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Determination

Tronox Limited and National Titanium Dioxide Company Ltd [2017] NZCC 22

The Commission:	Dr Mark Berry Sue Begg Stephen Gale
Summary of application:	An application from Tronox Limited seeking clearance to acquire the TiO_2 pigment business assets of National Titanium Dioxide Company Ltd.
Determination:	Under section 66(3)(b) of the Commerce Act 1986, the Commerce Commission determines to give clearance to the proposed merger.
Date of determination:	6 September 2017

Confidential material in this report has been removed. Its location in the document is denoted by [ ].

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The proposed merger

Summary of the proposed merger

1. On 23 June 2017 the Commerce Commission registered an application (the application) under section 66(1) of the Commerce Act 1986 (the Act) from Tronox Limited (Tronox or the Applicant) seeking clearance to acquire 100% of the shares and/or assets of the TiO_2 pigment business of National Titanium Dioxide Company Ltd (Cristal) (the merger).

2. The merger is part of a global transaction. The parties have notified (or plan to notify) with regulation authorities in a large number of countries including Australia, United States and the EU.[1] In New Zealand the merger would result in the aggregation of the TiO_2 pigment supply businesses of Tronox and Cristal.

Applicant's rationale for the merger

3. Tronox submitted that the transaction will:

    3.1 generate cost savings and increase output through greater vertical integration;

    3.2 improve the service offering to customers;

    3.3 allow for procurement savings; and

    3.4 combine expertise to enable plant improvements and increase output.[2]

Our decision

4. The Commission gives clearance to the merger as it is satisfied that the merger will not have, or would not be likely to have, the effect of substantially lessening competition in a market in New Zealand.

Our framework

5. Our approach to analysing the competition effects of the merger is based on the principles set out in our Mergers and Acquisitions Guidelines (our guidelines).[3]

The substantial lessening of competition test

6. As required by the Act, we assess mergers using the substantial lessening of competition test.

7. We determine whether a merger is likely to substantially lessen competition in a market by comparing the likely state of competition if the merger proceeds (the scenario with the merger, often referred to as the factual), with the likely state of

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1 Application at [7.1]
2 Application at [5.1].
3 Commerce Commission, *Mergers and Acquisitions Guidelines* (July 2013).

competition if the merger does not proceed (the scenario without the merger, often referred to as the counterfactual).[4]

8. A lessening of competition is generally the same as an increase in market power. Market power is the ability to raise price above the price that would exist in a competitive market (the 'competitive price'),[5] or reduce non-price factors such as quality or service below competitive levels.

When a lessening of competition is substantial

9. Only a lessening of competition that is substantial is prohibited. A lessening of competition will be substantial if it is real, of substance, or more than nominal.[6] Some courts have used the word 'material' to describe a lessening of competition that is substantial.[7]

10. As set out in our guidelines, there is no bright line that separates a lessening of competition that is substantial from one which is not. What is substantial is a matter of judgement and depends on the facts of each case.[8]

11. A lessening of competition or an increase in market power may manifest itself in a number of ways, including higher prices or reduced services.[9]

When a substantial lessening of competition is likely

12. A substantial lessening of competition is 'likely' if there is a real and substantial risk, or a real chance, that it will occur. This requires that a substantial lessening of competition is more than a possibility, but does not mean that the effect needs to be more likely than not to occur.[10]

The clearance test

13. We must clear a merger if we are satisfied that the merger would not be likely to substantially lessen competition in any market.[11] If we are not satisfied – including if we are left in doubt – we must decline to clear the merger.

14. In *Woolworths* the Court held that "the existence of a 'doubt' corresponds to a failure to exclude a real chance of a substantial lessening of competition".[12]

15. The burden of proof lies with Tronox, as the applicant, to satisfy us on the balance of probabilities that the proposed merger is not likely to have the effect of substantially

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4 *Commerce Commission v Woolworths Limited* (2008) 12 TCLR 194 (CA) at [63].
5 Or below competitive levels in a merger between buyers.
6 *Woolworths & Ors v Commerce Commission* (2008) 8 NZBLC 102,128 (HC) at [127].
7 Ibid at [129].
8 *Mergers and Acquisitions Guidelines* above n3 at [2.23].
9 *Mergers and Acquisitions Guidelines* above n3 at [2.21].
10 Ibid at [111].
11 Section 66(3)(a).
12 *Commerce Commission v Woolworths Ltd* (CA) above n4 at [98].

lessening competition.[13] The decision to grant or refuse a clearance is necessarily to be made on the basis of all the evidence.[14] We will sometimes have before us conflicting evidence from different market participants and must determine what weight to give the evidence of each party.[15]

Key parties

Tronox

16. Tronox is a public limited liability company incorporated in Australia and 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.

