

COMMERCE ACT 1986: BUSINESS ACQUISITION

SECTION 66: NOTICE SEEKING CLEARANCE

Date: 23 June 2017

The Registrar
Competition Branch
Commerce Commission
PO Box 2351
Wellington

Pursuant to section 66(1) of the Commerce Act 1986 notice is hereby given seeking clearance of a proposed business acquisition.

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Part A: Summary of Application

1. Executive Summary

- 1.1 This application concerns the proposed acquisition by Tronox Limited (**Tronox**) of the titanium dioxide (**TiO₂**) pigment business of National Titanium Dioxide Company Ltd (**Cristal**) (together the **Parties**) (the **Transaction**). Tronox is a public limited company, active in the mining, production and marketing of inorganic minerals and chemicals. Cristal is an international chemical company that is incorporated in Saudi Arabia. The Parties are both involved in the mining of mineral sands to produce and supply TiO₂ pigment for a range of end-uses. The only relevant overlap in New Zealand is in relation to the sale of TiO₂ pigment.
- 1.2 The TiO₂ pigment market is global in scope. TiO₂ pigment, a commodity product, is routinely transported around the world with very few import restrictions. Trade flows represent approximately 69% of global TiO₂ pigment demand, and 100% of New Zealand demand as no TiO₂ pigment is manufactured in New Zealand. **[REDACTED]**.
- 1.3 The Parties' combined global TiO₂ pigment market share is modest, amounting to only **[REDACTED]**, and is even lower in Asia Pacific (**APAC**) with a combined market share of only **[REDACTED]**. The Parties' combined New Zealand market share is **[REDACTED]**, with a large proportion of total New Zealand supply being acquired by **[REDACTED]**, meaning that their combined shares are in no way indicative of any market power in New Zealand.
- 1.4 Because 100% of New Zealand supply is imported and global competition is strong, little or no investment would be required by a competitor to commence New Zealand supply, or expand sales to customers in New Zealand post-Transaction, if the Transaction were to create an opportunity for those competitors to expand. The Parties submit that the Transaction is not likely to result in a substantial lessening of competition (**SLC**) for the following reasons.

The market is highly competitive and characterised by multiple strong competitors

- 1.5 The Parties compete to supply TiO₂ pigment in a highly competitive global market. New Zealand is no exception with a large number of TiO₂ pigment manufacturers supplying TiO₂ pigment in New Zealand both direct and through at least nine local distributors. Post Transaction there will remain at least five major global TiO₂ pigment suppliers with the capacity and capability to supply all customers in New Zealand (including Chemours, by far the largest producer of TiO₂ in the world; Huntsman; Kronos; and Lomon Billions, the largest pigment producer in Asia), along with numerous smaller players (although all with a high level of capacity compared to the size of New Zealand demand). New Zealand prices are constrained by global pricing and move in line with global price changes.
- 1.6 The constraint from global pricing is particularly acute in New Zealand given the very large extent to which prices and terms for New Zealand supply are negotiated outside of New Zealand **[REDACTED]**. Accordingly, the bulk of the competitive rivalry between the Parties and their numerous competitors in fact takes place outside of the New Zealand market, with reference to global pricing.

Barriers to entry and expansion are low

- 1.7 There are very low barriers to existing competitors expanding their sales in New Zealand, and/or new competitors commencing sales to New Zealand customers. There are no import duties or other regulatory impediments, and pigment is easy to transport and store, with freight costs representing a small proportion of the total purchase price. Most suppliers operate in New Zealand through a range of active distributors, **[REDACTED]**. Customers routinely multi-source TiO₂ pigment from different producers and can qualify a new supplier in a short time for little cost.

Customers have substantial countervailing bargaining power

- 1.8 Customers exercise strong countervailing power to constrain a supplier's ability to profitably raise prices. **[REDACTED]**.
- 1.9 Smaller customers are well served by the large number of competing distributors who compete on price and are known to switch TiO₂ pigment suppliers to improve their competitive offer downstream.

Part B: The Parties

2. The Acquiring Party

2.1 The party seeking clearance is Tronox Limited.

2.2 Contact details for Tronox:

Address 263 Tresser Boulevard
Suite 1100
Stamford
CT 06901

Contact person [REDACTED]

Email Address [REDACTED]

Telephone [REDACTED]

Website www.tronox.com

2.3 Please direct all correspondence and notices for Tronox to:

Address Bell Gully
Barristers and Solicitors
PO Box 4199
Auckland 1140

Attention Torrin Crowther and Glenn Shewan

Email Address torrin.crowther@bellgully.com
glenn.shewan@bellgully.com

Telephone T +64 9 916 8621
T +64 9 916 8726

2.4 Tronox is a public limited company incorporated in Australia and is listed on the New York Stock Exchange. Tronox is an international chemical company active in the mining, production and marketing of inorganic minerals and chemicals. It operates two vertically integrated businesses, namely TiO₂ pigment and Alkali Chemicals.

TiO₂ pigment business

2.5 The TiO₂ pigment business involves mining and processing titanium feedstock (primarily ilmenite and rutile) and manufacturing TiO₂ pigment. TiO₂ pigment is white pigment that increases the brightness and durability of a wide range of products, such as paints, plastics and paper. Tronox uses the chloride production process to manufacture TiO₂ pigment (described at paragraph 8.4). There is no overlap between the activities of Tronox's electrolytic and specialty chemicals business and Cristal's assets that are the subject of this Transaction, so this part of the TiO₂ pigment business is not discussed further in this submission.

2.6 In New Zealand, Tronox imports and sells TiO₂ pigment [REDACTED]. Tronox has TiO₂ operations in South Africa (feedstock mines), Netherlands (production), United States of America

(production) and Australia (feedstock mines and production). There are no TiO₂ pigment mining or production facilities in New Zealand.¹

Alkali chemicals business

- 2.7 Tronox mines and processes trona ore and manufactures soda ash that is used in the production of glass, detergent formulation, chemical manufacturing, pulp and paper production, and water treatment. It also produces bicarbonate and other chemical compounds used in common industrial and household applications. There is no relevant overlap between the activities of Tronox's Alkali Chemicals business and Cristal and, in any event, Tronox has announced an intention to try to sell its Alkali chemicals business by the second half of 2017 and before completion of the Transaction.² For these reasons, this business is not discussed further in this submission.
- 2.8 A corporate structure diagram of Tronox and its relevant related entities is attached as **Annexure 1**. Tronox's most recent financial report (2015) is attached at **Annexure 2**.
- 2.9 Further information on Tronox is available on its website at: <http://www.tronox.com/>.

3. **The Transferring Party**

3.1 The transferring party is National Titanium Dioxide Company Ltd (**Cristal**).

3.2 Contact details for Cristal:

<i>Address</i>	Cristal USA Inc. 6752 Baymeadow Drive Glen Burnie MD 21060
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<i>Contact person</i>	[REDACTED]
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<i>Email Address</i>	[REDACTED]
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Telephone	[REDACTED]
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Website	www.cristal.com
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3.3 Please direct all correspondence and notices for Cristal to:

<i>Address</i>	Russell McVeagh
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<i>Attention</i>	Sarah Keene/Samuel Holmes
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<i>Email Address</i>	Sarah.Keene@russellmcveagh.com Samuel.holmes@russellmcveagh.com
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¹ Tronox also has an electrolytic and specialty chemicals business which produces electrolytic manganese dioxide, sodium chlorate and boron-based chemicals for the energy storage, automotive, and pharmaceutical industries. There is no overlap between the activities of Tronox's electrolytic business and Cristal.

² In connection with the announcement of the acquisition of Cristal on 21 February 2017 (see <http://investor.tronox.com/releasedetail.cfm?releaseid=1012615>).

