in a "highly concentrated market" with a post-acquisition HHI exceeding 2,500. See Staples 2016, 190 F. Supp. 3d at 128; Sysco, 113 F. Supp. 3d at 52-53; see also Merger Guidelines § 5.3. This transaction would triple the increase that renders an acquisition presumptively unlawful. Post-merger, the combined firm would have a market share of {[redacted]}% of North American sales of chloride TiO2, and the acquisition would increase the HHI by over 700 points, to a level of over 3000.[27] (CCFF ¶¶ 391, 393).

These market share statistics demonstrate this Acquisition is presumptively anticompetitive. See Staples 2016, 190 F. Supp. 3d at 128; Sysco, 113 F. Supp. 3d at 52-53; United States v. Aetna Inc., 240 F. Supp. 3d 1, 28 (D.D.C. 2017). "The presumption can only be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power." Merger Guidelines § 5.3. Courts consistently enjoin transactions with high changes in concentration, like this Acquisition. E.g., Heinz, 246 F.3d at 716 (HHI increase of 510 "creates,

C. The Documented History of Coordination in the TiO2 Industry Strengthens the Presumption

There can be little doubt that the decisions in the two civil price fixing cases, *Valspar* and *In re Titanium Dioxide*, increase competitive concerns in this case.[28] *See* Horizontal Merger Guidelines § 7.2. Indeed, as the Seventh Circuit has observed: "The theory of competition and monopoly that has been used to give concrete meaning to Section 7 teaches that an acquisition which reduces the number of significant sellers in a market already highly concentrated and prone to collusion by reason of its history and circumstances is unlawful in the absence of special circumstances." *Elders Grain*, 868 F. 2d. at 906 (emphasis added).

The factual records described by the two courts—and the record developed by Complaint Counsel in this case—make apparent that the North American market for chloride TiO2 is "prone to collusion,"[29] In *Valspar*, the U.S. Court of Appeals for the Third Circuit, while upholding summary judgment because Valspar had not shown overt price fixing by TiO2 producers, highlighted the oligopolistic market conditions in TiO2: "There is little doubt that this highly concentrated market for a commodity-like product with no viable substitutes and substantial barriers to entry was conducive to price fixing." *Valspar*, 873 F.3d at 197.[30] In *In re*

[28] *Valspar Corp. v. E. I. Du Pont De Nemours & Co.*, 873 F.3d 185 (3d Cir. 2017); *In re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799 (D. Md. 2013). Cristal was named as a Defendant in *In re Titanium Dioxide* and in the original *Valspar* complaint. Tronox, which had been in bankruptcy due to environmental liabilities for a portion of the class period, was not a Defendant, but was named as a co-conspirator.

[29] Respondents complain that Complaint Counsel's references to these decisions are somehow unfair or inappropriate because the Courts were addressing motions for summary judgment. (Williams, Tr. 136–37). Complaint Counsel has only referenced events that cannot be disputed: that competitive conditions in TiO2 were of a character that spurred civil allegations of price fixing in two different jurisdictions, that the District Court in Maryland concluded that evidence in support of those allegations would be sufficient to infer a price-fixing conspiracy, and that the District Court in Delaware and Third Circuit Court of Appeals decided that summary judgment was appropriate specifically because the evidence tended to show strong "anticompetitive interdependence" rather than overt collusion. *Valspar*, 873 F. 3d at 197 ("There is no dispute that the market was primed for anticompetitive interdependence and that it operated in that manner. Valspar's expert evidence confirming these facts mastered the obvious.").

[30] The District Court in Delaware had referenced evidence of interdependent or collusive interactions among TiO2 producers. *Valspar Corp. v. E. I. Du Pont De Nemours & Co.*, 152 F. Supp. 3d 234, 250 (D. Del. 2016) (referring to DuPont's "business decisions": "It appears that, in making those decisions, DuPont and the other defendants undertook actions that could plausibly be interpreted as 'collusive.'"); *id.* at 253 ("The evidence cited by Valspar

Williams, Tr. 138–39. This narrow interpretation of the two price fixing cases is belied by the fact that in both cases, the Courts cited to a wide variety of evidence that was suggestive of conspiracy (*In re Titanium Dioxide*), or "anticompetitive interdependence" (*Valspar*). *See In re Titanium Dioxide*, 959 F. Supp. 2d at 812 (citing PX 219 (Kronos e-mail noting that it ''appears we and our competitors are prepared to reduce production rather than chase phantom volume'');

Valspar, 873 F.3d at 199–200 ("Valspar also emphasizes a selection of internal e-mails sent by the various competitors. For example, a DuPont e-mail advocated for a price modification '[o]nly if you are not undercutting a Kronos price increase!' Valspar Br. 9. . . . These e-mails are helpful to Valspar, but only superficially. They may raise some suspicion insofar as they indicate that something anticompetitive is afoot."). Complaint Counsel has introduced a similar array of evidence of interdependence. (*See, e.g.*, CCFF ¶ 451) ({ [redacted] }); (CCFF ¶ 452) ({ [redacted] })

Further, although the TDMA program that Respondents alluded to may no longer exist, the types of detailed pricing and other competitive information that TiO2 producers today regularly provide in quarterly earnings conference calls and other presentations, evidence that was not even in the record in the earlier cases, raises additional concern about coordination in TiO2. *See In re Delta/AirTran Baggage Fee Antitrust Litigation*, 733 F. Supp. 2d 1348, 1360 (N.D. Ga. 2010) ("Plaintiffs need not allege the existence of collusive communications in "smoke-filled rooms" in order to state a § 1 Sherman Act claim. Rather, such collusive communications can be based upon circumstantial evidence and can occur in speeches at industry conferences, announcements of future prices, statements on earnings calls, and in other

rebuttal. *Sysco*, 113 F. Supp. 3d at 71–72; *see id.* at 72 ("'The more compelling the [FTC's] *prima facie* case, the more evidence the defendant must present to rebut [the presumption] successfully.'" (quoting *Baker Hughes*, 908 F.2d at 991)).

