

***Case No COMP/M.3593 -
APOLLO / BAKELITE***

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**REGULATION (EC) No 139/2004
MERGER PROCEDURE**

Article 6(2) NON-OPPOSITION
Date: 11/04/2005

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 11.04.2005

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In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus [...]. Where possible the information omitted has been replaced by ranges of figures or a general description.

PUBLIC VERSION

MERGER PROCEDURE
ARTICLE 6(2) DECISION

To the notifying party

Dear Sir/Madam,

**Subject: Case No COMP/M.3593 – APOLLO / BAKELITE
Notification of 16.02.2005 pursuant to Article 4 of Council Regulation
No 139/2004¹**

1. On 16/02/2005, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004, according to which the Borden group (“Borden Group”), controlled by the Apollo Group (“the Apollo Group”), acquires the German company Bakelite AG and its subsidiaries (“Bakelite”), from the Rütgers group (“Rütgers Group”) which is part of the RAG group.
2. After examination of the notification, the Commission has concluded that the notified operation falls within the scope of the Merger Regulation and, following submission by the parties of undertakings designed to eliminate competition concerns identified by the Commission, in accordance with Article 6 (2) of the Merger Regulation, does not raise serious doubts as to its compatibility with the common market and with the functioning of the EEA Agreement.

I. THE PARTIES

3. The Apollo Group is a US-based private investment group. It has sole control over two entities that are active in the economic sector concerned by the proposed transaction: (i) Borden² and (ii) Resolution Performance Products (“RPP”). Borden manufactures formaldehyde resins and has manufacturing sites and sales throughout

¹ OJ L 24, 29.1.2004, p. 1.

² Apollo acquired Borden on 12/08/2004.

the world. RPP manufactures epoxy resins products. In 2003, Borden and RPP respectively realized total sales of USD 1.4 billion and USD 782 millions.

4. Bakelite is a producer of formaldehyde resins, moulding compounds and epoxy resins based in Germany and mainly active in Europe.

II. THE OPERATION

5. On 06/10/2004, Rütgers A.G. and Rütgers Bakelite Projekt GmbH that are both part of the Rütgers Group, and National Borden and Borden Chemical Inc that are both part of the Borden group, entered in a share purchase agreement under which the Rütgers group will sell 100% of Bakelite's shares to National Borden.

III. CONCENTRATION

6. As a result of the proposed transaction, the Apollo Group will acquire sole control over Bakelite and therefore the operation constitutes a concentration within the meaning of Article 3(1)(b) of the Regulation (EC) No. 139/2004.

IV. COMMUNITY DIMENSION

7. The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 5 billion (EUR [...] billions for Apollo and EUR [...] millions for Bakelite in 2003)³. Each of Apollo and Bakelite have a Community-wide turnover in excess of EUR 250 million (EUR [...] billions for Apollo and EUR [...] millions for Bakelite in 2003) but they do not achieve more than two-thirds of their aggregate Community-wide turnover within one and the same Member State. The notified operation therefore has a Community dimension.

V. FORMALDEHYDE RESINS

V.1. INTRODUCTION

8. Formaldehyde resins are used in various industries for their properties as binding agents and for their heat and electrical resistance properties. Common applications include insulation, laminates, wood adhesives, moulding compounds, foundry materials, abrasives, friction material and protective coatings. Formaldehyde resins result either from the reaction between (i) formaldehyde and phenol (phenolic resins) or (ii) formaldehyde and urea or melamine (amino resins). Formaldehyde resins attain their final applied properties through a process known as "curing" in which the resin molecules form cross-links with each-other.
9. Borden and Bakelite are both active in phenolic resins and amino resins. Formaldehyde resin markets were previously considered by the Commission in Solutia/Viking Resins (Case M.1763), Industri Kapital/Dyno ("*Dynea*") (Case M.1813) and Industri Kapital/Perstorp (II) ("*Perstorp*", Case M. 2396). Although phenolic resins and amino resins are similar in terms of chemistry and production

³ Turnover calculated in accordance with Article 5(1) of the Merger Regulation and the Commission Notice on the calculation of turnover (OJ C 66, 2.3.1998, p 25). To the extent that figures include turnover for the period before 1.1.1999, they are calculated on the basis of average ECU exchange rates and translated into EUR on a one-for-one basis.

process, they are generally not used for the same purposes. Amino resins have for instance less heat and moisture stability than phenolic resins and are most frequently used in the wood industry as synthetic binders whereas phenolic resins have superior performance and are used in a variety of end applications.

V.2. AMINO RESINS

10. Borden and Bakelite are both active in the production and sale of amino resins, which are primarily used as binders in the production of interior wood panels that could be considered as a relevant product market. Borden and Bakelite do not compete with each other in amino resins end-applications as they do not sell in the same geographic markets. In previous decisions, the Commission has established that the maximum shipping distance for amino resins was around 700 km, which has been confirmed by the parties. Bakelite and Borden production facilities are located in the UK and in Finland respectively, with a distance of 1,500 km. Hence, the precise definition of the relevant product market and the competitive assessment in this area are not further discussed for the purpose of this decision.

V.3. PHENOLIC RESINS

V.3.1 – INTRODUCTION

V.3.1.1 – RELEVANT PRODUCT MARKETS

11. The two main types of phenolic resins are resols (typically liquid) and novolacs (typically solid). The parties submit that resols and novolacs constitute the two affected product markets, because of the significant supply-side substitutability within each resin category. Phenolic resin producers generally produce a variety of phenolic resins on the same reactor within each resin category (i.e., resols and novolacs). Producers can and do switch between products quickly without incurring significant costs.
12. However, in previous cases, the Commission defined the relevant product markets for formaldehyde resins by end-application, due mainly to the lack of demand side substitutability for resins used in different end-applications (See *Perstorp*).
13. As regards the demand-side substitutability, the market investigation has clearly established that there are significant differences in terms of physical properties and market environment between phenolic resins used for different end-applications. Although some resins are standard resins (sold in a few end-applications), most of the resins used in the end-applications presented below are tailor-made to meet customers' specific requirements. The performance of the final products in which phenolic resins are used is generally very sensitive to the specific type of phenolic resins sourced by the parties' customers. Most respondents have confirmed that they could not switch easily and in a short time frame to another type of resin.
14. The market investigation has also confirmed that the supply-side substitutability for phenolic resins is limited, as only a few suppliers are able to compete effectively within each end-application. Although a number of phenolic resin producers have the general relevant know how for developing and manufacturing phenolic resins, only a few suppliers usually have the capability to develop, manufacture and market phenolic resin for a specific end-applications for various reasons. The development of resins for a specific end-application require a close relationship between the supplier and the

customers and the supplier need to have a good understanding of customers' requirements in term of performance, price, quantities and deliveries. Most customers need to qualify new resins before sourcing them. The qualification process is heavier if they want to qualify a new supplier. As a result of these switching costs, the entry of a phenolic resin suppliers in a specific end-application in which they is not already active is not straightforward. This is reflected by the specialization of phenolic resins suppliers in a few end applications, especially for small or medium size companies. Thus, due to the very limited demand-side substitutability and the limited supply-side substitutability, it appears that the general competitive environment (suppliers, customers, type of products, price, transport distance, etc.) differs significantly between the different end-applications in which phenolic resins are used and that the relevant product market for the assessment of this transaction are phenolic resins used in specific end-applications.

15. Borden's and Bakelite's phenolic resins activities overlap significantly and give rise to affected markets in the following end-applications: abrasives, automotive felt bonding, automotive friction material, carbon-bonded refractory material, floral foam, foundry, insulation bonding, insulation foam and mining foam. The product market definition and competitive assessment for these nine end-applications are presented below.
16. In addition, Borden and Bakelite are also active in the following industries: briquetting (Borden), coatings (Borden and Bakelite), composites (Borden and Bakelite), decorative laminate cores (Bakelite), filter impregnation (Bakelite), fuel and lube (Bakelite), moulding compounds (Bakelite), oil field products (Borden), rubber reinforcing (Borden and Bakelite), scouring pad binders (Borden), structural wood laminate adhesives (Borden/Bakelite) and wood panels (Borden and Bakelite). Because the parties' activities in these areas do not overlap significantly and the transaction does not lead to affected market in these end-applications, the product market definition and competitive assessment for these end-applications are not further discussed.

V.3.1.2 – RELEVANT GEOGRAPHIC MARKETS

17. The parties submit that the geographic market for most of the above-listed end-applications is EEA-wide, with the exception of insulation bonding, where the geographic markets could be regional. According to the parties, phenolic resins producers ship distilled resols and novolacs throughout the EEA. Transportation costs do not play a significant role. Non-distilled resols are the only exception as they are generally not shipped over long distances (above 500 km) because of their high water content which makes them more expensive to ship. Non-distilled resols, which are mainly used for wood panels and insulation bonding, are also unstable and have a very short shelf life, unless they are stored in cooled facilities.
18. The market investigation has confirmed that most phenolic resins could be shipped over long distances (within the EEA), except for non-distilled insulation bonding resins which are more expensive to transport. However, the market investigation also indicated that in some of the end-applications mentioned above, demand and consumption patterns differ significantly from one region to another and that customers have strong preferences for local/regional suppliers. The geographic market definitions for each the end-applications presented above are further discussed below.