Telephone

+64 9 367 8133/+64 9 367 8108

- 3.4 Cristal is an international chemical company incorporated in Saudi Arabia with headquarters in Jeddah, Saudi Arabia. Cristal is currently owned 79% by the National Industrialization Company Ltd (**Tasnee**) (a listed Saudi Arabian joint stock company), 20% by Gulf Investment Corporation (a company equally owned by the six states of the Gulf Cooperation Council and headquartered in Kuwait) and 1% by a private individual (Dr. Talal Al-Shair).
- 3.5 Cristal operates five key business divisions:
- (a) **Mining:** Cristal mines and processes TiO₂ feedstocks and Zircon from mineral sands.
 - (b) **TiO₂ pigment:** Cristal manufactures and supplies TiO₂ pigment for a range of end uses, using both the chloride and sulphate production processes.
 - (c) **Titanium chemicals** (titanium tetrachloride and its derivatives): Cristal produces products that can be used for a wide variety of end-use applications such as catalysis for polymerization, pharmaceutical and chemical synthesis, electronic chemicals, pearlescent pigments, titanium metal and powders and metal and glass surface treatment.
 - (d) **Ultrafine and specialty TiO₂ pigment:** Cristal produces and supplies TiO₂ pigment for a range of specialty applications (predominantly as a depollution catalyst).
 - (e) **Titanium powder, alloys and related products:** Cristal is currently in the research and development phase for these products (i.e. there is no commercial production as yet), but will eventually seek to supply these products to the titanium metal market. Cristal also has an interest in a titanium sponge plant being built in Yanbu, Saudi-Arabia, together with the titanium metals producer, Toho.
- 3.6 Cristal also owns and operates the "Arabian Chemical Centre" in Yanbu, Saudi Arabia, which produces chlorine gas, caustic soda, caustic flakes, dry precipitated silica, hydrochloric acid,³ sodium hypochlorite and sodium silicate solution. The major uses of chlorine are in paper, pulp, plastics, solvents, refrigerants, pigments, insecticides, dye stuffs, varnishes, silicon, rubber and water treatment. Caustic soda and hydrochloric acid are the basic chemicals used by a number of chemical and petrochemical industries.
- 3.7 The above business lines, including the Arabian Chemical Centre, constitute the TiO₂ pigment business assets to be acquired by Tronox. Of these, only Cristal's TiO₂ pigment and mining operations overlap with Tronox, so the ultrafine and specialty TiO₂ pigment, titanium chemicals and titanium powder, alloys and related products business lines are not discussed further in this submission.
- 3.8 Cristal has 8 TiO₂ pigment manufacturing plants in 7 countries – Brazil, United States, Australia, China, France, UK and Saudi Arabia and 4 mines – 3 in Australia and 1 in Brazil. A corporate structure diagram of Cristal and its relevant related entities is attached as **Annexure 3**. Cristal's most recent financial report (2015) is attached at **Annexure 4**.
- 3.9 Further information on Cristal is available on its website at: <http://www.cristal.com>

³ Tronox and Cristal both produce low-grade hydrochloric acid as a by-product of the chloride pigment making process. There is no overlap in the supply of hydrochloric acid in New Zealand.

Part C: The Transaction

4. The Transaction

- 4.1 Tronox proposes to acquire Cristal's TiO₂ pigment business (being the assets associated with the divisions listed in paragraph 3.5 above), in exchange for US\$1.673 billion in cash consideration and 37,580,000 Class A shares which will represent approximately 24% of the outstanding shares of Tronox at closing.
- 4.2 Prior to completion, there will be a re-structuring within the Cristal group [REDACTED].
- 4.3 The Transaction has been approved by Cristal's shareholders and is subject to (i) approval by Tronox's shareholders of the issuance of the new Class A shares; and (ii) receipt of regulatory approvals and other customary closing conditions. The Transaction was signed on 21 February 2017 and is expected to be consummated by the end of the first quarter of 2018.
- 4.4 A corporate structure diagram showing how the Transaction will change the control and structure of ownership of the Parties is attached as **Annexure 5**.
- 4.5 The Transaction will be implemented as a share transfer, following an internal reorganisation within Cristal. The precise structure of the transfer will be determined closer to the time of closing. [REDACTED].

5. Rationale

- 5.1 There are several compelling reasons why Tronox has agreed to acquire Cristal's TiO₂ pigment business.

(a) **Greater vertical integration will generate cost savings and incentivise increased output.**

The merger will enable the Parties to better align their feedstock production with their feedstock requirements. Eliminating double-marginalisation on feedstock volumes that Tronox sells to, and Cristal buys from, third parties will significantly improve the pro-forma cost position in the industry, allowing the combined firm to compete more efficiently.

[REDACTED].

- (b) **Improved service offering to customers.** Tronox expects to be able to improve its service offering to customers, including through optimisation of distribution networks to allow the combined company to service customers more efficiently. In addition, synergies are expected to arise from operations and logistics optimisation, reduction in supply chain costs and selling, general and administrative expenses, making the combined company more cost-competitive.

- (c) **Procurement savings.** The Transaction will allow the combination of purchasing volumes for essential inputs to the pigment production process [REDACTED], making the combined company more cost-competitive.

- (d) **Combining expertise to enable plant improvements and increase manufacturing output.** [REDACTED].

Cristal also has certain "best practices" that can be applied by Tronox to lead to more efficient operations [REDACTED].

6. Transaction document

- 6.1 A copy of the Transaction Agreement and Cristal and Tronox's Disclosure letters are attached as **Annexure 6**.

7. Global filings

- 7.1 The table below sets out the jurisdictions in which the Transaction is subject to merger notification and the dates that the relevant agencies in those jurisdictions have been or will be notified.

Figure 1: Overseas competition agencies notified

Jurisdiction	Agency	Date of notification
United States	FTC	14 March 2017
Australia	ACCC	28 April 2017
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
EU	European Commission	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

Part D: Industry Background

8. Overview of TiO₂ pigment industry

A. TiO₂ pigment; what is it?

- 8.1 TiO₂ pigment is an inorganic chemical used in a wide range of products due to its ability to impart whiteness, brightness, and opacity. TiO₂ pigment is used extensively in the manufacture of paint and other coatings, plastics and paper, and in a wide range of other applications, including inks, fibers, rubber, food, cosmetics, and pharmaceuticals.
- 8.2 TiO₂ pigment is generally sold in a powder so it is easy to transport and process. TiO₂ pigment can also come as a slurry (TiO₂ pigment dispersed in water) but this is not sold into New Zealand.

B. Manufacturing process

- 8.3 There are several ways to make TiO₂ pigment. The production process of TiO₂ pigment can be divided into two stages; the "front end" and the "back end".

Front end

- 8.4 The "front end" of the production process takes the feedstock and separates titanium from the ore to create the raw TiO₂ crystals. Two commercial production processes are used by

manufacturers to produce the TiO₂ crystals: a sulphate-based production process and a chloride-based production process.

- (a) In the sulphate-based production process, ilmenite ore or slag is used as feedstock. The feedstock is treated with sulphuric acid and then the intermediate product is calcinated at 1000°C to form the TiO₂ crystal. This sulphate-based process can produce TiO₂ pigment in either rutile or anatase crystal forms.
- (b) In the chloride-based production process, higher quality feedstock is required (slag, synthetic rutile, natural rutile, or, in limited cases, high titanium content ilmenite).⁴ These ores have a much higher titanium content than the ore used in the sulphate-based process. The feedstock is reacted with chlorine and carbon to form titanium tetrachloride (“TiCl₄”). The TiCl₄ is then purified using a distillation process and then oxidized in a vapour phase to produce raw pigment particles and chlorine gas. The chloride-based process is only capable of producing TiO₂ in rutile crystal form.

8.5 The TiO₂ pigment manufacturing process generates several by-products, such as iron sulphate, which are de facto waste products i.e. not further used in the TiO₂ pigment value chain. These by-products are sold to other applications or disposed of by landfilling (which is very costly). There are no manufacturing facilities in New Zealand, accordingly by-products are not relevant to this analysis (Tronox does not sell by-products into New Zealand and is not aware of other manufacturers doing so).

Back end

8.6 The “back end” of the process refers to the raw TiO₂ crystals being milled in order to ensure the optimal crystal size distribution. The raw TiO₂ crystals are then coated with a layer of various inorganic oxides or organic material in a series of batch coating tanks. These coatings add durability to the pigment and facilitate the incorporation of the pigment into a coating resin or into the organic polymer chains of a plastic. The coated pigment particles are washed and dried and finally jet milled.

8.7 TiO₂ pigment is produced in a number of different grades, which can be differentiated by varying the average crystal size of the product and the coating applied on the crystal. The grades generally have the same basic properties, but differ as regards certain technical characteristics. Generally speaking, all major manufacturers can readily switch between the grades they produce, as set out further below.

