



Section 57 of the Competition Act 2004

Grounds of Decision issued by the Competition and Consumer Commission of Singapore in relation to the Proposed Acquisition by FUJIFILM Holdings America Corporation of the electronic chemicals business of Entegris, Inc., which is operated by CMC Materials KMG Corporation

Date: 22 September 2023

Case number: 400-140-2023-004

Confidential information in the original version of this Decision will be redacted from the published version on the public register. Redacted confidential information in the text of the published version of the Decision is denoted by [⌘].

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I. INTRODUCTION

1. On 11 August 2023, the Competition and Consumer Commission of Singapore (“CCCS”) accepted a joint application for a decision pursuant to section 57 of the Competition Act 2004 (the “Act”) by FUJIFILM Holdings America Corporation (“Fujifilm”) and CMC Materials LLC (the “Seller”) (collectively, the “Applicants”) as to whether the proposed acquisition of 100% of the issued and outstanding equity interests of the electronic chemicals business of Entegris, Inc. (the “Ultimate Parent”), which is operated by CMC Materials KMG Corporation (the “Target”) and certain of its direct and indirect subsidiaries (the “Proposed Transaction”) will infringe section 54 of the Act, if carried into effect. The Target is currently owned by the Seller, which, in turn, is fully owned by the Ultimate Parent. Fujifilm and the Target are referred to collectively as the “Parties”.
2. In reviewing the Proposed Transaction, CCCS contacted third parties including customers and competitors of the Parties. None of the third parties contacted reflected any competition concerns as regards the Proposed Transaction.
3. At the end of the consultation process and after evaluating the available information, CCCS concludes that the Proposed Transaction, if carried into effect, will not infringe section 54 of the Act.

II. THE PARTIES

(A) THE ACQUIRER

Fujifilm

4. Fujifilm is part of the FUJIFILM corporate group, a multinational conglomerate operating in a wide range of businesses. These areas of business include: electronic materials, chemicals, electronic imaging, graphic arts and printing, industrial products, optical devices, recording media, imaging colorants, healthcare, and pharmaceuticals.¹
5. Through FUJIFILM Ultra Pure Solutions, Inc., Fujifilm manufactures high-purity process chemicals (“HPPCs”) in North America, serving the semiconductor, disk drive, flat panel, pharmaceutical, and bio-tech industries.²

¹ Paragraph 10.5 of Form M1.

² Paragraph 10.8 of Form M1.

(B) THE ULTIMATE PARENT

Entegris, Inc.

6. The Ultimate Parent is incorporated in Delaware and is listed on NASDAQ.³ It is a global supplier of advanced materials and process solutions for the semiconductor and other high-technology industries.⁴ Its business is organised and operated in four operating segments, globally and in Singapore: (i) specialty chemicals and engineered material, (ii) advanced planarisation solutions⁵, (iii) microcontamination control⁶ and (iv) advanced materials handling.⁷

(C) THE TARGET BUSINESS

CMC Materials KMG Corporation

7. The Target operates the electronic chemicals business unit of the Ultimate Parent.⁸ The Target manufactures and supplies HPPCs principally used to clean, etch and dry silicon wafers in the production of semiconductors, photovoltaics, and flat panel displays in multiple stages of their manufacturing processes, but can also be used in the cleaning of hard disk drives.⁹ The Target has manufacturing sites in [X].¹⁰
8. The Target also manufactures other wet chemical blends which are used as photoresist strippers and polymer removers.¹¹ Along with manufacturing, the Target also provides inventory management, warehousing, transportation and analytics services with respect to HPPCs.¹²

³ Paragraph 1.1 of the Parties' 31 August 2023 Response to CCCS's Request for Information ("RFI") dated 28 August 2023.

⁴ Paragraph 1.1 of the Parties' 31 August 2023 Response to CCCS's RFI dated 28 August 2023.

⁵ Chemical Mechanical Planarisation (CMP) refers to a polishing process used by semiconductor manufacturers to planarise, or flatten, many of the layers of material that have been deposited on silicon wafers. Extracted from page 2 of Annex 10 of Form M1 – Entegris, Inc. 2022 Annual Report.

⁶ Microcontamination control refers to the solutions that purify critical liquid chemistries and process gases used in the semiconductor manufacturing process and other high-technology industries. Extracted from page 7 of Annex 10 of Form M1 – Entegris, Inc. 2022 Annual Report.

⁷ Paragraph 1.1 of the Parties' 31 August 2023 Response to CCCS's RFI dated 28 August 2023.

⁸ Paragraph 10.10 of Form M1.

⁹ Paragraph 10.10 of Form M1.