V.3.1.3 – COMPETITIVE ASSESSMENT

19. There are only a few important phenolic resins suppliers in the EEA and the proposed transaction will create the largest phenolic resins producer in the EEA. Dynea ([20-30%] in the EEA in 2003)⁴ and Bakelite ([20-30%]) are currently the largest suppliers of resins, followed by Hüttenes ([0-10%]). Borden accounts for only [0-10%] of the market. Regarding novolac capacity, Bakelite is the largest supplier ([20-30%]), followed by Schenectady ([20-30%]), Dynea ([10-20%]), Sumitomo ([10-20%]) and Borden ([0-10%]).
20. The parties stress that Borden's and Bakelite's businesses are complementary, both in terms of (i) geographic sales (Borden mainly sells in the UK and Bakelite throughout the EEA) and (ii) end-application specialization. This has been confirmed by the market investigation. Borden's sales in a number of end-applications are essentially realized in the UK, where the company often has strong market positions. In terms of end-applications, the only areas where both Borden and Bakelite have strong market positions in the EEA are automotive friction materials and carbon-bonded refractory binders. Therefore, the competitive constraint each of the parties exerts on each other is limited to specific end-applications and specific geographic areas, as discussed in further details below.
21. While competitive conditions are very different from one end-application to another, the following market characteristics are common to all phenolic resins. On the supply-side, the markets for phenolic resins are characterized by a few large producers active across various end-applications and various countries, which also compete with smaller competitors that are specialized in a few end-applications and that sell regionally. Most of these small suppliers have indicated that they have spare capacity for the production of phenolic resins and that the total capacity available in the EEA exceeds demand. However, the market investigation shows that these suppliers require a distinct know-how and an in-depth industry knowledge to meet specific end-applications' requirements. As a consequence, the market entry of a phenolic resin producer in an end-application in which it is not already active requires significant efforts.
22. On the demand-side, most customers confirm that they use tailor-made or specific resins and that a long qualification process is required to change from one supplier to another. However, most customers have multi-sourcing policies and qualify two or three suppliers in order not to rely on one single supplier. Although most resins can be transported throughout the EEA, customers have preferences for direct purchasing and regional sourcing to minimize transport costs and to facilitate the interaction with their suppliers (just in time deliveries, new resins developments, technical support, etc.). The extent to which these various market characteristics apply to each of the affected markets is further discussed below.

⁴ All the market shares are provided for sales in volume; market shares based on sales in value are similar.

V.3.2 – ABRASIVES

V.3.2.1 – RELEVANT PRODUCT MARKETS

23. Phenolic resins are used to bind abrasive grains to each other or to a substrate, such as paper or fibreglass. The two main categories of abrasives are bonded abrasives and coated abrasives. Bonded abrasives, such as grinding wheels, snagging wheels and finishing wheels, are solid abrasive materials which generally use a mixture of novolacs and resols in ratios of approximately 2:1 to 3:1. Coated abrasives (i.e., abrasive grains bound to a substrate), such as sandpaper, use resols exclusively.
24. The Commission took the view in *Perstorp* that phenolic resins used for abrasives applications constituted a separate product market from other phenolic resins, based on demand-side and supply-side considerations.
25. The Commission's market investigation has confirmed that resins used for abrasive are generally considered to constitute one separate relevant product market. As regards the possibility of further segmenting the market into coated and bonded abrasives, the market investigation shows that –because of different technical specificities, the two categories are generally not viewed as belonging to the same product market. However, for the purpose of the present case, the exact definition of the relevant product market can be left open.

V.3.2.2 – RELEVANT GEOGRAPHIC MARKETS

26. The Commission took the view in *Perstorp* that the relevant geographic market for abrasive resins is wider than national in scope⁵.
27. The Parties submit that the market is EEA-wide on the basis that Bakelite ships both resols and novolacs used for abrasives applications throughout the EEA from its plants in [Bakelite plant locations]. They also claim that Borden's European sales of abrasive resins are limited to the UK because[Reasons], which is not due to any transport or non-transport barriers to shipping the resins between EU Member States.
28. The market investigation has confirmed that transportation costs account for a relatively low percentage of the end-price of the product, and that handling and logistics within the EEA are not significant concerns. The phenolic resins sold into abrasives applications are shipped throughout the EEA, with average distances attaining 500 km. On that basis, the Commission concludes that the market is EEA-wide, at least as regards the segment of resins for bonded abrasives. With respect to coated abrasives, where the parties' production does not overlap, there are arguments in support of a narrower geographic market, since resols used for coated abrasives are relatively unstable, i.e., have a short shelf life, and customers generally require frequent and regular deliveries.

⁵ Perstorp, para. 26.

V.3.2.3 – COMPETITIVE ASSESSMENT

29. In the EEA, Borden sells only negligible quantities of resins for bonded abrasives. It does not sell resins for coated abrasives.
30. The parties EEA market shares in 2004 for all abrasive resins were of [30-40%] for Bakelite and less than [0-10%] for Borden. Major competitors included Dynea ([20-30%] market share), Sumitomo-Fers ([0-10%]), and Fenolit ([0-10%]). If only resins for bonded abrasives are considered, the picture is virtually the same, with [30-40%] market share for Bakelite, and [0-10%] for Borden.
31. Against this background, the proposed transaction raises no competition concerns under any of the alternative product markets set out above..

V.3.3 – AUTOMOTIVE FELT BONDING

V.3.3.1 – RELEVANT PRODUCT MARKETS

32. Phenolic resins are used to bind cotton and thermoplastic fibres together to produce automotive felt. Automotive felt is used in the production of interior automotive parts (such as acoustic headliners, shielding and parcel shelves). It is also used under the bonnet to dampen engine noise and to impart flame retardance to parts which could potentially ignite. Over the past ten years, new materials⁶ have displaced phenolic resins from interior applications because of health and environmental concerns about formaldehyde. However, the market investigation shows that those alternative materials are not always perfect substitutes to phenolic resins.
33. The Commission considers that it is not necessary to determine whether the relevant market should include other substitutable materials, given that even if only phenolic resins were considered for this particular application, the transaction does not raise competition concerns.

V.3.3.2 – RELEVANT GEOGRAPHIC MARKETS

34. The parties submit that the market for resins used as automotive felt binders is at least EEA-wide, since customers can and do purchase from distant suppliers. The market investigation confirms that, although some preference for local sources sometimes exists, shipping distances are not limited, and prices are negotiated on an EEA-wide basis.

V.3.3.3 – COMPETITIVE ASSESSMENT

35. Bakelite's market share in the EEA for resins used as automotive felt binders was of [50-60%] in 2004. Borden's market share was very limited in 2003 ([0-10%]), and the company lost in 2004 [...%] of its sales. As a result, Borden's 2004 turnover is marginal, representing about [0-10%] of sales in the EEA.
36. Other EEA suppliers of resins for automotive felt binders include Dynea ([30-40%] 2004 market share), FAR ([0-10%]), Sumitomo ([0-10%]), and Fenolit ([0-10%]).

⁶ Such as polymeric bi-component fibres, polyurethane, waste epoxy paint and melamine foam.

37. The parties claim that phenolic resins used in AFB applications are commodity products for which brand loyalty and customer services are essentially irrelevant. They also allege that customers are sophisticated Tier II automotive suppliers that exert buyer power, since they frequently shift large purchase volumes between suppliers, without significant switching costs.
38. The market investigation indicates that even if certain resins are tailor-made, customers do not consider that there exist significant entry barriers for alternative phenolic producers. In addition, there is overcapacity on the market, which is considered as highly competitive.
39. Considering the marginal presence of Borden in this segment, the existence of alternative competitors in the market with available capacity, and the lack of entry barriers, the Commission considers that the transaction does not give rise to competition concerns with respect to automotive felt binders.

V.3.4 – AUTOMOTIVE FRICTION MATERIAL

V.3.4.1 – RELEVANT PRODUCT MARKETS

40. Phenolic resins are used as binders of materials that form automotive friction products. Brake pads are the most common automotive friction materials (“AFM”), but the category also includes clutch facings and automatic transmission components. Phenolic resins are well-suited to bind brake pads because they can withstand the high temperatures caused by braking friction and because they release carbon, which facilitates the braking process. The parties argue that most of the AFM resins are undifferentiated commodity resins. Most customers have indicated that they consider resins used for all types AFM applications as a separate relevant product market.

V.3.4.2 – RELEVANT GEOGRAPHIC MARKETS

41. The parties submit that the relevant geographic market for AFM resins is at least EEA-wide, as most AFM resins are novolac powders, which are relatively economical to ship (e.g., Borden and Sumitomo-Fers ship AFM resins throughout Europe from one single plant). Despite the fact that customers might occasionally prefer to source on a local level in order to shorten the supply chain, the market investigation largely confirms the parties’ definition of the relevant geographic market.

V.3.4.3 – COMPETITIVE ASSESSMENT

42. The parties’ combined market EEA market shares of AFM resins in 2003 reached [40-50%] (Borden [10-20%], Bakelite [20-30%]). The main competitors are Sumitomo-Fers ([20-30%]), Dynea ([10-20%]), Schenectady ([0-10%]) and Ashland ([0-10%]). Hence, the proposed transaction will reduce the number of larger suppliers, from 4 to 3.
43. The parties argue that buyer power would prevent both unilateral and coordinated effects from arising as a result of the transaction, since:
 - (1) The supply structure of the automotive industry enables purchasers at each level (“tier”) of the supply chain to exercise considerable buyer power over their suppliers. The AFM sector is dominated by a small number of large sophisticated customers (“Tier II customers”), which generally require

commitment to specific pricing, without committing themselves to purchase specific volumes. The three main Tier II customers are Federal Mogul, Honeywell and TMD. Their sales are negotiated at the level of centralised European purchasing departments.

- (2) Over the past ten years, there has been a strong trend towards commoditization. Tier II customers are restructuring the way they purchase resins, both to shift away from speciality resins to commodity resins that can be supplied by multiple suppliers, and to reduce the number of resins in their databases.
 - (3) Qualification processes are not a barrier to entry, as all competitors, including Dynea, Sumitomo and Fenolit, seek to be qualified for resins even if they do not expect to supply them to a given customer, in order to position themselves for future opportunities. This positioning provides customers with leverage over their existing resin suppliers. Tier II customers ordinarily ensure that there are two or three producers' resins qualified for any given friction product.
44. In addition, the parties state that resins used in AFM applications are mature products that have not undergone any significant innovation over the past ten years.
 45. They finally allege that the competitive structure of the automotive friction segment is not suitable for tacit collusion, since (i) it is not possible to reach "consensus" on the "right" price or output level because each resin supplier's range of resins differs, (ii) it is not possible to monitor "consensus", since there are shifts in purchasing patterns, and (iii) there is no mechanism by which deviation can be punished, since supplies are regulated by negotiated long term agreements with Tier II producers.
 46. The market investigation shows that customers generally consider AFM resins as standard commodity products, which have been used world-wide for many years in a majority of friction industries, and that there is no need for new types of resins because there are currently grades available for almost any requirement. Although qualification procedures are long and costly, dual or triple sourcing is common in the industry. In the Commission's view, those circumstances should limit customers' switching costs, and therefore constitute a constraint to the pricing policy of the merged entity following the transaction.
 47. The market investigation also confirms that some major customers have turned into global strategic sourcing, while at the same time endeavouring to reduce raw material complexity. This further supports the argument from the parties that Tier II customers enjoy substantial purchasing power.
 48. The Commission further notes that, after the merger, Borden and Bakelite will continue to face competition from very significant market players, such as Sumitomo and Dynea. Their product lines are similarly broad in scope.
 49. Finally, during the market investigation no concerns were brought to the Commission's attention concerning possible negative effects on competition, arising from the concentration, in the market for AFM applications. This market, on the contrary, was widely considered to be competitive.
 50. In view of the above, the Commission concludes that the proposed transaction will not give rise to competition concerns with respect to automotive friction materials..