In this case, there is direct evidence that the Merger is likely to lead to anticompetitive effects. The Court need not guess whether Tronox intends to raise prices after the Merger; Tronox has explicitly stated that it intends to do so. At trial, PPG, one of Tronox and Cristal's largest customers, testified that Tronox executives John Romano and Ian Mouland told PPG that Tronox would raise prices post-Merger. (CCFF ¶ 708). Mr. Romano explained to PPG that "Cristal's price is too low in the market," that Cristal "give[s] [TiO2] away," and that Cristal lacks "market discipline." (CCFF ¶¶ 699, 709–10). That testimony was unrebutted at trial, even though both Tronox executives testified as live witnesses. (CCFF ¶ 712). Consistent with Tronox's statements to PPG, Mr. Mouland previously wrote in an internal Tronox email that he was {[redacted]} (CCFF ¶ 707).

Other TiO2 market participants have similarly acknowledged the Acquisition's likely effects on competition. For example, in a September 2017 presentation, Kronos advised investors that "[h]igher concentration increases likelihood of continued capacity constraints." (CCFF ¶ 722). In a June 2017 investor presentation, Venator projected that the acquisition would {[redacted]}. (CCFF ¶ 723). Similarly, in a presentation to analysts a month later, Venator observed that {[redacted]}

[redacted]

[redacted]

[redacted]} (CCFF ¶ 715). This evidence, as well as the extensive evidence described below, both strengthens the presumption that the Acquisition will lead to anticompetitive effects and serves as direct evidence of likely effects.

A. The Proposed Acquisition Would Increase the Likelihood of Coordination in an Already Vulnerable Market

"Merger law rests upon the theory that, where rivals are few, firms will be able to coordinate their behavior, either by overt collusion or implicit understanding, in order to restrict output and achieve profits above competitive levels." Heinz, 246 F.3d at 715 (internal quotation marks omitted); accord CCC Holdings, 605 F. Supp. 2d at 60; United States v. H&R Block, 833 F. Supp. 2d 36, 77 (D.D.C. 2011). "[A]bsent extraordinary circumstances, a merger that results in an increase in concentration above certain levels raise[s] a likelihood of 'interdependent anticompetitive conduct.'" CCC Holdings, 605 F. Supp. 2d at 60 (citation and internal quotation marks omitted) (quoting United States v. General Dynamics Corp., 415 U.S. 486, 497 (1974)). Because Complaint Counsel has established a prima facie case, Respondents bear the burden of "produc[ing] evidence of 'structural market barriers to collusion' specific to this industry that would defeat the 'ordinary presumption of collusion' that attaches to a merger in a highly concentrated market." H&R Block, 833 F. Supp 2d. at 77 (quoting Heinz, 246 F.3d at 725); accord CCC Holdings, 605. F. Supp. 2d at 60.

"[C]oordinated interaction involves a range of conduct, including unspoken understandings about how firms will compete or refrain from competing." H&R Block, 833 F. Mer[illegible]Gu] encoordo

Guidelines § 7 ("Coordinated interaction includes conduct not otherwise condemned by the antitrust laws").[35] Under the Clayton Act's incipiency standard, Complaint Counsel need not show how "coordination likely would take place." Merger Guidelines § 7.

The Merger Guidelines outline six areas of inquiry, each of which can support the likelihood that a market is vulnerable to coordination: (1) there is a mutual awareness among

testified that the level of detail in this industry's earnings calls is "very unique," **{** **}** (CCFF ¶ 462). In only one earnings call, Tronox was able to convey to its competitors that it was reducing inventory levels, cutting production, and working to reduce feedstock production, all in the service of raising prices:

> Industry supply and demand will return to balance. The obvious question is,when? And I can't tell you that because I can't speak for the industry as a whole. However, I can tell you that we are reducing our inventory, freeing up working capital, generating cash, and accelerating the return to supply-demand balance.
>
> From their public announcements, we believe others at both the feedstock and the pigment levels are doing the same thing. So, we're optimistic about the return to a more normal market conditions in TiO2. (CCFF ¶ 472 (Tronox Q3 2015 Earnings Call)).
>
> [W]e're addressing when the prices turn. So we've addressed the cash spending while the prices are down. And then the question is, when will they turn? We're addressing that by managing our production, so that inventories get reduced to normal or below normal levels. And when that happens, prices will rise.
>
> We -- from what we see with Chemours and Huntsman and presumably the others as well, they're doing the same thing. We see them acting in the same way." (CCFF ¶ 472 (Tronox Q3 2015 Earnings Call)).

This type of information can facilitate coordination, by increasing the predictability of Tronox's competitive initiatives and responses for competitors. (CCFF ¶ 463). In fact, shortly after Tronox's Q3 2015 earnings call detailing its decision to idle capacity at its North American chloride TiO2 plant,[36] Chemours announced its own decision to curtail chloride TiO2 production. In response to that news, Tronox's CEO exclaimed: "It's good that they can follow the leader!" (CCFF ¶ 430). And although Tronox's counsel told the Court in opening statements

[36] Tronox provided extraordinarily detailed information to the public, and therefore competitors, about its output in its Q2 2015 earnings call: "Production has been suspended at one of our six processing lines in Hamilton and one of our four processing lines at Kwinana, both of which are pigment plants. Together, these processing line curtailments represent approximately 15% of total pigment production." (CCFF ¶ 496 (Tronox Q2 2015 Earnings Call)).

that the evidence would show this statement was a "joke," Respondents introduced no such evidence. Williams, Tr. 100.