9. **End-use application and grades**

9.1 TiO₂ pigment grades are commonly used across multiple end use applications/segments. In New Zealand the overwhelming majority of TiO₂ pigment is used in coatings and plastics applications for which all major manufacturers have several grades. In addition, all major TiO₂ pigment manufacturers have multi-purpose grades that can be used across different end use applications.

9.2 The TiO₂ pigment produced by the chloride and sulphate production processes is highly substitutable in end use applications.

10. **International trade of titanium dioxide**

10.1 Transporting TiO₂ pigment internationally is a very common and straightforward practice. TiO₂ pigment is easily transported as demonstrated by approximately 69% of all worldwide demand being satisfied by imports. TiO₂ pigment is inert and has a very long shelf life if stored correctly. This facilitates imports as customers can purchase bulk quantities (rather than small, regular deliveries). TiO₂ pigment is generally sold in bags of 25kg, 500kg or 1t. It may be imported in

⁴ Rutile and ilmenite are the relevant titanium bearing ores.

containers holding approximately 20 tonnes, depending on the bulkiness of a particular grade. As set out above, there is no TiO₂ pigment manufacturing in New Zealand so all product is imported.

11. Industry trends

- 11.1 The most significant industry trend in recent times is the growth of Chinese production and export. Due to substantial investments in plant, China has developed substantial excess capacity, making it a major exporter to the rest of the world. Chinese producers accounted for approximately 34.8% of worldwide pigment sales in 2015.⁵
- 11.2 In particular, Sichuan Lomon and Henan Billions recently merged in 2016, becoming the 4th largest TiO₂ pigment producer in the world. Lomon Billions recently commenced production of pigment using the chloride route, sponsored by major global coatings manufacturer, PPG. It is a strong competitor and has disclosed plans for expansion, expecting to reach 600 ktpa of chloride capacity by 2022 (equivalent to around 70 times New Zealand's total annual TiO₂ pigment demand).
- 11.3 Global demand and supply for TiO₂ pigment is cyclical, as is common in a commodity market. The industry is currently experiencing "tight" supply conditions, meaning that there is high demand and relatively limited spare capacity globally. This is partly due to planned and unplanned plant shutdowns, but also reflects a lack of investment in new plant and equipment following soft demand and poor returns for pigment producers in recent years.
- 11.4 It is well understood in the industry that such conditions are transient. For example, several years ago the industry faced significant oversupply, and prices decreased accordingly.
- 11.5 Pigment suppliers recognise that even when demand is high, and inventory is low, it is necessary to continue to compete vigorously on both price and service, in order to maximise the prospects of maintaining customers both now and during future downturns when supply increases. **[REDACTED]**. Producers therefore compete hard at all times in order to maximise their production output, lower production costs per tonne and maintain a strong base-load volume.

12. The TiO₂ pigment industry in New Zealand

- 12.1 New Zealand is not involved in the manufacturing of TiO₂ pigment. The market is 100% import-based.
- 12.2 The Parties estimate that New Zealand's imports account for only **[REDACTED]** of global TiO₂ pigment demand and **[REDACTED]** of Asia Pacific demand. New Zealand customers are predominantly supplied with TiO₂ pigment from Australia, China and Taiwan, United States of America and Ukraine, with smaller volumes for instance coming from India, Japan, Malaysia, Belgium or Germany. **[REDACTED]**.
- 12.3 The value of sales in New Zealand was approximately **[REDACTED]** in 2016.⁶ In reality the size of the market **within** New Zealand – in terms of the locus of competition – would be smaller. **[REDACTED]**.
- 12.4 Indeed, **[REDACTED]**. In relation to Tronox, a significant proportion of its total sales in New Zealand are **[REDACTED]**.
- 12.5 **[REDACTED]**.

⁵ Despite some recent capacity changes due to the shutdown of certain smaller scale and/or less efficient plants, and plants with poor environmental performance, Chinese capacity continues to increase.

⁶ **[REDACTED]**.

- 12.6 The vast majority of TiO₂ pigment supplied into New Zealand is used in the coatings and plastic industries, with New Zealand's major paint manufacturers being the largest customers. Tronox is not aware of any significant customers in the paper industry in New Zealand.
- 12.7 TiO₂ pigment is supplied to New Zealand customers through two channels; direct from the manufacturer (predominantly for large customers) or via an authorised distributor. A list of TiO₂ pigment manufacturers active in New Zealand is included under the Key Competitor section at paragraph 15 below. There are at least 8 TiO₂ pigment manufacturers exporting TiO₂ pigment into New Zealand including the merging Parties and major players Chemours, Huntsman, Kronos and Lomon Billions.
- 12.8 There are at least 10 substantial TiO₂ pigment distributors in New Zealand, who can supply New Zealand businesses (in addition to a large number of smaller distributors, e.g. who supply to educational facilities). These include:

(a) **ASCC Ltd (Trading as Rebain NZ)**⁷

A chemical raw material supplier with distribution stores in Auckland, Wellington and Christchurch.

Rebain is the exclusive distributor of Tronox TiO₂ pigment in New Zealand.

(b) **Axio**

Axio is a major supplier of chemicals and "masterbatch"⁸ in New Zealand and Australia. It is the exclusive distributor of Huntsman products in New Zealand. [REDACTED]. However, Axio recently terminated that relationship and switched to be the exclusive distributor of Huntsman's products in Australia, meaning that it is now Huntsman's exclusive distributor across both Australia and New Zealand. The following news release provides more details on Axio.

Axio and Huntsman Pigments growing together

Axio is pleased to announce that it has been appointed the exclusive distributor for Huntsman's Titanium Dioxide portfolio across Australia and New Zealand, effective 16th January 2017.

Huntsman is one of the largest and most innovative producers of titanium dioxide in the World. TiO₂ is a key functional ingredient that adds UV protection to paints and plastics and is also used in healthcare and beauty products to protect against the harmful effects of the sun.

*This partnership further establishes Axio's long running partnership with Huntsman, building on the distribution of their Iron Oxides range through Axio New Zealand. We are looking forward to building on our reputation for efficient and high quality service, and continuing our rich history of bringing world class products to our Australian and New Zealand customers.*⁹

(c) **Cathay Industries**¹⁰

Cathay Industries is a distributor of additives, raw materials and chemicals for a diverse range of industries and is a global manufacturer of iron oxide pigments.

⁷ For more information see <http://www.rebain.com/about-us/>

⁸ Masterbatch is a concentrated mixture of pigments and/or additives encapsulated during a heat process into a carrier resin which is then cooled and cut into a granular shape. Masterbatch allows the processor to colour raw polymer economically during the plastics manufacturing process.

⁹ <http://www.axio.com/corporate/news-and-views>

¹⁰ For more information see <http://www.cathayindustries.com.au/>

In December 2016, having previously distributed Huntsman TiO₂ pigment, Cathay Industries signed an agreement with Chemours to distribute Chemours' TiO₂ pigment in Australia, New Zealand and the Pacific Islands.¹¹ When announcing the agreement, Cathay Industries' Managing Director, Steven Spackman, provided more details on Cathay Industries:

“CATHAY INDUSTRIES are a leading manufacturer of high quality Iron Oxide Pigments and synergies in partnering with the number one leading manufacturer of Titanium Dioxide, continues our commitment in product diversity and competitive technology support for industry in this region.”

(d) **Chemiplas**¹²

Chemiplas was founded in New Zealand and supplies raw materials to the New Zealand chemical and plastics industry. Chemiplas now, through a widespread network of global contracts, supplies quality materials to virtually every Australasian based industry. Chemiplas distributes Chemours TiO₂ pigment in New Zealand according to its website.

(e) **Chemcolour Industries NZ Ltd**¹³

Chemcolour is a supplier of specialty chemicals and solutions to various Australian and New Zealand industries. In New Zealand, Chemcolour is based in Auckland and Christchurch.

Chemcolour imports and distributes Kronos TiO₂ pigment.

(f) **Indis NZ**¹⁴

Indis NZ, a member of the Indis Group International, is an international distributor of chemicals and raw materials.

Indis supplies TiO₂ pigment from Ningbo Xinfu (a Chinese supplier)

(g) **Ixom (formerly Orica NZ)**¹⁵

Ixom describes itself as “the market leader in water treatment and chemical distribution in Australia and New Zealand, with a growing presence in North and South America and Asia.”

