



Competition
Commission
SINGAPORE

Sections 57/ 58 of the Competition Act (Cap. 50B)

Grounds of Decision issued by the Commission

Notification for Decision: Acquisition of sole control of Wacker Polymer Systems GmbH & Co. KG and Air Products Polymers Holdings, L.P. (n.k.a. Wacker Polymers Holdings, L.P.) by Wacker Chemie AG.

2 July 2008

Case number: CCS 400/001/08

Information deemed as confidential in the original version of this Decision has been omitted from this document pursuant to section 89 of the Competition Act (Cap.50B). These omissions are reflected as [X]

I. INTRODUCTION

1. On 23 May 2008, the Commission received a Notification for Decision pertaining to an acquisition, by Wacker Chemie AG (“Wacker”), of sole control over two joint venture companies (hereinafter referred to as “the Transaction”):

- i) Wacker Polymer Systems GmbH & Co. KG (“WPS”); and
- ii) Air Products Polymers Holdings, L.P (hereafter referred to as “WP/ex-APP”, as the company’s name was changed to Wacker Polymers Holdings, L.P on 7 February 2008).

Prior to the partial closing of this Transaction on 31 January 2008, both companies were jointly controlled by Wacker and another company, Air Products and Chemicals, Inc.¹ (“APCI”). The Transaction has yet to be completely effected.²

¹ Air Products and Chemicals Inc (“APCI”) is a listed company under American law and has operations in more than 40 countries globally. Their products can be used in numerous industries e.g. technology, energy, healthcare, and industrial markets globally. They offer a portfolio of products, services, and solutions, providing atmospheric gases, process and specialty gases, process and cryogenic equipment, and performance materials.

² The transfer of the 20% shareholdings of APCI in the three WPS entities in China (Wacker Polymer Materials (Shanghai) Co. Ltd., Wacker Polymer Systems (Zhangjiagang) Co. Ltd. and Wacker Polymer Systems (Wuxi) Co. Ltd.) to Wacker has not yet been completed, pending the necessary regulatory approvals (i.e. from the foreign investment authority, MOFCOM) in China [X].

2. Prior to the Transaction,
 - i) WPS was 80%-owned by Wacker, while the remaining 20% was held by APCI.
 - ii) WP/ex-APP was 35%-owned by Wacker (through direct and indirect shareholdings), while the remaining 65% was held by APCI (through indirect holdings).

For the purposes of this decision, Wacker, WPS and WP/ex-APP will collectively be referred to as “the parties”.

3. The Commission has concluded that the Transaction, if carried into effect, will not infringe the section 54 prohibition of the Competition Act (“the Act”).

II. THE PARTIES

4. Wacker is a private liability company under German law. It is a globally operating chemical company with the following business areas:

- (a) polysilicon products (hyperpure polysilicon, chlorosilanes and pyrogenic silicas);
- (b) silicones;
- (c) fine chemicals; and
- (d) ultra-pure silicon wafers for semiconductors (through its subsidiary Siltronic).

Wacker’s chemical products can be used in numerous industries, e.g. in the automotive and transports industries, in biotechnology, in the chemical basic industry, in the construction and agri-foodstuffs industries, in the electronics industry, in engineering (machine manufacture), in household appliances and in the textile industry.

5. Prior to the Transaction, WP/ex-APP was a full-function joint venture³ primarily active in the production of polymers in the form of dispersions.

6. Prior to the Transaction, WPS was a full-function joint venture primarily active in the production of polymers in the form of powders.

III. BACKGROUND INFORMATION

Monomers and polymers

7. In organic chemistry, a polymer is a large molecule that is composed of a repeating pattern of structural units, connected together by covalent bonds. A polymer may be in the form of dispersion, powder and solid resin. A monomer is

³ “Full-function joint venture” has a specific legal meaning under EC competition law which renders the EC Merger Regulation (ECMR) applicable to the joint-venture instead of the Article 81 prohibition against anti-competitive agreements. The EC ruled that both WPS and WP/ex-APP were full-function joint ventures when they were formed in 1998.

a small molecule that can be chemically bonded with other monomers to form a polymer. Therefore, from an industrial standpoint, monomers are raw material inputs for the downstream production of polymers.

