EN

Case No COMP/M.6778 - ADVENT INTERNATIONAL CORPORATION/ CYTEC'S RESIN BUSINESS

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REGULATION (EC) No 139/2004
MERGER PROCEDURE

Article 6(1)(b) NON-OPPOSITION
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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 Where possible the information omitted has been replaced by ranges of figures or a general description.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

To the notifying party:

Dear Sir/Madam,

Subject: **Case No COMP/M.6778 - ADVENT INTERNATIONAL CORPORATION/ CYTEC'S RESIN BUSINESS**
Commission decision pursuant to Article 6(1)(b) of Council Regulation No 139/2004[1]

1. On 21 December 2012, the European Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 by which Advent International Corporation ("Advent", USA), acquires within the meaning of Article 3(1)(b) of the Merger Regulation sole control of the coating resins business ("CRB") of Cytec Industries Inc. (USA), by way of purchase of shares and assets.[2] Advent and CRB are hereinafter referred to as "the Parties", while Advent is referred to as the "Notifying Party".

1 OJ L 24, 29.1.2004, p. 1 ("the Merger Regulation"). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ("TFEU") has introduced certain changes, such as the replacement of "Community" by "Union" and "common market" by "internal market". The terminology of the TFEU will be used throughout this decision.

2 Publication in the Official Journal of the European Union No C 5, 10.1.2013, p. 5.

1. THE PARTIES

2. Advent is a private equity investor based in Boston, USA. Advent holds numerous shareholdings in various sectors, including media, communications, information technology, internet, chemicals and pharmaceuticals.

3. CRB is a worldwide producer of coating resins, additives and crosslinkers which are then used by third parties in the production of coatings, paints and inks.

2. THE OPERATION AND THE CONCENTRATION

4. On 8 October 2012 Advent, via AI Chem & CY S.C.A. ("AI SCA"), as buyer and Cytec Industries as seller entered into a Stock and Asset Purchase Agreement regarding CRB. As a result of the proposed transaction, Advent will acquire sole control of the whole of CRB.

5. The notified operation therefore constitutes a concentration within the meaning of Article 3(1)(b) of the Merger Regulation

3. EU DIMENSION

6. The undertakings concerned had in 2011 a combined aggregate world-wide turnover of more than EUR 5 000 million (Advent: EUR […], CRB: EUR […]). Each of them had an EU-wide turnover in excess of EUR […] (Advent: EUR […], CRB EUR […]), but they did not achieve more than two-thirds of their aggregate EU-wide turnover within one and the same Member State. The notified operation therefore has an EU dimension pursuant to Article 1(2) of the Merger Regulation.

4. COMPETITIVE ASSESSMENT

4.1. Introduction

7. As mentioned in paragraph 3, CRB produces coating resins, additives and crosslinkers which are then used by third parties in the production of coatings, paints and inks. The other components of coatings are solvents and pigments, neither of which is produced by CRB. A coating resin binds the various components of a coating together into a film and bonds the film to the substrate.

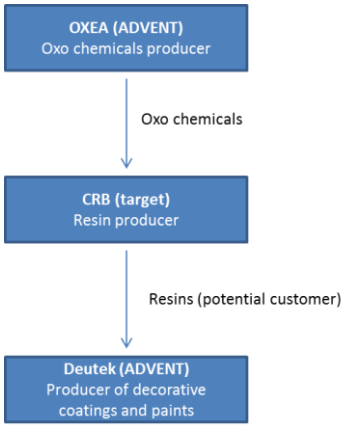
8. The proposed transaction will not lead to any horizontal overlaps between the Parties since none of Advent's portfolio companies is active in any of CRB's coating resins markets. The only two relationships between Advent and CRB are of a vertical nature:

   i. Oxea S.à r.l ("Oxea", Luxembourg), an Advent portfolio company, produces oxo chemicals that can be used in the downstream production of resins by CRB.

   ii. Deutek SA ("Deutek", Romania), another Advent portfolio company, produces decorative coatings and paints and as such is a potential customer of CRB.

9. The vertical relations of the proposed transaction are illustrated in the chart below.

Figure 1: Vertical relations resulting from the proposed transaction



4.1.1. Links with Oxea

10. Oxo chemicals are the core competency of Oxea, with its product range comprising more than 70 oxo chemicals. The process known as "Oxo" refers to the transformation of olefins (unsaturated hydrocarbons such as propylene and ethylene) to aldehydes. These aldehydes are "building blocks" which are either sold externally or used internally (i.e. captive requirements) to produce derivative products such as alcohols, carboxylic acids, polyols, amines or speciality esters. Oxo chemicals are relevant input materials for a large variety of different applications including synthetic lubricants, agrochemicals, coatings and phthalate free plasticizers.

11. The manufacture of coating resins requires a wide variety of chemical raw materials depending on the chemical composition of the resin. Oxea's production of chemicals provides upstream raw materials that can be used in the downstream production of resins by CRB. The Notifying Party identified that Oxea produces 16 chemicals that can be used in the downstream production of resins by CRB. With regard to […] chemicals a current supply relationship between Oxea and CRB exists. The other products are currently supplied to CRB by competing manufacturers of Oxea.

12. As a result, the proposed transaction leads to a large number of vertical relationships between Oxea (upstream) and CRB (downstream). Many of these vertical links do not give rise to affected markets. Consequently, only the vertical links giving rise to affected markets are addressed in this decision.

4.1.2. Links with Deutek

13. Deutek does not currently source any products from CRB and has never done so in the past. However, Deutek could potentially substitute a few of its actual input products sourced from other resin manufacturers with liquid resins and additives produced by CRB. There is therefore a potential supply relationship between CRB and Deutek.

14. The Notifying Party identified that Deutek could potentially substitute some of its input products by water-borne liquid acrylic resins (WB acrylics), solvent-borne liquid alkyd resins (SB acrylics) and additives manufactured by CRB. The products which Deutek could potentially source from CRB could be used for paint, plaster, primer, top coats for wood and metal, wood varnishes; and parquet stone and yacht lacquer.

15. The potential vertical relationship between CRB and Deutek, however, does not give rise to any affected market under any possible market definition. In decorative coatings (downstream) Deutek has a [20-30]% market share in Romania, less than [0-5]% market share in Bulgaria, and less than [0-5]% market share in the EEA. With regard to the upstream market, CRB has a market share of below [0-5]% worldwide and in the EEA for WB acrylics, [5-10]% worldwide and [10-20]% in the EEA for SB acrylics and [0-5]% or less both worldwide and in the EEA for additives.[3]

16. The market shares on the respective upstream or downstream level are thus all below 25% and therefore this vertical relation is not further addressed in this decision.

4.2. Relevant market definition

4.2.1. Oxea products (upstream)- Product market definitions

17. The manufacture of coating resins requires a wide variety of chemical raw materials depending on the chemical composition of the resin. The 16 chemicals produced by Oxea that can be used in the downstream production of resins by CRB can be classified into four categories, namely: (i) solvents, (ii) polyhydric alcohols; (iii) carboxylic acids; and (iv) amines.

18. These four categories can in turn be further subdivided into (possible) product markets or sub-segments, as shown in the table below.

Table 1: Breakdown of Oxea products

	Category of Chemical	Product Market suggested by the Notifying Party	Possible further sub-segmentations
(i)	Solvents	Butanol	n-butanol
			iso-butanol
		2-Ethyl Hexanol (2-EH)	
		Butyl acetate	n-Butyl-acetate
			iso-Butyl-acetate
(ii)	Polyhydric Alcohols	Neopentylglycol (NPG)	
		Trimethylolpropane (TMP)	
		1,3 butyleneglycol	
		TCD Alcohol	

[3] Even if a narrower product market definition were to be envisaged, Deutek's share would remain below 25% as follows: decorative paints EEA [0-5] %, Romania [20-30]%, Bulgaria [0-5]%; wood preservation EEA [0-5]%, Romania [5-10]%, Bulgaria [0-5]%; enamel paint EEA [0-5]%, Romania [5-10]%, Bulgaria [0-5]%; primers EEA [0-5]%, Romania [5-10]%, Bulgaria [0-5]%. A possible further distinction between branded and private label sales is not relevant in this case as Deutek stopped producing private label coatings in 2012 and sales under private label are not significant in Bulgaria or Romania, accounting for less than [0-5]% of the total market.