Ixom supplies various grades of TiO₂ pigment which are tailored to meet customer requirements.

¹¹ <http://www.cathayindustries.com.au/cathay-industries-distribute-chemours-titanium-dioxide-australia-new-zealand-pacific-islands/>

¹² For more information see <http://www.chemiplas.co.nz/about-us.html>

¹³ For more information see <http://www.chemcolour.com/product/surface-coatings>.

¹⁴ For more information see <http://www.indisnz.com/raw-materials/pigments/titanium-dioxide/>.

¹⁵ For more information see <http://www.ixom.com/our-business/products/pulp-paper/fillers-and-brighteners/titanium-dioxide>.

(h) **Redox**¹⁶

Redox is “one of the leading chemical and ingredients distributors in the world”. Its sales and manufacturing facilities are predominantly based in Australia. It also has sales office in Auckland, Hawkes bay and Christchurch, along with Kuala Lumpur and Los Angeles.

Redox supplies both rutile and anatase based TiO₂ pigment.

(i) **Brenntag**¹⁷

Supplies various grades of TiO₂ pigment. Globally, Brenntag distributes products of Kronos and Huntsman.

(j) **Consolidated Chemicals (NZ) Ltd**

Supplies various grades of TiO₂ pigment in New Zealand and Australia.¹⁸

13. **The price of TiO₂ pigment**

13.1 Global supply and demand largely determines New Zealand pricing. TiO₂ pigment manufacturers individually negotiate prices with larger customers, often across multiple countries. Indeed, all of the major coatings manufacturers in New Zealand purchase across jurisdictions. Smaller customers are supplied by distributors, who in turn negotiate with suppliers to ensure competitive pricing. Distributors can, and do, switch TiO₂ pigment suppliers for a range of reasons, including to get more competitive prices for their downstream customers (Cathay’s switch to Chemours and Axieo’s switch to Huntsman in Australia being recent examples of distributors switching).

13.2 **[REDACTED]**.

¹⁶ For more information see <https://redox.com/products/titanium-dioxide/>.

¹⁷ For more information see <http://www.brenntag.com/north-america/en/product-finder/index-2.jsp?q=Titanium+dioxide&sort=meta%3Asurrogate-sort>

¹⁸ For more information see <http://www.consolidatedchem.com/contact.html>.

Part E: The Relevant Market(s)

14. Market definition

Overview

- 14.1 The Parties submit that the affected market for the purposes of assessing the Transaction is the global TiO₂ pigment market.
- 14.2 In New Zealand, the Parties' activities only overlap in the supply of TiO₂ pigment to [REDACTED]. The only direct sales overlap in New Zealand (i.e. not via a distributor) is in [REDACTED]. The Parties do not overlap (in New Zealand or globally) in [REDACTED].

Previous Commission consideration

- 14.3 Based on the public record, the Commission has not previously considered the market for TiO₂ pigment.

No segmentation by production process

- 14.4 For the vast majority of applications (and for all of those where the Parties' sales in New Zealand overlap) customers are able to use TiO₂ pigment derived from sulphate and chloride processes interchangeably.
- 14.5 The majority of Tronox's chloride grades are equivalent to at least one sulphate grade. For instance, Tronox's CR-826 and [REDACTED]. Similarly, Tronox's CR-828 and Cristal's [REDACTED]. Huntsman's TR28 sulphate grade is widely regarded as one of the best performing plastic grades and this competes with Tronox's 8400 and [REDACTED] chloride grades (in plastic applications). Customers can, and do, use these products almost interchangeably. Accordingly, no distinction need be drawn by reference to production process.
- 14.6 This is consistent with the approach adopted by the European Commission (EC) in its analysis of Huntsman Corporation's acquisition of certain assets from Rockwood.¹⁹ The EC acknowledged, based upon the results of its market investigation, that TiO₂ pigment produced via the sulphate-based or chloride-based process can routinely be used interchangeably in most of the mass applications of coatings, plastics and paper.
- 14.7 This finding is also consistent with the EC's previous decision in *DuPont/ICI*, that found the only significant exception to demand-side substitutability between sulphate and chloride production processes concerns certain speciality applications.²⁰

No segmentation by grade or application

- 14.8 TiO₂ pigment is a commodity product and for the most part grades are interchangeable across different applications. This is particularly the case in New Zealand, where the vast majority of the TiO₂ pigment imported is used in the mass applications of coatings and plastics. As set out above, in New Zealand the Parties only overlap in respect of direct sales to [REDACTED] customers. [REDACTED]. There is no relevant overlap in sales to [REDACTED] in New Zealand.
- 14.9 There is no need to segment the pigment market by reference to either the different grades of pigment, or the end use applications for those grades:

¹⁹ Case M.7061 - *Huntsman Corporation/Equity Interests Held by Rockwood Holdings* (Commission decision of 10 September 2014).

²⁰ Case M.984 - *DuPont/ICI* (Commission decision of 2 October 1997), para 34.

- (a) On the demand side, there are high levels of overlap between the grades of the Parties and their competitors. Multiple grades are normally suitable for the same application, and there are no consistent boundaries between applications based on grades. Importantly, there are no end-use applications required by customers in New Zealand for which the Parties are the only suppliers of appropriate pigment grades.
- (b) On the supply side, producers can switch production between grades relatively quickly and at low cost. All major TiO₂ pigment manufacturers produce grades that are used for coatings and plastics.

The EC has recognised this strong supply side substitutability. The EC found that most TiO₂ pigment suppliers are active in mass applications and, more specifically, that the vast majority of TiO₂ pigment suppliers are active both in coatings and plastic end-applications.²¹ As a result, the EC concluded that from a supply-side perspective, segmentation by type of mass application (namely coatings, plastics and their hypothetical sub-categories) would not appear to be appropriate.²² The EC has previously acknowledged in *Du Pont / ICI* that all suppliers can relatively easily switch production from one grade to another and that the downtime in production during grade changes is typically no longer than a few hours.²³ This is consistent with Tronox's experience of switching the grades that it produces at various plants (demonstrating the ability to increase and decrease volumes of a given grade).

In practice the time required to close down a production line and to clean up to avoid contamination between batches of different coatings and plastics grades is generally a matter of hours. Switching between certain grade pairs can be done quicker and in some cases production won't be stopped at all during a switch, for example, [REDACTED]. In addition, producers switch grades between their plants, given that know how is transferable and most personnel and plants can be used to produce different grades. For example, [REDACTED].

14.10 Finally, the prices for various TiO₂ pigment grades are highly correlated. **Figures 3 and 4 of Annexure 10** show the evolution of the average price of the top 5 TiO₂ pigment grades supplied by each of Tronox and Cristal in New Zealand. [REDACTED] will arbitrage if relative prices move out of line. As shown in **Figures 1 and 2 of Annexure 10**, there is a high price correlation of TiO₂ pigment grades between regions.

Geographic dimension

14.11 The geographic market for TiO₂ pigment is worldwide in scope. It is characterised by a large number of international manufacturers, all of whom export TiO₂ pigment globally. The global demand and supply balance of TiO₂ pigment influences prices and margins for all grades of TiO₂ pigment. In the Parties' experience, when there are excess volumes available globally, there is downwards pricing pressure on all grades of TiO₂ pigment. Similarly, when volumes available globally are short (and inventory is low), prices move upwards. TZMI's *TiO₂ pigment Annual Review 2013* states: "TZMI believes that the global average price tends to constrain regional prices from moving too far in one direction (either much higher or lower than global average) due to ability of producers to sell into other countries when an arbitrage opportunity arises" (p. 51).

14.12 Consistent with a global market, TiO₂ pigment can be transported in a dry form with a virtually unlimited lifetime. Transport costs account for less than [REDACTED] of total price²⁴ and New Zealand transport costs are similar to transport costs for TiO₂ globally, as between world regions.²⁵ There are no significant regulatory or other constraints limiting the supply of TiO₂

²¹ *Huntsman / Rockwood* at [495].

²² *Huntsman / Rockwood* at [496].

²³ Paragraph 41.

²⁴ Parties' internal estimates.