8. Vinyl acetate monomer (VAM) is a monomer produced by the catalytic reaction of ethylene⁴ and acetic acid⁵, carried out in the gaseous phase. VAM is the necessary base chemical for the production of on vinyl–system polymers such as polyvinyl acetate (PVAc) and vinyl acetate ethylene (VAE).

Physical form of polymers

Dispersions

9. In chemistry, a dispersion (also known as emulsion or lattice) is a fine mixture of two unblendable substances⁶. Polymers can be manufactured in the form of dispersions (i.e. solid-in-water mixture) via the so-called ‘emulsion polymerization procedure’⁷.

Powders

10. Powders are obtained from dispersions via a drying process, in which the dispersion and additional protective colloid are converted into tiny droplets and dried in a hot air stream. ‘Anti-caking agents’ are added during the process, to prevent the particles from forming lumps. All polymers produced in powder form have the same chemical composition as the dispersions from which they originate. Powders are also re-dispersible.

11. Powders are lighter to transport and easier to store than dispersions, but more expensive to produce, as more processing is needed for powders.

Solid resins

12. Solid resins are polymers (such as PVAc) in solid state.

Chemical composition of polymers

13. As discussed above, polymers are made from the chemical bonding of monomers. Therefore, polymers made of different monomers (and combination of monomers) have different chemical compositions. For example, PVAc is made

⁴ Ethylene is a refinery product from crude oil.

⁵ Acetic acid can be produced synthetically or by bacterial fermentation.

⁶ For example, water and oil are unblendable. Milk is an oil-in-water dispersion. Butter is a water-in-oil dispersion.

⁷ Dispersions are obtained by the polymerisation of monomers in water with the aid of chemical agents such as polymerization starters, regulators and emulsifying agents.

from the polymerization of VAM only, while VAE is made from a copolymerization of VAM and ethylene.

Industrial applications of polymers

14. Different industrial applications require different specifications of polymers in physical form and chemical composition. For example, WP/ex-APP produces VAE dispersions for applications such as adhesives textiles, paper coating and paints. WPS produces VAE powders mainly for cement admix applications in the construction industry. WPS also produces PVAc solid resins mainly for gum base, adhesives and modifying polymers

IV. THE MERGER

15. The Transaction involves a cash offer by Wacker to APCI for the acquisition of sole control of WP/ex-APP and WPS. In acquiring WP/ex-APP, Wacker will be acquiring:

- i) (In North America) WP/ex-APP's VAE dispersions business; and
- ii) (Outside North America) WP/ex-APP's PVAc dispersions business.

For North America, WP/exAPP's non-VAE assets (PVAc and acrylate dispersions) will be purchased by APCI for resale to a third party. Outside of North America, APCI will grant a license-back to WP/ex-APP regarding the production and sale of acrylate dispersions in Europe.⁸

16. Before the Transaction, Wacker and APCI jointly controlled the two joint ventures. Although their shareholdings were not equal, each shareholder in each joint venture had the right to object to the appointment of senior management or the adoption of budgets, business plans or major investments.⁹ Wacker and APCI's veto rights thus gave them joint control over WPS and WP/ex-APP, prior to the Transaction.

17. Section 54(2)(b) stipulates that a merger occurs when one or more undertakings acquires direct or indirect control of the whole or part of one or more other undertakings. This would include, as in the present case, the acquisition of sole control by a party, which, prior to the acquisition had only joint control.

⁸ Footnote 16 at pages 13/14 of Form M1 states that "APCI considers neither VAE, PVAc nor acrylate dispersions as a key focus of its future business and therefore intends to sell on the non-VAE dispersion acquired from APP to a third party".

⁹ These veto rights were not absolute, as Wacker and APCI still had casting votes in WPS and APP respectively, but the casting vote was considered to be of limited effectiveness as it could only be implemented after a 90 day moratorium, and mutual interdependence of the parent companies made the exercise of the casting vote unlikely.