17. Tronox operates two vertically integrated businesses:

    17.1 The TiO_2 pigment business involves the mining and processing of titanium feedstock and the manufacture of TiO_2 pigment. Tronox imports and sells TiO_2 pigment to customers in New Zealand.

    17.2 The alkali chemical business involves the mining and processing of trona ore and the manufacture of soda ash. It also produces bicarbonate and other chemical compounds used in common industrial and household applications.

18. Tronox has no physical presence in New Zealand.[16] Tronox instead supplies TiO_2 directly to large customers in New Zealand and to smaller customers through ASCC Ltd (trading as Rebain NZ).

Cristal

19. Cristal is an international chemical company incorporated in Saudi Arabia. It is currently owned 79% by the National Industrialization Company Ltd (Tasnee), 20% by the Gulf Investment Corporation and 1% by a private individual (Dr. Talal Al-Shair).

20. Cristal operates five main business divisions:

    20.1 mining of TiO_2 feedstocks and zircon from mineral sands;

    20.2 TiO_2 pigment manufacture and supply to a range of customers;

    20.3 titanium chemical products production, for a range of uses such as catalysis for polymerization and pharmaceutical and chemical synthesis;

    20.4 ultrafine and specialty TiO_2 pigment production and supply; and

    20.5 titanium powder, alloys and related products research development.

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13 *Commerce Commission v Southern Cross Medical Care Society* (2001) 10 TCLR 269 (CA) at [7] and *Commerce Commission v Woolworths Ltd* (CA) above n4 at [97].

14 *Commerce Commission v Woolworths Ltd* (CA) above n4 at [101].

15 *Brambles New Zealand Ltd v Commerce Commission (2003)* 10 TCLR 868 at [64].

16 Commerce Commission interview with Tronox (10 July 2017).

21. Cristal also owns the Arabian Chemical Centre in Yanbu, Saudi Arabia. The Arabian Chemical Centre produces a range of mineral and chemical products which are used in the manufacture of paper, plastics and solvents, among other things.

22. In New Zealand, Cristal operates a warehouse facility and has a single employee who provides customer service.[17] Cristal uses these facilities to supply both large and small New Zealand customers.

Other TiO_2 producers

Chemours

23. Chemours is incorporated in the United States. Chemours was previously part of DuPont, but became an independent company in 2015. Chemours has three business divisions: titanium technologies, flouroproducts, and chemical products. Chemours has TiO_2 plants in the United States, Mexico and Taiwan, and claims to be the largest global producer of TiO_2.[18]

24. Chemours deals directly with large New Zealand customers and uses Cathay Industries NZ PTY Limited (Cathay) to distribute to smaller New Zealand customers. Cathay is also Chemours' distributor of TiO_2 pigment in Australia and the Pacific Islands.

Kronos

25. Kronos Worldwide Inc. (Kronos) is incorporated in the United States. Kronos is a TiO_2 pigment producer with plants in North America and Europe. In New Zealand, Kronos is distributed by Chemcolour Industries (NZ) Limited (Chemcolour).

Venator

26. Venator Material Plc (Venator) is incorporated under the laws of England and Wales. Venator, owned by Huntsman Corporation, is a global manufacturer and supplier of TiO_2. Venator has TiO_2 plants in Malaysia, North America, and Europe. In New Zealand, Venator is distributed by Axieo (New Zealand) Limited (Axieo).

Lomon Billions

27. Lomon Billions is listed on the Shenzhen stock exchange and has headquarters in China, United Kingdom and the United States.[19] Lomon Billion owns three plants in China and also produces in France through toll manufacture. Lomon Billion claims to be the world's fourth largest producer of high performance TiO_2 and to have the largest TiO_2 production capacity in Asia.[20] In New Zealand, Lomon Billions TiO_2 is distributed by Cathay Industries.

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17 Commerce Commission interview with Cristal (10 July 2017).
18 Chemours "Our Company" <www.chemours.com>
19 Lomon Billions "About the company" <www.lomonbillions.com>
20 Lomon Billions "About the company" <www.lomonbillions.com>

Industry background

TiO_2 manufacture

28. TiO_2 pigment is a manufacturing input used to impart whiteness, brightness and opacity.[21] Aside from providing colour, TiO_2 is used as a UV stabiliser to help prevent the degradation of products exposed to the sun.[22] TiO_2 is an input in the manufacture of products such as paint, plastics, paper, inks, pharmaceuticals, fibres, and cosmetics.