²⁵ This is based on the Parties' estimates and is consistent with Case M.7061 – *Huntsman Corporation/Equity Interests held by Rockwood Holdings* (Commission decision of 10 September 2014) at [57] and [160].

pigment into New Zealand with existing tariffs in other jurisdictions not preventing global trade flows. Transport costs are a very minor proportion of the total price of supply, and supply from all regions globally into New Zealand is equally price competitive. While there is some variation in lead times, all product coming into New Zealand takes a number of weeks to arrive, regardless of export location, and so all suppliers mitigate lead times through in-country warehousing and/or distribution arrangements.

14.13 To illustrate the global nature of the market, [REDACTED]. For example, [REDACTED].

14.14 Furthermore, prices for TiO₂ pigment sold in New Zealand are closely correlated to regional and global TiO₂ pigment pricing. This confirms that prices in New Zealand cannot diverge materially for a sustained period of time from prices in other regions, due to the competitive pressure of products from other regions. **Annexure 10** outlines relevant trends in average regional prices across all TiO₂ pigment grades and in a number of specific TiO₂ pigment grades supplied by Tronox from 2012 to 2017 and by Cristal from 2010 to 2017.

14.15 Nevertheless, we set out below some details specific to the supply of TiO₂ pigment in New Zealand because of the reference in the Commerce Act to a “market in New Zealand”. However, these are referred to as “markets” for convenience only given the global nature of the TiO₂ pigment industry as described.

Conclusion

14.16 Tronox submits that the relevant market for Commerce Act purposes is the market for the supply of TiO₂ pigment in New Zealand (but where New Zealand is a small part of a much larger global market). That said, no competition issues arise on any feasible market definition.

15. Key competitors

15.1 The competitive landscape consists of a large number of producers. By capacity, Chemours (formerly Du Pont) is the largest, followed by Cristal and Huntsman. Kronos, Lomon Billions and Tronox are the three next largest, all with similar levels of capacity. While all producers, whether chloride or sulphate (or both), compete aggressively on price and quality, it is recognised that Chemours, for the reasons set out further below, does have a significant competitive edge.

15.2 A brief description of the key competitors is set out below.

(a) The Chemours Company (Chemours)

Chemours is by far the largest global TiO₂ pigment producer, and both Parties’ closest competitor. It is multi-regional with plants in Mexico, USA and Taiwan. Chemours’ production is 100% chloride based.

Chemours has the lowest costs of all TiO₂ pigment producers due to:

- proprietary technology (which allows it to use cheaper, lower grade feedstocks in its pigment production plants);
- large-scale operations (for example, plants that have the capacity to produce approximately 400ktpa of pigment where other producers might have plants that can produce approximately 200-250ktpa, which the Parties believe means that Chemours’ fixed costs per tonne are substantially lower); and
- broad feedstock options.

During 2016, Chemours further enhanced its operating cost advantage with the start-up of its second production line at its Altamira, Mexico facility. Chemours produces most of its pigment in North America but also has a production facility in Taiwan and exports

significant volumes globally. It has been importing into New Zealand for many decades (previously as DuPont). In calendar year 2016, approximately 31% of its TiO₂ pigment sales were to the Asia Pacific region.

Chemours began operating as an independent company on 1 July 2015 after being spun-off from DuPont. Across its three business divisions (Titanium Technologies, Fluoroproducts, and Chemical Solutions), Chemours operates 26 production facilities located in 10 countries and serves over 3,800 customers across a wide range of end markets in more than 130 countries. It operates four TiO₂ pigment plants (two in the USA and one in each of Mexico and Taiwan) and a feedstock mine in Florida.

In New Zealand, Chemours is understood to supply TiO₂ pigment directly to large customers and also uses a local distributor. The Parties understand that Chemours' local TiO₂ pigment distributor in New Zealand is Cathay Industries. Cathay Industries was Huntsman's distributor in New Zealand prior to its current arrangements with Chemours. Chemiplas also distributes Chemours TiO₂ pigment in New Zealand according to the Chemiplas Website.

For more information see <https://www.chemours.com/businesses-and-products/>

(b) Huntsman Corporation (Huntsman)

Huntsman, founded in 1970, is a global manufacturer and marketer of differentiated chemicals and is one of the most diversified global suppliers of pigments and additives. It operates seven TiO₂ pigment plants including one in Malaysia, a 50% interest in a chloride plant in Lake Charles, Louisiana, USA (with Kronos) and several in Europe. Huntsman's TiO₂ pigment production is 71% sulphate based and 29% chloride based. Huntsman Pigments and Additives has over 4,500 employees.

Huntsman focuses on supplying inorganic pigments for use in the manufacture of surface coatings and colorants, concrete products, ceramics, plastics, rubber, papers, cosmetics, pet food, ink, toner, and many other industrial uses.

Huntsman has an office and warehouse in Melbourne, however the Parties believe that these facilities are not currently used for its TiO₂ business. As set out in paragraph 12.8(b), Huntsman's Australasian TiO₂ pigment distributor is Axieo. Axieo used to distribute Tronox product in Australia, but recently switched to Huntsman (causing many of its customers to switch to buying Huntsman TiO₂ pigment).²⁶

As recently as 22 May 2017, Huntsman announced its intention to combine in a US\$14 billion merger of equals with Clariant, a globally leading specialty chemical company, and an active customer for TiO₂ in New Zealand. At present, at least 5 suppliers of TiO₂ are qualified to supply Clariant, including Cristal and Tronox.

After the merger, the newly-formed HuntsmanClariant intends to spin off and publically list its Pigments and Additives business, Venator, in summer 2017.

For more information see <http://www.huntsman.com/pigmentsandadditives/a/About%20us.>

(c) Kronos Worldwide Inc. (Kronos)

Kronos is a global TiO₂ pigment producer, with several facilities in North America and Europe. As noted above, it is a 50/50 manufacturing joint venture partner with Huntsman in respect of a chloride plant in the USA. Kronos uses both chloride (75%) and sulphate (25%) production methods.

²⁶ Tronox product is now distributed in New Zealand by ASCC Ltd (trading as Rebain NZ).

In New Zealand, Kronos is imported via Chemcolour Industries (based in Takapuna) who import a wide range of specialty chemicals for Australia/New Zealand businesses.

For more information see [http://kronosTiO₂.pigment.com/en/about-kronos/overview](http://kronosTiO2.pigment.com/en/about-kronos/overview).

(d) **Lomon Billions**

Sichuan Lomon and Henan Billions merged in 2016 to become Lomon Billions. Lomon Billions has a total annual production capacity of 600,000 tonnes and is ranked 4th in the world and 1st in Asia in terms of TiO₂ pigment production capacity. TiO₂ pigment exports from Lomon represent 45.7% of the total TiO₂ pigment export volume from China.²⁷

With headquarters in Jiaozuo, China, Lomon Billions has four established production bases in China and is the only fully integrated company in China with both chloride and sulphate process TiO₂ pigment. It is a strong competitor to other international producers, and has disclosed substantial plans for expansion. TZMI has indicated that Lomon Billions has doubled its chloride pigment market share in one year.

As explained in more detail in section 21.5, Lomon Billions has been considerably supported in its expansion plans through collaboration arrangements with a major global customer, PPG.

For more information see [http://www.lomonbillions.com/lomon-billions-merger-of-henan-billions-and-lomon-is-complethttp://www.lomonbillions.com/lomon-billions-merger-of-henan-billions-and-lomon-is-completed-creating-the-fourth-largest-TiO₂-company-globally/](http://www.lomonbillions.com/lomon-billions-merger-of-henan-billions-and-lomon-is-complethttp://www.lomonbillions.com/lomon-billions-merger-of-henan-billions-and-lomon-is-completed-creating-the-fourth-largest-TiO2-company-globally/).

(e) **CNNC HuaYuan Titanium Dioxide Co, Ltd. (CNNC)**

CNNC is listed at Shenzhen Stock Exchange. CNNC manufactures and markets titanium dioxide and describes itself as “the leading Titanium Dioxide producer in China”. It “boasts several titanium dioxide powder production plant bases and its capacity has exceeded 200,000 tonnes” (the Parties understand that 2016 production was around 185,000 tonnes).

For more information see [http://www.sinoTiO₂.pigment.com/node/37](http://www.sinoTiO2.pigment.com/node/37).