V. RELEVANT MARKET

Product market

Parties' submission

18. The parties submit that WP/ex-APP produces only VAE dispersions, while WPS produces mainly VAE powders and solid resins. Although WPS also produces a small amount of VAE dispersions, the parties claim that WPS produces VAE dispersions primarily for its own use in the production of powders and also sales for cement admix applications, while WP/ex-APP does not produce any VAE dispersions capable of being used for cement admix applications, so there is no horizontal overlap between WPS and WP/ex-APP in VAE dispersions, powders or solid resins.

19. The parties submit that there is limited supply substitutability between dispersions and powders due to the requirement for additional technical equipment and complex know-how. In addition, dispersions are significantly cheaper to produce but they cost more to transport. Also, powders are used mainly for cement admix applications, and are not a suitable substitute for other dispersions applications such as adhesives, textiles, paper coating and paints. Only about 6% dispersions are used in the construction field¹⁰. As a result, the top players in the dispersions market in Asia (namely BASF, Dow Chemical, Ciba, Rohm and Haas) are not the top players in the powders market in Asia (who are WPS, Elotex, Shanxi Sanwei and Dairen).

20. For the reasons above, the parties submit that there are no reportable markets for the Transaction as there are no horizontal overlaps between Wacker, WPS and WP/ex-APP. However, the parties set out a matrix of possible product and geographic markets in which either WPS or WP/ex-APP are active (see Annex A).

The Commission's assessment

21. This merger concerns the manufacture of polymers. There are a number of parameters to consider for defining the relevant product market. These parameters intertwine to form a matrix of possible product markets:

- Physical form (e.g. dispersions, powders and solid resins);
- Chemical composition (e.g. VAE, PVAc, etc); and
- Application (e.g. textiles, paper coating, cement admix and paints).

22. The parties claim that they have no horizontal overlap because one joint venture produces dispersions and the other produces powders. Obviously, this

¹⁰ Based on parties' submission on page 38 of Form M1.

argument is based on the assumption that dispersions and powders are in separate product markets. To verify the parties' claim, it is necessary for the Commission to first consider whether, contrary to the parties' submissions, dispersions and powders could be in the same product market, in which case WPS and WP/ex-APP might overlap horizontally.

23. In terms of supply-side substitution, the Commission received mixed views from third parties during the course of investigation. Some indicated that it is technically complex, costly and involves significant operational changes to switch from production of dispersions to powders. Others opined that switching production from dispersions to powders is technically feasible, but could not confirm the cost and time needed for the switch.

24. There were more consistent responses that demand-side substitutability was limited as between dispersions and powders due to the different specifications required for different industrial applications. For example, customers in the adhesive segment have not found it feasible to switch their usage between VAE dispersions and VAE powders.

25. For the reasons above, the Commission concludes that dispersions and powders are in different product markets. Similarly, dispersions and solid resins are in separate product markets¹¹. It is not necessary for the Commission to conclude whether powders and solid resins are in the same market because the parties' activities in these two areas do not overlap horizontally.

26. As for other parameters such as chemical composition and applications, the Commission has found no horizontal competition concerns under any of the alternative product market definitions, as will be explained below. Therefore, the exact delineation of the relevant product market by these parameters can be left open.

27. The upstream product market might also be relevant to address vertical issues arising from the Transaction, in terms of Wacker's production of monomers as an input to WPS' and WP/ex-APP's downstream production of polymers. As will be explained below, however, Wacker has no market power even in the narrowest product market of VAM monomers only. Therefore, there is no need to precisely define the relevant market for the assessment of vertical issues.