V.3.5 – CARBON BONDED REFRACTORY MATERIAL

V.3.5.1 – RELEVANT PRODUCT MARKETS

51. Phenolic resins are used to bond refractory products, which are used primarily by the steel industry to contain or control the flow of molten metal. The main applications which require carbon-bonding are refractory bricks, isopressed products, taphole clay, crucibles, shapes and monolithic refractory products. The first three applications (bricks, isopressed, and taphole clay) account for approximately 86% of carbon-bonded refractory products.
52. For some of those applications, tar pitch or modified tar pitch can be used instead of phenolic resins. Tar pitch is the oldest carbon binder and is still the most widely used. Phenolic resins were introduced into refractory applications in the 1970s, and gained a significant degree of acceptance in the late 1980s and early 1990s, because tar pitch contains polycyclic aromatic hydrocarbons (“PAHs”), which are classified as carcinogenic. The substitution of phenolic resins for tar pitch was most significant in the United Kingdom, where regulations restricting use of PAHs were most strictly applied. As a result, tar pitch is no longer used in British refractory production. Elsewhere in Europe, tar pitch is still used because of its superior performance in some applications and because it costs substantially less than phenolic resin. Although phenolic resins do not contain PAHs, they raise other environmental issues as a result of the presence and release of phenol, ammonia and formaldehyde.
53. More recently, Bakelite’s sister company, Rütgers Chemical AG (“Rütgers Chemical”), has introduced two new carbon binders for refractory products, called “CarboresTM” and “RauxolitTM”. They are both modified forms of tar pitch, for which Rütger Chemical holds patent rights and is the sole supplier. The parties allege that “Carbores” and “Rauxolit” substantially eliminate the health and environmental problems associated with conventional tar pitch, and cost less than phenolic resins.
54. Tar pitch and modified tar pitch account for more than 60% of carbon-bonded binders used in refractory products.
55. The parties submit that phenolic resins, tar pitch and modified tar pitch used for all types of carbon-bonded refractory materials belong to the same product market, since tar pitch and Carbores in particular would constrain the price of phenolic resins sold for carbon-bonded refractory applications. However, the parties also recognise that, at present, Carbores cannot be used in all types of refractory segments, and that phenolic resins and tar pitch products are not directly interchangeable.
56. According to the parties, each type of refractory product (*inter alia* bricks, isopressed, and taphole clay) uses a different process and equipment, and the cost of switching from one process to another would require a sizeable capital investment (EUR 1 million.). Refractory plants tend to be dedicated to a specific type or types of refractory product, and plants generally do not change from one type of refractory product to another. The main refractory producers generally produce a wide range of refractory products across different plants. Rather than switching between production processes, they would simply increase output at the relevant plant in response to additional demand. According to the parties, the European refractory products industry has spare capacity.

57. The market investigation has confirmed that resins used for different refractory products are usually not substitutable, as customers demand them according to the particular characteristics of the specific processes and equipments where they will be used. This points towards a further sub-segmentation of the product market by type of refractory product.
58. As regards tar pitch, most replies to the market investigation claim that it is not an appropriate substitute to phenolic resins, because it cannot be used in low temperature mixing, it is thermoplastic (whereas phenolic resins are thermosetting), and associated with health and environmental concerns. As regards modified tar pitch (as Carbores), its use seems mainly accepted for the segment of carbon-bonded bricks.
59. On the basis of the market investigation, the Commission concludes that the product market definition should take account of differences between resins according to process type and equipment. Therefore, the product market proposed by the parties should be further sub-segmented into: resins used for the production of refractory bricks, isopressed products, taphole clay, crucibles, shapes, and monolithics. The Commission also concludes that non-phenolic binders (tar pitch/ modified tar pitch) do not belong to the same product category as phenolic resins.

V.3.5.2 – RELEVANT GEOGRAPHIC MARKETS

60. The parties submit that the relevant geographic market is EEA-wide in scope, but with substantial geographic differentiation resulting from consumption and sales patterns, which vary among regions. In particular, they argue that (i) transportation costs are not a barrier to shipping refractory resins long distances, (ii) most producers belong to multi-national conglomerates that purchase resins on a centralised basis, and (iii) customers use the threat of switching to discipline their suppliers.
61. During the market investigation, certain customers have shown a preference for local sources, but the general view is that the market is EEA wide, except with respect to certain liquid resins that are transported hot and for which regional markets would be more appropriate due to transport costs.

V.3.5.3 – COMPETITIVE ASSESSMENT

62. In 2003, the parties' combined EEA-market shares for total phenolic binders reached [60-70%] (Borden [20-30%]; Bakelite [30-40%]). Other competitors in the market were Dynea ([10-20%] market share), Sumitomo Bakelite ([0-10%]), FAR ([0-10%]) and Ashland ([0-10%]).
63. However, as mentioned above, the Commission retains that a proper product market definition results in the further segmentation of the market according to the specific type of process and equipment where resins are used. Also on that basis, the transaction will create significant overlaps in three refractory market sub-segments, namely those of resins used as binder for refractory bricks (Borden [0-10%]; Bakelite [40-50%]), shapes ([10-20%]; [50-60%]) and taphole clay ([20-30%]; [20-30%]).
64. In support of their claim that the transaction will not impede effective competition in the common market, the parties submit that:
 - (4) Borden and Bakelite are not each other's closest competitors. They generally do not sell into the same end-use applications in the same countries, with the

exception of bricks in the UK, [...]. In addition, that particular client would be able to discipline the merged entity;

- (5) The merged entity would face fierce competition from a great variety of players having excess capacity, as well as from tar pitch/ modified tar pitch products suppliers, including Rütgers;
 - (6) There are not barriers to entry, since refractory resins are not unusual or unique, and competitors and potential entrants are not capacity constrained;
 - (7) Carbores and Rauxolit are real alternatives to phenolic resin;
 - (8) The contemplated transaction will reduce the level of concentration by separating Bakelite's phenolic resins business from Rütgers Chemical's tar pitch, Rauxolit and Carbores business.
65. The market test shows that important entry barriers exist. Whereas resins for cold processing are relatively interchangeable, hot resins cannot be produced by a number of phenolic suppliers. Investment requirements, R&D capabilities and health & safety constraints are factors that make market entry difficult.
 66. In addition, customers consider that switching costs are high. Refractory material producers may take up to three years to qualify new phenolic resins as they are essential components of the final refractory products, for which any material failure in operations may have extremely severe consequences. As a result, customers do not change resins already approved for another supplier's equivalent quality.
 67. Moreover, several customers consider that the refractory market is not very competitive, since there are only few realistic alternative suppliers. There is a broad perception that a number of phenolic resin producers are actually not interested in developing resins for refractory materials, because of long and demanding development processes.
 68. In view of the above, the Commission has serious doubts as to the ability of current competitors in the refractory resins markets (including, in particular, Dynea and Sumitomo) to exert a significant constraint on the merged entity, in view of their minor overall market presence.
 69. As regards the parties' allegation that their geographical focus differ because they do not sell the same applications in the same EU Member States, the Commission notes that this argument seems irrelevant in a market that, according to the parties, has to be considered as EEA-wide in scope. In particular, the parties have argued that transportation costs do not prevent long-distance shipping of resins, that most customers belong to large multi-national conglomerates that purchase on a centralised basis, and that customers consider sourcing from other parts of the EEA than the ones where they are situated, when threatening to switch. Under these circumstances, the fact that Borden and Bakelite currently have different centres of activities within the EEA cannot be considered pertinent to the competitive assessment of the market.
 70. As regards the allegation that "Carbores" and "Rauxolit" will act as a constraint for the pricing policy of the merged entity, and that the transaction will reduce the level of concentration by separating Bakelite's phenolic resins business from Rütgers Chemicals, the Commission refers to its conclusions in section 58/59 above that non-

phenolic binders (tar pitch/ modified tar pitch) do not belong to the same product category as phenolic resins. Therefore, even though it cannot be dismissed that, under particular circumstances, these products may become substitutes of phenolic resins, the fact that they have different performance characteristics and applications does not dispel the competition concerns existing on the phenolic refractory markets.

71. In consideration of the above, and in view of the significant market presence and overlapping activities of the parties, which might result in the creation of a dominant position for the merged entity, the Commission concludes that the proposed transaction raises serious doubts as to its compatibility with the common market regarding its effects in the markets of phenolic resins for refractory bricks, shapes and taphole clay.

V.3.6 – FLORAL FOAM

V.3.6.1 – RELEVANT PRODUCT MARKETS

72. Liquid resols are used to produce wet floral foam, which holds floral arrangements in place and allows water to reach their roots⁷. Liquid resols for floral foam are normally used together with a hardener, which may or may not be sold by the same supplier.
73. The market investigation has confirmed that resins used for floral foam applications can be retained to constitute a distinct relevant market.

V.3.6.2 – RELEVANT GEOGRAPHIC MARKETS

74. The parties contend that it is not necessary to determine a relevant geographic market, since the proposed transaction does not raise any competition concerns with respect to floral foam. However, they point out that floral foam resins can be and are shipped throughout the EEA economically while imports from outside the EEA are very limited.
75. The market investigation confirms that, while some customers prefer local sourcing due to transport costs and in order to preserve the resins' characteristics, shipments of 500 Km or more are usual. On this basis, customers largely consider the market to be at least EEA-wide.