(f) **Yunnan Xinli**

Yunnan Xinli is another Chinese TiO₂ pigment producer that currently uses the chloride production process. Yunnan Xinli owns and operates a complete TiO₂ pigment manufacturing chain, including a mine, TiO₂ pigment production plant, titanium sponge plant and high titanium slag plant.

The Parties do not have specific details of Yunnan Xinli's presence in New Zealand, although Yunnan Xinli's website indicates that it has shipped TiO₂ pigment to New Zealand in the past three years.²⁸

15.3 Contact details for the above named competitors are attached as **Annexure 7**.

16. **Key customers**

16.1 The customers served by either or both of the Parties directly in New Zealand include **[REDACTED]** such as:

²⁷ [http://www.lomonbillions.com/lomon-billions-merger-of-henan-billions-and-lomon-is-completed-creating-the-fourth-largest-TiO₂-company-globally/](http://www.lomonbillions.com/lomon-billions-merger-of-henan-billions-and-lomon-is-completed-creating-the-fourth-largest-TiO2-company-globally/)

²⁸ <http://www.xinli-ti.com/en/subt.html?stn=Zhbd&cn=20160329191738888>

[REDACTED]

- 16.2 As set out above, there are many New Zealand distributors of TiO₂ pigment products, servicing a range of (typically smaller) customers in New Zealand.
- 16.3 Contact details for the above named market participants are attached as **Annexure 8**.

Part F: Competitive Assessment

17. Introduction

17.1 New Zealand is an importer of TiO₂ pigment and subject to global market forces. [REDACTED], there are no barriers to the Parties' global competitors increasing their presence in New Zealand. There is nothing specific to the products they produce that is not readily replicable by the likes of Chemours (the world's largest producer), Huntsman, Kronos and others. The Parties currently overlap [REDACTED].

18. The counterfactual

18.1 The relevant counterfactual is a status quo in which the Parties continue to compete at arms' length, without the numerous efficiency benefits of the transaction, including the incentive and ability to increase output.

19. The market is highly competitive and characterised by multiple strong competitors

19.1 The Parties' combined global TiO₂ pigment market share [REDACTED]. As set out in the following table, on a global basis, the Transaction falls below the Commission's concentration indicators, suggesting that a competition concern is unlikely to arise.

Figure 2: Global market shares 2015

Manufacturer	Estimated volume	Estimated % of market share by volume
Tronox	[REDACTED]	[REDACTED]
Cristal	[REDACTED]	[REDACTED]
Combined	[REDACTED]	[REDACTED]
Chemours	[REDACTED]	[REDACTED]
Huntsman	[REDACTED]	[REDACTED]
Kronos	[REDACTED]	[REDACTED]
Lomon Billions	[REDACTED]	[REDACTED]
CNNC	[REDACTED]	[REDACTED]
Chinese (other than Lomon Billions and CNNC)	[REDACTED]	[REDACTED]
East European	[REDACTED]	[REDACTED]
Indian	[REDACTED]	[REDACTED]
Japanese	[REDACTED]	[REDACTED]
Korean	[REDACTED]	[REDACTED]
Ukrainian	[REDACTED]	[REDACTED]
Total	[REDACTED]	100%

Source: Parties' internal data.

- 19.2 The Parties' combined Asia Pacific (**APAC**) TiO₂ pigment share amounts to only [REDACTED]. This is even more modest than when assessed globally, indicating the strength of the existing competitors operating in APAC (including low cost Chinese production).

Figure 3: APAC share of TiO₂ pigment sales 2015

Manufacturer	Estimated volume	Estimated % of market share by volume
Tronox	[REDACTED]	[REDACTED]
Cristal	[REDACTED]	[REDACTED]
Combined	[REDACTED]	[REDACTED]
Chinese	[REDACTED]	[REDACTED]
Chemours	[REDACTED]	[REDACTED]
Japanese	[REDACTED]	[REDACTED]
Unknown	[REDACTED]	[REDACTED]
Huntsman	[REDACTED]	[REDACTED]
Indian	[REDACTED]	[REDACTED]
Kronos	[REDACTED]	[REDACTED]
Korean	[REDACTED]	[REDACTED]
Ukrainian	[REDACTED]	[REDACTED]
East European	[REDACTED]	[REDACTED]
Total	[REDACTED]	100%

Source: TZMI market size, Parties' internal data and trade flow statistics.

- 19.3 In New Zealand, [REDACTED], the large number of competitors selling into New Zealand.

Figure 4: New Zealand shares 2015

Manufacturer	Estimated volume	Estimated % of market share by volume
Tronox	[REDACTED]	[REDACTED]
Cristal	[REDACTED]	[REDACTED]
Combined	[REDACTED]	[REDACTED]
Chemours	[REDACTED]	[REDACTED]
Kronos	[REDACTED]	[REDACTED]
Huntsman	[REDACTED]	[REDACTED]
Chinese	[REDACTED]	[REDACTED]
Unknown	[REDACTED]	[REDACTED]

Ukrainian	[REDACTED]	[REDACTED]
Japanese	[REDACTED]	[REDACTED]
Total	[REDACTED]	100%

Source: Parties' internal data and trade flow statistics.

19.4 The Parties [REDACTED], but there is existing competition from a number of strong, international competitors, such as Chemours, Huntsman, Lomon Billions and Kronos. In relation to the broader competitive dynamics:

- (a) at present, Tronox [REDACTED]. As set out below [REDACTED],²⁹ [REDACTED];
- (b) as set out in greater detail below, [REDACTED] alone represents [REDACTED] of all TiO₂ volumes purchased in New Zealand, [REDACTED] of the volumes sold by Tronox and [REDACTED] of the volumes sold by Cristal. [REDACTED];
- (c) although Cristal offers technical support to the New Zealand market from support staff based in Australia, most suppliers, including Chemours, Huntsman, Kronos, and Lomon Billions, have technical support teams based in South East Asia, [REDACTED]. [REDACTED];
- (d) as described in more detail below, the large customers have significant negotiating leverage and have multiple competitive options. For the most part, Cristal and Tronox are not the closest competitors for those customers. Putting aside those customers, for whom this Transaction will not give rise to any material competitive impact, and evaluating the combined share of the parties for smaller customers, provides a more appropriate reflection of market dynamics in New Zealand. The Parties' estimates indicate that the combined share of New Zealand sales excluding multi-national customers would like be less than [REDACTED]. As discussed below, these smaller customers have an even larger array of competitive options and would face no competitive impact from the transaction;
- (e) New Zealand is serviced entirely by imports. Given the low cost of transport compared to product value and New Zealand's strong shipping links, no manufacturer faces any cost disadvantage in selling to New Zealand; and
- (f) there is a high degree of competition between distributors, who represent all of the major TiO₂ pigment suppliers along with smaller, lower cost suppliers.

19.5 We set out more details on these points below.

Large multinational customers' approach to procurement

19.6 Large coatings manufacturers and other large TiO₂ pigment customers generally have a range of suppliers pre-approved to satisfy their requirements for consistent and stable supply. They then play these suppliers off against each other to obtain the best supply prices. To the extent they have not done so already, the customers could readily certify another supplier (such as Kronos, Chemours, Huntsman, Lomon Billions or others). Such a process can generally be undertaken in around three months or even more quickly in certain circumstances.

19.7 Further, to the extent that customers ([REDACTED]) multi-source from several suppliers simultaneously, the exercise of countervailing power need not be manifested in a complete switch of suppliers; rather, it remains open to those customers to reduce the volumes they purchase from one firm while increasing the volumes they purchase from another. Because the customer is simply adjusting its current product volumes rather than moving to a new supplier, this strategy reduces the perceived risk to the customer while continuing to act as a strong countervailing constraint on the supplier.

²⁹ [REDACTED].

19.8 Because these customers are multinational businesses, they have clear insights into regional and global pricing trends and supply levels, and could readily respond to a perception of decreased competition in New Zealand by securing alternative sources of supply at a credible price.

19.9 The following table shows Cristal's estimate of suppliers that are likely qualified by its largest ten customers in New Zealand in 2016, overlaid with information provided by Tronox. This overview is an estimate, as the Parties do not have knowledge on which competitors are qualified by each customer and it is quite possible that additional suppliers are qualified.

19.10 [REDACTED].