The sales forces of both Tronox and Cristal are adept at gathering information from customers and other sources about the actions of their competitors. (E.g.,CCFF ¶¶ 476–92).

{

} (CCFF ¶ 486).

{

} (CCFF ¶ 487). **{**

} (CCFF ¶ 488). **{**

} (CCFF ¶¶ 476–82) **{**

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(Tronox TiO2 Strategy and 5-Year Plan Update 2017)). {[redacted]} (CCFF ¶ 459 (Tronox TiO2 Strategic Plan 2017)).

Consistent with its overall emphasis on not undercutting competitors, Tronox opted to avoid such competition at every turn, even where it has product available to sell to its customers.

1. [redacted] (CCFF ¶ 457).
2. [redacted] (CCFF ¶ 455).
3. [redacted] (CCFF ¶ 528).
4. [redacted] (CCFF ¶ 528).
5. [redacted] (CCFF ¶ 533).

Tronox's former CEO plainly (and publicly) summarized their approach: "As you saw, we have not gained market share by trying to reduce price. We don't think that's the appropriate strategy going forward . . . ." (CCFF ¶ 433). And Tronox has publicly recognized coordinated actions taken with its competitors to reduce output and maintain prices:

> "I can tell you that I thought last year Huntsman, I believe Cristal, Chemours, and we all lowered our plant utilization rates, and we all talked about declining inventories

> which we had set as a goal. That is that we wanted to reduce inventories. Clearly, the way that one reduces inventories is one reduces production and continues to maintain sales, which is what we all tried to do." (CCFF ¶ 474).

Cristal has often shared Tronox's approach toward oligopolistic pricing, explaining in 2011, as demand in North American began to weaken, that "[t]he 'Evil Sin' would be to attempt to lower prices to take market shto tad[(2011, -0 (d best]he)]. 014 Tc -0.0014 Tw 26Td[0 Td[(2( )T22.82o attem

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Removing Cristal as a competitor will eliminate opportunities for it to compete aggressively and to disrupt Tronox's strategy of pricing discipline and avoiding driving down price. That alone provides a "credible basis on which to conclude that the merger may enhance [the market's] vulnerability to coordination." See Merger Guidelines § 7.1. Fundamentally, Tronox has adopted a strategy that is consistent with facilitating coordination among its rivals. (E.g., CCFF ¶¶ 527–28). And customers feel the effects of that strategy, highlighting the difficulty of getting supply in this industry. (CCFF ¶ 556). The Acquisition would place even more capacity under its purview and eliminate a rival that, at times, has refused to cooperate. And it would eliminate a competitor for whom customers "might turn for succor if the other sellers tried to jack prices above the competitive level." Elders Grain, 868 F.2d at 907.

Additionally, the Acquisition will likely increase transparency in the market. Cristal is the only major producer that is not a publicly-traded company. As explained above, public engagement with investors and traders—by design—increases transparency into the strategies and actions of the other major producers. (CCFF ¶ 539, 544). The Acquisition would result in Tronox making public disclosures about Cristal's competitive activities that Cristal does not make today. See (CCFF ¶ 539, 544).

Respondents' assertion that the industry faces "fierce competition" is both factually wrong and misses the point. The existence of competition is not a defense to an otherwise anticompetitive merger. Indeed, Complaint Counsel is seeking to block the proposed merger precisely to ensure that any competition that does exist is not diminished. See CCC Holdings, 605 F. Supp. 2d at 34-35 (enjoining merger to preserve the existing "vigorous" competition in the market); H&R Block, 833 F. Supp. 2d at 77 (that there will be ongoing competition post-merger "is not necessarily inconsistent with some coordination"); Cardinal Health, 12 F. Supp.

As the Merger Guidelines recognize, "[i]n markets involving relatively undifferentiated products," a merged firm may "find it profitable unilaterally to suppress output and elevate the market price. A firm may leave capacity idle, refrain from building or obtaining capacity that would have been obtained absent the merger, or eliminate preexisting production capabilities." Merger Guidelines § 6.3. This is because the "merger may provide the merged firm a larger base of sales on which to benefit from the resulting price rise, or it may eliminate a competitor that otherwise could have expanded its output in response to the price rise." Id. The intuition underlying the former principle is that the larger a firm's market share, the greater benefit it receives from the higher prices resulting from the output reduction, increasing the firm's incentives to do so.[38] (CCFF ¶¶ 562-64).

1. North American TiO2 Producers Already Have a History of Reducing Output to Support Pricing and Those Incentives Will Grow With the Merger

Tronox's history of curtailing North American production and taking capacity offline to support higher North American chloride TiO2 pricing is well documented. In 2009, Tronox closed its chloride TiO2 facility in Savannah, Georgia, **{** [redacted] **}** (CCFF ¶ 590). Following the shutdown, **{** [redacted] **}** (CCFF ¶ 591). Indeed, the closure of Tronox's Savannah facility

[38] The Merger Guidelines

was part of a larger reduction in industry capacity around that time that industry insiders credit with leading to significant price increases over the next several years. (CCFF ¶¶ 431, 592, 621).

Since Tronox closed the Savannah plant, Respondents have at various times reduced production at their remaining TiO2 plants with the objective of increasing TiO2 prices. Complaint Counsel has identified no fewer than nine periods over the past six and a half years when Respondents produced well below their North American capacity for at least three consecutive months. (CCFF ¶¶ 595, 601, 605, 625). The following examples of prior output curtailments reveal both the intentions behind and results of several of those recent reductions.