V.3.6.3 – COMPETITIVE ASSESSMENT

76. In 2003 Borden accounted for [0-10%] of the market at the EEA level and Bakelite for [60-70%]. Main competitors present in this market were Dynea ([10-20%]) and Palm & Almgren ([0-10%]). The overlap between the parties' activities is therefore limited.
77. In addition, one single customer ([Customer name]) accounts for [60-80%] of wet floral foam resin consumption in Europe. This client owns its floral foam formulation and the resin recipes, and is present throughout the EEA. It negotiates contract terms, prices and framework conditions through a central purchasing department.

⁷ There are two types of floral foam: wet and dry. Each has distinct end-uses and the two products are not interchangeable. Dry floral foam is made from polyurethane.

78. No particular concerns were expressed during the market investigation, and the market is considered to be competitive.
79. In view of Borden's small sales of floral foam resins, and the highly concentrated structure of demand, the Commission concludes that the transaction will have no negative competitive impact on competition in this market.

V.3.7 – FOUNDRY

V.3.7.1 – RELEVANT PRODUCT MARKETS

80. Foundry resins are used to bind sand to form moulds and cores used to cast metal parts, such as automotive parts or other large metal machine parts. There are a number of different foundry processes, for each of which different combinations of phenolic and/or other resins are used (Hot-box, PUCB, Shell, Phenolic no-bake, Furan no-bake, Alpha-set, Beta-set, PUNB, Epoxy no-bake and Non-resin products). The parties submit that the relevant product market encompasses all foundry resins as their sales personnel do not specialise in individual foundry process resins and as most resin systems can be used with multiple foundry process and metal types.
81. However, the market investigation shows that resins used for different foundry processes are usually not substitutable, and that phenolic resin suppliers are specialized in resins for different foundry processes, which points towards separate relevant product markets. Foundry customers have indicated that most resins are tailor made for specific processes and metals although some flexibility appears to exist. Suppliers of phenolic resins are usually specialized in a few processes: Borden is specialized in alpha set and beta set resins and Bakelite in the Shell and Phenolic no-bake processes. In addition, customers tend to focus on a single or a few foundry processes and buy resins specially formulated for these processes. Hence, a further sub-segmentation of the product market by type of foundry process may be relevant.
82. The exact definition of the relevant product market, all phenolic resins for all foundry processes or a further sub-segmentation by type of foundry process, can be left open since under any alternative product market definition, the transaction is not likely to impede significantly competition in this area.

V.3.7.2 – RELEVANT GEOGRAPHIC MARKETS

83. The parties submit that the geographic market for foundry resins is national or regional, following the Commission's approach in *Perstorp*. According to the parties, although transportation costs do not play a significant role and resins can be transported economically over long distances; resins for foundry are essentially sold on a national or regional basis due to the need for extensive customer support and the strong geographic differentiation. The market investigation has generally confirmed these views. Most of the customers in the foundry industry require a responsive technical support and source their resins from suppliers with manufacturing facilities in their country. The exact geographic scope of the market (national or regional) can in any case be left open since under any alternative geographic market, the transaction is not likely to impede significantly competition in this area.

V.3.7.3 – COMPETITIVE ASSESSMENT

84. The demand for foundry resins is declining in Western Europe due to the shift of foundry operations in Asia. Market shares, at the EEA level and for all foundry processes are not very high (Borden [10-20%]; Bakelite [0-10%]), and there are two major competitors (Hüttenes-Albertus [30-40%]; Ashland [20-30%]). These two suppliers have a strong competitive advantage over both Borden and Bakelite as they are able to offer a full range of products for the foundry industry. With the exception of Epoxy SO2, where only Ashland and Bakelite are active, there are least three or four suppliers for each foundry process. Most of these suppliers focus on specific foundry processes and on national/regional area.
85. Under more narrow product market definitions, the parties' EEA-wide activities overlap in three types of foundry processes: Phenolic no-bake (Borden [0-10%]; Bakelite [40-50%]), Alphaset ([40-50%] and [10-20%]) and Shell ([0-10%] and [10-20%]). For the Phenolic no-bake and the Alpha set process, Borden and Bakelite have sales in different countries and different regions (Borden mainly in [Country names] and Bakelite mainly in [Country names]). The market investigation has confirmed that there were alternative suppliers to the parties in each national/regional geographic area and no concerns were raised by the parties' competitors and customers. As a consequence, the proposed operation is not likely to significantly impede effective competition in the markets for phenolic resins for foundry applications.

V.3.8 – INSULATION BONDING

V.3.8.1 – RELEVANT PRODUCT MARKETS

86. Liquid resols are used to bind mineral wool and glass fibre used for thermal insulation materials.

V.3.8.2 – RELEVANT GEOGRAPHIC MARKETS

87. The parties claim that the market for phenolic resins for insulation bonding is regional in scope due to the high transportation cost. According to the parties, most of their sales take place on a regional basis, except for two customers in the UK and Ireland [Reasons].
88. The market investigation has confirmed that resins for insulation bonding (liquid resols with high water content) could not be economically shipped over long distances and that competition takes place on a regional basis. Various customers, with manufacturing facilities throughout Europe, have confirmed that they selected their suppliers for this type of resins on a plant by plant basis to minimize transportation distance (not exceeding 500 km) and cost. For customers, the selection of suppliers is essentially based on cost and the nearest supplier is in many cases the cheapest. Moreover, certain types of resins have a limited shelf life of only 2-3 days.
89. In the same way, respondents identified the UK and Ireland as a separate geographic market since suppliers from the European continent are generally not competitive because of the higher transportations costs. As a consequence, the market for phenolic resins for insulation bonding is regional in scope and the UK and Ireland constitute a separate relevant geographic market.

V.3.8.3 – COMPETITIVE ASSESSMENT

90. Bakelite ([40-50%]) and Dynea ([20-30%]) are the two market leaders on the EEA level, while Borden has a negligible market share. The market investigation shows that several alternative suppliers are active in a regional area with competitive prices (e.g. Derivados, Putskow, PA Resins). Manufacturers of insulation material are large and sophisticated buyers, with manufacturing facilities throughout Europe (e.g. Saint-Gobain Insulation, Rockwool) and they enjoy significant buying power.
91. The parties only have a significant overlap in the UK, (Borden [10-20%]; Bakelite [10-20%]). The only other competitor in the UK, Dynea ([60-70%]) has an important UK-based production capacity. Nevertheless, the demand in this market is concentrated with [Details on customers]. The transaction is not likely to negatively affect competition in the UK or Ireland as the demand is very concentrated. Moreover, although the geographic markets are regional, the fact that Bakelite is able to export phenolic resins in the UK for a few customers shows that potential imports will prevent the new entity to raise prices in the UK to a certain extent.
92. Borden's and Dynea's current customers in the UK do not view Bakelite as a competitive supplier in the UK because of its higher prices due to transportation costs. After the proposed operation, they will still have the choice between these two suppliers, the price of which will be constrained by potential imports from other suppliers active in the European continent.
93. Bakelite's customers in the UK and Ireland currently do not source from Borden or Dynea because [Reasons]. They will therefore not be affected by the proposed operation. This is further confirmed by the fact that Commission's market investigation did not raise any concern in this area.
94. As a consequence, the proposed operation is not likely to significantly impede effective competition in the market for phenolic resins for insulation bonding.

V.3.9 – INSULATION FOAM

V.3.9.1 – RELEVANT PRODUCT MARKETS

95. Insulation foam is made from liquid resols. Insulation foam competes with glass fibre, waste fibre and mineral wool as insulation material for homes and industrial insulation applications.

V.3.9.2 – RELEVANT GEOGRAPHIC MARKETS

96. Phenolic resins for insulation foam are used throughout Europe. Although it is used more heavily in the UK than in other geographic areas, demand is expanding throughout Europe. The resins are used because of their good insulation properties, their low smoke emission value and their resistance to fire.
97. The parties claim that the market for phenolic resins used for insulation foam is EEA-wide as the resins can be shipped over long distances. While the market investigation has confirmed this statement, it also shows that these resols have a short shelf life and that customers have strong preference for local suppliers because of lower transportation cost and higher flexibility in deliveries. The exact geographic scope of the product market, EEA-wide or regional, can in any case be left open since the

proposed transaction is not likely to, the transaction is not likely to significantly impede competition under any alternative definition.

V.3.9.3 – COMPETITIVE ASSESSMENT

98. Insulation foam is a relatively new and fast growing end application for phenolic resins. The demand for insulation foam resins, although it is expanding, is currently concentrated in the UK market, where Borden realized almost all of its sales in 2003 ([90-100%]). The resins for insulation foam are tailor made to meet customers' requirements and most suppliers are jointly developing new resins with their customers to obtain improved performance. In 2003, Borden and Bakelite had respective EEA market shares of [60-70%] and [0-10%]. Main competitors were Sumitomo ([10-20%]) and Dynea ([10-20%]). Borden's strong position is essentially the result of its long standing relationship with its customer [Customer name], which represented [80-90%] of Borden's EEA sales in 2003. In 2004 Bakelite lost a customer representing [...%] of its sales, so that its current market share is [0-10%]. Bakelite therefore appears to be at present a relatively marginal player on the market for phenolic resins for insulation foam in the EEA, and the proposed transaction is not likely to significantly impede competition in this market.

V.3.10 – MINING FOAM

V.3.10.1 – RELEVANT PRODUCT MARKETS

99. Phenolic mining foam is used in coal mines to fill and seal crevices. Phenolic resins used for mining foam are produced according to customers' specifications.

V.3.10.2 – RELEVANT GEOGRAPHIC MARKETS

100. Although customers prefer to source locally in order to gain flexibility in deliveries, the market investigation has confirmed that the market for phenolic resins used for mining foam is EEA-wide in scope as the resins can be shipped over long distances.

V.3.10.3 – COMPETITIVE ASSESSMENT

101. Mining foam is a niche application for phenolic resins, with only [Number of customers] customers in the EEA, [Customer names]. In 2003 Borden represented ([50-60%] of the EEA market (sales to [Customer name]), Bakelite [10-20%], and Pustkow [20-30%] (sales to [Customer name]). In 2004, Bakelite however lost [...]. Based on customers' significant buying power and their ability to switch to alternative supplier and given Bakelite's limited market position at present, the proposed transaction is not likely to significantly impede competition for phenolic resins for mining foam.