	Category of Chemical	Product Market suggested by the Notifying Party	Possible further sub-segmentations
(iii)	(Mono) Carboxylic acids	Carboxylic acids	2-Ethyl Hexanoic acid
			Isononanoic acid
			Pelargonic acid
(iv)	Amines	2-Ethylhexylamine	Mono-2-Ethylhexylamine
		N-Octylamine	Mono-n-Octylamine
		Propylamine	Di-n-propylamine
		Butylamine	Tri-n-butylamine

4.2.1.1. Butanol

19. Butanol belongs to the group of primary alcohols and is a downstream product of butyric aldehyde and is produced by means of the catalytic hydration of butyric aldehyde. It is an essential raw material for chemical intermediates such as butylacrylate, phthalate plasticizers, butyl acetate, and butylamines. Butanol is also used directly as a co-solvent or co-monomer (modifier) in a variety of special chemical processes. There are two types of butanol isomers: n-butanol and iso-butanol.

20. In a previous decision[4] the Commission considered whether butanol constitutes a separate product market[5] and left open[6] whether it could be further separated into a market for n-butanol and a separate market for iso-butanol.

21. The Notifying Party submits that there should be at least one overall market for the production of butanol comprising n-butanol and iso-butanol.

22. For the purposes of the present decision, however, the precise market definition can be left open as the proposed transaction does not raise concerns even on the basis of separate markets for n-butanol and iso-butanol.

4.2.1.2. 2-Ethyl Hexanol (2-EH)

23. 2-EH is an oxo-alcohol (primary alcohol) and a downstream product of n-butyric aldehyde. It is produced through aldolisation of n-butyric aldehyde followed by a catalytic hydration and subsequent distillation. 2-EH is mainly[7] used as an intermediate in the manufacture of plasticizers, 2-EH acrylates, 2-EH nitrates, as an improver for diesel fuel, and as a solvent for oils and resins.

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4 COMP/M.3056 – *Celanese/Degussa/JV*.

5 COMP/M.3056 – *Celanese/Degussa/JV*, para. 80.

6 COMP/M.5712 – *Mitsubishi Chemical Holdings/Mitsubishi Rayon Co*, para. 45;
COMP/M.5424 – *Dow/Rohm and Haas*, para. 80; COMP/M.3056 - *Celanese/Degussa/JV*, para. 85.

7 [A small proportion] of the total demand for 2-EH is used in the production of coating resins.

24. In previous decisions[8] the Commission has defined 2-EH as a distinct relevant product market.

25. The Notifying Party submits that although 2-EH can be partially substituted by polyalcohols (such as iso-nonyalcohol, iso-decylalcohol, iso-tridecyl and propylheptanol) in manufacturing plasticisers, conversion costs and price differences exist, especially vis-à-vis iso-nonyalcohol, the main substitutive product.

26. For the purpose of this decision there is no reason to depart from the Commission's previous conclusion that 2-EH constitutes a distinct relevant product market.

4.2.1.3. Butyl acetate

27. Butyl acetate is an ester[9] and occurs in two isomers: n-butyl acetate and iso-butyl acetate.

28. In previous decisions the Commission indicated that the butyl acetate market should be defined as distinct from other chemical products.[10] In *Celanese/Degussa/JV* the Commission left open whether the market for butyl acetate should be further divided into separate markets for n-butyl acetate and iso-butyl acetate.[11]

29. The Notifying Party submits that there is at least one overall market for butyl acetate, if not even a broader market which also includes propyl acetate and ketones, since butyl-acetate isomers are interchangeable from supply-and demand-side perspectives.

30. For the purposes of the present decision, however, the precise market definition can be left open as the proposed transaction does not raise concerns even on the narrowest basis of separate markets for n-butyl acetate and iso-butyl acetate.

4.2.1.4. Neopentylglycol (NPG) and Trimethylolpropane (TMP)

31. Neopentylglycol (NPG) and Trimethylolpropane (TMP) are polyhydric alcohols. NPG has two hydroxyl groups and is, therefore, a diol; it is made from iso-butyraldehyde and formaldehyde through different chemical reactions. It is used in the manufacture of unsaturated and saturated polyesters such as powder coatings (approximately 90%

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8 COMP/M.6411 – *Advent/Maxam*, paras. 14 et. seq.; COMP/M.3056 – *Celanese/Degussa/JV*, paras. 118 et seq.

9 Esters are chemical compounds formed by condensing an acid with an alcohol. Butyl acetate is derived from butanol, among others, by esterifying acetic acid with butanol. Butyl acetate is mainly used as a solvent in paints and lacquers. It is usually included in varnish kits, as a co-solvent in low-solvent varnishes with high solid concentrations. It dissolves substances such as fats, oils, cellulose nitrate and both natural and synthetic resins. The major markets for these surface coatings are automotive paints (refinishing and OEM), wood furniture and fixtures. The usage of butyl acetate in the production of resins (epoxies, urethanes, cellulosics, acrylics and vinyls) accounts for less than 10% of the total demand for butyl acetate.

10 COMP/M.6411 – *Advent/Maxam*, para. 60; COMP/M.3056 – *Celanese/Degussa/JV* para.147.

11 COMP/M.3056 – *Celanese/Degussa/JV*, para.148.

of demand) oil-free alkyd resins and the manufacture of lubricants. The Notifying Party submits that from the demand-side perspective of a coating resins manufacturer, NPG could be substituted by other glycols, such as, for example methyl-propanediol, ethylene glycol, di-ethylene glycol or propylene glycol. The substitution process for a specific formula is not costly and can be done within […] months.

32. TMP consists of three hydroxyl groups and is, therefore, a triol and is used in the production of alkyd resins generating good adhesion properties, colour and hardness as well as in the production of polyester resins and urethane resins. TMP can also be used for synthetic lubricants and to produce the corresponding acrylate (TMPTA) which is used as reactive diluent in radiation curing coatings and inks. The Notifying Party submits that, from the demand-side perspective of a coating resins manufacturer, TMP alcohol could be substituted by glycerine as a tri-functional glycol or by ethoxylated or propoxylated triols. Moreover, substitution is not costly and can be done within […] months depending on the product and formula.

33. In *Perstorp Holding/Solvay Interox*[12] the Commission left open whether NPG and TMP were part of an overall market for polyhydric alcohols or formed separate product markets.

34. However, for the purpose of the present decision, there is no need to conclude on the precise product market definition, since even at the narrowest level, of NPG and TMP, the proposed transaction does not raise serious doubts.

4.2.1.5. 1,3 butyleneglycol

35. 1,3 butyleneglycol is a polyhydric alcohol which has two hydroxyl groups and therefore belongs to the group of the diols. It is one of four stable isomers of butanediol (the others are 1,2-Butanediol, 1,4-Butanediol and 2,3-Butanediol) which are distinguished according to the alignment of the hydroxyl groups. It is used as a humectant and emollient for personal care products (around 60%), speciality plasticizers (around 30%) and also as an intermediate for polyesters and polyurethanes. According to the Notifying Party less than 1% of 1,3 butyleneglycol production is used in the production of coating resins.

36. The Notifying Party submits that 1,3 butyleneglycol belongs to a broader product market of polyhydric alcohols. From the demand-side perspective of a coating resins manufacturer, 1,3 butyleneglycol can easily and within a short timeframe of […] months be substituted by other short chain diols such as, for example, propylene glycol, butyl diol or diethylene glycol.

37. Although the Notifying Party acknowledges the existence of two grades of 1,3 butyleneglycol: standard and cosmetic grade in Oxea's product range, it submits that all suppliers can and do manufacture both grades. It therefore considers that it is not appropriate to assess the two grades as separate product markets.

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12 COMP/M.4957 – *Perstorp Holding/Solvay Interox*, para 16.

38. The market investigation was inconclusive with respect to the potential substitution of 1,3 butyleneglycol by other short chain diols and as to whether a further segmentation according to the grade of product is necessary.

39. For the purposes of the present decision, however, the precise market definition can be left open as this would not significantly affect the competitive assessment of the proposed transaction.

4.2.1.6. Tetracyclodiol (TCD) Alcohol

40. TCD alcohol is a polyhydric alcohol with two hydroxyl groups and therefore belongs to the group of diols. It is manufactured through the hydro-formulation of DCPD (Dicyclopentadiene) and the subsequent hydration of its dialdehydes. TCD alcohol is used for resins, speciality acrylates, and protection coatings for data-carrying medias such as glass fibre.

41. In the Notifying Party's view, a market covering only TCD alcohol would be much too narrow because resin manufacturers are able to purchase alternative products to TCD alcohol such as iso-sorbide and other polycyclic diols which have almost identical characteristics and would be equally suitable for the production of coating resins. According to the Notifying Party, switching between TCD alcohol and other polyhydric alcohols is feasible within a short timeframe and without significant costs.

42. Whilst there was some evidence from the market investigation that customers could reformulate their products away from TCD alcohol, it was also mentioned that switching to, for example, isosorbide or other polycyclic diols could be expensive and take time.

43. For the purposes of the present decision, however, the precise market definition can be left open as the proposed transaction does not raise concerns even on the narrowest basis of a separate market for TCD alcohol.