29. There are two main types of TiO_2, distinguished by the method of production:

    29.1 sulphate-grade TiO_2 (S-TiO_2) which is made using sulphuric acid to extract the TiO_2 crystals; and

    29.2 chloride-grade TiO_2 (C-TiO_2) which is made by using chlorine to extract the TiO_2 crystals.

30. Although the TiO_2 produced by both methods can be used to impart whiteness and to protect against UV, there are differences in the characteristics of the two grades of TiO_2. S-TiO_2 is generally cheaper than C-TiO_2, but is viewed as being of lower quality and as "dirty" due to by-products produced during the manufacturing process.[23] As we discuss further in the market definition section, this means S-TiO_2 is not a good alternative to C-TiO_2 for some applications.

31. The final stage of the manufacturing process of both S-TiO_2 and C-TiO_2 involves the TiO_2 crystals being milled to ensure optimal size distribution and then coated with other chemicals. The crystal size distribution and the coating chosen create different grades of TiO_2. The application determines which grade of TiO_2 is most suitable. For example, the coating can improve the durability of the pigment and ensure the pigment can be easily incorporated into a coating resin or plastic.

32. TiO_2 is a particularly important component for paint due to the colour and protection it provides. TiO_2 [ ] cost components for paint manufacturers, and accounts for around a [ ] of the cost of a tin of paint for some paint manufacturers.[24] Paint manufacturers will go through a testing process to ensure the TiO_2 works correctly with their product. Suppliers whose TiO_2 products have passed those tests are known as "approved suppliers".

33. Some paint manufacturers may specifically design a paint product around a particular grade of TiO_2 from a particular TiO_2 supplier. This can make it difficult to switch to another grade of TiO_2 from another supplier as it potentially requires a

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21 Application at 10.

22 Commerce Commission interview with Resene (12 July 2017).

23 See for example, Commerce Commission interview with [ ], Commerce Commission interview with [ ], Commerce Commission interview with [ ], Commerce Commission interview with [ ].

24 Commerce Commission interview with Dulux (12 July 2017), Commerce Commission interview with Valspar (11 July 2017), Commerce Commission interview with Resene (12 July 2017), Commerce Commission interview with Decora (27 July 2017).

change in the manufacturing process of the paint product.[25] In other cases, a paint manufacturer may have several grades of TiO_2 approved.

34. TiO_2 is not currently manufactured in New Zealand. New Zealand is entirely supplied through imports.

Industry trends

35. We have been told that the global market is experiencing "tight" supply conditions, meaning that there is high demand and relatively limited spare capacity.[26] This has apparently occurred due to an increase in global demand of TiO_2 and the closure of plants. This has led to price increases for TiO_2 and concerns from some customers over the security of supply.[27]

Use of TiO_2 in New Zealand

36. The volumes of TiO_2 that are consumed in New Zealand are relatively small, in total around [ ] MT pa. This compares to:

    36.1 global consumption of over [ ] MT and Asia Pacific consumption of over [ ] MT pa;[28] and

    36.2 capacity of supplier plants such as Tronox in Western Australia (150,000 MT pa), Cristal in Western Australia (110,000 MT pa) and Chemours in Taiwan ([ ] MT pa).[29]

37. The majority of TiO_2 imported into New Zealand is supplied to paint manufacturers including Resene, Dulux, Valspar, PPG and Decora. These paint manufacturers produce interior, exterior, commercial grade and marine paints. We estimate that paint and coating manufacturers Resene ([ ]), Dulux ([ ]), and Valspar ([ ]) together account for around [ ] of the total amount of TiO_2 supplied to New Zealand.

38. Plastic manufacturers are also significant purchasers of TiO_2, including Aliaxis (the parent company of Marley, RX Plastics, Dynex and Chemvin) and Iplex. These firms produce plastic pipes and other building products for domestic and industrial use.

39. Table 1 sets out the proportion of TiO_2 consumed in New Zealand by large customers.

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25 Commerce Commission interview with [ ], Commerce Commission interview with [ ], Commerce Commission interview with [ ].

26 Application at [11.3]

27 Application at Annexure 10 shows [ ]. [ ] are among customers that have identified concerns over supply. See Commerce Commission interview with [ ], Commerce Commission interview with [ ], Commerce Commission interview with [ ].