Top 10 New Zealand customers and their qualified suppliers

Customer	Number of qualified suppliers	Names of qualified suppliers
[REDACTED]	[REDACTED]	[REDACTED]

Source: Cristal estimates. [REDACTED].

19.11 [REDACTED].

[REDACTED]

19.12 The Parties estimate that [REDACTED] accounts for around [REDACTED] tonnes of the [REDACTED] tonnes of total demand in New Zealand [REDACTED]. [REDACTED] of Tronox's New Zealand sales ([REDACTED] out of [REDACTED]) are made to [REDACTED], while around [REDACTED] ([REDACTED] tonnes out of [REDACTED] tonnes) of Cristal's New Zealand sales are made to [REDACTED]. [REDACTED].

19.13 [REDACTED]. Cristal's sales volume to [REDACTED] in Australia and New Zealand combined was around [REDACTED] tonnes. Of those [REDACTED] tonnes only [REDACTED] were sold to [REDACTED] in New Zealand. Furthermore, Tronox's combined sales volume to [REDACTED] in Australia and New Zealand was around [REDACTED] tonnes. Of these [REDACTED] tonnes only around [REDACTED] were sold in New Zealand.

19.14 [REDACTED].

19.15 [REDACTED].

Other large multinational customers

19.16 Aside from [REDACTED], there are several other large New Zealand customers who purchase directly from TiO₂ pigment manufacturers. Cristal supplies substantial volumes to [REDACTED].

Along with [REDACTED], Cristal supplies around [REDACTED] New Zealand volume to these customers (around [REDACTED] of its New Zealand volumes).

19.17 [REDACTED].

19.18 In light of these supply arrangements, Tronox submits that the Transaction will not affect competition for supply to these customers. [REDACTED].

19.19 Furthermore, large multinational customers have clear insights into regional and global pricing trends and supply levels, and could readily respond to a perception of decreased competition in New Zealand by securing alternative sources of supply at a competitive price.

Other customers

19.20 As set out above, Tronox and Cristal's [REDACTED] customers account for over [REDACTED] of the Parties' TiO₂ pigment supplied in New Zealand in 2015 ([REDACTED] and [REDACTED] respectively). [REDACTED].

19.21 The wide range of smaller plastics/coatings TiO₂ pigment customers in New Zealand place less value on the TiO₂ pigment supply provided by large global international suppliers like Tronox, Chemours, Kronos, Huntsman, Lomon Billions, Cristal etc. as they are nimble, order small volumes and can switch between grades with ease. [REDACTED].

19.22 [REDACTED]. As set out in section 12 above, there are many distributors operating in New Zealand, selling product from a wide range of TiO₂ pigment suppliers from around the world. [REDACTED].

19.23 In Cristal's view if the merged entity attempted to raise prices or reduce quality, the numerous distributors, who are already present in the New Zealand market, would quickly seize that opportunity to take larger volumes, and would compete even more strongly for those smaller customers.

19.24 Distributors also have countervailing power, because if a distributor considers it is not receiving competitive pricing it can switch supplier. As set out above at section 12:

- (a) Axieo recently switched from [REDACTED] in Australia to supplying Huntsman products (although in this instance the switch was not price-related but a result of Huntsman offering Axieo Australia and New Zealand distribution, as well as its wider pigment range); and
- (b) Cathay recently switched from supplying Huntsman products to supplying Chemours products in Australia and New Zealand.

19.25 Many distributors are also active across multiple jurisdictions and so can negotiate over much greater volumes.

19.26 Smaller customers in New Zealand therefore have a wide range of options when sourcing TiO₂. Not only can they source from any of the large global TiO₂ suppliers, such as the Parties, Chemours, Kronos, Huntsman, Lomon Billions, and so on (who, by virtue of the small size of the New Zealand market, will remain incentivised to supply to as many of those customers as possible), but they can also source from any of the (at least) 9 significant distributors active in New Zealand.

Summary

19.27 In summary, the Transaction is not likely to have the effect of substantially lessening competition in any New Zealand market:

- (a) TiO₂ pigment is subject to global supply and demand trends and a large number of producers will remain post-acquisition;
- (b) the **large** majority of sales made by the Parties are to customers that negotiate on a multinational basis, meaning that in respect of these volumes, the field of competitive rivalry between Cristal, Tronox, and their many global and Asia Pacific competitors is chiefly outside of New Zealand;
- (c) the Parties only overlap in direct sales **[REDACTED]**;
- (d) while Cristal makes sales to a number of other large New Zealand coatings customers, **[REDACTED]**, reflecting the high level of material constraint provided by the numerous other competitors in the market. To the extent that Tronox is a potential competitor to Cristal in respect of these customers, it is simply one of a number of other major suppliers such as Huntsman, Kronos, Chemours and Lomon Billions (some of whom are likely already to be certified to supply these customers and if not, would do so in response to an opportunity); and
- (e) in respect of the **[REDACTED]** sales made to **[REDACTED]** (representing **[REDACTED]** of Cristal's New Zealand sales and **[REDACTED]** of Tronox's New Zealand sales respectively), the Parties have a comparatively smaller presence. Sales are made via a distributor for Tronox and directly by Cristal. These customers have a large number of distributors to choose from, offering product from a large number of suppliers.

20. Barriers to entry and expansion are low

20.1 As set out above, a large number of TiO₂ pigment suppliers export product to New Zealand. These suppliers can readily expand. A customer seeking to acquire TiO₂ pigment from overseas suppliers, or an overseas pigment producer seeking to enter or expand in the New Zealand market, will essentially face no barriers to doing so.

No physical presence required

20.2 Manufacturers do not require a local sales team to access the New Zealand market. **[REDACTED]**. Indeed, as noted above, most suppliers, including Chemours, Huntsman, Kronos, and Lomon Billions, have technical support teams based outside of New Zealand that provide services to New Zealand customers, **[REDACTED]**.

20.3 A manufacturer can either import directly to the customer or engage a distributor to act on its behalf. Accordingly TiO₂ pigment manufacturers not currently operating in New Zealand can engage a local distributor and existing competitors can introduce additional TiO₂ pigment grades from their catalogue and/or increase quantity supplied with no extra costs. Indeed, TiO₂ pigment is available to purchase in a range of quantities from ecommerce site Alibaba (albeit that this is not likely to be suitable for all customers).³⁰

No significant cost / location barrier

20.4 The physical cost of entry or expansion in New Zealand is minimal. TiO₂ pigment is easily transported, as demonstrated by the current volumes of imports into New Zealand from a wide range of locations. It is inert and has a very long shelf life if correctly stored. This means that customers may choose to purchase bulk quantities (rather than small, regular deliveries), thereby facilitating imports. TiO₂ pigment is generally sold in bags of 25kg, 500kg or 1 tonne. It may be imported in containers holding approximately 20 tonnes, depending on the bulkiness of a particular grade. **[REDACTED]**.

³⁰ [https://www.alibaba.com/showroom/TiO₂.html](https://www.alibaba.com/showroom/TiO2.html)

- 20.5 The Parties estimate that transport costs for movements between world regions accounts for **[REDACTED]** of the price.
- 20.6 The New Zealand TiO₂ pigment market is priced in USD, minimising exchange rate exposure and improving price comparisons between competing suppliers. This lowers barriers to entry/expansion and increases the competitiveness of TiO₂ pigment in New Zealand.

Competitors are highly incentivised to supply regions where there is demand for their products

- 20.7 Fixed costs in the TiO₂ pigment industry are high, **[REDACTED]**. Accordingly, producers must maximise their production output in order to lower production costs per tonne, and the cost of transporting pigment overseas is insignificant relative to the marginal profit a TiO₂ pigment producer can make on each additional tonne that it sells. Accordingly, competitors are likely to increase their exports to New Zealand if post-Transaction the merged entity tried to raise prices.