4.2.1.7. Carboxylic acids

44. Carboxylic acids are organic acids characterized by the presence of at least one carboxyl group. A carboxyl group (or carboxy) is a functional group consisting of a carbonyl and a hydroxyl. Carboxylic acids with one carboxyl group are called mono carboxylic acids. Carboxylic acids are the most common type of an organic acid. Mono carboxylic acids are used in many applications: as an intermediate for the production of specialty plasticizers, as an additive for automotive coolants, in the production of peroxides for radical polymerization process, and in products such as paint dryers, synthetic lubricants, dielectrical fluids, personal care and detergent additives. According to the Notifying Party less than 10% and, thus, only a very small amount of mono carboxylic acids produced worldwide are used in the coating resins industry.

45. Three of the carboxylic acids produced by Oxea were used by CRB in 2011: 2- ethyl hexanoic acid ("2-EHA"), isononanoic acid, and pelargonic acid. 2-EHA[13] is a carbon acid produced in multiple steps from n-butyraldehyde and directly derived from 2-ethylhexylaldehyde (2-Ethylhexanal). Isononanoic acid is a carboxylic acid produced from isononanal (isononylaldehyde). Pelargonic acid is a carboxylic acid that is produced from n-nonanal (n-nonanaldehyde), also known as pelargonic aldehyde.

46. In past decisions the Commission indicated that there is a separate market for carboxylic acids[14], leaving open if 2-EHA is part of it or constitutes a separate product market.[15]

47. The Notifying Party submits that there is an overall market for at least all mono carboxylic acids given the high supply- and demand-side substitutability.

48. A number of respondents to the Commission's requests for information confirmed that, at least in some applications, the three carboxylic acids are substitutable.

49. For the purposes of the present decision, however, the precise market definition can be left open as this would not significantly affect the competitive assessment of the proposed transaction.

4.2.1.8. 2-Ethylhexylamine

50. 2-Ethylhexylamine is an amine where one hydrogen atom has been replaced by an alkyl group. It is produced by the conversion of ammonia and 2-Ethylhexanol. It is produced as a monoalkylamine, a dialkylamine and as a trialkylamine. The only 2-Ethylhexylamine produced by Oxea which is at the same time a potential raw material for CRB is 2-Ethylhexylamine as a monoalkylamine (mono-2-Ethylhexylamine).[16]

51. The Commission has not yet examined mono-2-Ethylhexylamine. It has, however, considered other amines such as methylamine, which also occurs in three forms (monomethylamine, dimethylamine, and trimethylamine). Concerning methylamines, the Commission noted that there may be an overall market for methylamines including all three forms based on supply-side substitutability.[17] The Commission indicated that there is a certain supply-side substitutability since all forms of methylamines are

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13 In 2012, CRB stopped sourcing 2- ethyl hexanoic acid.

14 COMP/M.3056 – *Celanese/Degussa/JV*, paras. 168 and 169.

15 COMP/M.6542 – *Eastman Chemical Company/Solutia*, para. 12.

16 In addition to producing 2-Ethylhexylamine as a monoalkylamine, Oxea also manufactures di-(2-ethylhexyl) amine which is the corresponding dialkylamine. However, di-(2-ethylhexyl)amine is neither a current nor a potential raw material for CRB. Mono-2-Ethylhexylamine can be used for dyestuff intermediates and lubricant additives, for amphoteric surfactants and as an intermediate for the production of insecticides.

17 COMP/M.6496 – *Apollo/Taminco*, paras. 11-12.

produced in the same process, with the possibility to alter the proportion, but that from the demand-side a switch between the three forms might be difficult.[18]

52. The Notifying Party submits that 2-Ethylhexylamine in the form of a monoalkylamine belongs to an overall market for 2-Ethylhexylamine, including 2-Ethylhexylamine in all three forms of monoalkylamine, dialkylamine and trialkylamine given the high supply-side substitutability. From the demand side, substitution of one form by another is unlikely in the Notifying Party's view though substitution by other monoalkylamines such as octylamine is possible.

53. The market investigation did not provide indications with regard to a potential substitutability of 2-Ethylhexylamine by other products or the existence of different types or grades of 2-Ethylhexylamine.

54. For the purposes of the present decision, however, the precise market definition can be left open as the proposed transaction does not raise serious doubts even on the narrowest basis of a separate market for 2-Ethylhexylamine in the form of a monoalkylamine.

4.2.1.9. N-octylamine

55. N-octylamine is produced as a monoalkylamine, as a dialkylamine and as a trialkylamine. However, Oxea only produces N-Octylamine as a monoalkylamine (mono-N-octylamine). Mono-n-Octylamine only has one alkyl group. Mono-n-Octylamine can be used as an intermediate for the manufacture of other chemicals such as n-octylpyrrolidone (solvent for agrochemicals and organic pigments), octylisothiazolinon (OIT, biocide). It is also used for corrosion inhibitors, lubricant additives and surfactants.

56. The Commission has in the past dealt with another amine, namely methylamine and considered without reaching a final conclusion whether an overall market for methylamines exists or all three forms of methylamines (monomethylamine, dimethylamine, and trimethylamine)[19] should be considered separately.

57. The market investigation did not provide indications of the existence of different types or grades of n-octylamine.

58. For the purposes of the present decision, however, the precise market definition can be left open as the proposed transaction does not raise serious doubts even on the narrowest basis of a separate market for N-Octylamine as a monoalkylamine (mono-N-octylamine).

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18 COMP/M.6496 – *Apollo/Taminco*, para. 12.

19 COMP/M.6496 – *Apollo/Taminco*, paras. 11-13.

4.2.1.10. Propylamine

59. Propylamine exists in the form of mono-, di- and tri-n-propylamine. However, the only propylamine produced by Oxea and sourced by CRB is di-n-propylamine. Di-n-propylamine is an amine belonging to the group of dialkylamines (where two hydrogen atoms are replaced by two alkyl groups). Di-n-propylamine is used as an intermediate for the manufacture of herbicides and pharmaceuticals.

60. The Commission, without taking a definite position, considered that even though there are different forms of propylamines, they could all belong to an overall product market for propylamines.[20]

61. However, for the purpose of the present decision, the precise product market definition can be left open as the proposed transaction does not raise serious doubts even on the basis of the most narrow possible market definition (di-n-propylamine).

4.2.1.11. Butylamine

62. Butylamines are produced in the form of mono-, di- and tri-butylamine. The only butylamine produced by Oxea which is sourced by CRB is tri-n-butylamine. Oxea also produces butylamine in the form of N-butylamine (monoalkylamine) and di-n-butylamine (dialkylamine), but these two forms are neither current nor potential raw materials for CRB. Tri-n-butylamine is an amine and belongs to the group of trialkylamines (where three hydrogen atoms are replaced by three alkyl groups). It is used as an intermediate for the production of phase transfer catalysts, as proton scavenger and in agrochemicals.

63. The Commission has considered butylamine in *Celanese/Degussa/JV* where it stated that butylamine constitutes a separate product market based on its specific applications and the lack of substitutability.[21] The Commission did not further distinguish whether all forms of butylamine (e.g. the monoalkylamine n-butylamine, the dialkylamine di-n-butylamine, and the trialkylamine tri-n-butylamine) belong to the same market or form separate markets.

64. The Notifying Party takes the view that there is an overall market for butylamine consisting of all three forms of butylamine. In addition, coating resins manufacturer can substitute tri-n-butylamine within a very short period of time without any significant costs with tri-2-ethylhexylamine.

65. However, for the purpose of the present decision, there is no need to conclude on the precise product market since even at the narrowest level of a possible market for tri-n-butylamine the proposed transaction does not raise serious doubts.

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20 COMP/M.4836 – *CVC/Univar*, para. 12.

21 COMP/M.3056 – *Celanese/Degusssa/JV (European Oxo-Chemicals)*, para 175.

4.2.2. CRB's products (downstream) – Product market definition

66. Resins and additives, such as the ones produced by CRB, are chemical components in the value chain of the manufacture of coatings (the end products). CRB also manufactures crosslinkers which are used in most coating formulations to create bonds between the resin molecule chains. This hardens a coating and enhances its performance.

67. Coating resins can be distinguished (i) according to the delivery technology of the end product, i.e., the coating, and (ii) according to their base chemical component (resin chemistry).

68. For the different types of coating resins, there are various different additives that can be added to the coating formulation to impart specific properties to the coating.