For instance, Tronox lowered its North American chloride output in {[redacted]}. (CCFF ¶ 595.) {[redacted]} (CCFF ¶ 593); see also (CCFF ¶ 573) ({[redacted]} (CCFF ¶ 596). {[redacted]} (CCFF ¶ 596). {[redacted]} (CCFF ¶ 598). {[redacted]} (CCFF ¶

598). {[redacted]} (CCFF ¶ 597).

{[redacted]} (CCFF ¶ 601). {[redacted]} (CCFF ¶ 602). {[redacted]} (CCFF ¶ 602).

In 2015, Tronox once again curtailed TiO2 production for an extended period, {[redacted]} in order to [redacted]} (CCFF ¶¶ 605, 607-08). At that time, Tronox's then-CEO told investors "that an {upward move in pigment selling prices will be pr

In early 2016, when a distributor conveyed concerns regarding supply shortages for some Tronox chloride TiO2 grades, a Tronox sales executive explained that **{** [redacted] **}** (CCFF ¶ 611). The Tronox executive further explained that **{** [redacted] **}** (CCFF ¶ 611).

Following the 2015 output reduction, Tronox reiterated its commitment to managing production volumes:

- "We believe that a very disciplined approach to production, to managing supply relative to demand, is what has facilitated the recovery in our markets and we intend to continue to be disciplined about that. So we don't intend to bring back the full production instantaneously simply because we could see the very first signs of price recovery." (CCFF ¶ 473).
- [redacted] (CCFF ¶ 576).
- [redacted] **}** (CCFF ¶ 613).

In 2017, after announcing the Cristal acquisition, Tronox once again reaffirmed its commitment to a strategy of matching production to demand and to market discipline, **{** [redacted] (CCFF ¶ 614).

{ [redacted] **}** (CCFF ¶ 615) (**{** [redacted]

[redacted]

That practice is likely to increase with the merger. During an investor call following the deal announcement, Tronox's former CEO responded to a question about how the acquisition would affect Tronox's approach to supply discipline and pricing:

> I think we have tried to be economically rational over these last several years. If there was surplus supply in the market, we slowed down our production, and we did that with respect to pigment. We also did it with respect to mineral sands. You remember over the last couple of years that we shut down about 75,000 tons of pigment production when we felt that all we were doing was adding supply to inventory levels. And we shut down two of our four slag furnaces.

(CCFF ¶¶ 616-17). Additionally, an internal Tronox document [redacted] (CCFF ¶ 618).

Cristal has likewise recognized that reducing output leads to higher prices. After closing its Hawkins Point plant in 2009, Cristal considered reopening the plant when prices rose dramatically in 2011 and 2012. (CCFF ¶ 622). However, Cristal decided against doing so because "the only certain factor is that the markets will remain tighter with greater pricing power the longer we leave [Hawkins Point] down." (CCFF ¶ 622.) A 2016 Cristal presentation observed that [redacted] (CCFF ¶ 628). In fact, Cristal acknowledges that [redacted]

[redacted]

The other North American TiO2 producers also recognize the connection between reduced output and higher pricing. In a recent investor presentation, Kronos observed that

industry “structural improvements” drove a $250 million increase in EBITDA and that “baseline TiO2 capacity has been permanently reduced with limited near-term ability to increase capacity.” (CCFF ¶ 583). Chemours, meanwhile, has told its investors that it will “vary [its] production in line with customer demand” and operate “at lowe

3. Respondents' Criticisms of the Unilateral Effects Evidence Are Unavailing

Respondents raise a number of criticisms of Complaint Counsel's evidence of likely unilateral anticompetitive effects, but none have merit. Respondents criticize the evidence of past output reductions by claiming that they have only ever reduced output as a matter of "last resort" under the most dire financial circumstances and never with any intention of raising prices. Resps.' Pretrial Br. at 47-49. But that misses the point. Respondents' past output reductions show that they can and do reduce output when they choose to, and understand its impact on price. And that past practice supports the likelihood that they will reduce output again after the merger—when they will have an even greater incentive to do so—because the merger will make reducing output even more profitable. (CCFF ¶¶ 560–61).

Moreover, Dr. Hill thoroughly debunked Respondents' assertion that they only reduced output as a matter of financial necessity. **{**

} (CCFF ¶¶ 600, 604, 612, 626). **{** [redacted] **}** (CCFF ¶¶ 600, 604, 612, 626). Moreover, running under capacity is not the financial burden that Respondents' purport it to be. Resps.' Pretrial Br. at 33. Not only have they done it with some regularity (as discussed above), but as Tronox management explained to investors, operating at 80 percent capacity utilization is "not an uncomfortable position for us. Obviously we would like to be operating in the high 90s but we have reconfigured some of our activities and think we can do it profitably without a lot of fixed costs overhang associated with

it." (CCFF ¶ 594).

Respondents also attack Dr. Hill's CCM.[40] First, they criticize the CCM for underestimating potential rival responses to the merged firm's output reduction, Resps.' Pretrial Br. at 45-46, but they ignore that Dr. Hill analyzed real-world evidence and data to determine likely rival responses to chloride TiO2 price increases in North America, incorporated them into his model, and found them insufficient to render an output reduction by the merged firm unprofitable.[41] (CCFF ¶¶ 667-68). As discussed above, Dr. Hill did not "assume," for example, that redirected exports to North America would not defeat a price increase. Rather, he analyzed historical data showing that North American producers had not redirected exports back to North America in the past, even when North American chloride TiO2 prices were significantly higher than they are today (or would be with a 10% price hike). (CCFF ¶¶ 643-44, 652-57).

Dr. Hill's results are consistent with deposition testimony from {[redacted]}[42] (CCFF ¶ 653). {[redacted]} (CCFF ¶¶ 654-55). {[redacted]} (CCFF ¶ 654). {[redacted]}

[40] Respondents mischaracterize Dr. Hill's corrections to the CCM. While they claim that the corrected simulation "fundamentally differs from Dr. Hill's original simulation," Resps.' Pretrial Brief at 46, as Dr. Hill testified, {[redacted]} (CCFF ¶ 671).