28 Application at [19.1]-[19.2].

29 Tronox and Cristal capacities from Tronox "Tronox Announces Agreement to Acquire Cristal TiO2 and Reports 4Q and FY2016 Results" (21 February 2017) at 9; Chemours capacity estimated in [ ].

Table 1: Consumption of TiO_2 by major New Zealand customers in 2016

Customer	C-TiO_2 volume (MT)	% of total C-TiO_2	S-TiO_2 volume (MT)	% of total S-TiO_2	TiO_2 volume (MT)	% of total TiO_2
Resene	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Dulux	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Valspar	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Demar	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Aliaxis	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
PPG	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Decora	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Others	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Total	**[ ]**	**100**	**[ ]**	**100**	**[ ]**	**100**

Notes: C-TiO_2 total estimate based on Commission market enquiries. Tronox provided the total TiO_2 of [ ]. The S- TiO_2 total was calculated by the difference between that and the C- TiO_2 total. It has not been verified.
Source: Data provided by the parties and/or customers.

Market definition

40. Market definition is a tool that helps identify and assess the close competitive constraints the merged entity would face. Determining the relevant market requires us to judge whether, for example, two products are sufficiently close substitutes as a matter of fact and commercial common sense to fall within the same market.

41. We define markets in the way that best isolates the key competition issues that arise from a merger.[30] In many cases this may not require us to precisely define the boundaries of a market. What matters is that we consider all relevant competitive constraints, and the extent of those constraints. For that reason, we also consider products and services which fall outside the market but which still impose some degree of competitive constraint on the merged entity.

Product market

The Applicant's view

42. Tronox claimed that there is no segmentation of the market according to whether the TiO_2 is produced by the sulphate or chloride manufacture process, or by grade or application.[31]

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30 *Mergers and Acquisitions Guidelines* above n3 at [3.10-3.12].
31 Application at [14.4].

43. Tronox submitted that for the vast majority of applications customers are able to use TiO_2 pigment derived from the sulphate and chloride process interchangeably.[32] Tronox also submitted that multiple grades are suitable for a given application and that suppliers can easily switch production between grades.

Our view on the relevant product markets

44. The Commission has not previously considered the market for TiO_2 pigment. TiO_2 has been considered in overseas jurisdictions.

    44.1 The EC considered TiO_2 most recently in its consideration of the *Huntsman/Rockwood* merger.[33] It analysed the market according to application, specifically: coatings; plastics; and speciality applications. However, within these categories the EC found that TiO_2 produced by the sulphate-based or chloride-based process can be substituted in most cases.

    44.2 The ACCC announced on 31 August 2017 that it did not intend to oppose the merger between Tronox and Cristal in Australia.[34] The ACCC considered narrower product markets for sulphate-based and chloride-based titanium dioxide pigment, and for particular grades of titanium dioxide pigment used in particular applications. However, it did not reach a conclusion on market definition on the basis that the acquisition would not give rise to competition concerns even if the market was defined narrowly.

45. A focus of our investigation has been on whether customers in New Zealand view S-TiO2 and C-TiO_2 as substitutable. Tronox does not produce S-TiO_2. However, both firms produce C-TiO_2. Therefore, identifying whether S-TiO_2 is substitutable with C-TiO_2 could impact the assessment of the merger.

46. There are some applications where S-TiO_2 may not be a good alternative for C-TiO_2. In particular, we were told that S-TiO_2 is not suitable for use in producing external and high performance paints. We were given the following reasons for this:

    46.1 C-TiO_2 gives a blue tint to the white pigment colour, and S-TiO_2 a yellow tint.[35] Some paint manufacturers consider S-TiO_2 would be difficult to substitute because their colour formulations have been designed around the blue tint of C-TiO_2.[36] If they substituted to S-TiO_2, it would be necessary to reformulate their paints to achieve the desired colours.

    46.2 S-TiO_2 is of a lower quality and less durable. Some paint manufacturers advised that the TiO_2 does not provide the same level of protection against

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32 Application at [14.4].

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

34 ACCC "Tronox Limited – proposed acquisition of Cristal's titanium dioxide business" (31 August 2017).

35 Commerce Commission interview with [ ], Commerce Commission interview with [ ].

36 Commerce Commission interview with [ ].

UV. [37][38] We were advised that protection is particularly important in Australia and New Zealand due to the intensity of the sun.[39]

46.3 The S-TiO_2 production process is viewed as being "dirty" and some customers were not prepared to use it for environmental reasons.[40][41]

46.4 The evidence we gathered on S-TiO_2 and C-TiO_2 prices was not clear on whether different grades impose a constraint on one another. Tronox provided pricing data for S-TiO_2 and C-TiO_2 which appeared to show the prices of the two products moving together. Tronox submitted that this shows the two grades are in the same market. However, once basic measures to control for common costs were included, the trend was less clear.