69. Crosslinkers are generally also distinguished by their base chemical component.

70. The following product markets and their possible sub-segmentations are relevant for the assessment of the proposed transaction: (i) amino resins, (ii) cathodic electro deposition ("CED") resins, (iii) solvent-borne ("SB") acrylics, (iv) water-borne ("WB") alkyds, (v) radiation curable resins, vi) unsaturated polyester resins, vii) additives, viii) solvent-borne epoxies, ix) solvent-borne alkyds and x) water-borne polyurethane dispersions

4.2.2.1. Amino resins

71. The Commission has previously analysed amino resins and concluded that the market could be further segmented on the basis of applications, such as amino resins for (i) industrial liquid coatings, (ii) reinforced rubber, (iii) wood and laminates, (iv) inks and graphics, (v) paper and textiles and (vi) electronic circuit boards.[22]

72. The market investigation was inconclusive as to whether amino resins for tyres and amino resins for coating applications should considered separately or together.

73. However, for the purpose of the present decision, there is no need to precisely define the product market as the proposed transaction does not raise serious doubts.

4.2.2.2. Cathodic electro deposition ("CED") Resins

74. CRB manufactures cathodic electro deposition resins based on water-borne resins technology. CED resins are epoxy or acrylic based resins, or hybrids of these two systems.[23] They are used as components in automotive and industrial coatings

22 COMP/M.3558 – *Cytec/UCB-Surface Specialities*, para. 12.

23 The Notifying Party submits that since the major part of the CED resins is acrylic based the market share for all CED resins (epoxy and acrylic based CED-resins and hybrids of these two systems) is the same as for epoxy based CED resins. The volumes for acrylic based CED resins and hybrids are very small (approx. […] tons p.a.) and hence it is proposed to combine acrylic based market shares and hybrids.

applications. CED resins are applied to the substrate by electrophoretic coating which is a highly specialized technical process.

75. The Notifying Party submits that the relevant product market should be CED resins.

76. The market investigation did not provide strong indications of an existence of different types or grades of CED resins.

77. However, for the purpose of the present decision, there is no need to precisely define the product market as the proposed transaction does not raise serious doubts.

4.2.2.3. Solvent-borne (SB) acrylics

78. The Notifying Party distinguishes coating resins by the delivery mechanism of the coating for which the resin is intended to be used. Liquid coatings (solvent-borne and water-borne), radiation-curable coatings and powder coatings differ from one another in terms of production process, the form of application to the substrate, the residue they leave behind, their environmental friendliness, and the base chemical compounds that are suitable for the production of the relevant resins.

79. The distinction by delivery technology of the coating has been confirmed in several Commission decisions.[24] The Commission has also suggested that solvent-based resins and water-based resins were part of different relevant product markets[25] and distinguished between solvent-borne alkyd resins and water-borne alkyd resins.[26]

80. On the basis of the classification by chemistry, the Notifying Party further distinguishes coating resins by the base chemical compound of the resin. CRB manufactures and sells solvent-borne resins based on acrylics, alkyds, epoxies and unsaturated polyesters. Accordingly, the Notifying Party proposes to distinguish separate relevant product markets for (i) solvent-borne acrylics, (ii) solvent-borne alkyds, (iii) solvent-borne epoxies and (iv) unsaturated polyesters.

81. In the past[27], the Commission considered that the relevant product markets to which acrylic dispersions belong may be defined either by reference to the monomers from which they are produced or by reference to the end-use for which they are produced.

82. Thus, four relevant market definitions are possible: (i) acrylic dispersions generally, (ii) pure acrylic dispersions, (iii) styrene acrylic dispersions and a further segmentation could be made according to the final application. The CRB's solvent-borne acrylic resins are mainly used for the production of paints and inks

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24 COMP/M.6178 – *Arkema/Total's Resin Division*, para. 12; COMP/M.3060 – *UCB/Solutia*, para. 8.

25 COMP/M.3060 – *UCB/Solutia*, para. 16; IV/M.933 – *ICI/Unilever*, para. 13.; COMP/M.6178 – *Arkema/Total's Resin Division*, para. 13 et sec.

26 COMP/M.4071 – *Apollo/Akzo Nobel IAR*, para. 41.

27 COMP/M.4071 - *Apollo/Akzo Nobel IAR*, para 46-47.

83. The market investigation pointed towards the existence of different types or grades of SB acrylics, along the lines described by the Notifying Party and also based on end applications.

84. However, for the purpose of the present decision, there is no need to precisely define the product market as the proposed transaction does not raise serious doubts.[28]

4.2.2.4. Water-borne (WB) alkyds

85. As with solvent-borne coating resins, the Parties consider it appropriate to further segment water-borne coating resins by the chemical compound on which the resin is based. CRB manufactures and sells water-borne acrylics, alkyds, epoxies and polyurethane dispersions.

86. Since the base chemicals used in water-borne resins impart different performance characteristics on the coating, and the chemistry that a resin manufacturer chooses is generally driven by the requirements of the coating's intended application, demand-side considerations point to separate relevant product markets for water-borne resins depending on the resin chemistry. The Notifying Party therefore submits that the market for water-borne liquid coating resins could be further sub-segmented into relevant product markets for: (i) water-borne-borne acrylics; (ii) water-borne alkyds; (iii) water-borne epoxies and (iv) water-borne polyurethane dispersions (WB PUD)[29].

87. In *Cytec/UCB – Surface Specialties*[30] a final conclusion was not reached whether alkyd resins need to be further segmented in water-borne alkyds and solvent-borne alkyds.

88. For the purpose of the present decision, however, the precise product market delineation can also be left open as the proposed transaction does not raise serious doubts.

4.2.2.5. Radiation curable resins

89. The term "radiation-curable resin" makes reference to the mode of "curing" the resin and, thereby, the final coating, i.e., by way of exposure to radiation. This functionality distinguishes radiation-curable resins from the coating resins that use other delivery technologies. Radiation-curable coatings are solvent-free and are cured using either ultraviolet ("UV") or electron beam ("EB") radiation[31].

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28 The Notifying Party estimates that market shares in SB acrylic resins by the different applications are not materially different from the market shares in all SB acrylic resins for CRB and its main competitors.

29 In COMP/M.3558 – *Cyte/ UCB – Surface specialities*, para 15, a separate market for PUD was defined without being further divided and which has a EEA wide scope (para 20).

30 Ibid, para 16.

31 This curing methodology essentially eliminates the evaporation step. This allows for near-instantaneous curing which is a very useful feature in high throughput production. This makes radiation-cured coatings more energy efficient than liquid coating resins, thus saving energy costs. CRB manufactures

90. CRB manufactures and sells a broad range of monomers and oligomers for radiation-curable resins. The monomers function as reactive diluents in the coating and contribute to the crosslinking required in the cured film. The oligomers provide the bulk of the desired properties of the coating, such as hardness, chemical resistance and flexibility. Most of the oligomers that CRB manufactures for radiation-curable resins are acrylates. CRB sells the monomers and oligomers (acrylates) as raw materials to its customers who formulate the radiation-curable resins and combine them with photo-initiators, pigments and other additives to constitute the final ready-to-use coating.

91. The Notifying Party submits that the different monomers and oligomers have different functionalities that impart different properties to the coating resin, depending on how these are formulated by the customer.[32] However, the manufacturers of components for radiation-curable resins are generally able to supply a full range of monomers and oligomers for the formulation of radiation-curable resins. For this reason, the Notifying Party submits that it is appropriate to define a single market for monomers/oligomers/acrylates that are used as components to formulate radiation-curable resins.

92. CRB also manufactures UV-curable polyurethane dispersions. These resin dispersions are water-borne which distinguishes them from other radiation-curable resins. The water must be driven off before UV radiation is applied. UV-curable PUDs are used, inter alia, for PVC flooring, decorative film/sheeting, wood floors and doors, concrete, furniture, leather, plastics, and for overprint varnishes. They can also be formulated to impart a "soft feel" to plastics which can be used in vehicle interiors or electronic devices.

93. The Notifying Party submits that the market for radiation-curable resins can be segmented further into markets for: (i) monomers/oligomers/acrylates and (ii) water-borne UV-curable polyurethane dispersions.

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components for both types of radiation-curable resins, UV-curable resins and EB-curable resins. EB radiation is generally used to cure coatings on very thin and highly sensitive materials which would sustain damage from even the small amounts of heat generated from UV-curing. EB-curable resins also generate fewer odours and no migration of photoinitiator parts upon curing and allow for a greater penetration of pigmented films and surfaces in comparison to UV-curable resins. UV-curable resins require the addition of photo-initiators to the coating formulation in order to facilitate the curing process whereas EB-curable resins do not require this additive. However, the Notifying Party submits that, from the supplier's perspective, there is no distinction between UV- and EB-curable coatings. The radiation-curable products that CRB manufactures do not differ, depending on whether the customer will use UV- or EB-radiation to cure the coating. In fact, all of CRB's radiation-curable products can be cured using both UV- and EB-radiation. The use of UV-radiation merely requires the addition of a photoinitiator to the coating formulation, but the resin as such does not differ depending on which radiation technology the customer intends to use. The photoinitiator is added by CRB's customers and not by CRB. CRB cannot know which of its products will be used in UV- or EB-curable coatings. It has no information about whether its customers will apply a UV curing or and EB curing to its radiation-curable products. Thus, the Notifying Party submits that the coating resins industry generally does not make the distinction between UV- and EB-curable coating resins.