V.3.11 – CONCLUSION

102. To conclude, the extensive market investigation carried out by the Commission confirmed that Bakelite and Borden are two complementary businesses both in terms of geographic sales and in terms of end-applications and that the parties' activities' overlaps are limited.

103. The Commission however identified competitive concerns that the proposed operation would significantly impede effective competition in the markets of phenolic resins for refractory bricks, shapes and taphole clay in the EEA. In order to remove these competitive concerns the parties' submitted remedies, which are further discussed below. Within phenolic resins, the Commission does not consider that the proposed operation would significantly impede effective competition in other end applications for the various reasons assessed above.

VI. EPOXY RESINS

VI.1.1 – LIQUID EPOXY RESINS (LER)

VI.1.1.1 – RELEVANT PRODUCT MARKETS

104. LER is the most widely used form of basic epoxy resin. LER is produced by reacting an epoxy molecule with a diphenol, normally bisphenol A (“BPA”) or bisphenol F (“BPF”). LER is sold in a range of different viscosities. Viscosity is a key property of LER and an important factor in choosing a specific resin. High viscosities are obtained by using BPA (resulting in Bis-A LER) and low viscosities by using BPF (resulting in Bis-F LER). The viscosity of the final resin can be adjusted by blending resins of different grades of viscosity or by blending a resin with a reactive diluent and/or hardener.
105. The parties submit that LER of different viscosities (including Bis-A LER, Bis-F LER and blends) belong to the same product market due to the high supply-side substitutability. The market investigation largely confirms the submission of the parties that there is a high supply-side substitutability between the two types of LER due to the fact that the basic production process is very similar. For this reason, most competitors consider it rather easy and quick to change production from Bis-A to Bis-F LER.
106. However, several strong factors on the demand-side point towards a narrower product market definition, by further segmenting the market in Bis-A LER and Bis-F LER. Bis-A LER and Bis-F LER are produced from different raw material, bisphenol-A and bisphenol-F (“BPF”) respectively. Most customers and some competitors have clearly indicated that Bis-A LER and Bis-F LER differ in terms of mechanical/chemical performance, viscosity, epoxide equivalent weight as well as crystallisation resistance and temperature. The two types of LER are also different in the sense that Bis-A resins are commodity building blocks for all epoxy resin markets but Bis-F resins are more specific and critical to a few markets where low viscosity and low crystallisation temperature are essential. For these reasons Bis-A and Bis-F LER are often used in different end-use applications, and in particular Bis-F LER is often a critical component in blends used for certain end-use applications. Examples of end-use applications for which Bis-F LER is a critical component of blends are electrical insulation applications, tank coatings and flooring systems. Several customers and certain competitors have pointed out that in case of a permanent price increase of 5-10% of Bis-F LER, they would not be able to switch to Bis-A LER. Moreover, the Commission's attention has been drawn to certain instances where direct interchange between Bis-A and Bis-F LER could result in formulation problems and even in system failure. In addition, the price for Bis-A LER is generally lower than the one for Bis-F LER, due to the commodity character of the former and to the fact that there are very few producers of Bis-F LER and of its precursor BPF in the EEA.

107. For these reasons, Bis-A LER and Bis-F LER should be considered as separate relevant product markets from the demand point of view. In addition, and with the information gathered so far, it seems that the alleged supply-side substitutability cannot be considered as a competitive constraint due to the shortage of BPF..
108. Bis-A and Bis-F are not only sold separately but also sold blended to obtain various physical properties and different ranges of viscosity. Based on the results of the market investigation, it appears that blends do not form separate relevant product markets on their own. Instead, the straightforward operation required to produce blends can be considered as a simple service provided by LER suppliers.

VI.1.1.2 – RELEVANT GEOGRAPHIC MARKETS

109. The parties submit that the relevant geographic market for LER is at least EEA-wide and that it may be world-wide. RPP serves customers throughout the EEA from its plants in the Pernis (The Netherlands) and Bakelite does the same from its German plant in Duisburg. According to the parties, LER is also shipped from Asia to Europe, and the cost of shipping is around 6% of the selling price.
110. The results of the market investigation show that the geographic markets for Bis-A and Bis-F LER are rather EEA-wide than world-wide in scope. The exact geographic scope of the market can in any case be left open since, as stated below, even under the narrower geographic market definition (EEA market), the transaction is not likely to impede significantly competition in any of the two product markets.

VI.1.1.3 – COMPETITIVE ASSESSMENT

111. Although both companies produce and sell epoxy resins, RPP and Bakelite generally focus on different market segments. RPP is a large-scale producer of basic epoxy resins, whereas Bakelite focuses on speciality resins and value-added formulated systems. RPP presently supplies the substantial majority of Bakelite's Bis-A LER requirements. All market shares indicated below refer to the EEA-market.
112. On the basis of separate product markets for Bis-A LER and Bis-F LER, the parties' combined market shares in Bis-A LER (RPP [20-30%], Bakelite [0-10%]) and blends (RPP [10-20%], Bakelite [10-20%]) are ([30-50%], while it stands at [40-50%] for Bis-F LER (RPP [10-20%], Bakelite [30-40%]).
113. The combined market shares of the parties in Bis-A LER are not very high and the overlap between their respective activities is relatively minor. There are several rather strong competitors present on the market for Bis-A LER, such as Dow ([20-30%]) and Huntsman ([20-30%]). Against this background, and on the basis of the results of the market investigation, no competition concerns are likely to arise following the transaction on the market for Bis-A LER.
114. The Bis-F LER market is smaller, and consists of [...] tonnes (EUR [...] million), which represents [0-10%] of the total LER market. Huntsman is the only competitor that is vertically integrated and that produce Bis-F LER on a regular basis. Huntsman's market share in Bis-F LER is [40-50%]. Dow[...]. Dow's market share is [10-20%].
115. During the market investigation, some customers and competitors have complained about the parties' strengthened position in Bis-F LER following the merger, in

particular due to the fact that Bakelite is integrated upstream into BPF, the raw material for Bis-F LER. Indeed, there appear to be a shortage of BPF on a world-wide level. The current producers of BPF in Europe use almost their entire BPF production captively. Competitors wishing to produce Bis-F LER should therefore obtain the raw material from these companies (with which they compete downstream) or from a few existing suppliers in Asia. For these reasons, competitors that are not integrated upstream in the production of BPF do not consider it cost-efficient to enter the Bis-F LER market. Moreover, the complaints relate to potential sourcing difficulties and higher prices for BPF and Bis-F LER, as well as for blends including Bis-F LER. Some customers also fear that the shortage of Bis-F LER and blends including Bis-F LER will affect the market for formulated systems, for which they are essential components and in which Bakelite already has a strong position .

116. To remove these concerns, however, the parties have submitted that Leuna will establish a new plant for the production of BPF and Bis-F LER, which would remedy the current shortage of BPF and Bis-F LER.
117. During the Commission's investigation this was confirmed by Leuna, which publicly announced that it had started to implement its project to start producing BPF, in order to ensure access to BPF and Bis-F LER for internal use and in order to increase its sales of Bis-F LER in the EEA. According to Leuna, the new plant would be operational by the first quarter of 2006.
118. In light of the above, the proposed transaction does not raise serious doubts as to its compatibility with the common market and the functioning of the EEA Agreement with respect to Bis-A and Bis-F LER.

VI.1.2 – SOLID EPOXY RESINS (SER) AND SOLUTIONS

VI.1.2.1 – RELEVANT PRODUCT MARKETS

119. SER is produced by reacting LER with additional BPA. Although SER is a chemical variant of LER, SER and LER have different physical and performance characteristics and are not interchangeable. SER is used both in solid form and in solutions (i.e., dissolved in a solvent).
120. The parties submit that SER and solutions belong to the same product market, since the dilution operation is straightforward and as the price of solutions is constrained by the price of solid SER. The results of the market investigation largely confirm the parties' view on the basis that the properties of the two are fundamentally the same, with the exception for the form in which they are sold, and that fact that for certain consumer or industrial applications, either SER or SER solutions is more appropriate.
121. However, since the transaction is likely not to give rise to competition issues in the field of SER and SER solutions under any alternative product market definition, the definition of the relevant product market can be left open for the purposes of this case.

VI.1.2.2 – RELEVANT GEOGRAPHIC MARKETS

122. The parties submit that the relevant geographic market for SER and SER solutions is at least EEA-wide. The results of the market investigation confirm the parties' view. However, as follows from the below, because of the minor presence of Bakelite in SER and SER solutions on an EEA-level, and the fact that no competition issues are

likely to arise under any alternative market definition, the geographic market definition can be left open.

VI.1.2.3 – COMPETITIVE ASSESSMENT

123. Bakelite does not produce SER in Europe and imports only marginal quantities from its Korean plant; the company also sells minimal amounts of SER solutions. The transaction will lead to a combined market share at the EEA level of [20-30%], with a minor increase of [0-10%].
124. Considering the very limited addition of market shares the transaction is not likely to change the current competition environment. The market investigation has not raised any concerns with respect to SER and SER solutions. Therefore, the transaction does not give rise to competition concerns with respect to SER and SER solutions.

VI.1.3 – REACTIVE DILUENTS

VI.1.3.1 – RELEVANT PRODUCT MARKETS

125. Reactive Diluents are products added to LER in order to decrease viscosity and to change the final physical properties. Reactive Diluents are also used in formulated systems (see below) as an ingredient of the final formulation. Reactive Diluents can be further segmented into (i) mono-functional or multi-functional, (ii) aromatic or aliphatic, and (iii) glycidyl esters (“esters”) or glycidyl ethers (“ethers”).
126. Notwithstanding the differences between specific Reactive Diluents which will be discussed below, the parties claim that the supply-side substitutability together with some degree of substitution between the different Reactive Diluents justifies their consideration as a single product market.
127. Mono-functional Reactive Diluents have a single epoxide site per molecule and are used primarily to reduce the viscosity of LER. Multi-functional Reactive Diluents have two or more epoxide sites per molecule and do, in addition to reducing viscosity; also provide LER with other desirable performance properties such as strength, thermal resistance and flexibility. In some cases multi-functional Reactive Diluents can substitute mono-functional Reactive Diluents, but this substitutability is in general not possible in the other direction. In addition, multi-functional Reactive Diluents are more expensive. Therefore, a customer would in practice not switch from mono-functional Reactive Diluents to multi-functional Reactive Diluents unless additional performance is required.
128. Reactive Diluents can be further segmented in aliphatic and aromatic Reactive Diluents. Aliphatic Reactive Diluents are molecules taking the form of a straight carbon chain. They are relatively low cost products and addressed to achieve a given viscosity of LER. Aromatic Reactive Diluents have a different molecular structure which takes the form of a double-bonded carbon ring. They offer a better performance than aliphatic Reactive Diluents that further improves both viscosity and other characteristics of LER. Moreover, aromatic Reactive Diluents are more expensive than aliphatic Reactive Diluents and have a limited usage due to environmental concerns.
129. The third possible distinction between different types of Reactive Diluents is between ethers and esters. RPP produces glycidyl ester (or versatic acid, under the trade name

of “Cardura”) which is mainly used for the production of acrylic and polyester coatings and as a low cost mono-functional Reactive Diluents. RPP is the only producer of Cardura.