¹⁰ Paragraph 10.10 of Form M1.

¹¹ Paragraph 10.14 of Form M1.

¹² Paragraph 10.15 of Form M1.

III. THE PROPOSED TRANSACTION

9. Fujifilm will acquire 100% of the issued and outstanding equity interests of the Target pursuant to which Fujifilm will acquire sole control of the Target.¹³
10. CCCS assesses that the Proposed Transaction constitutes a merger under section 54(2)(b) of the Act as Fujifilm will acquire and have sole direct control over the Target.

IV. COMPETITION ISSUES

Horizontal Overlap

11. According to the Applicants, the Parties overlap in Singapore in the supply of cleaning solutions used principally in the semiconductor manufacturing process but can also be used in adjacent industries that have similar manufacturing processes (“**Cleans**”).¹⁴ At the molecular level within Cleans, the Applicants submit that the Parties overlap globally in respect of the following HPPC molecules:¹⁵

13.1.1 HF;

13.1.2 PGMEA;

13.1.4 HMDS;

13.1.5 N-butyl acetate;

13.1.5 TMAH;

13.1.6 Ethyl lactate; and

13.1.7 Xylene.

(collectively, the “**Global Overlapping HPPC Molecules**”)

Vertical Effects

12. The Applicants also submitted that there are limited vertical relationships arising from the Proposed Transaction. Outside of the U.S., the only vertical relationship between the Parties is that the Target supplies storage, warehouse, and transport

¹³ Paragraphs 11.1 and 11.3 of Form M1.

¹⁴ Paragraph 15.1 of Form M1.

¹⁵ Paragraphs 20.2.1 to 20.2.7 of Form M1.

services to Fujifilm for Fujifilm's photoresist products.¹⁶ The Applicants submitted that Proposed Transaction will not give rise to any concerns regarding foreclosure.¹⁷

13. Based on the Applicants' submissions, CCCS has focused its assessment on whether the Proposed Transaction will lead to horizontal effects with respect to the supply of Cleans or possible narrower market segments in Singapore.

V. COUNTERFACTUAL

14. CCCS considers the prevailing conditions of competition prior to the Proposed Transaction to be the appropriate counterfactual for this assessment. The available evidence does not indicate that the market structure or competition dynamics in the counterfactual would differ from the status quo.

VI. RELEVANT MARKETS

15. The Applicants submitted that the relevant market for the purpose of this assessment is the market for the global supply of Cleans, though the exact market definition can be left open.¹⁸ For the purpose of the assessment, CCCS considered the impact of the Proposed Transaction on the following possible relevant markets on a global and Singapore basis:
 - a. Supply of Cleans;
 - b. Supply of Commodity Cleans¹⁹/Formula Cleans²⁰; and
 - c. Supply of each Global Overlapping HPPC Molecules.
16. CCCS considers that the exact definition of the relevant market can be left open as Proposed Transaction is unlikely to lead to competition concerns under any possible market definition as explained below in the section on **Market Structure**.

¹⁶ Paragraph 36.1 of Form M1. Paragraphs 11.1 to 11.4 of the Parties' 31 August 2023 Response to CCCS's RFI dated 28 August 2023.

¹⁷ Paragraphs 36.1 and 36.2 of Form M1.

¹⁸ Paragraph 20.5 of Form M1.

¹⁹ "Commodity Cleans" are basic chemistries or simple blends thereof used for a number of non-specialised purposes, including non-semiconductor applications such as cleaning hard disk drives as defined in footnote 19 of the CCCS *Entegris/CMC* decision.

²⁰ Formulated Cleans" are chemical formulations specifically engineered to accomplish specialised removals during the cleaning process as defined in footnote 17 of the CCCS *Entegris/CMC* decision.

VII. MARKET STRUCTURE

(a) Market Shares

17. Based on the Applicants' submissions, the Parties' combined market shares do not exceed the indicative thresholds as set out in the *CCCS Guidelines on the Substantive Assessment of Mergers* in most of the possible relevant markets in paragraph 15 above. Where the merged entity's market shares exceed the indicative market share threshold range of 20% to 40% and post-merger combined market share of the three largest firms crosses the indicative threshold of 70%, the incremental market shares as a result of the Proposed Transaction are low.

(b) Barriers to Entry and Expansion

18. The Applicants submitted that the costs involved with acquiring the necessary facilities are not insurmountable for a new entrant.²¹ Further, the barriers to expansion are low to moderate, as existing competitors already possess the necessary infrastructure to expand their product offerings without significant cost increases, and are therefore able to meet any increases in excess demand.²² In this regard, third parties generally did not raise any concerns with regard to barriers to entry or expansion.
19. However, given the Parties' low combined market shares in the possible relevant markets, CCCS is of the view that it is not necessary to make a determination on the extent of barriers to entry and expansion of the possible relevant markets.