32 COMP/M.3060 – *UCB/Solutia*, para. 27.

94. In the view of the Notifying Party, acrylate monomers and acrylate oligomers for radiation curable resins belong to one and the same relevant product market. Just like CRB, all of its major competitors in the area of radiation-curable resins manufacture both monomers and oligomers for use in radiation-curable coatings. The customers of these products purchase both the monomers and the oligomers to formulate radiation-curable coatings, to which they may add pigments and additives. Some oligomers cannot be used without monomers because they are too viscous on their own. Such oligomers will always be purchased together with a monomer. As most of the suppliers of the components of radiation-curable coatings supply both monomers and oligomers and because these products are generally purchased together, the Notifying Party has defined a single relevant product market comprising monomers and oligomers (based on acrylates as the most important base compound for these molecules). According to the Notifying Party, around 50% of the components used in radiation curable resins are monomers and approximately 50% are oligomers.

95. In *UCB/Solutia*[33] a possible segmentation of acrylates radiation curable resins was considered without reaching a final conclusion.

96. The Notifying Party submits that a possible segmentation of acrylates radiation curable resins could comprise: i) amino acrylates, ii) epoxy acrylates, iii) urethane acrylates, and iv) polyether/polyester acrylates.

97. The market investigation provided indications that radiation curable resins could be segmented along the above criteria proposed by the Notifying Party and also by end application.[34]

98. However, for the purpose of this decision the precise product market definition can be left open as the proposed transaction does not raise serious doubts.

4.2.2.6. Other products

99. Unsaturated polyester resins are solvent-borne resins produced by the polycondensation of saturated and unsaturated dicarboxylic acids with polyols. They form highly durable structures and coatings when they are crosslinked with a vinylic reactive monomer, most commonly styrene. Their main applications include gel coatings for use in swimming pools and on boat hulls.

100. Additives comprise all products that can be included in coatings formulations to impart various specific properties to coatings, such as pigment stabilization, levelling, foam control, catalysis, anti-corrosion, biocide, flame retardancy, enhanced flexibility, preservation against fungal proliferation, thickening and stabilisation. Although CRB

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33 Para 27.

34 According to the Notifying Party, for many end-use applications, radiation curable resins are only one of many solutions. They compete with other technologies, and overall the radiation curable total market penetration is very low (1-2%). The Notifying Party submits that market share estimates on this basis would not lend themselves to any credible analysis because they would be very inaccurate. For market shares in each of EB and UV radiation curable resins, CRB estimates that market shares are broadly similar to market shares in all radiation curable resins for CRB and its main competitors.

manufactures additives for various specific properties and for all types of coatings, the Notifying Party does not consider it appropriate to distinguish these additives, but proposes a single relevant product market for additives.

101. The Commission has in the past explored whether rheology modifiers (additives that adjust the viscosity of liquid coatings) constitute a distinct relevant product market and whether, within rheology modifiers, a distinction should be drawn between rheology modifiers for solvent-based applications and rheology modifiers for water-borne applications.[35]

102. The Notifying Party submits that solvent-borne epoxies should be considered as a separate product market since the base chemicals used in solvent-borne resins impart different performance characteristics on the coating and the chemistry that a resin manufacturer chooses is generally driven by the requirements of the coating's intended application.

103. The solvent-borne alkyds that CRB manufactures are primarily used in low-end industrial applications such as road markings and could be used for the production of decorative paints too. CRB makes these products mainly to fill the capacity of its production plants.

104. In *Cytec/UCB – Surface Specialties*[36], it was left open whether the market for alkyd resins should be further segmented in water-borne alkyds and solvent-borne alkyds.

105. With regard to water-borne polyurethane dispersions, in *Cytec/UCB – Surface Specialties*[37] the market for polyurethane dispersions was not further segmented.

106. However, for the purpose of the present decision the market definition can be left open for these products as the proposed transaction does not raise serious doubts.

4.2.3. Oxea products (upstream) - Geographic market definitions

107. The Notifying Party submits that the market for 1,3 butyleneglycol, 2-ethylhexylamine, n-octylamine and propylamine is at least EEA-wide in scope since i) prices do not vary significantly worldwide; ii) transportation costs generally account for a small proportion of the total product price, iii) there are no trade barriers or tariffs and iv) major suppliers serve the global market from one production facility and ship these products to customers around the world.

108. The Notifying Party submits that the geographic scope of the TCD alcohol market is worldwide since i) there is only one production facility from which Oxea supplies customers worldwide, ii) prices do not vary significantly worldwide iii) transportation costs account for less than 5% in total price and iv) there are no trade barriers or tariffs. Also, the Notifying Party submits that the market for tri-n-butylamine is

35 COMP/M.5424 – *Dow/Rohm and Haas*, para. 219.

36 Para 16.

37 Para 15.

worldwide, as it is traded extensively over long distances and imports from outside the EEA are not affected by transport barriers or other costs.

109. Commission precedents indicate EEA or at least EEA markets for butanol[38], 2-EH[39], butyl acetate[40]and carboxylic acid[41]. The Commission has left open whether the market for all polyhydric alcohols (including TMP and NPG) should be EEA- or world-wide.[42]

110. The market investigation in the present case did not provide convincing indications of markets for any of the products concerned that would be narrower in scope than EEA-wide.

111. However, for the purpose of this decision the precise geographic market definition for the oxo-chemicals mentioned above can be left as the proposed transaction does not raise serious doubts at either EEA or worldwide level.

4.2.4. CRB products (downstream) – Geographic market definition

112. In the past[43] the Commission defined an EEA wide scope for all resins. Even at narrower level, an EEA or at least an EEA-wide scope was found for various types of resins: for amino resins, polyurethane dispersions and alkyd resins[44] acrylic dispersions[45], rheological additives[46] and epoxies[47]. Also[48], radiation-curable resins were analysed at EEA level. Moreover, in *CVC/RAG/Evonik*[49], the Commission defined the geographic market for polyester resins as being worldwide.

113. The market investigation in the present case did not bring forward any reasons for the Commission to depart from its previous finding. Therefore, for the purposes of this decision, the EEA-wide scope of the resins market will be maintained.

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38 COMP/M.3056 - *Celanese/Degussa/JV*, para. 87.

39 COMP/M.3056 – *Celanese/Degussa/JV*, para. 126; COMP/M.6411 – *Advent/Maxam*, para. 21.

40 COMP/M.3056 – *Celanese/Degussa/JV*, para.149. The Commission noted that imports from outside the EEA may have some significance.

41 COMP/M.3056 – *Celanese/Degussa/JV*, para. 170.

42 COMP/M.4957 – *Perstorp Holding/Solvay Interox*, para. 26.

43 COMP/M.6178 – *Arkema/Total's Resin Division*, para 24-25.

44 COMP/M.3558 – *Cytec/UCB-Surface Specialities*, paras 18, 19, 24.

45 COMP/M.4071 - *Apollo/Akzo Nobel IAR*, para 50.

46 COMP/M.6178 – *Arkema/Total's Resin Divisio,* para 33.

47 In *Apollo/Bakelite* the Commission confirmed that the relevant geographic market for epoxies is "*at least EEA-wide and that it may be worldwide*", para 109.

48 COMP/M.3558 - *Cyetc/UCB – Surface Specialties*, para 20.

49 Ibid para 57.

4.3. Assessment

114. As described above, the proposed transaction gives rise to a large number of vertical links. The remainder of this decision will assess the upstream and downstream markets which give rise to vertically affected markets including potential foreclosure issues (customer and input).

4.3.1. Upstream markets for affected links

4.3.1.1. Butanol

115. Oxea has a market share in butanol of [10-20]% worldwide and [30-40]% in the EEA ([10-20]% and [30-40]% in the potential subsegment of n-butanol).

116. Oxea's competitors in the EEA are BASF ([30-40]% in butanol and [30-40]% in n-butanol), Perstorp ([10-20]% in butanol and [10-20]% in n-butanol), Oxochimie ([5-10]% in butanol and [5-10]% in n-butanol) ZAK ([5-10]% in butanol and [5-10]% in n-butanol), Sasol ([0-5]% in butanol and [5-10]% in n-butanol).

117. A vertical relationship between the Parties exists insofar as Oxea sells butanol and CRB purchases butanol in order to produce eight different products, i.e. WB acrylics, WB alkyds, SB acrylics, SB alkyds, SB epoxies, amino resins, phenolic resins and additives.