130. Whereas multi-functional Reactive Diluents are exclusively aliphatic ethers, mono-functional Reactive Diluents can be aliphatic ethers, aliphatic esters or aromatic ethers. The table below shows the possible Reactive Diluents segmentations:

	Aliphatic	Aromatic
Multi-functional	Ethers	**
Mono-Functional	Ethers Esters	Ethers

131. With respect to demand-side substitutability, the parties state that where the main objective of using Reactive Diluents is to reduce viscosity, switching between different Reactive Diluents is essentially a matter of adjusting the proportion of Reactive Diluents added to the resin, and the closer to dilutive power between the Reactive Diluents, the smaller is the change in the overall formulation. However, when there are other characteristics to be achieved (i.e. thermal resistance or flexibility), changing the Reactive Diluents will normally require changes of other components of the formulation, for example in type and quantity of the curing agent used. As a conclusion, the parties submit that the choice of Reactive Diluents takes place not only between directly competing Reactive Diluents but rather in the context of a broader systems competition in which the cost/benefit choice of any single input is linked to the cost/benefit of the totality of inputs.
132. However, the parties also recognise that certain Reactive Diluents are generally used in specific applications. Thus, mono-functional Reactive Diluents tend to be used in adhesives, civil engineering, coatings and composites, whereas multi-functional Reactive Diluents rather are used in adhesives, composites and formulated systems than in civil engineering or coatings. The importance of the use of specific diluents for specific applications has been confirmed by the Commission’s investigation. Most of the respondents confirm that they do in general need a specific Reactive Diluents in order to achieve the desired characteristics of the final resin.
133. With respect to the substitutability between ethers and esters, the parties submit that Cardura directly competes with a number of mono-functional ethers Reactive Diluents (in particular C₁₂-C₁₄, C₁₂-C₁₃ and C₈-C₁₀ ethers), and that these products constrain RPP’s ability to increase Cardura’s price. However, even if this may be the case for some applications, in general, no such conclusion can be drawn from the results of the market investigation. Instead, these results indicate that esters and ethers are not always substitutable and that their substitutability depends on the final application and that reformulation might be necessary in order to substitute Cardura with mono-functional ethers Reactive Diluents. As regards supply-side substitutability, the parties submit that the same equipment can be used for various types of Reactive Diluents and also for epoxy resins, and that production in one and the same reactor can be and

is shifted quite often (for example, aliphatic and aromatic Reactive Diluents use the same glycidation process and are commonly produced in the same reactors). The only exception is Cardura, where the economies of scale derived from the large amounts produced for its use in the acrylic and polyester coating industries makes production in dedicated equipment more profitable. In addition, the parties also submit that there are slight differences in the production process and thus esters and ethers are normally not produced in the same reactors. Moreover, the only company active in the production of mono-functional ester Reactive Diluents is RPP, which is not active in the production of ether Reactive Diluents.

134. On the basis of what is stated above regarding supply side substitutability, mono-functional and multi-functional Reactive Diluents or even aliphatic and aromatic Reactive Diluents could be considered as belonging to the same relevant product market. However, there is no sufficient basis for considering esters and ethers as belonging to the same relevant product market. Therefore, it can be concluded that at least mono-functional esters Reactive Diluents and mono-functional ethers Reactive Diluents constitute separate relevant product markets.
135. The question whether mono-functional and multi-functional Reactive Diluents constitute separate relevant product markets or whether, within the mono-functional group, aliphatic and aromatic Reactive Diluents constitute separate relevant product markets can be left open since the final competitive assessment does not change under any alternative.

VI.1.3.2 – RELEVANT GEOGRAPHIC MARKETS

136. The parties submit that the relevant geographic market for mono-functional reactive diluents is at least EEA-wide. It is not necessary to assess the geographic scope for multi-functional Reactive Diluents since, if considered as a separate relevant product market, the transaction would have not impact on this market because only Bakelite produces multi-functional Reactive Diluents.
137. Bakelite sells and ships its products throughout Europe from its plant in Duisburg (Germany), and RPP does the same from its plants in Pernis (The Netherlands) and Barbastro (Spain). The parties are not aware of relevant imports into Europe.
138. The market investigation largely confirms the parties’ statement, and although some customers have indicated that the majority of their purchases were made from suppliers located close to them, none of the respondents considered that competition takes place at a narrower level than the EEA.
139. Therefore, for the purposes of this decision the relevant geographic market for all Reactive Diluents can be considered to be the EEA.

VI.1.3.3 – COMPETITIVE ASSESSMENT

140. The parties’ activities overlap mainly in mono-functional Reactive Diluents. The table below shows the parties’ market shares (in value) under the various possible product market definitions.

All Reactive Diluents	Multi- functional Reactive Diluents	Mono- functional (MF) Reactive	Mono- functional Aromatic	Mono- functional Aliphatic (only Ethers)	Mono- functional Aliphatic Esters
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			Diluents			
RPP	[0-10%]	[0-10%]	[0-10%]	[0-10%]	[10-20%]	[90-100%]
Bakelite	[10-20%]	[0-10%]	[30-40%]	[40-50%]	[20-30%]	[0-10%]
Combined	[10-20%]	[0-10%]	[40-50%]	[40-50%]	[30-40%]	[90-100%]

141. Since mono-functional ester Reactive Diluents constitute a separate relevant product market, the value of this market has not been taken into account for the calculation of the market shares of the other relevant product markets.
142. With respect to all the alternative product market definitions which were left open, the market investigation has not revealed competitive concerns concerning the parties overlapping activities in mono-functional aliphatic Reactive Diluents. Most respondents have confirmed that sufficient alternatives will remain on the market that customers do generally multi-source and that the market is not capacity constrained. Post transaction, Apollo will face competitors such as Huntsman ([20-30%]in mono-functional Reactive Diluents and [0-10%]in mono-functional aliphatic Reactive Diluents), EMS-Primid ([10-20%] and [20-30%]), UPPC ([10-20%] and [20-30%]), Leuna ([0-10%]and [10-20%]) and Air Products ([0-10%] and [0-10%]).
143. With respect to mono-functional ester Reactive Diluents (Cardura), the combined market share after the merger will be [90-100%]. However, the transaction does not give rise to competition concerns due to the combination of the parties' activities since there is not a real horizontal overlap as [Reasons].
144. However, the Commission's investigation has raised serious doubts with respect to the vertical relationships between the parties with respect to Cardura and its use in formulated systems, which is assessed in the formulated systems section.

VI.1.4 – FORMULATED SYSTEMS

VI.1.4.1 – RELEVANT PRODUCT MARKETS

145. Formulated systems are fully integrated combinations of epoxy resins, diluents, curing agents (delivered separately), fillers, pigments and other products. They are generally tailored to the specific needs of particular end-applications. The parties submit that formulated systems differ from the individual components in two ways: (i) the systems are sold as complete systems that can be used "as is", without any additional processing (other than mixing the resin with the curing agent so that the chemical reaction starts), such as blending or addition of fillers or pigments, and (ii) formulated systems require a significant amount of know-how, which differentiates them from the so called LER blends. Suppliers of formulated systems are generally referred to as "Formulators", and their functions include evaluating customers' requirements and identifying the specific combination of epoxy resin components that will meet those requirements.

146. The parties submit that formulated systems constitute a single relevant product market. They base their submission on the fact that the key competitive factors are the know-how, the importance of research and development and the service, support and close contact with customers. Based on the acquired know-how, each player in this market has an unlimited ability to use different ingredients and proportions to produce different formulated systems and therefore to, at least potentially, enter any application.
147. The market investigation has confirmed the parties approach, and there are no indications pointing towards sensible market segmentations according to final applications. Therefore, for the purpose of this decision formulated systems are considered to constitute the relevant product market.

VI.1.4.2 – RELEVANT GEOGRAPHIC MARKETS

148. The parties submit that the relevant geographic market is the EEA. Even though Bakelite supplies its formulated systems from Germany to some customers on a world-wide basis, the parties submit that the need of having a close and regular contact with the customers limits the ability of suppliers to serve distant locations.
149. The market investigation has confirmed the arguments submitted by the parties. Therefore, for the purposes of this decision the relevant geographic market for formulated systems can be considered to be the EEA.

VI.1.4.3 - COMPETITIVE ASSESSMENT

150. In this field, Bakelite has a very strong position with a market share at EEA level of [30-40%] whereas RPP is a minor player, with an EEA market share of [0-10%]. The other strong player is Huntsman with [40-50%]market share. Other competitors are SIQ ([0-10%]) and UPPC ([0-10%]).
151. With respect to the combination of the parties' activities due to horizontal overlaps, given the very limited addition of market shares the transaction is not likely to change the current competition environment, and the investigation has not raised concerns others than the ones derived from the vertical relationships.
152. Regarding the vertical relationships, RPP's Cardura is used by customers who directly compete with Bakelite in the downstream market of formulated systems. Since RPP is not active in formulated systems, its incentives to supply Cardura to Bakelite's competitors are likely to change after the transaction. In particular, RPP might find profitable to leverage its dominant position in mono-functional ester Reactive Diluents by ceasing to supply these new competitors in formulated systems and therefore reinforce Bakelite's already strong position ([30-40%])in this market.
153. The parties have stated that most of RPP's Cardura sales as reactive diluent ([...] tons out of [...] tons, which represents [70-90%]) are made via independent distributors. These distributors sell Cardura to several different companies for various uses outside that of formulated system. Therefore, it would not be possible for RPP to influence the distributors' sales in a way that would discriminate Bakelite's downstream competitors. Furthermore, the parties estimate that only around [...] tons or Cardura were used in the formulated systems market where Bakelite is active, representing [0-10%] of RPP 's sales through distributors. Given the relatively low proportion of Cardura sales to such downstream competitors, it cannot be clearly concluded that

RPP will have incentives to increase the prices of Cardura sold to the distributors, as it would also affect other applications in which Bakelite is not present.