[41] Notably, Dr. Hill's other oligopoly model, Cournot, allows for "unbridled' rival responses but yet still predicts significant harm from this merger. CCFF ¶ 682.

[42] Kronos and Venator, the two remaining North American TiO2 producers, have {[redacted]} (CCFF ¶ 657). [redacted] (CCFF ¶ 657). [redacted] (CCFF ¶ 649).

[redacted] (CCFF ¶ 656).

Similarly, Dr. Hill did not incorporate an increase in North American domestic production of chloride TiO2 into his model, beyond the growth in demand, because the record evidence shows it is unlikely to occur in response to any of the predicted output reduction scenarios. [redacted] (CCFF ¶¶ 637-39). Additionally, any plant expansion would be expensive and time-consuming (well beyond the one-year time-frame contemplated by the model). (CCFF ¶¶ 667, 737, 739-40). Debottlenecking efforts, meanwhile, have typically not increased capacity beyond the rate of demand growth already factored into the model and, in any event, have been largely exhausted. See (CCFF ¶¶ 667, 738). [redacted] (CCFF ¶¶ 636, 735-36). There is no evidence of any large-scale output expansions by North American producers even in response to the price increases in 2012, when North American chloride TiO2 prices exceeded $4,000 per ton, well above the price increase predicted by the CCM. (CCFF ¶ 729.) Given these facts, it is not surprising that Respondents cannot point to any evidence showing that North American TiO2 producers have increased output in response to output restrictions undertaken by another North American TiO2 producer.

When the evidence did show a potential response to the output reduction, Dr. Hill did incorporate it into his model. For example, Dr. Hill included an import response to the output reduction, albeit a small one, because the real-world evidence and import data indicated only limited import responses in the past. (CCFF ¶ 642). [redacted]

[redacted] (CCFF ¶ 645). [redacted][43] (CCFF ¶¶ 646-47). [redacted] (CCFF ¶¶ 649-50). [redacted] (CCFF ¶¶ 651, 755-57).

Significantly, North America's extended run of higher prices only ended in 2017 when supply disruptions hit both Europe (Pori fire) and Asia (rising demand and feedstock costs along with environmental shutdowns), not as a result of expanded output, higher imports, or repatriated product responding to higher North American prices. (CCFF ¶¶ 631-33, 771-74, 779-781). Further, that European TiO2 prices rose so dramatically following the (incidental) loss of output in Europe also shows the impact that an output withholding can have on TiO2 prices in the affected region (as well as the absence of a mitigating response). (CCFF ¶¶ 632-35).

While Dr. Hill's quantitative assessments of how rivals would respond to changes in the merged firm's output match the views expressed by market participants as well as the data, Respondents present estimates of their own that purportedly predict more aggressive responses by North American importers and exporters. Those measures, however, are belied by the qualitative and quantitative evidence discu

78). First, Respondents' expert, Dr. Ramsey Shehadeh, attempted to calculate his own import elasticity of rutile TiO2,[44]

Dr. Shehadeh also purports to "fix" Dr. Hill's Cournot model by applying a framework from an unpublished working paper (Greenfield et al.). (CCFF ¶ 691). Dr. Shehadeh claims those "fixes" cause the price effect predicted by Cournot to disappear. (CCFF ¶ 691). Dr. Shehadeh's reliance on the Greenfield et al. approach is unwarranted here. Greenfield et al. were responding to a quirk in the California refinery market where the standard Cournot model predicted marginal costs below that of one of the inputs to the finished product, an implausible result. (CCFF ¶ 691). No such issues arise here—the margins predicted by the Cournot model are similar to those actually observed in the TiO2 market—obviating the need to apply the Greenfield et al. approach. (CCFF ¶ 691). Moreover, despite Dr. Shehadeh's claims to the contrary, it was not the Greenfield et al. "fixes" he used that reduced the predicted price effect. (CCFF ¶¶ 691-92). Rather, it was Dr. Shehadeh's imposition of an inappropriately low margin, contrary to the factual evidence, that alters the Cournot model'

Here, Respondents carry a heavy burden given the strength of the prima facie case. See Staples 2016, 190 F. Supp. 3d at 115 (“‘The more compelling the prima facie case, the more evidence the defendants must present to rebut it successfully.’” (quoting

chloride TiO2 from all producers in China account for only {[redacted]} of the North American market for chloride TiO2. (CCFF ¶ 755). Respondents nevertheless speculate that expansion by Chinese manufacturers of chloride TiO2, such as Lomon Billions, may provide a future competitive constraint. There are significant barriers to Chinese chloride TiO2 becoming a meaningful competitive presence in North America, however. These barriers include the "proprietary technology," "operating expertise," and "highly skilled workforce" necessary to run a chloride TiO2 facility (CCFF ¶ 743), and that "superior chloride technology [is] closely guarded by Western producers." (CCFF ¶ 759).[47] Whether Chinese producers will be able to overcome these barriers is highly uncertain, and even if they eventually do, they are unlikely to do so in a sufficient and timely manner to counteract the competitive harm resulting from the Acquisition.

As Respondents themselves recognize in their public statements and internal documents, Chinese producers of chloride TiO2 are, at best, still years away from being able to produce substantial quantities of chloride TiO2 that are commercially suitable and cost competitive in North America. For example, in response to a {[redacted]} from the German competition authority, Cristal described {[redacted]}

[47] See also (CCFF ¶ 743) ("In addition, running TiO2 plants is a capital-intensive undertaking that requires mastery of complex, proprietary technology, and which remains a major hurdle particularly for the chloride process production plants.").