47. Despite this, the paint manufacturers indicated that they were able to switch some of their products to S-TiO_2. Some products that they manufacture require a lower quality TiO_2 (for example, indoor paint) and, in some cases, these could be switched to S-TiO_2.[42] For example, [ ] has stated that, although it sources only C-TiO_2, it would be possible for it to switch [ ]% of its production to S-TiO_2 grade. The ability of paint manufacturers to switch between these products could be sufficient to justify including both C-TiO_2 and S-TiO_2 in the same market.

48. While we consider that there may be separate markets for S-TiO_2 and C-TiO_2 in New Zealand, we do not consider it necessary to conclude on this. For the purposes of this analysis, we have assessed the effects of the merger on the market for the supply of C-TiO_2 and we have taken into account the additional constraint that customers could impose by switching some purchases to S-TiO_2 in the competition analysis.

Geographic dimension

49. Tronox submitted that the TiO_2 market is global in scope.[43] Tronox submitted that transport costs for TiO_2 are low and that global demand and supply of TiO_2 influences the price and margins for all grades of TiO_2 pigment.[44]

50. Section 3 (1A) of the Act sets out that the term market refers to a market in New Zealand for goods or services as well as other goods or services that, as a matter of fact and commercial common sense, are substitutable for them. As such, we have focused on the importation and wholesale supply of TiO_2 in New Zealand. To the extent that global TiO_2 suppliers can deliver TiO_2 at low cost, we have taken this into account in the competition analysis.

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37 Commercial Commission interview with [ ].
38 Commercial Commission interview with [ ].
39 Commercial Commission interview with [ ], Commercial Commission interview with [ ].
40 Commercial Commission interview with [ ].
41 Commercial Commission interview with [ ].
42 Commercial Commission interview with [ ].
43 Application at [14.11].
44 Submission from Bell Gully (on behalf of Tronox) 11 August 2017) at [1]-[4].

With and without scenarios

51. To assess whether a merger is likely to substantially lessen competition in a market, we compare the likely state of competition if the merger proceeds (the scenario with the merger, often referred to as the factual), with the likely state of competition if the merger does not proceed (the scenario without the merger, often referred to as the counterfactual).[45]

Without the merger

52. Tronox submitted that the relevant counterfactual is the status quo in which Tronox and Cristal continue to compete and be independent of each other. We have assessed the impact of the merger against this counterfactual.

With the merger

53. The proposed merger would result in Tronox owning the TiO_2 pigment and TiO_2 mining business of Cristal. With the merger, the existing competition between the two firms to supply New Zealand customers would be lost.

How the merger could substantially lessen competition

54. We have considered three possible ways in which the merger would have, or would be likely to have, the effect of substantially lessening competition:

    54.1 giving rise to unilateral effects in the supply of C-TiO_2 pigment in New Zealand;

    54.2 giving rise to vertical effects in the supply of C-TiO_2 pigment in New Zealand; and,

    54.3 increasing the potential for the merged entity and all or some of its remaining competitors to coordinate their behaviour and collectively exercise market power such that quality reduces and/or prices increase in the supply of C-TiO_2 pigment in New Zealand.

Unilateral effects

55. Unilateral effects refer to the ability of the merged entity to raise prices or reduce quality due to the merger removing a competitor that would otherwise have acted as a competitive constraint in the market.

56. Following our investigation, we are satisfied that the merger will not have, or would not be likely to have, the effect of substantially lessening competition for the supply of C-TiO_2 pigment in New Zealand due to unilateral effects. The merging parties would account for a large proportion of C-TiO_2 supplied to New Zealand. However, we consider there would be sufficient constraints on the merged entity. In particular, the merged entity would continue to face strong competition from Chemours.

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[45] *Mergers and Acquisitions Guidelines* above n3 at [2.29].

Extent of existing competition between the merging parties

57. We have considered market shares as an initial indicator of the competitive constraint between the suppliers of TiO_2 pigment in New Zealand. Tronox submitted estimates of market share figures for all TiO_2 sales in 2015. These estimates show the merging parties would have:

    57.1 on a global basis, a share of around [ ]%;

    57.2 on an Asia Pacific basis, a share of around [ ]%; and,

    57.3 in New Zealand, a share of around [ ]%.