154. However, part of RPP's sales is made directly to customers who are easily identifiable. Therefore, RPP could have an incentive to try to use its dominant position upstream to strengthen Bakelite's position in the downstream market of formulated systems. In such a scenario, these currently direct customers could try to change their sourcing policy and approach the previously discussed distributors. However, it is not clear whether sourcing through such distributors would be a viable option for the direct customers who, so far, have demonstrated their preference for not purchasing from distributors. The small number of direct customers, [Number of customers], suggests that one of the reasons why these purchases are made directly from RPP is the large volume consumed by these customers, which raises doubts with respect to the ability of distributors to offer the same conditions as RPP.
155. In light of the above, the proposed transaction raises serious doubts as to its compatibility with the common market and the functioning of the EEA Agreement with respect to the vertical link between RPP's dominant position on the market for mono-functional aliphatic ester reactive diluents (Cardura) and the downstream position of Bakelite on the formulated systems market.

VII. COMMITMENTS SUBMITTED BY THE PARTIES

156. In the course of the procedure, the Parties have, pursuant to Article 6(2) of the Merger Regulation, offered commitments in order to remove the potential competition concerns identified by the Commission in the course of its investigation. The commitments were formally submitted on 16 March 2005, and have following the market test and related discussions been amended by way of a version submitted on 8 April 2005. The full text of the final commitments is attached to this decision and forms an integral part thereof.

VII.1. Carbon Bonded Refractory Materials

Summary of the commitments

157. The Apollo Group proposes to cause Borden and Bakelite to make the following available to any company that purchases or has within the past three years purchased phenolic resins for refractory bricks, shapes or taphole clay (a "Refractory Customer") from either Borden or Bakelite:
- For the phenolic resins for refractory bricks, shapes and/or taphole clay that each Refractory Customer currently purchases (or has purchased in the last three years) from Borden or Bakelite ("Customer Licensed Products"), the Apollo Group undertakes to cause Borden or Bakelite, respectively, to grant a single royalty-free license ("License") of the respective Borden or Bakelite technology necessary to produce any and all Customer Licensed Products (a "Technology Package").
 - Each Technology Package will contain the recipes and manufacturing instructions necessary to produce the Customer Licensed Products existing as of the date the License is granted.

- Each Refractory Customer will have the right for a period of five years from the completion of the proposed concentration to designate a single phenolic resin producer located in the EEA (“Designated Producer”) to whom Borden or Bakelite will grant the License.
158. The License will give the Designated Producer the right to use the Technology Package in perpetuity to produce the Customer Licensed Products at production facilities located in the EEA for sale to the Refractory Customer that designated the Designated Producer.

Assessment

159. The proposed undertaking intends to provide a certain level of protection for customers in the three affected markets, by significantly reducing their switching costs to alternative phenolic resin suppliers.
160. Since phenolic resin suppliers generally produce a variety of resins in the same reactor and at the same production plant, and that the production of phenolic resin is not separate depending on the end-use application of the resin, it does not seem possible to find a structural remedy in the form of suitable and proportionate divestments in the present case. Therefore, the Commission considers that a behavioral remedy is more appropriate to meet the competitive concerns identified above.
161. The Commission further considers that, by providing alternative phenolic resin producers with a technology package containing all the recipes and manufacturing instructions, the parties substantially reduce the cost that the alternative suppliers would otherwise have to bear for developing the specific phenolic resins products, in particular as regards the identification of the customers’ needs and the simplification or avoidance of qualification and testing processes. The existence of available alternative suppliers should, in turn, increase the negotiating power of the parties’ customers in the affected markets, by reducing their degree of dependency to the original Borden or Bakelite sourcing.
162. In addition, it seems that the proposed undertaking would be proportionate to the competitive concerns identified by the Commission, since the parties’ joint activities in phenolic resins for refractory bricks, shapes, and taphole clay amounted in 2003 to a total turnover of about EUR [...] million., i.e., or [0-10%]of the parties joint phenolic resins turnover, and about [0-5%]of Borden’s and Bakelite’s joint turnover for the same year.

Conclusion

163. In the light of the above, the Commission concludes that the Commitments originally submitted by the Apollo Group on 16 March 2005, as modified on 8 April 2005, are sufficient to eliminate any serious doubts as to the compatibility of the transaction with the common market in relation to carbon bonded refractory materials.

VII.2. Reactive Diluents

Summary of Commitments

164. The Apollo Group proposes to cause RPP to enter into long-term supply agreements, subject to normal commercial terms and conditions, with those customers who

presently purchase or commits to purchase more than 20 metric tons of Cardura per annum directly from RPP for use in formulated systems (“Formulated Systems Customers”).

165. The proposed Commitments would give the customer the right to purchase 100% of its current annualized purchasing volumes of Cardura for use in formulated systems. These quantities will be adjusted in each subsequent year to be 5% more than the customer’s purchases of Cardura during the previous year. The price of the Cardura will be subject to a formula to be negotiated between RPP and the customer and subject to the approval of the European Commission. The term of the contract will be seven years and RPP undertakes to negotiate in good faith using best efforts to conclude the negotiations with the customers within three months after closing of the transaction between RPP and Bakelite

Assessment

166. The market test of the remedies confirms that the remedy proposed by the Apollo Group would remove the competitive concerns. The time limit of seven years seems to be reasonable as to allow most of the respondents to find alternatives to Cardura if needed. In addition, with respect to the amounts granted, RPP does not sell to direct customers quantities of less than 20 metric tons ([Reason]), so that this threshold will not restrict direct customers in their ability to purchase from RPP.
167. Furthermore, the remedy constrains RPP from rising prices selectively to Bakelite competitors, thus reducing the likelihood of any foreclosure effects after the transaction.
168. Some respondents to the market test have indicated that the remedy should also be extended to distributors; otherwise competition might be distorted since some customers would not benefit from the remedy. However, the remedy is aimed at preventing RPP from rising prices of Cardura sold to Bakelite’s competitors and, as explained above in the reactive diluents’ assessment, this behaviour is not likely to happen with respect to customers purchasing from distributors. Furthermore, customers who are currently not purchasing Cardura directly from RPP will also have the right to the long-term supply agreement with RPP in case their annual Cardura’s consumption grows beyond the 20 metric tons limit, thus avoiding any kind of competitive disadvantage between potential and current RPP’s customers.
169. The remedy is also proportionate given the small quantities of Cardura used by Bakelite in its formulated systems.

Conclusion

170. In the light of the above, the Commission concludes that the Commitments originally submitted by the Apollo Group on 16 March 2005, as modified on 8 April 2005, are sufficient to eliminate any serious doubts as to the compatibility of the transaction with the common market in relation to reactive diluents.

VIII. CONCLUSION

171. For the above reasons, the Commission has decided not to oppose the notified operation and to declare it compatible with the common market and with the EEA Agreement, subject to the obligations set out in the submitted commitments.. This

decision is adopted in application of Article 6.1(b) and 6(2) of Council Regulation (EC) No 139/2004 and Art 57 of the EEA Agreement.

For the Commission, signed
Neelie KROES
Member of the Commission

By hand, e-mail and by fax: 00 32 2 296 4301

European Commission

Merger Task Force

DG Competition

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Case M.3593 – *Apollo / Bakelite*

COMMITMENTS TO THE EUROPEAN COMMISSION

Pursuant to Article 6(2) of Council Regulation (EC) No. 139/2004 (the “**Merger Regulation**”), the Apollo Group, Bakelite, Borden and RPP (collectively, the “**Parties**”) hereby provide the following Commitments (the “**Commitments**”) to enable the European Commission (the “**Commission**”) to declare the acquisition of Bakelite by Borden compatible with the common market and the EEA Agreement by its decision pursuant to Article 6(1)(b) of the Merger Regulation (the “**Decision**”).

The Commitments shall take effect upon the Effective Date.

This text shall be interpreted in the light of the Decision to the extent that the Commitments are attached as conditions and obligations, in the general framework of Community law, in particular in the light of the Merger Regulation, and by reference to the Commission Notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004.

Section A. Definitions

1. For the purpose of the Commitments, the following terms shall have the following meaning:
 - (a) **Affiliated Undertakings**: undertakings controlled by the Parties and/or by the ultimate parents of the Parties, whereby the notion of control shall be interpreted pursuant to Article 3 of the Merger Regulation and in the light of the Commission Notice on the concept of concentration under the Merger Regulation.
 - (b) **Apollo Group**: Apollo Investment Fund IV, L.P. and Apollo Investment Fund V, L.P and their Affiliated Undertakings.
 - (c) **Bakelite**: Bakelite AG and its Affiliated Undertakings.
 - (d) **Borden**: Borden Chemical, Inc. and its Affiliated Undertakings.
 - (e) **Cardura**: glycidyl ester of versatic acid used as a reactive diluent in Formulated Systems.
 - (f) **Closing**: closing of the transaction underlying the notified concentration.
 - (g) **Effective Date**: the date of adoption of the Decision.