(CCFF ¶ 763). Similarly, recent Tronox strategy documents observe that **{** [redacted] **}**, (CCFF ¶ 757), and that [redacted] **}** (CCFF ¶ 756).[48] In addition, Tronox documents indicate that **{** [redacted] **}** (CCFF ¶¶ 767, 771). {[redacted] (CCFF ¶ 760).[49]

The difficulty Chinese producers face in producing chloride TiO2 is illustrated by the experience of China's largest TiO2 producer, Lomon Billions. Although Lomon Billions successfully operates sulfate TiO2 facilities, chloride TiO2 plants are significantly more

[redacted]**}**

(CCFF ¶ 762).

Respondents have pointed to Lomon Billions' publicly announced plans to build

[redacted] (CCFF ¶ 749). [redacted] (CCFF ¶ 799). [redacted] (CCFF ¶ 749). [redacted] (CCFF ¶ 749). Deceuninck testified that it has never turned to Chinese TiO2 when faced with price increases in North America, and that buying TiO2 from China would be its "last resort." (CCFF ¶¶ 299, 749).

Even if Chinese producers are someday able to improve the quality of their chloride TiO2 and operate their chloride TiO2 plants reliably—both of which are uncertainties—there will still be barriers to Chinese chloride TiO2 becoming a meaningful competitive constraint in North America in a timely and sufficient manner. If Chinese producers do eventually produce chloride TiO2 that meets customers' performance standards for broad usage in North America, [redacted] (CCFF ¶ 102). [redacted] (CCFF ¶¶ 754, 799). Moreover, import duties and the high cost of overseas shipping are also barriers to Chinese producers expanding their sales in North America. (CCFF ¶ 778) ([redacted]

[redacted]

Finally, given recent reductions in Chinese TiO2 production capacity and increasing demand for TiO2 within China, it is uncertain whether there will be any Chinese TiO2 available for export to North America in the years to come. Over the past several years, many of the older TiO2 plants in China have closed due to high cost positions, government initiatives to address pollution, and limited availability of feedstocks, and more are projected to close. See (CCFF ¶ 779 (PX9001 at 006 (Tronox Q3 2016 Earnings Call)) (observing that net Chinese production was down in 2015 and would be down again in 2016 and 2017).[52] At the same time, demand for chloride and sulfate TiO2 within China has continued to increase at a higher rate than in other regions. (CCFF ¶ 777); see also (CCFF ¶ 775) (domestic demand for Chinese chloride TiO2 is growing faster than supply). This has resulted in tight supply, increased prices,[53] and reduced availability of Chinese TiO2 for exporting. See (CCFF ¶ 779) ([redacted]). Indeed, Tronox itself projects that Chinese production will be unable to keep up with increasing Chinese demand, causing more Chinese TiO2 to stay in its domestic market:

[51] The major producers also recognize the advantages of prioritizing their own local customers. See, e.g., (CCFF ¶ 209) ([redacted]); (CCFF ¶ 209) ([redacted]); (CCFF ¶ 282) ([redacted]).

[52] See also (CCFF ¶ 779) (Cristal reporting 10-15 plants idled, some expected to remain closed, and others expected to close due to environmental issues); (CCFF ¶ 799) ([redacted]).

[53] In a May 2017 investor call, Tronox executives estimated that prices for Chinese TiO2 had increased by 45% for export sales since the start of 2016 alone. (CCFF ¶ 784).

post-merger behavior." *Heinz*, 246 F.3d at 721; *CCC Holdings*, 605 F. Supp. 2d at 72–73; *H&R Block*, 833 F. Supp. 2d at 89 (D.C. 2011) (quoting *Merger Guidelines* § 10).

In fact, when there are "high market concentration levels," like those presented by the Proposed Acquisition, the law requires "proof of extraordinary efficiencies." *Heinz*, 246 F.3d at 720; *CCC Holdings, Inc.*, 605 F. Supp. 2d at 72. Indeed, no court has ever permitted an otherwise unlawful transaction to proceed as a result of claimed efficiencies. *See Heinz*, 246 F.3d at 720–21; *Sysco*, 113 F. Supp. 3d at 82 ("The court is not aware of any case, and Defendants have cited none, where the merging parties have successfully rebutted the government's *prima facie* case on the strength of the efficiencies."); *CCC Holdings*, 605 F. Supp. 2d at 72.

The burden of providing evidence of cognizable efficiencies lies squarely upon Respondents' shoulders. *See United States v. Anthem Inc.*, 855 F.3d 345, 364 (2017) (noting that the defendant "has the burden of showing what portion of the claimed efficiencies will result from the merger itself); *Sysco*, 113 F. Supp. at 82; *Staples 2016*, 190 F. Supp. 3d at 137–38 n.15 ("Defendants bear the burden of showing that . . . their claimed efficiencies are: (1) merger specific; and (2) reasonably verifiable by an independent party." (citing *H&R Block*, 833 F. Supp. 2d at 89)); *FTC v. Univ. Health Inc.*, 938 F.2d 1026, 1223 (11sho.2d ies lie 0 9uotingh

Williams, Tr. 133–34. But KPMG merely received estimates for all of the operational efficiencies from Tronox's managers and did nothing to verify the numbers. (CCFF ¶ 841). KPMG's report contained a disclaimer that they "have not otherwise verified the information"

facility in Jazan, Saudi Arabia;

851). However, there are important differences between the Hamilton plant and the Yanbu facility. {[redacted]} (CCFF ¶ 851). {[redacted]} (CCFF ¶¶ 852–56). {[redacted]}. (CCFF ¶¶ 852–53). In fact, Mr. Dean, the Tronox manager tasked with handling the Yanbu improvement effort,{[redacted]} (CCFF ¶ 852).