4.3.1.2. 2-Ethyl Hexanol (2-EH)

118. According to the Notifying Party, Oxea has a market share in 2-EH of [5-10]% worldwide and [50-60]% in the EEA.

119. The Notifying Party identifies Perstorp ([10-20]%), Oxochimie ([10-20]%) ZAK ([5-10]%), Oltchim ([0-5]%) and others ([10-20]%) as Oxea's competitors in the EEA.

120. A vertical relationship between the Parties exists insofar as Oxea sells 2-EH and CRB purchases 2-EH in order to produce three different products, i.e. unsaturated polyesters, CED Resins and additives.

4.3.1.3. Iso-butyl acetate

121. In one possible subsegment of butyl acetate, namely iso-butyl acetate, Oxea has a market share of [10-20]% worldwide and [30-40]% in the EEA.

122. Other suppliers are BASF ([0-5]% and [10-20]%) and Ineos ([5-10]% and [40-50]%).[50]

50 Oxea has a market share in butyl acetate at wider level of [10-20]% worldwide and [20-30]% in the EEA.

123. A vertical relationship between the Parties exists insofar as Oxea sells butyl acetate and CRB purchases butyl acetate in order to produce six different products, i.e. WB alkyds, SB acrylics, SB alkyds, SB epoxies, RAD monomers/oligomers/acrylates and additives.

4.3.1.4. Neopentylglycol (NPG)

124. On the market for NPG, Oxea holds a market share of [10-20]% worldwide and of [20-30]% in the EEA. Oxea faces competition from BASF ([20-30]% worldwide and [30-40]% in the EEA), Eastman ([10-20]% worldwide and [5-10]% in the EEA), Perstorp ([10-20]% worldwide and [10-20]% in the EEA) and Polioli ([5-10]% worldwide and [10-20]% in the EEA).[51]

125. A vertical relationship between the Parties exists insofar as Oxea sells NPG and CRB purchases NPG in order to produce ten different products, i.e. WB alkyds, WB PUDs, SB acrylics, SB alkyds, unsaturated polyesters, polyester powders, UV-curable powders, monomers/oligomers/acrylates, UV-curable PUDs and additives.

4.3.1.5. Trimethylolpropane (TMP)

126. On the market for TMP, Oxea holds a market share of [10-20]% worldwide and of [5-10]% in the EEA.

127. Oxea faces competition from Perstorp ([30-40]% worldwide and [30-40]% in the EEA) and Lanxess ([30-40]% both worldwide and in the EEA).

128. A vertical relationship between the Parties exists insofar as Oxea sells TMP and CRB purchases TMP in order to produce twelve different products, i.e. WB alkyds, WB Epoxies, WB PUDs, SB acrylics, SB alkyds, CED resins, phenolic resins, polyester powders, UV-curable powders, monomers/oligomers/acrylates, UV-curable PUDs and additives.

4.3.1.6. 1,3 butyleneglycol

129. On the market for 1,3 butyleneglycol, Oxea holds a market share of [40-50]% worldwide and of [30-40]% in the EEA. In the cosmetic grade, Oxea holds a market share of [40-50]% worldwide and of [30-40]% in the EEA, whereas in the industrial grade, market shares amount to [60-70]% worldwide and of [20-30]% in the EEA.

130. Oxea's main competitor is Daicel ([40-50]% worldwide and [50-60]% EEA wide). Daicel is also present in both cosmetic ([40-50]% worldwide and [50-60]% EEA wide) and industrial grade ([30-40]% worldwide and [50-60]% EEA wide). KH Neochem is also present in the market.

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51 The Notifying Party based its estimates on the CEH Marketing Research Report on Neopentyl Polyhydric Alcohols.

131. Oxea sells 1,3 butyleneglycol and CRB purchases 1,3 Butyleneglycol in order to produce two different products, i.e. unsaturated polyesters and additives.

4.3.1.7. TCD alcohol

132. Oxea is […] and […] has a market share of [90-100]% both worldwide and EEA-wide. [52]

133. A vertical relationship between the Parties exists insofar as Oxea sells TCD Alcohol and CRB purchases small quantities of TCD Alcohol in order to produce three different products, i.e. WB PUDs, SB alkyds and monomers/oligomers/acrylates.

4.3.1.8. Carboxylic acids

134. According to the Notifying Party, on the overall market for carboxylic acids, Oxea holds a market share of [10-20]% worldwide and [10-20]% in the EEA. Oxea faces competition from, among others, BASF ([20-30]% in the EEA), KH Neochem ([10-20]% worldwide), Perstorp ([10-20]% worldwide and [10-20]% in the EEA), Eastman ([10-20]% worldwide and [5-10]% in the EEA).

135. On the basis of a separate product market for isononanoic acid, according to the Notifying Party, Oxea holds a market share of [40-50]% worldwide and [60-70]% in the EEA, competing with BASF ([10-20]% worldwide and [30-40]% in the EEA) and KH Neochem ([40-50]% worldwide).

136. On the basis of a separate product market for Perlargonic acid, according to the Notifying Party, Oxea holds a market share of [40-50]% worldwide and [30-40]% EEA, competing with Emery ([50-60]% worldwide and [60-70]% in the EEA).

137. A vertical relationship between the Parties exists insofar as Oxea sells carboxylic acids and CRB purchases carboxylic acids in order to produce six different products, i.e. WB alkyds, SB alkyds, unsaturated polyesters, CED Resins, monomers/oligomers/acrylates and additives. The downstream products for which CRB purchases isononanoic acid are the same as for carboxylic acids as a whole. The only downstream product for which CRB purchases perlagonic acid is monomers/oligomers/acrylates.

52 Oxea produces four products that could be classified as polyhydric alcohols (NPG, TMP, 1,3 butyleneglycol and TCD alcohol). According to the Notifying Party there are numerous other polyhydric alcohols such as pentaerythritol that are not produced by Oxea. As such, Oxea's market share would be significantly diluted on the basis of an overall market for polyhydric alcohols (which in any event would not be impacted by Oxea's high TCD alcohol share given the insignificant volume TCD would contribute to such a market).

4.3.1.9. 2-ethylhexylamine

138. In mono-2-ethylhexylamine, Oxea's market share is [20-30]% worldwide and [30-40]% in the EEA.[53] BASF is the market leader both worldwide and in the EEA ([60-70]% and [60-70]%).

139. A vertical relationship between the Parties exists insofar as Oxea sells 2-ethylhexylamine and CRB purchases mono 2-ethylhexylamine in order to produce two different products, i.e. SB Acrylic and CED Resins. The Parties have confirmed that di-2-ethylhexylamine is neither a current nor a potential raw material for CRB.

4.3.1.10. N-octylamines

140. Oxea is only active in the production of mono-n-octylamine, having a market share of [20-30]% worldwide and of [40-50]% in the EEA. It does not produce n-octylamine in its other forms, i.e. as a dialkylamine and as a trialkylamine. The Notifying Party submits therefore that Oxea's market share on the basis of an overall market for n-octylamine would be lower than on the basis of the narrower market for mono-n-octylamine.

141. Oxea faces strong competition from large companies such as BASF ([40-50]% in the EEA and [30-40]% worldwide) and Jiande Xinhua ([10-20]% in the EEA and [30-40]% worldwide).

142. A vertical relationship between the Parties exists insofar as Oxea sells Octylamine and the CRB purchases Octylamine in order to produce SB Epoxies.

4.3.1.11. Di-n-propylamine

143. On the market for di-n-propylamine, the only propylamine Oxea produces, Oxea has a market share of [0-5]% worldwide and less than [0-5]% in the EEA. The Notifying Party submits therefore that Oxea's market share on the basis of an overall market for propylamine would be lower than on the basis of the narrower market for di-n-propylamine.

144. Oxea faces strong competition from large companies such as US Amines ([90-100]% in the EEA and [60-70]% worldwide), BASF ([0-5]% in the EEA and [10-20]% worldwide) and Taminco ([0-5]% in the EEA and [10-20]% worldwide).

145. A vertical relationship between the Parties exists insofar as Oxea sells di-n-propylamine and the CRB purchases di-n-propylamine in order to produce WB Epoxies and radiation curable resins (monomers/oligomers/acrylates).

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53 Oxea produces di-2-ethylhexylamine but this is not a product sourced by CRB. As Oxea is not active in the production of 2-ethylhexylamine in the form of a trialkylamine, its market share on the basis of an overall market for 2-ethylhexylamine would be lower than the average market share for the two products in which it is active.

4.3.1.12. Tri-n-butylamine

146. According to the Notifying Party, on the overall market for butylamine, Oxea holds a market share of [20-30]% worldwide and [30-40]% in the EEA. On the narrower market for tri-n-butyl amine, Oxea holds a market share of [20-30]% worldwide and of [20-30]% in the EEA.