- (h) **Eligible Formulated Systems Customer:** a customer that in the preceding 12 months purchased either (i) 20 metric tons of Cardura directly from RPP or (ii) any quantity of Cardura from an RPP distributor, in either case not for resale in any form other than as part of a Formulated System.
- (i) **Eligible Products:** the specific Refractory Brick Resins, Shapes Resins and/or Taphole Clay Resins that any Eligible Refractory Customer has purchased in the last 3 years from Borden or Bakelite for commercial production.
- (j) **Eligible Refractory Customer:** any company that has within the past 3 years purchased Refractory Brick Resins, Shapes Resins or Taphole Clay Resins for commercial production from either Borden or Bakelite.
- (k) **Formulated Systems:** all ready-to-use epoxy resin systems that include epoxy resins, curing agents and other materials, to which it is not necessary for the customer to add reactive diluents, filler, pigment, flame-retardants or other additives. Formulated Systems do not include: (i) liquid epoxy resins that are blended with other liquid epoxy resins and/or reactive diluents when they are not sold as components of a resin/curing agent system; or (ii) applications where Cardura is used in the synthesis or modification of polymers or resins for coatings, adhesives, etc.
- (l) **Parties:** includes (i) Borden, its successors and Affiliated Undertakings; (ii) Bakelite, its successors and Affiliated Undertakings, following Closing; (iii) RPP, its successors and Affiliated Undertakings; and (iv) the Apollo Group, only for so long as the Apollo Group exercises control over Borden, Bakelite or RPP within the meaning of Art. 3 of the Merger Regulation.
- (m) **Refractory Brick Resins:** phenolic resins used as binders in the commercial production of refractory bricks.
- (n) **RPP:** Resolution Performance Products LLC and its Affiliated Undertakings.
- (o) **Shapes Resins:** phenolic resins used as binders in the commercial production of formed refractory products other than formed refractory products that are produced using a heated, isostatic press.
- (p) **Taphole Clay Resins:** phenolic resins used as binders in the commercial production of taphole clay.
- (q) **Trustee:** one or more natural or legal person(s), independent of the Parties, approved by the Commission and appointed by the Apollo Group, with the duty to monitor compliance with the conditions and obligations attached to the Decision.

Section B. Commitment Relating to Refractory Brick Resins, Shapes Resins and Taphole Clay Resins (the “Refractory Commitment”)

2. As of closing, the Apollo Group shall, upon a request from any Eligible Refractory Customer, cause Borden or Bakelite, as the case may be, to make available a single royalty-free license without the right to transfer, assign or sublicense any part thereof (“License”) to the respective Borden or Bakelite technology necessary to

produce those Eligible Products (a “Technology Package”). Such License shall be limited to the actual Eligible Products purchased by that Eligible Refractory Customer.

3. Each Technology Package will contain the recipes and manufacturing instructions necessary to produce the Eligible Products existing as of the date the License is granted.
4. Each Eligible Refractory Customer will have the right (the “Designation Right”) for a period of 5 years from Closing to designate in writing a single phenolic resin producer located in the EEA (“Designated Producer”) to whom Borden or Bakelite, as the case may be, will grant the License.
5. The License will give the Designated Producer the right to use the Technology Package in perpetuity to produce the Eligible Products at production facilities located in the EEA, only for sale to the Eligible Refractory Customer that designated the Designated Producer.

Section C. Commitment Relating to Mono-Functional Aliphatic Reactive Diluents (the “Diluent Commitment”)

6. The Apollo Group will cause RPP to enter into a long-term supply agreement for a minimum of 20 metric tons per annum, subject to normal commercial terms and conditions (“Cardura Contract”), with any Eligible Formulated Systems Customer who requests such a contract.
7. A Cardura Contract will confer upon the Eligible Formulated Systems Customer the right to purchase Cardura for use in Formulated Systems (*i.e.*, not for resale in any form other than as part of a Formulated System) directly from RPP.
8. If, at the time a Cardura Contract is executed, the Eligible Formulated Systems Customer is a customer who purchased Cardura from RPP during the preceding 12 months (a “Direct Customer”), the quantity of Cardura available for purchase (the “Available Amount”) during the first year of the contract will be up to 100% of the volume of Cardura that the Direct Customer purchased during the preceding 12 months. If the Eligible Formulated Systems Customer purchased Cardura from an RPP distributor during the preceding 12 months (an “Indirect Customer”), the Available Amount shall be the Indirect Customer’s reasonably projected annual requirement of Cardura for use in the production of its Formulated Systems, subject to the incremental availability of Cardura, such amount to be verified by a Monitoring Trustee, as defined below.
9. The Available Amount will be adjusted in each subsequent year to be 5% more than the Eligible Formulated Systems Customer’s purchases of Cardura during the previous year, but in no event shall be less than 20 metric tons per year.
10. The price of the Cardura sold pursuant to each Cardura Contract will be subject to a formula that will be adjusted monthly to reflect changes in raw materials price indices (the “Price Formula”). The initial price set under the Cardura Price Formula (the “Starting Price”) for each Direct Customer will correspond to the net average price per metric ton that Direct Customer paid for Cardura during the 3 months preceding the Cardura Contract. The Starting Price for Indirect Customers will

correspond to the net average price it paid to the RPP distributor during the preceding 3 months, taking into account generally applicable surcharges for less-than-truckload quantities.

11. Each Price Formula will be subject to the approval of the European Commission.
12. RPP's general commercial policy will apply to orders, including minimum order sizes, generally applicable surcharges for less-than truckload quantities, shipping terms and packaging. For avoidance of doubt, RPP's minimum order size, which is subject to surcharges, is 5 metric tons per order.
13. Any additional contractual details will be subject to negotiation between RPP and the Eligible Formulated Systems Customer.
14. The term of the contract will be up to seven years, but in no event will RPP be required to enter into any Cardura Contract, the term of which extends beyond June 30, 2012.
15. Any Eligible Formulated Systems Customer who wishes to enter into a Cardura Contract must send written notice of its intention to do so ("Notice") to RPP no later than June 30, 2010.
16. RPP undertakes to negotiate the Cardura Contracts in good faith using best efforts to conclude the negotiations with the Eligible Formulated Systems Customer within 3 months of receiving Notice.

Section D. Appointment of a Trustee or Trustees

Appointment Procedure

17. The Apollo Group shall cause Borden and RPP to appoint a Trustee or Trustees to carry out the functions specified below, subject to the execution of one or more Trustee Mandates subject to the approval of the Commission. The Trustee(s) shall be independent of the Parties, possess the necessary qualifications to carry out its mandate, for example as an industry expert or consultant, and shall neither have nor become exposed to a conflict of interest. The Trustee(s) shall be remunerated by the Parties in a way that does not impede the independent and effective fulfilment of its mandate.

Proposal by the Parties

18. No later than one week after the Effective Date, the Parties shall submit a list of one or more persons ("Prospective Trustees") whom the Parties propose to appoint as the Trustee(s) to the Commission for approval. The proposal shall contain sufficient information for the Commission to verify that the proposed Trustee(s) fulfil(s) the requirements set out in paragraph 17 and shall include:
 - (a) the full terms of the proposed mandate, which shall include all provisions necessary to enable the Trustee to fulfil its duties under these Commitments;
 - (b) the outline of a work plan that describes how the Trustee shall to carry out its assigned tasks;

- (c) an indication whether the proposed Trustee is to act with regard to both the Refractory Commitment and the Diluent Commitment, or whether different Trustees are proposed for the two functions.

Approval or rejection by the Commission

19. The Commission shall have the discretion to approve or reject the proposed Trustee(s) and to approve the proposed mandate subject to any modifications it deems necessary for the Trustee to fulfil its obligations.
20. If a single Prospective Trustee is approved with respect to a given Commitment (*i.e.*, the Refractory Commitment or the Diluent Commitment), the Parties shall appoint, or cause to be appointed, that individual or institution as Trustee with respect to that Commitment, in accordance with the mandate approved by the Commission.
21. If more than one Prospective Trustee is approved with respect to a given Commitment, the Parties may choose the Trustee from the Prospective Trustees approved with respect to that Commitment.
22. If a Prospective Trustee is approved with respect to one Commitment but not the other, the Parties may appoint (or cause to appoint) that Prospective Trustee with respect to that Commitment.
23. The Trustee shall be appointed within one week of the Commission's approval, in accordance with the mandate approved by the Commission.

New proposal by the Parties

24. If, with respect to any Commitment, all the proposed Trustees are rejected, the Parties shall submit the names of at least two more individuals or institutions within one week of being informed of the rejection, in accordance with the requirements and the procedure set out in paragraphs 17 through 25.

Trustee(s) nominated by the Commission

25. If all further proposed Trustees are rejected by the Commission, the Commission shall nominate a Trustee, whom the Parties shall appoint, or cause to be appointed, in accordance with a trustee mandate approved by the Commission.

Functions of the Trustee(s)

26. The Trustee shall assume the following duties with respect to the Refractory Commitment:
- (a) The Trustee shall verify that each Technology Package provided in accordance with the Refractory Commitment shall be sufficient to fulfil the conditions of the Refractory Commitment, and shall advise the Commission thereof as the Commission requests.
- (b) The Trustee shall verify that any person seeking to exercise a Designation Right under the Refractory Commitment is an Eligible Refractory Customer, and that the exercise of the Designation Right relates solely and exclusively to phenolic resins purchased for use as Eligible Products.

27. The Trustee shall assume the following duties with respect to the Diluent Commitment:
- (a) The Trustee shall verify that any entity seeking to enter into a Supply Agreement is an Eligible Formulated Systems Customer.
 - (b) The Trustee shall advise the Commission on the conformity of any Pricing Formula negotiated between RPP and an Eligible Formulated Systems Customer with the requirements of the Commitments.
 - (c) The Parties will grant a comprehensive and duly executed power of attorney to the Trustee that shall authorize the Trustee, in the event that RPP and an Eligible Formulated Systems Customer cannot agree on the Available Amount, the Pricing Formula or the Starting Price within 3 months of commencing negotiations, to determine the Available Amount, the Pricing Formula or the Starting Price, as appropriate, that satisfies the applicable terms of the Commitments, having due regard to the legitimate commercial and financial interests of RPP.
28. The Commission may, on its own initiative or at the request of the Trustee or the Parties, give any orders or instructions to the Trustee in order to ensure compliance with the conditions and obligations attached to the Decision.

Section E. The Review Clause

29. The Commission may, where appropriate, in response to a request from the Parties showing good cause and accompanied by a report from the Monitoring Trustee:
- (a) Grant an extension of the time periods foreseen in the Commitments, or
 - (b) Waive, modify or substitute, in exceptional circumstances, one or more of the undertakings in these Commitments.
30. Where the Parties seek an extension of a time period, they shall submit a request to the Commission no later than one month before the expiry of that period, showing good cause. Only in exceptional circumstances shall the Parties be entitled to request an extension within the last month of any period.

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duly authorized for and on behalf of the Apollo Group

Date: April 8, 2005