Respondents' Yanbu claim is also not merger-specific. Cristal {[redacted]} E.g., (CCFF ¶¶ 861–62, 865–66, 868, 871–72). Mr. Hewson, a Cristal manager who was in charge of the Yanbu facility, testified that {[redacted]}. (CCFF ¶ 865); see also (CCFF ¶¶ 866–67, 870). {[redacted]}. (CCFF ¶¶ 872–75 ({[redacted]}), 877 ({[redacted]}), 878 ({[redacted]}), 884 ({[redacted]})).

{[redacted]}. (CCFF ¶¶ 879–80). Indeed, without the Proposed Acquisition, Cristal {[redacted]}. (CCFF ¶¶ 880–82); see also (CCFF ¶ 865, 869). Mr. Dean himself could not explain {[redacted]}

[redacted]. (CCFF ¶ 883).[63] [redacted] (CCFF ¶ 887).

ii. Jazan

Respondents also claim that Tronox will increase feedstock production in Jazan, Saudi Arabia. See (CCFF ¶ 888). This claim is not verifiable, as evidenced that the fact that Tronox would not agree to purchase the facility outright, and is not merger-specific, given that Cristal has other third parties with whom it can partner.

To start, Respondents' Jazan claim is rife with uncertainty, and thus is speculative and unverifiable. Respondents have only agreed to an Option Agreement, which provides [redacted] within a five year timeframe. (CCFF ¶ 893) ([redacted]); see St. Alphonsus, 778 F.3d at 790 ("Claimed efficiencies must be verifiable, not merely speculative.") (citation omitted). Tronox's CEO testified that even if the Proposed Acquisition were consummated, there is "no certainty" that Tronox ultimately will purchase Jazan. (CCFF ¶ 900).

Tronox's confident projections about Jazan are belied by the steps it has taken to insulate itself from risk if it were unable to fix the facility. This uncertainty surrounding whether the Jazan facility can be fixed [redacted]

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[redacted] (CCFF ¶ 898). [redacted] (CCFF ¶ 899). [redacted] (CCFF ¶¶ 894, 896–97, 899). Therefore, despite its confident pronouncements, it is clear from Tronox's own behavior that fixing the Jazan facility is a highly uncertain proposition. (CCFF ¶ 901) ("[redacted]"). As Dr. Zmijewski pointed out, [redacted] (CCFF ¶ 902).

Tronox's own documents also reflect uncertainty about whether it will be able to fix the Jazan facility. [redacted] (CCFF ¶ 903). Mr. Van Niekerk, the Tronox manager with responsibility for the Jazan claim, explained [redacted]. (CCFF ¶ 904).[64] [redacted] (CCFF ¶ 904).[65]

The Jazan claim is also not merger specific. A potential future acquisition of the Jazan facility by Tronox is likely not the only way the Jazan facility could become operational. See

[64] Similar to the assu 78r /4MCID 6h

Respondents offered only self-serving testimony from Tronox's executives, but mere estimation and judgment by Respondents' executives are insufficient to establish cognizable efficiencies. *H&R Block*, 833 F. Supp. 2d at 91; *Sysco*, 113 F. Supp. 3d at 83. In fact, {[redacted]}. (CCFF ¶¶ 934, 970, 990); *see also* (CCFF ¶ 935). {[redacted]} (CCFF ¶ 968).

{[redacted]} (CCFF ¶¶ 936 ({[redacted]}), 955 ({[redacted]}), 959 ({[redacted]})). {[redacted]}. (CCFF ¶¶ 946 ({[redacted]}), 963 ({[redacted]}), 969 ({[redacted]}); 982 ({[redacted]}); 985-987 ({[redacted]})).[67]

4. Respondents' Claimed Efficiencies Will Not Impact North American Consumers

Finally, Respondents' efficiencies defense fails because the vast majority of their claims would not materially benefit the North American chloride TiO2 market. *See Univ. Health*, 938 F.2d at 1222–23; *Sysco*, 113 F. Supp. 3d at 82; *CCC Holdings*, 605 F. Supp. 2d at 74 ("Even assuming *arguendo* that the Defendants will achieve significant cost savings in a timely manner, there is no evidence to suggest that a sufficient percentage of those savings will accrue to the benefit of the consumers to offset the potential for increased prices"). Reducing the cost of doing business may benefit the merged firm but this does not necessarily translate to benefiting customers or competition in North America. *CCC Holdings*, 605 F. Supp. 2d at 74. Indeed, efficiencies outside of the relevant market are not cognizable. *See Phila. Nat. Bank*, 374 U.S. at

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370 (indicating that "anticompetitive effects in one market" could not be justified by "procompetitive consequences in another").

The bulk of Respondents' claims are outside of the relevant market. Tronox CEO Jeffry Quinn appears to concede this, testifying that "an overwhelming portion of the synergies are ex – you know, non-U.S. assets." (CCFF ¶ 1011). In particular, the Jazan claim concerns the production of feedstock—not TiO2—outside of North America, and Respondents have failed to show how these purported benefits will have any effect inside the relevant market at issue here. (CCFF ¶ 1014). Although related to TiO2 production, the Yanbu claim likewise is largely out of market, {[redacted]} (CCFF ¶ 1013).[68]

Moreover, Respondents have failed to demonstrate how any of their claimed efficiencies (in or out of market) would benefit customers, and the evidence is to the contrary. Indeed, Tronox acknowledged that it has not even attempted to quantify how its claimed efficiencies would benefit customers. {[redacted]} (CCFF ¶ 1012).[69]