147. On the market for tri-n-butylamine, Oxea faces strong competition from large companies such as BASF ([60-70]% in the EEA and [10-20]% worldwide) and Taminco ([10-20]% in the EEA and [50-60]% worldwide).

148. A vertical relationship between the Parties exists insofar as Oxea sells tri-n-butylamine and the CRB purchases tri-n-butylamine in order to produce CED resins and powder polyester resins.

4.3.2. Downstream markets for affected links

149. CRB has the following market shares with regard to the affected downstream markets: WB alkyds ([10-20]% worldwide and [20-30]% EEA-wide); WB epoxies ([20-30]% worldwide and [30-40]% EEA-wide), WB PUDs ([0-5]% worldwide and [5-10]% EEA-wide), SB acrylics ([5-10]% worldwide and [10-20]% EEA-wide)[54]; CED resins ([5-10]% worldwide and [20-30]% EEA-wide) radiation curable resins - monomers/oligomers/acrylates ([10-20]% worldwide and [20-30]% EEA-wide)[55], amino resins ([30-40]% worldwide and [30-40]% EEA-wide)[56], polyester powders ([10-20]% worldwide and [20-30]% EEA-wide), polyurethanes ([30-40]% worldwide and [20-30]% EEA-wide).

150. CRB has a marginal market share (ca. [0-5]% or less) for a series of affected downstream markets at both EEA and worldwide level: WB acrylics, additives, SB epoxies, SB alkyds, phenolic resins and unsaturated polyesters.

4.3.3. Customer foreclosure

151. The Notifying Party argues that given CRB's small to moderate market shares on the downstream markets and the fact that CRB is a small customer for most of the input products both in terms of purchasing value as well as in terms of share of the overall demand, no customer foreclosure issues arise.

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54 The Notifying Party estimates that market shares in SB acrylic resins by the different applications are not materially different from the market shares in all SB acrylic resins for CRB and its main competitors.

55 According to a narrower market segmentation: epoxy acrylates [30-40]% in the EEA, polyester/polyether acrylates [20-30]% in the EEA, urethane acrylates [60-70]%, amino acrylates [40-50]%.

56 Amino resins for coatings ([30-40]% worldwide and [20-30]% EEA-wide), amino resins for tyres ([20-30]% worldwide and [50-60]% EEA-wide).

152. According to Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings[57] ("the Non-horizontal Guidelines"), "*[f]or customer foreclosure to be a concern, it must be the case that the vertical merger involves a company which is an important customer with a significant degree of market power in the downstream market. If, on the contrary, there is a sufficiently large customer base, at present or in the future, that is likely to turn to independent suppliers, the Commission is unlikely to raise competition concerns on that ground.*"[58] In addition, "*the Commission may take into account the existence of different markets corresponding to different uses for the input.*"[59]

153. The Commission notes first that the indicative market share threshold to find concerns is 30%.[60] CRB's highest market share in the downstream markets is in the majority of the cases below 30% and in any case at most [30-40]% in the EEA and [30-40]% worldwide.[61]

154. Moreover, CRB's share when sourcing the upstream product in total upstream supply is at most […]% (NPG) and is less than […]% for any of the product with a downstream market share above 30%.

155. With regard to CRB's total sourcing value the yearly sourcing value is below EUR […] for all downstream products, with the exception of butanol (EUR […]), NPG (EUR […]), butyl acetate (EUR […]) and TMP (EUR […]).

156. Given CRB's downstream market shares and its shares when purchasing the upstream products, the Commission considers that Oxea's competitors have sufficient alternatives to sell their output to should CRB reduce its purchases from them post transaction.

157. The Commission also notes that no concerns have been raised with regard to customer foreclosure during the market investigation.

158. It is therefore concluded that the proposed transaction does not raise serious doubts from the customer foreclosure perspective.

4.3.4. Input foreclosure

159. On the lack of ability to foreclose, the Notifying Party argues that Oxea has small to moderate market shares on a part of the upstream markets and faces credible competitors. Moreover, the Notifying Party submits that some of the products CRB competes with do not contain the same inputs. In particular, according to the Notifying

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57 OJ C 265, 18.10.2008, p. 6–25.

58 See Non-horizontal Guidelines, para 61.

59 See Non-horizontal Guidelines, para 66.

60 See Non-horizontal Guidelines, para 25.

61 In some narrower markets CRB has higher market shares. In particular, CRB has higher market shares in the subsegments of amino resins and in the subsegments of radiation curable resins.

Party, resins are performance products and manufactures can use a variety of different formulations for their resins to fulfil customer requirements.

160. The Notifying Party also argues that the Parties have no incentive to foreclose competitors, as in most of the upstream markets Oxea faces a number of competitors, even in markets with large market shares, and therefore there are alternative suppliers available. As CRB's market shares are small to moderate in the downstream markets, and in addition the upstream products are also used in other applications, foreclosing would not be a profitable strategy in terms of upstream sales lost which would be not outweighed by the value of additional sales that CRB could expect to capture downstream.

161. In addition, the Notifying Party also argues that typically Oxea's products only represent a very small share of the total raw material cost of the relevant product.

162. According to the Non-horizontal Guidelines, "*[f]or input foreclosure to be a concern, the vertically integrated firm resulting from the merger must have a significant degree of market power in the upstream market.*"[62]

163. Moreover, according to the Non-horizontal Guidelines, *"[i]nput foreclosure may raise competition problems only if it concerns an important input for the downstream product*".[63] In addition, "*if the input accounts only for a small share of the downstream product and is not a critical component, even a high market share upstream may not give the merged entity the incentive to foreclose downstream rivals because few, if any, sales would be diverted to the integrated firm's downstream unit.*"[64]

164. The Commission notes first that a series of upstream market shares are below the indicative threshold of 30%[65].

165. The Commission also notes that in the case at stake, for the vertical relationships where the market shares on the upstream level are above 30%, the input value of the upstream product in the total raw material costs of the downstream product represents […]% in the case of butyl acetate, […]% in the case of butanol and a maximum of […]% in the case of the other products.

166. In addition, for the vertical relationships where the market shares on the upstream level are above 30%, CRB's share when sourcing the input product is small ([…]% for Butanol and […]% for TCD alcohol) and at numerous instances even negligible (below […]% for 2-EH, 1,3 butyleneglycol, 2-ethyhexylamine and mono-n-octylamine). In those cases input foreclosure issues are also unlikely.

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62 See Non-horizontal Guidelines, para 35.

63 See Non-horizontal Guidelines, para 34.

64 See Non-horizontal Guidelines, para 42, fn.2.

65 Butanol – with the exception of n-butanol; butyl acetate – with the exception of iso-butyl acetate; NPG; TMP; carboxyl acid – with the exception of isononanonic acid and pelargonic acid; di-n-propylamine; tri-n-butylamine.

167. It is therefore concluded that the proposed transaction does not raise serious doubts from the input foreclosure perspective in relation to the majority of the affected vertical relationships.

4.3.5. Input foreclosure assessment for selected vertical links

168. In the following the Commission will assess the affected vertical links where the upstream market share is well above 30% and the cases where the value of the input product in the downstream product is relatively important.

4.3.5.1. 2-EH

169. Oxea has a market share in 2-EH of [5-10]% worldwide and [50-60]% in the EEA. Oxea's competitors in the EEA are Perstorp ([10-20]%), Oxochimie ([10-20]%) ZAK ([5-10]%), Oltchim ([0-5]%) and others ([10-20]%).

170. A vertical relationship between the Parties exists insofar as Oxea sells 2-EH and CRB purchases 2-EH in order to produce three different products, i.e. unsaturated polyesters ([0-5]% in the EEA), CED Resins ([5-10]% worldwide and [20-30]% in the EEA) and additives ([0-5]% both worldwide and in the EEA).

171. The Commission notes that CRB's market shares in the downstream markets are indeed low or modest. The Commission also observes that CRB's share when sourcing the product is marginal, i.e. below […]%. CRB purchases of 2-EH amounted to EUR […] in 2011.

172. The Commission also notes that 2-EH is used in a variety of applications other than resins and CRB and its competitors only account for [5-10]% of the market according to the Notifying Party's estimate.[66] Finally the input value of 2-EH in the downstream product is also very low ([…]% for unsaturated polyesters, […]% for CED resins and […]% for additives).

173. There have been no concerns raised in the market investigation with regard to 2-EH.

174. The proposed transaction therefore does not raise serious doubts from the input foreclosure perspective in relation to 2-EH.