Low switching costs

- 20.8 The vast majority of TiO₂ pigment customers/applications can readily switch between grade/supplier. In addition, most customers have a well-established multi-sourcing practice, typically having several pre-approved suppliers to switch between, without incurring additional costs.
- 20.9 In Tronox's experience, **[REDACTED]**. However, if circumstances demand it, qualification can be achieved as quickly as required by the customer, including in some cases within a week, if enough resources are allocated by the customer to the process. For example, when Hurricane Katrina destroyed pigment production facilities in the USA in 2005, customers were able to qualify new pigment products within weeks to avoid a loss of production.
- 20.10 As noted above, customers already routinely multi-source TiO₂ pigment. The industry's multi-sourcing practice limits the impact any potential switching costs (or time needed to switch) may have on a competitor expanding as customers can continue to source TiO₂ pigment while simultaneously approving a new grade/supplier. Multi-sourcing is in the customer's best interest as it reduces its exposure to any supply side risk while improving its negotiating power by establishing a credible threat of switching.
- 20.11 As set out above, major TiO₂ pigment customers supplied by the Parties multi-source TiO₂ pigment from the Parties' global TiO₂ pigment competitors.

No statutory / regulatory barriers

- 20.12 Statutory / regulatory barriers appear non-existent. New Zealand does not impose any tariffs on TiO₂ pigment imports from any country.
- 20.13 The Hazardous Substances and New Organisms Act 1996 (**HSNO**) governs the importation of hazardous substances and is regulated by the Environmental Protection Authority (**EPA**). TiO₂ pigment is listed on the NZ Inventory of Chemicals, a database of all hazardous chemical components of products approved under group standards. Rutile TiO₂ pigment's HSNO classification is 9.1B and its corresponding HSNO approval number for its group standard is HSR002503. The HSNO Group Standard sets out the obligations and restrictions on TiO₂ pigment and is attached as **Annexure 9**. In brief, the supplier must provide a label with the product name, information about the manufacturer and display the pictures in the table below:

HSNO Hazard Classification	Transport of Dangerous Goods Pictogram	GHS Pictogram	Signal word	Hazard statement code	Precautionary statement codes			
					Prevention	Response	Storage	Disposal
9.1B			No Signal Word	H411	P103 ^b P273	P391	No storage statements	P501

20.14 If the TiO₂ pigment complies with the relevant labelling requirements of Australia, USA, Canada, the European Union, or any other country approved by the EPA, the substance does not need to comply with the specific requirements in the Group Standard.³¹

21. Customers have substantial countervailing bargaining power

21.1 The vast majority of the Parties' customers are [REDACTED]. As noted above, [REDACTED].

21.2 To a very large degree, therefore, customers have the ability to exercise countervailing power to constrain a supplier's ability to profitably raise prices (and they regularly do so). In addition to the negotiating power customers gain from multi-sourcing discussed above, the large majority of customers can readily switch to a competitor's TiO₂ pigment without any substantial switching cost.

21.3 Accordingly, if the Parties attempted to raise prices post-Transaction, the large majority of customers can obtain a quote from a competitor for a substitutable TiO₂ pigment and threaten to change supplier, while customers who multi-source switch volumes between pre-approved suppliers. [REDACTED].

21.4 Large multi-national customers can and do leverage their global buying capacity when negotiating price. [REDACTED].

21.5 Large customers also have the ability to sponsor entry, constraining the merged entity's ability to raise prices post-Transaction. For example:

(a) PPG³² has sponsored Henan Billions' (now Lomon Billions) growth in the Australian market (and globally) by licensing to it PPG's own chloride-based technologies for use on a global basis and entering into a long term supply agreement with Henan Billions, under an agreement established in 2012. PPG also supported the establishment of Henan Billion's new chloride plant by providing quality and process improvements, analytical testing support and product evaluations, [REDACTED].³³ PPG has publicly indicated its intention to replace significant portions (approximately [REDACTED]%) of its western produced chloride TiO₂ pigment with pigment produced by Lomon Billions. PPG may also licence its technology to other TiO₂ pigment producers.

(b) Similarly Tronox has recently been told [REDACTED].

22. Vertical effects

22.1 As set out in paragraph 5 above, improving the Parties' feedstock position is a driver of the Transaction. It will result in more feedstock being produced, leading to increased production of TiO₂ pigment. Accordingly, the Transaction will not have any anticompetitive vertical effects in New Zealand.

³¹ Group Standard at page 7.

³² <http://www.ppgaerospace.com/About-Us/News/20120626A>

³³ PPG manufactured chloride pigment in the 1960s and 1970s.

Part G: Confidentiality

23. Reasons for seeking confidentiality

- 23.1 Confidentiality is sought in respect of the information in this application that is highlighted, in bold and contained within square brackets (the **Confidential Information**). Confidentiality is sought for the Confidential Information for the purposes of section 9(2)(b) of the Official Information Act 1982 on the following grounds.
- (a) The Confidential Information is commercially sensitive and valuable information which is confidential to either, or both, the Parties.
 - (b) Disclosure of the Confidential Information would be likely to unreasonably prejudice the commercial position of the Parties.
- 23.2 Tronox requests that it is notified if the Commission receives any request under the Official Information Act 1982 for the release of any part of the Confidential Information. Tronox also requests that the Commission seek and consider Tronox's views as to whether the Confidential Information remains confidential and commercially sensitive before it responds to such requests.

Part H: Declaration

I, _____, have prepared, or supervised the preparation, of this notice seeking clearance.

To the best of my knowledge, I confirm that:

- all information specified by the Commission has been supplied;
- if information has not been supplied, reasons have been included as to why the information has not been supplied;
- all information known to me that is relevant to the consideration of this notice has been supplied; and
- all information supplied is correct as at the date of this notice.

I undertake to advise the Commission immediately of any material change in the circumstances relating to the notice.

I understand that it is an offence under the Commerce Act to attempt to deceive or knowingly mislead the Commission in respect of any matter before the Commission, including in these documents.

I am a director/officer of the company and am duly authorised to submit this notice.

Name and title of person authorised to sign:

Sign: _____

Date: _____

Part I: Annexures

Contents

Annexure 1	Corporate Structure Diagram of Tronox (Confidential)
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Annexure 6	Transaction Agreement / Cristal Disclosure Letter / Tronox Disclosure Letter (Confidential)
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Annexure 1: Corporate Structure Diagram of Tronox

[REDACTED]

Annexure 2: Tronox's Financial Statements -2015

[REDACTED]

Annexure 3: Corporate Structure Diagram of Cristal

[REDACTED]

Annexure 4: Cristal's Financial Statements – 2015

[REDACTED]

Annexure 5: Corporate Structure Diagram of Transaction

[REDACTED]

**Annexure 6: Transaction Agreement / Cristal Disclosure Letter /
Tronox Disclosure Letter (Confidential)**

[REDACTED]

Annexure 7: Competitor Contact Details

The following contact details have been sourced from publically available information.

Party	Contact details
Chemours	Address: 98 Kerrs Road, Manukau City, Auckland 2241 Phone: 61-2-9923 6234
Huntsman	Name: Craig Lovel (General Manager of Huntsman Australia) Address: Gate 3, Ballarat Road, Deer Park Victoria 3023, Australia Phone: +61 3 9361 6050
Kronos	Address: Level 1, Suite 3. 7 Eden Park Drive. Macquarie Park, NSW 2113 PO Box 126 North Ryde BC NSW 1670, Australia. Phone: +61 2 9418 2266
Lomon Billions	Address: Zhongzhan District, Jiaozuo City, Henan Province, China Phone: +86 391 3126903 Email: dongyongai@lomonbillions.com
CNNC HuaYuan Titanium Dioxide Co, Ltd. (CNNC)	Address: Room 1001, Sandhill Plaza, No.2290 Zuchongzhi Road, Pudong New Area, Shanghai, China Phone: +86 21 60729988 Email: chti@sinoTiO₂_pigment.com
Yunnan Xinli	Name: George Chen (Overseas Sale Office) Address: Qinfen Town of Lufeng County, Chuxiong State, Yunnan Province Phone: 1-416-278-6756

Annexure 8: Key Customers and Suppliers

Customer	Revenue	Contact details
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		
[REDACTED]	[REDACTED]	[REDACTED]

Annexure 9: HSNO Group Standard

Attached

Annexure 10: Pricing Trends – Regional and global correlation

Figure 1: Average regional price of TiO₂ pigment sold by Tronox (2012-2017)

[REDACTED]

Figure 2: Average regional price of TiO₂ pigment sold by Cristal (2010-2016)

[REDACTED]

Figure 3: Average price for TiO₂ pigment grades sold by Tronox in New Zealand (2012-2016)

[REDACTED]

Figure 4: Average price for TiO₂ pigment grades sold by Cristal in New Zealand (2010-2016)

[REDACTED]