Geographic market

Parties' submission

28. The parties submit that the geographic market for dispersions is regional i.e. Asia-wide. All leading dispersions producers have set up production facilities in Asian countries in order to serve their customers in Asia. WP/ex-APP serves its

¹¹ This is indeed more clear-cut because, for example, solid resins are not readily re-dispersionable for customers.

customers throughout Asia, including Singapore, from its production facility in South Korea. WPS sells to customers in Singapore from its facility in China. The geographical market is wider than Singapore as a significant part of the dispersions sold in Singapore is imported from other Asian countries or even from Europe or North America

29. The parties submit that the geographic market for powders need not be precisely delineated as there is no horizontal overlap for powders and the Transaction, thus, does not raise any competition concerns on national, regional or worldwide level.

Commission's assessment

30. The Commission is of the view that regardless of the definition of the geographical market, there are no horizontal or vertical competition concerns for the reasons cited below.

VI. COMPETITION ASSESSMENT

The non-compete obligation between WPS and WP/ex-APP

31. The parties submit that Wacker and APCI agreed, at the time WPS and WP/ex-APP were formed, on a non-compete obligation between the two joint ventures¹². As a result, the WPS and WP/ex-APP have never competed against each other from the very beginning, and therefore the Transaction cannot substantially lessen competition in any market in Singapore.

32. However, the Commission considers that the *passive* non-compete obligation between the two joint ventures, coupled with APCI's veto rights over other strategic actions, is materially different from the capability of *active* coordination of production and sales activities as a single economic entity, upon Wacker's acquisition of sole control over WPS and WP/ex-APP. It cannot be said that the Transaction would result in no change to the competition structure in any market purely on the basis of this non-compete obligation. Therefore, the Commission has relied on other factors below in assessing the competition effects of the Transaction.

Market shares and market concentration

33. The parties have provided the Commission with a matrix of market shares for the year 2006, based on various physical forms, chemical compositions and applications of polymers (see Annex A).

¹² Clause 4.5 of the Master Agreement between Wacker and APCI, dated 29 June 1998, attached as Annex 15 of Form M1.

34. The Commission notes that the market share figures submitted by the parties are their own estimates based on incomplete sources of information, and must therefore be interpreted with caution. However, during the course of investigation, the Commission has obtained no conflicting information from third parties – including suppliers, competitors and customers.

Solid Resins

35. Based on the information available to the Commission, WP/ex-APP does not produce solid resins. Therefore, the parties have no horizontal overlap in solid resins. Accordingly, the Commission is of the view that no horizontal competition concerns over solid resins would arise, because there is no change in the prevailing market structure before and after the Transaction.

Powders

36. For powders, there are no horizontal overlaps between the parties as well, because WP/ex-APP does not produce powders. The Commission is thus of the view that no horizontal concerns over powders arises from the Transaction.

Dispersions

37. The parties submit that there are no horizontal overlaps between WPS and WP/ex-APP in the production of dispersions. However, the Commission has found an overlap in VAE dispersions. The parties explain this apparent contradiction by saying that that WPS produces VAE dispersions mainly as an input to its own production of powders and also sales for cement admix applications, while WP/ex-APP produces VAE dispersions mainly for adhesives applications.

38. The Commission considers that, although WPS' historical sales of VAE dispersions were small¹³ and different from that produced by WP/ex-APP's, its presence in VAE dispersions can nonetheless increase significantly after the Transaction. With Wacker's acquisition of sole control, WPS is no longer bound by the non-compete clause to avoid sales of VAE dispersions for similar applications to WP/ex-APP's. Instead, the two former joint ventures can coordinate the production of VAE dispersions as a single economic entity. In particular, it is technically easy for WPS to switch from production of powders to dispersions by skipping the drying process. Therefore, the potential magnitude of horizontal overlap of VAE dispersions between the parties might be of concern.

39. The Commission found that whether at a worldwide, regional or Singapore-wide market level, the market shares of dispersions by the parties are generally small. The only exception is the market for VAE dispersions worldwide, where the combined market shares of WPS and WP/ex-APP is [30-40]% in 2006 and the post-merger CR3 is [30-40]%. This marginally crosses the indicative threshold

¹³ In 2006, WPS' market share in worldwide VAE dispersions was [<5]%, of which about [30-40]% was sales to third parties. The remaining [30-40]% was used for captive production of VAE powders.

stipulated in the CCS guidelines¹⁴, even though the increment to the CR3 ratio as a result of the merger is only [<5]% (being WPS' market share) in this market.