(c) Countervailing Buyer Power

20. The Applicants submitted that the Parties' customers are large international companies that are able to and do exert significant buyer power.²³ Further, during qualification, customers frequently dual or multi-source products, so that they can easily switch between qualified suppliers and eliminate any risk of foreclosure.²⁴

²¹ Paragraph 26.1 of Form M1.

²² Paragraph 26.2 of Form M1.

²³ Paragraph 34.12 of Form M1.

²⁴ Paragraph 32.3 of Form M1.

In this regard, third party feedback generally corroborates the Applicants' submissions.^{25 26}

21. Based on the Applicants' submissions and feedback from third parties, CCCS is of the view that customers do possess a moderate degree of countervailing buyer power, which may constrain the merged entity post-merger.

VIII. COMPETITION ASSESSMENT

(a) Non-Coordinated Effects

22. Based on the Applicants' submissions and feedback from third parties, CCCS has assessed that the Proposed Transaction is unlikely to give rise to non-coordinated effects in the possible relevant markets for the following reasons:
 - a. The Parties are unlikely to have significant market power post-merger;
 - b. The Parties are not each other's closest competitor; and
 - c. Customers multi-source and are able to switch between suppliers.

(b) Coordinated Effects

23. Based on the Applicants' submissions²⁷ and feedback from third parties, CCCS has also assessed that coordinated effects are unlikely to arise in the possible relevant markets as the Proposed Transaction is unlikely to increase the ability and incentive of firms to coordinate their behaviour. CCCS also considers that the low price transparency of HPPCs and the qualification process for new suppliers of HPPCs reduces the likelihood of collusion between market players post-merger.

(d) Conclusion on Competition Assessment

24. Based on the above considerations, CCCS concludes that the Proposed Transaction, if carried into effect, will not lead to an SLC in Singapore.

²⁵ [§<] response dated 30 August 2023 to Questions 4 and 7 of CCCS's RFI dated 18 August 2023. [§<] response dated 31 August 2023 to Questions 13, 14, 15 and 18 of CCCS's RFI dated 18 August 2023. Notes of call with [§<] dated 31 August 2023, response to Questions 20 and 9.

²⁶ [§<] response dated 30 August 2023 to Question 5 of CCCS's RFI dated 18 August 2023. [§<] response dated 31 August 2023 to Question 16 of CCCS's RFI dated 18 August 2023. Notes of call with [§<] dated 31 August 2023, response to Question 18.

²⁷ Paragraph 35.3 of Form M1.

IX. EFFICIENCIES

25. Given that the competition assessment did not raise SLC concerns, it is not necessary for CCCS to assess the efficiencies claimed by the Applicants.

X. ANCILLARY RESTRAINTS

26. The Applicants submitted that the non-compete restriction and non-solicitation restrictions²⁸ contained in [§<] of the purchase agreement dated [§<]²⁹, and as [§<]³⁰ (collectively the “**Restrictive Covenants**”), are the relevant ancillary restrictions to the Proposed Transaction that are necessary in order to allow Fujifilm to obtain the full benefit of the Target.³¹ [§<]³²
27. [§<]³³, CCCS considers that a [§<] year period is likely to be necessary for Fujifilm to protect the value of its acquisition and establish its own presence in the manufacturing of HPPCs that the Target supplies. CCCS therefore accepts the Applicants’ submission that (i) the non-compete restriction, (ii) the non-solicitation restriction applicable to [§<] and (iii) the non-solicitation restriction applicable to [§<] insofar as amended in the [§<], are directly related to and necessary to the implementation of the Proposed Transaction, within the meaning of paragraph 10 of the Third Schedule of the Act.

XI. CONCLUSION

28. For the reasons above and based on the information available, CCCS assesses that the Proposed Transaction, if carried into effect, will not infringe section 54 of the Act.
29. In accordance with section 57(7) of the Act, the decision will be valid for a period of one year from the date of CCCS’s decision.

²⁸ [§<] of the purchase agreement dated [§<] contains a non-solicitation restriction on [§<].

²⁹ Annex 5 of Form M1.

³⁰ [§<]

³¹ Paragraph 44.4 of Form M1.

³² Paragraphs 44.6.3 and 44.7.4 of Form M1.

³³ Paragraph 9.1 of the Parties’ 21 August 2023 Response to CCCS’s RFI dated 17 August 2023.

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Competition and Consumer Commission of Singapore