4.3.5.2. NPG

175. On the market for NPG, Oxea holds a market share of [10-20]% worldwide and of [20-30]% in the EEA according to the Notifying Party's estimate. Oxea faces competition from BASF ([20-30]% worldwide and [30-40]% in the EEA), Eastman ([10-20]% worldwide and [5-10]% in the EEA), Perstorp ([10-20]% worldwide and [10-20]% in the EEA) and Polioli ([5-10]% worldwide and [10-20]% in the EEA).

66 Oxea supplies […]% of its 2-EH deliveries to customers in […]and the rest to customers active in other industries (among others resin manufacturers).

The Commission notes that Oxea's market shares upstream are below 30% and other strong competitors are on the market. Such a situation is not susceptible to input foreclosure. However, given that CRB's share when sourcing the product is [10-20]% and total purchases amount to EUR […], the Commission find it appropriate to deal with this link more extensively.

176. CRB's market shares in the downstream markets are low or modest, but in any case do not exceed [30-40]%. Currently CRB purchases […] of its requirements from Oxea, and the rest from […].

177. The input value of NPG in the downstream products is very low in most of the cases (i.e. below […]%), with the exception of unsaturated polyesters ([…]%), polyester powders ([…]%) UV-curable powders ([…]%) and additives ([…]%).

178. There have been no concerns raised in the market investigation with regard to NPG.[67]

179. The proposed transaction therefore does not raise serious doubts from the input foreclosure perspective in relation to NPG.

4.3.5.3. 1,3 butyleneglycol

180. According to the Notifying Party's estimate, on the overall market for 1,3 butyleneglycol, Oxea holds a market share of [40-50]% worldwide and of [30-40]% in the EEA. Oxea's main competitor is Daicel ([40-50]% worldwide and [50-60]% EEA wide) and KH Neochem is also present in the market.

181. According to the Notifying Party, all arguments applying to the overall market for 1,3 butyleneglycol would equally apply to a separate assessment of both segments.

182. Oxea sells 1,3 butyleneglycol and CRB purchases 1,3 butyleneglycol in order to produce two different products, i.e. unsaturated polyesters and additives.

183. The Commission notes that in both markets, CRB has an approximate market share of [0-5]% worldwide and in the EEA, and CRB's share on the purchasing market is less than [0-5]%. CRB purchases of 3 butyleneglycol amounted to EUR […] in 2011. Moreover, CRB and its competitors only account for a very small portion of the market (1% in the Notifying Party's estimate). The input value of 1,3 butyleneglycol in the relevant downstream products is less than […]%.

184. There have been no concerns raised in the market investigation with regard to 1,3 butyleneglycol.

185. The proposed transaction therefore does not raise serious doubts from the input foreclosure perspective in relation to 1,3 butyleneglycol.

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67 One upstream competitor commented that CRB is a major consumer/customer of NPG and Oxea is a significant supplier but this competitor did not raise potential foreclosure (input or customer) as a concern.

4.3.5.4. TCD alcohol

186. Oxea is […] and […] has a market share of [90-100]% both worldwide and EEA-wide.

187. A vertical relationship between the Parties exists insofar as Oxea sells TCD Alcohol and CRB purchases TCD Alcohol in order to produce three different products, i.e. WB PUDs, SB alkyds and monomers/oligomers/acrylates. In 2011 CRB purchased […] tonnes of TCD alcohol amounting to EUR […].

188. The Notifying Party submits that there would be no ability and no incentive for Oxea to foreclose CRB's downstream rivals by withdrawing supply or raising the price of TCD alcohol.

189. More specifically, the Notifying Party claims that the majority of CRB's key competitors do not use TCD alcohol at all and use alternative inputs such as isosorbide or other polycyclic diols or can use a completely different chemical composition that gives the same properties in the final product. Therefore it cannot be identified which products of their competitors would be exactly affected by a foreclosure strategy.

190. Moreover, although the large majority of the TCD alcohol production is sold by Oxea directly to end-customers, CRB competitors can source TCD alcohol from wholesalers. Therefore Oxea would find it difficult to target price increases at, or tighten the supply of TCD alcohol, to specific users. In addition to resins, TCD alcohol is used in a variety of applications such as fragrances and the quantities required by specialty resin producers are small in relation to the size of the overall market.

191. According to the Non-horizontal Guidelines, "*[t]he greater the market shares of the merged entity downstream, the greater the base of sales on which to enjoy increased margins*". The Commission notes however, that CRB has only a small share of the total sales of products in which it uses TCD Alcohol: WB PUDs ([0-5]% worldwide and [5-10]% EEA-wide), SB alkyds (around [0-5]% both worldwide and in the EEA) and monomers/oligomers/acrylates ([10-20]% worldwide and [20-30]% EEA-wide)[68].

192. The market investigation did not confirm the Notifying Party's claim that TCD alcohol is easily substitutable. On the contrary, a couple of respondents to the Commission's request for information noted that they could not replace TCD alcohol in the short term in their production process. However, the Commission notes that in the downstream markets CRB is competing with products that can be also manufactured without TCD alcohol, using other inputs, i.e. there are credible alternative versions of those products, employing alternative inputs to TCD alcohol, to which customers could readily switch.[69]Consequently, Oxea's incentive to engage in input foreclosure is curbed by the fact that its customers can switch.

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68 According to a narrower market segmentation: epoxy acrylates [30-40]% in the EEA, polyester/polyether acrylates [20-30] in the EEA, urethane acrylates [60-70]%, amino acrylates [40-50]%.

69 This is shown by the examples put forward by the Notifying Party concerning CDs/DVDs and ink jet. In CDs/DVDs TCD alcohol used to be a key input but due to cost reasons it has been replaced by other,

193. Oxea's largest TCD customers are […] ([…]% of all TCD production) and […][70] ([…]% of all TCD production). These two customers manufacture products which can be potentially in competition with CRB's resins.[71]

194. The Commission notes that both [these customers] are important customers of Oxea across a range of products. In addition, […] is also an important supplier to Oxea. Oxea's relationships with these companies are therefore wider than the TCD alcohol sales. In particular, Oxea made sales of EUR […] in 2012 to […].[72] […] sourced products from Oxea worth EUR […].[73] Furthermore, according to the Notifying Party, Oxea sources numerous critical input products from […].[74] In 2012, Oxea sourced products from […] worth EUR […]. It is therefore plausible to assume that Oxea would not put at risk its overall business relationship with […] and […] by attempting to foreclose these companies' access to TCD alcohol.

195. The proposed transaction therefore does not raise serious doubts from the input foreclosure perspective in relation to TCD alcohol.

4.3.5.5. Isononanoic acid

196. On the basis of a separate product market for isononanoic acid, Oxea holds a market share of [40-50]% worldwide and [60-70]% in the EEA, competing with BASF ([10-20]% worldwide and [30-40]% in the EEA) and KH Neochem ([40-50]% worldwide).

197. CRB uses isononanoic acid to produce six different products, i.e. WB alkyds, SB alkyds, unsaturated polyesters, CED Resins, monomers/oligomers/acrylates and additives.

198. The Commission notes that CRB's share on the purchasing market is below [0-5]%, and currently its entire needs are sourced from […]. Oxea supplies […]% of its isononanoic acid deliveries to customers in synthetic lubricants, […]% to customers in plasticisers, […]% to overseas traders and the rest to customers active in other industries (among others resin manufacturers, […]%). The input value of isononanoic acid in the relevant downstream products is less than […]% in all downstream markets.

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cheaper alternatives as an input. In the case of ink jets the customer reformulated its requirements and TCD alcohol could be replaced. "*Small customers can and do reformulate without TCD*" (Cf. Non-confidential minutes of call with […], 18 January 2013).

70 […] has been a long-standing customer of TCD alcohol. Currently there is a supply agreement to be signed until […].

71 […] is a polyester resin which is used as a raw material in the production of can coatings, amongst other products. CRB's Duroftal product, a polyester based coating resin (SB Alkyd), can also be used in can coating applications. CRB's market presence in polyesters used in can coatings is below [0-5]%. […] uses TCD alcohol in radiation UV curable resins. CRB is not active in this market (Cf. Non-confidential minutes of call with […], 18 January 2013).

72 […] is a key customer for […].

73 […] is a key customer for […].

74 […] is Oxea's [supplier].

199. There have been no concerns raised in the market investigation with regard to isononanoic acid.

200. The proposed transaction therefore does not raise serious doubts from the input foreclosure perspective in relation to isononanoic acid.

4.3.5.6. Conclusion on input foreclosure

201. On the basis of the above, the Commission considers that input foreclosure appears unlikely in relation to any of the affected vertical relationships.

5. CONCLUSION

202. For the above reasons, the European Commission has decided not to oppose the notified operation and to declare it compatible with the internal market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of the Merger Regulation.

For the Commission
(signed)
Joaquín ALMUNIA
Vice-President