V. Requested Relief

Once Complaint Counsel has established a violation of Section 7, "all doubts as to the remedy are to be resolved in its favor." United States v. E.I. du Pont de Nemours & Co., 366 U.S. 316, 334 (1961). Consistent with this principle, Complaint Counsel requests an injunction blocking the Proposed Acquisition. See Comp., Notice of Contemplated Relief ¶ 2. The Commission has broad discretion to select a remedy so long as it bears a "reasonable relation to

[68] Several other claimed efficiencies are also out of market. (CCFF ¶¶ 1015-17).
[69] Additionally, Tronox's history of curtailing TiO2 and feedstock output shows that it is unlikely to increase production at Jazan and Yanbu if doing so would cause prices to decrease.

the unlawful practice found to exist." *Jacob Siegel Co. v. FTC*, 327 U.S. 608, 611–13 (1946). Such a remedy must "effectively preserve competition in the relevant market" and "maintain the premerger level of competition." *Sysco*, 113 F. Supp. 3d at 72 (quotation omitted). In this case, the proper remedy is an Order prohibiting any transaction between Tronox and Cristal that combines their businesses, except as may be approved by the Commission. Complaint Counsel's proposed order is attached as Appendix A.

CONCLUSION

For the foregoing reasons, the evidence presented at trial and admitted to the record establishes that Tronox's Acquisition of Cristal violates Section 7 of the Clayton Act and Section 5 of the Federal Trade Commission Act, as alleged in the complaint, and justifies entry of an Order by the Court granting the relief sought therein.

Dated: August 14, 2018

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Director

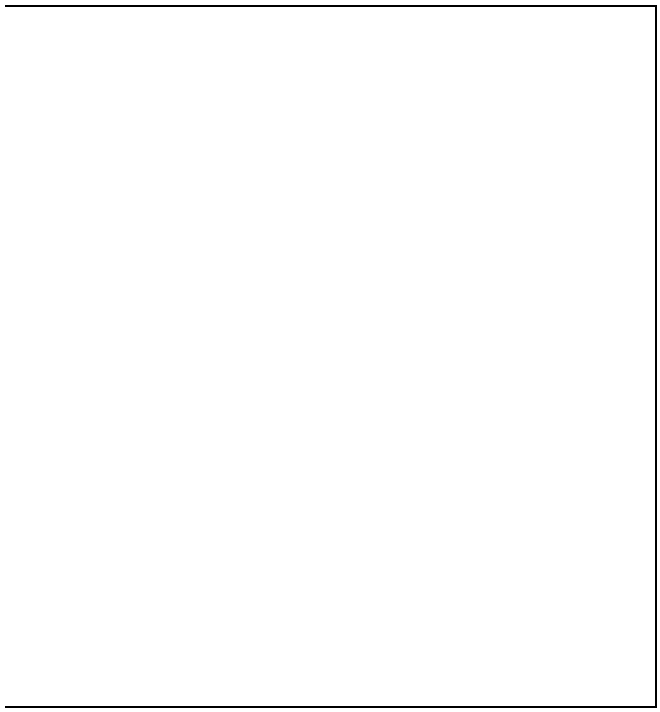
Haidee L. Schwartz
Acting Deputy Director

Charles A. Loughlin
Chief Trial Counsel

Federal Trade Commission
Bureau of Competition
600 Pennsylvania Ave NW
Washington, D.C. 20580

Robert Tovsky
Cem Akleman
Peggy Bayer Femenella

Attachment A



respective directors, officers, employees, agents, representatives, successors, and assigns of each.

D. "TASNEE" means the National Industrialization Company (TASNEE), its directors, officers, employees, agents, representatives, successors, and assigns; the joint ventures, subsidiaries (including Cristal), partnerships, divisions, groups, and affiliates controlled by the National Industrialization Company (TASNEE), and the respective directors, officers, employees, agents, representatives, successors, and assigns of each.

E. "Proposed Acquisition Agreement" means the Transaction Agreement Dated as of February 21, 2017 between The National Titanium Dioxide Company Limited, Tronox Limited and, solely for the purposes of Articles I, II, VIII, IX and XIII, Cristal Inorganic Chemicals Netherlands Coöperatief W.A."

II.

IT IS FURTHER ORDERED that:

A. Respondent Tronox and Respondent Cristal, TASNEE, and Cristal USA shall terminate the Proposed Acquisition Agreement, and cease and desist from taking any actions, directly or indirectly, to consummate the Proposed Acquisition Agreement.

B. Respondent Tronox shall cease and desist from acquiring Cristal, in whole or in part, including, but not limited to, any stock, assets, share capital, equity, or other interest in or related to Cristal, directly or indirectly, from Respondents Cristal, TASNEE, or Cristal USA.

C. Respondents Tronox, Cristal, TASNEE, and Cristal USA shall return all confidential information received, directly or indirect

CERTIFICATE OF SERVICE

I hereby certify that on August 14, 2018, I filed the foregoing document electronically using the FTC's E-Filing System, which will send notification of such filing to:

Donald S. Clark
Secretary
Federal Trade Commission
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Washington, DC 20580
ElectronicFilings@ftc.gov

The Honorable D. Michael Chappell
Administrative Law Judge
Federal Trade Commission
600 Pennsylvania Ave., NW, Rm. H-110
Washington, DC 20580

I also certify that I delivered via electronic mail a copy of the foregoing document to:

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Dated: May 8, 2018

By: /s/ Blake Risenmay
Blake Risenmay
Counsel Supporting the Complaint

CERTIFICATE FOR ELECTRONIC FILING

I certify that the electronic copy sent to the Secretary of the Commission is a true and correct copy of the paper original and that I possess a paper original of the signed document that is available for review by the parties and the adjudicator.

August 14, 2018

By: /s/ Blake Risenmay
Blake Risenmay
Counsel Supporting the Complaint