40. Accordingly, the Commission proceeded to consider other factors, as if the relevant market is indeed VAE dispersions worldwide, so as to assess whether competition concerns could arise from the Transaction. If no such concern arises in the worldwide market of VAE dispersions, then it is not necessary for the Commission to consider any alternative relevant markets, where the parties' market shares are/would seem to be significantly lower.

Barriers to entry

41. The Commission's investigations show that entry into the market for production of polymers is difficult due to the highly capital intensive nature of the industry. However, the technology requirements are less complex in the production of VAE dispersions than powders. Although most of the end-users are already well served by existing suppliers, making it difficult for *newcomers* to enter the market, there are numerous *existing* competitors in the supply of VAE dispersions.

Product differentiation

42. Based on the feedback from third parties, the Commission found that polymers are largely "commodities", which imply little differentiation or brand loyalty. Although some customers have cited that the brand name of a VAE dispersion is important in their purchase decision, they generally relied on the track record, cost competitiveness and the reliability of each dispersion supplier for sourcing their materials. In a commodity market, sellers have limited say in their prices.

Buyer power

43. The Commission's investigations showed that some of the buyers of VAE dispersions are major players in their respective applications. Third-party feedback also indicated that these customers have more than one source of supply. Hence they can be price sensitive, and their buyer power can restrain suppliers from dictating prices in the market.

44. On balance and based on a consideration of all relevant factors, the Commission concludes that no horizontal competition concerns would arise even if the relevant market is VAE dispersions worldwide.

Monomers

45. In the upstream market which supplies monomers for the production of polymers, Wacker has no production of VAM or sales to customers in Singapore

¹⁴ Para.5.15 of the CCS Guidelines on the Substantive Assessment of Mergers

or Asia. In 2006, [x] % of Wacker's VAM production was sold to WPS in Germany for captive production, with the remainder sold to third parties¹⁵.

46. In other words, Wacker has no market share in the supply of VAM in Singapore or Asia. Its worldwide market share for VAM in 2006 was only [x] %¹⁶. Hence, even in the narrowest product market of VAM monomers only, and regardless of geographic market definitions, there is no indication of vertical competition concerns. There are larger players in the production of monomers including VAM¹⁷. The Commission's market investigations revealed that some of the integrated competitors (namely those who produce both VAM and VAE) do not even regard Wacker as their competitor.

Non-coordinated effects

47. Based on the above assessment, the Commission is of the view that the Transaction would not lead to non-coordinated effects. For powders and solid resins, there is no prevailing overlap between the parties that could possibly lead to non-coordinated effects, if any, attributable to the Transaction. As for dispersions, especially the worldwide VAE dispersions market where the parties overlap with a combined [30-40] % market share, the presence of buyer power, the commoditized nature of the product and the presence of other strong competitors, would render any non-coordinated effects unlikely. Last but not least, non-coordinated effects are unlikely to arise from the parties' vertical integration between the production of VAM and VAE, because Wacker has no market power in the upstream supply of VAM.

Coordinated effects

48. In the markets for powders and solid resins, the parties have no horizontal overlap that could possibly lead to coordinated effects, if any, attributable to the Transaction. As for dispersions, the market is fragmented with numerous sellers. In contrast, buyer power is relatively strong. It is therefore difficult for sellers in the market to coordinate their behaviours effectively.

49. The Commission also noted that the top players in the dispersions market are generally not the leading players in the powders market and vice versa. Besides, some of them are vertically integrated to upstream production of monomers, while others are either standalone or integrated to the downstream applications. In other words, the players have different vested interests that make it difficult for coordinated effects to take place and last long.

¹⁵ Based on parties' submission on page 41 of Form M1.

¹⁶ Based on parties' submission on page 41 of Form M1.

¹⁷ For example, Celanese Corporation, Dairen Chemical Corporation and The Dow Chemical Company.