58. The merged entity's share of Asia Pacific is small mainly because of the large number of Chinese producers. According to the estimates, Chinese producers collectively account for over [ ] of TiO_2 sales in Asia Pacific, although they mainly produce S-TiO_2, rather than C-TiO_2.

59. As identified in the market definition section, we have focused our analysis on the supply of C-TiO_2 only. We estimate the share of supply for New Zealand for 2016 in Table 2 below.

Table 2: Share of supply of C-TiO2 in New Zealand (2016)

Rival	Volume (MT pa)	Share (%)
Cristal	[ ]	[ ]
Tronox	[ ]	[ ]
Combined	*[ ]*	*[ ]*
Chemours (including Cathay)	[ ]	[ ]
Ukrainian supplier	[ ]	[ ]
Kronos (Chemcolour)	[ ]	[ ]
Venator (Axeio)	[ ]	
Others	[ ]	
Total	**[ ]**	**100**

Notes: Total figure based on volumes that we were able to identify through our market enquiries. The actual total may be larger.
Source: Data from parties and/or distributors.

60. The table shows that Cristal is the leading supplier of C-TiO_2 to New Zealand, followed by Chemours and then Tronox. Together the merging parties would account for around [ ] of C-TiO_2 supplied to New Zealand. These shares may

overstate the position of the merging parties in New Zealand for the following reasons.

60.1 The table is likely to overestimate the shares of the merging parties (and others listed in the table) to a degree. We were able to obtain the volume figures of the merging parties but we were not able to obtain volume figures for all other firms that supply C-TiO_2 in New Zealand. As such the "true" total figure will be larger (and therefore the merging parties' shares lower), although the volumes of other suppliers of C-TiO_2 not included in the table are likely to be low as all the major customers are supplied by Tronox, Cristal and Chemours.

60.2 The table does not take into account that some of these volumes could be switched to S-TiO_2.

60.3 The table does not reflect that purchases in New Zealand are made by a few large customers (see Table 1). The shares could change quickly if one of those customers switched to a rival supplier.

61. Despite this, the market shares for Cristal and Tronox suggest the two firms are both significant competitors for the supply of C-TiO_2 to New Zealand customers. Consistent with this, some customers we spoke to raised concerns that the merger between the two firms may adversely affect competition.

61.1 [ ] mainly sources its TiO_2 from [ ], with a small amount from [ ].[46] [ ] advised that it used the competitive tension between Tronox and Cristal when negotiating price, and Chemours to a lesser extent. [ ] was concerned the merged entity would raise prices and others would follow.

61.2 [ ] uses [ ] for the majority of its TiO_2 requirements, although it purchases a small amount from [ ].[47] [ ] viewed [ ] TiO_2 as a substitute for some of [ ] uses. Although it had not recently played Cristal and Tronox off against each other, [ ] considered the merger would result in a reduction of competition.

61.3 [ ] purchases its TiO_2 from [ ]. [ ] did not view products from [ ] (or any other supplier) as feasible alternatives to the grade it purchases from [ ]. [ ] was concerned that the particular grade of TiO_2 it purchases from [ ] may be withdrawn if the merger proceeds. [ ] considered the merger would give [ ] more leverage over it.

61.4 [ ] purchases C-TiO_2 from [ ] and S-TiO_2 from [ ]. [ ] C-TiO_2 products are not approved for its paints, although it believes [ ] products

[46] Commerce Commission interview with [ ].
[47] Commerce Commission interview with [ ].

would be suitable. [ ] considered the merger would reduce competition.

62. [ ] and [ ], who both purchase from [ ], did not raise the same concerns as they were of the view that they had competitive alternatives.

Constraint from existing competition

63. Given the concerns of some customers, we considered whether the constraint imposed by other suppliers of C-TiO_2 would be likely to replace any lost competition from the merger. We assessed whether entry or expansion by rivals would be likely to be sufficient in extent in a timely fashion to constrain the merged entity and prevent a substantial lessening of competition (known as the "LET test").

64. On the whole, the evidence suggests that existing competition is likely to impose a strong constraint on the merged entity.

65. Chemours would be next largest supplier of TiO_2 in New Zealand after the merged entity. The evidence suggests that Chemours is likely to impose a considerable constraint on the merged entity.

65.1 Chemours is geographically the next closest supplier of TiO_2 to New Zealand after the merging parties, with a plant in Taiwan. [ ] indicated that purchasing from Chemours introduces additional logistics. However, this appears to
[
]. [ ] did not express the same concerns. Those customers told us that the logistics of sourcing from Taiwan is not significantly more difficult than sourcing from Australia.[48] Consistent with this, Chemours supplies a higher volume of TiO_2 to New Zealand than Tronox despite being further away.

65.2 Market feedback suggests that Chemour's C-TiO_2 product is of a suitable quality to compete with the products of Tronox and Cristal.

65.2.1 [ ] purchases [ ] TiO_2 from Chemours and stated that Chemours provides a good technical product.[49]

65.2.2 [ ] currently purchases [ ] of its TiO_2 requirements from Chemours.[50] [ ] estimated that it could use Chemours at a ratio of [ ] for around [ ]% of its requirements for standard C-TiO_2. [ ] stated that although it could use Chemours for the remaining [ ]% of its requirements, it is less efficient than the similar [ ] product and

[48] Commerce Commission interview with [ ], Commerce Commission interview with [ ], Commerce Commission interview with [ ].
[49] Commerce Commission interview with [ ].
[50] Commerce Commission interview with [ ].

so would require purchasing around [ ]% more pigment for the same effect.

65.2.3 [ ] and [ ] currently purchase from Chemours.

65.3 The evidence suggests that Chemours is priced competitively compared to Tronox and Cristal for most customers. Prices are negotiated on a bilateral basis and there are differences between the prices that customers pay. [ ] advised that [ ].[51] However, [ ] and [ ] identified that Chemours' price was similar to that of Cristal, and [ ] advised that Chemours was cheaper than Cristal.[52]

66. An internal Cristal document identifies that
[

].[53]

67. Chemours currently supplies a large proportion of the New Zealand market (greater than Tronox for example) and has supplied higher volumes to the market in the past. New Zealand's demand for TiO_2 is small compared to Chemours' capacity.[54] We consider that Chemours is as well-placed to supply New Zealand as Tronox and Cristal and would therefore be in a position to constrain the merged entity if it attempted to exercise market power.

68. Other suppliers of C-TiO_2 that have a presence in New Zealand include Kronos, Venator and a Ukrainian supplier.

68.1 Kronos has production plants in the US and Europe and is distributed in New Zealand by Chemcolour. Chemcolour identified that most of its sales of Kronos TiO_2 were [ ]. [ ] mentioned Kronos as a potential supplier.
[

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[51] Commerce Commission interview with [ ].

[52] Commerce Commission interview with [ ], Commerce Commission interview with [ ], Commerce Commission interview with [ ].

[53] [ ]

[54] For example, supplying all of [ ]C-TiO2 requirements in New Zealand (around [ ]MT per year, which is around [ ]% of the New Zealand market) would require [ ]% of the [ ]MT capacity of Chemour's plant in Taiwan.

68.2 Venator has production plants in Malaysia, North America and Europe. The Malaysian plant only produces S-TiO_2 so its C-TiO_2 would need to be shipped from North America or Europe.
[
] [ ] mentioned Venator as a possible alternative supplier.

69. Currently, Kronos and Venator do not have a large presence in New Zealand. However, they are significant players on a global basis and could potentially provide additional constraint on the merged entity.[55] [ ] considered that these players are potential suppliers to large customers.[56] [ ] was unsure whether the merged entity would be able to raise prices but that other suppliers "do their research on price" and could enter the market if Australasia was more profitable than other regions.

70. Given New Zealand's demand for C-TiO2 is very small compared to global capacity, other suppliers of C-TiO_2 would only need a small amount of their capacity to capture a large proportion of sales in New Zealand.

71. The evidence suggests that some customers have a greater ability to switch to rival suppliers than others. However, most customers have expressed at least some options to switch (or threaten to switch) volumes away from the merged entity, either to a rival supplier of C-TiO_2 or by being able to switch some of their volume to S-TiO_2.

71.1 [ ] currently purchases [ ] of its TiO_2 requirements from Chemours but estimated that it could use Chemours for around [ ]% of its requirements.[57] [ ] also considers it could switch [ ]% of its production of lower grade paints to sulphate grades.

71.2 [ ] purchases around [ ] of its C-TiO_2 requirements from [ ].[58] [ ] indicated it was familiar with products from other global suppliers and could switch to those if required. [ ] considered it could switch some interior paints, amounting to [ ] of its total production, to Chinese suppliers.