Effect on Singapore

50. For the above reasons, the Commission is of the view that the Transaction would not lead to a substantial lessening of competition in any markets in Singapore. During the course of investigation, none of the third parties (including customers) expressed concerns about the notified merger having a negative impact on their businesses.

VII. CONCLUSION

51. For the reasons stated above and based on the information available to the Commission, the Commission concludes that the Transaction, would not infringe the section 54 prohibition of the Act.



Teo Eng Cheong
Chief Executive
Competition Commission of Singapore

Dispersions**Table 1: Market shares for dispersions, Singapore 2006**

	Value (EUR '000)	Volume (dry tonnes)	Market Share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP	[X]	[X]	<10
WPS+WP/ex-APP	[X]	[X]	<10
BASF	[X]	[X]	[X]
Rohm and Haas	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Singapore	about 17,500	about 10,000	100

Source: WP/ex-APP and WPS estimates

Table 2: Market shares for dispersions, Asia 2006

	Value (EUR mil)	Volume (dry tonnes)	Market share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	<5
Dairen	[X]	[X]	[X]
Beijing Organic Chemicals	[X]	[X]	[X]
Sumitomo	[X]	[X]	[X]
Celanese	[X]	[X]	[X]
Rohm and Haas	[X]	[X]	[X]
Union Carbide	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Asia	about 2,900	about 2,050,000	100

Source: WP/ex-APP and WPS estimates

Table 3: Market shares for dispersions, worldwide 2006

	Value (EUR mil)	Volume ('000 dry tonnes)	Market share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	<5
Dow Chemical	[X]	[X]	[X]
BASF	[X]	[X]	[X]
Rohm and Haas	[X]	[X]	[X]
Celanese	[X]	[X]	[X]
Polymer Latex	[X]	[X]	[X]
Ciba	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total worldwide	n.a.	about 9,600	100

Source: WP/ex-APP and WPS estimates

Table 4: Market shares for VAE merchant dispersions^a, worldwide 2006

	Value (EUR mil)	Volume ('000 dry tonnes)	Market share by volume (%)
WPS ^b	[X]	[X]	<5
WP/ex-APP	[X]	[X]	25-35
WPS+WP/ex-APP	[X]	[X]	30-40
Celanese	[X]	[X]	[X]
Dairen	[X]	[X]	[X]
Beijing Organic	[X]	[X]	[X]
Sinopec	[X]	[X]	[X]
Forbo	[X]	[X]	[X]
Others	n.a.	[X]	[X]
Total Worldwide	n.a.	About 600	100

Source: WP/ex-APP and WPS estimates

Note a: in terms of merchant sales

b: WPS has only limited merchant sales since the majority of its VAE dispersions production is used internally for the production of powders.

Table 5: Market shares for VAE dispersions, Asia 2006

	Value (EUR mil)	Volume (dry tonnes)	Market share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP	[X]	[X]	<10
WPS+WP/ex-APP	[X]	[X]	<10
Dairen Chemical	[X]	[X]	[X]
Beijing Organic Chemical	[X]	[X]	[X]
Sichuan Vinylon	[X]	[X]	[X]
Sumitomo Chemical	[X]	[X]	[X]
Celanese	[X]	[X]	[X]
Showa Highpolymer	[X]	[X]	[X]
Kuraray	[X]	[X]	[X]
Denki Kagaku	[X]	[X]	[X]
DIC	[X]	[X]	[X]
Total Asia	about 489.5	about 250,500	100

Source: WP/ex-APP and WPS estimates

Note: Actual sales figures for WPS and WP/ex-APP; WP/ex-APP estimates of competitor capacity in Asia

Table 6: Market shares for PVAc dispersions, worldwide 2006

	Value (EUR mil)	Volume (dry tons)	Market share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP ^a	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	<5
Celanese	[X]	[X]	[X]
Hoechst	[X]	[X]	[X]
Rohm and Haas	[X]	[X]	[X]
HBFuller	[X]	[X]	[X]
Others	n.a.	[X]	[X]
Total worldwide	n.a.	about 537,037	100

Source: WP/ex-APP and WPS estimates

Note a: as acquired by Wacker

Table 7: Market shares for PVAc dispersions, Asia 2006

	Value (EUR mil)	Volume (dry tons)	Market share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP ^a	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	<5
Beijing Organic Chemicals	[X]	[X]	[X]
Gui Zhou	[X]	[X]	[X]
Union Carbide	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Asia	about 84.0	about 64,800	100

Source: WP/ex-APP and WPS estimates

Note a: as acquired by Wacker

Table 8: Market shares for acrylate dispersions, worldwide 2006

	Value (EUR mil)	Volume (dry tons)	Market share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP ^a	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	<5
Rohm and Haas	[X]	[X]	[X]
BASF	[X]	[X]	[X]
Air Products ^b	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Worldwide	about 1,857.7	about 1,005,255	100

Source: WP/ex-APP and WPS estimates

Note a: as acquired by Wacker

b: part of the business not acquired by Wacker

Table 9: Market shares for acrylate dispersions, Asia 2006

	Value (EUR mil)	Volume (dry tons)	Market share by volume (%)
WPS	[X]	[X]	<5
WP/ex-APP ^a	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	<5
Rohm and Haas	[X]	[X]	[X]
Union Carbide	[X]	[X]	[X]
Dong Fang	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Asia	about 127.1	about 68,800	100

Source: WP/ex-APP and WPS estimates

Note a: as acquired by Wacker

Powders

Table 10: Market shares for powders, Singapore 2006

	Value (EUR '000)	Volume (tons)	Market share by volume (%)
WPS	[X]	[X]	40-50
WP/ex-APP	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	40-50
Elotex	[X]	[X]	[X]
Vinavil	[X]	[X]	[X]
Dairen	[X]	[X]	[X]
Total Singapore	about 1,520	about 868	100

Source: WPS estimates

Table 11: Market shares for powders, Asia 2006

	Value (EUR mil)	Volume (tons)	Market share by volume (%)
WPS	[X]	[X]	50-60
WP/ex-APP	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	50-60
Vinavil	[X]	[X]	[X]
Shanxi Sanwei	[X]	[X]	[X]
Elotex	[X]	[X]	[X]
Dairen	[X]	[X]	[X]
Total Asia	about 36.9	about 21,700	100

Source: WPS estimates

Table 12: Market shares for worldwide powders, 2006

	Value (EUR mil)	Volume ('000 dry tons)	Market share by volume (%)
WPS	[X]	[X]	40-50
WP/ex-APP	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	40-50
Elotex	[X]	[X]	[X]
Hexion	[X]	[X]	[X]
Dow Chemical	[X]	[X]	[X]
Dairen	[X]	[X]	[X]
Shanxi Sanwei	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Worldwide	About 734.5	about 336	100

Source: WPS estimates

Solid Resins

Table 13: Market shares for solid resins, Singapore 2006

	Value (EUR '000)	Volume (tons)	Market share by volume (%)
WPS	[X]	[X]	not known
Competitor data not available			
Total Singapore	Not known	Not known	100

Source: WPS estimates

Table 14: Market shares for solid resins, Asia (incl. Australia and New Zealand) 2006

	Value ('000 EUR)	Volume (tons)	Market share by volume (%)
WPS	[X]	[X]	30-34
WP/ex-APP	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	30-40
Nan Pao	[X]	[X]	[X]
Sanwei	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Asia	about 3,353	about 1,948	100

Source: WPS estimates

Table 15: Market shares for solid resins, Worldwide 2006

	Value (EUR mil)	Volume (tons)	Market share by volume (%)
WPS	[X]	[X]	80-90
WP/ex-APP	[X]	[X]	<5
WPS+WP/ex-APP	[X]	[X]	80-90
Synthomer	[X]	[X]	[X]
Vinavil	[X]	[X]	[X]
Others	[X]	[X]	[X]
Total Worldwide	About 19.8	about 8,348	100

Source: WPS estimates