71.3 [ ] purchases from [ ], but considered it could switch [ ] of its requirements to Chemours in the event that the merged entity increased prices or lowered quality.

72. Although it is possible that the merged entity could increase prices for customers that are less willing to switch, this may be a risky strategy. The merged entity would need to be confident that it could identify any captive customers. However,

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55 Application, Figure 2.
56 Commerce Commission interview with [ ].
57 Commerce Commission interview with [ ].
58 Commerce Commission interview with [ ].

customers have different production processes and their ability to substitute away differs. The merged entity is unlikely to know how captive a customer is to its product with any precision. For example, [ ] identified that the TiO_2 suppliers would be aware that it could switch some of its volumes to rival suppliers but would not be aware of how much.[59]

73. To this extent, if the merged entity attempted to exercise market power, we consider that existing competitors would be likely to expand to a sufficient extent and in a timely manner such that a substantial lessening of competition is unlikely. That is, we consider the ability of rivals to enter and expand satisfies the LET test.

Conclusion on unilateral effects

74. We are satisfied that the merger will not have, or would not be likely to have, the effect of substantially lessening competition for the supply of C-TiO_2 in New Zealand due to unilateral effects.

Vertical effects

75. Vertical effects can arise in a merger between firms which operate at different levels of a supply chain (eg, a wholesaler and a retailer). Mergers with a vertical element can increase a merged entity's ability and/or incentive to foreclose its rivals, including by refusing to deal with competitors completely (total foreclosure), or by raising prices it charges competitors (partial foreclosure).

76. The merger between Tronox and Cristal will lead to aggregation at different levels of the supply chain, including the mining of feedstocks and the manufacture and production of TiO_2 pigment and derivatives. We considered whether the merged entity may be in a position to adversely affect TiO_2 rivals by refusing to supply feedstocks. However, our investigation revealed that merged entity would only control a small proportion of global feedstocks and that rivals have other sources of feedstocks. As such, we are satisfied that the proposed merger will not, or would not be likely to have, the effect of substantially lessening competition for the supply of C-TiO_2 in New Zealand due to vertical effects

Coordinated effects

77. A merger can substantially lessen competition if it increases the potential for the merged entity and all or some of its remaining competitors to coordinate their behaviour and collectively exercise market power such that quality reduces and/or prices increase across the market. Unlike a substantial lessening of competition which can arise from the merged entity acting on its own, coordinated effects require some or all of the firms in the market to be acting in a coordinated way. Such behaviour need not be unlawful, and includes tacit collusion such as accommodating price responses or parallel conduct.

78. There are some characteristics of this market that raised concerns that the supply of TiO_2 may be vulnerable to coordination. These include the sale of relatively

[59] Commerce Commission interview with [ ]

homogenous products and stable demand, and in particular, the practice of some suppliers to publicly announce price increases. We therefore considered whether the merger would be likely to reduce competition through coordinated effects.

79. Specifically, we considered whether the merger would make coordination more likely or entrench any existing coordination. As part of this assessment, we obtained relevant internal documents from Cristal and Tronox. According to a Cristal internal document, [ ].[60] A Cristal internal document identifies that [ ].[61] Another Cristal document identifies that [ ][62]

80. Tronox internal documents also identify [ ]. For example:[63] [ ][64]

81. Although the merger would reduce the number of suppliers in the market, on balance we do not consider it would materially enhance the ability of firms to coordinate or materially entrench any existing coordination. Other global suppliers of TiO_2 would remain and, given the small volumes of TiO_2 consumed in New Zealand, could disrupt attempts to coordinate on price by increasing the amount of TiO_2 they supply in New Zealand.[65]

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[60] [ ]

[61] [ ]

[62] [ ]

[63] [ ]

[64] [ ]

[65] The ACCC has identified that the TiO_2 produced in China is improving in quality and there are plans for an increase in capacity over the next five years. If so, this will further lessen the risk of coordinated behaviour. See ACCC "ACCC won't oppose Tronox's proposed acquisition of Cristal's titanium dioxide businesss" (press release, 31 August 2017).

Determination on notice of clearance

82. We are satisfied that the merger will not have, or would not be likely to have, the effect of substantially lessening competition in a market in New Zealand.

83. Pursuant to section 66(3)(b) of the Commerce Act 1986, the Commerce Commission determines to give clearance to Tronox Limited to acquire 100% of the shares and/or assets of the TiO_2 pigment business of National Titanium Dioxide Company Ltd.

Dated this 13th day of December 2017

Dr Mark Berry
Chairman