

***Case No COMP/M.4848 -  
BASELL / LYONDELL***

Only the English text is available and authentic.

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

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Article 6(1)(b) NON-OPPOSITION  
Date: 26/10/2007

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## COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 26-X-2007  
SG-Greffe(2007)D/206662

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 Where possible the information omitted has been replaced by ranges of figures or a general description.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(1)(b) DECISION

### **To the notifying party**

Dear Sir/Madam,

**Subject: Case No COMP/M.4848 – BASELL / LYONDELL  
Notification of 21.09.2007 pursuant to Article 4 of Council Regulation  
No 139/2004<sup>1</sup>**

1. On 21/09/2007, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 (the "Merger Regulation"), by which the undertaking Basell AF S.C.A. ("Basell", Luxembourg) acquires within the meaning of Article 3(1)(b) of the Merger Regulation control of the whole of the undertaking Lyondell Chemical Company ("Lyondell", USA), by way of purchase of shares.
2. After examination of the notification, the Commission has concluded that the notified operation falls within the scope of the Merger Regulation and does not raise serious doubts as to its compatibility with the common market and the functioning of the EEA Agreement.

### **I. THE PARTIES**

3. **Basell** is a Luxembourg-based company active in (i) the manufacture and sale of polyolefins and polyolefin compounds and (ii) the development and licensing of polyolefin technologies. Basell was created on 01/10/2000 as the combination of BASF

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<sup>1</sup> OJ L 24, 29.1.2004 p. 1.

and Royal Dutch/Shell's polypropylene and polyethylene activities (together polyolefins).

4. Since 01/08/2005 Basell has been controlled by the Access group ("**Access**"), a group of holding companies mainly active in the oil, petrochemicals, coal, aluminium, power, real estate and telecommunications sectors.<sup>2</sup>
5. **Lyondell**, headquartered in Houston, is a manufacturer of chemicals, plastics and fuel products. In the EEA, Lyondell focuses on the production and sale of propylene oxide and related products. Lyondell sells only negligible quantities of polyolefins in the EEA. These are imported from the company's manufacturing plants in the USA

## II. THE TRANSACTION AND THE CONCENTRATION

6. On July 16, 2007, Basell AF, BIL Acquisition Holdings Limited (a wholly owned subsidiary of Basell AF) and Lyondell Chemical Company signed an Agreement and Plan of Merger ("**Agreement**"). Under the terms of the Agreement, a newly-formed wholly owned subsidiary of Basell will merge with and into Lyondell. Lyondell will thus become a wholly-owned subsidiary of Basell. The notified operation consists of the acquisition of sole control by Basell of the entire business of Lyondell through the acquisition of its shares; it constitutes therefore a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

## III. COMMUNITY DIMENSION

7. The transaction has a Community dimension pursuant to Article 1(2) of the Merger Regulation. The parties have a combined aggregate worldwide turnover in excess of €5,000 million (Basell € 10,500 million, Lyondell € 16,586 million), and at least two have a Community-wide turnover in excess of € 250 million (Basell [...] million, Lyondell [...] million). Neither of the parties achieves more than two-thirds of their Community-wide turnover within one Member State.

## IV. RELEVANT MARKETS

### *1) Polyolefins*

8. In the market of polyolefins, Basell produces and sells polypropylene (homopolymers, copolymers and random copolymers), high-density polyethylene ("HDPE"), low-density polyethylene ("LDPE") and limited quantities of linear low density polyethylene ("LLDPE") in the EEA. Lyondell manufactures these products in the USA and has minimal imports into the EU.
9. Polypropylene is one of the most commonly used commodity polymers. In the past<sup>3</sup>, the Commission considered further segmentation of the polypropylene market between (i)

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2 The only Access activity that might be relevant for the competitive analysis of the notified transaction is related to its [...] % shareholding in TNK-BP. However as this is a non-controlling minority shareholding which has its production facilities in Russia and Ukraine and which makes only very limited sales of crude oil and its derivatives in the EEA, this holding is irrelevant for the assessment of the case.

polypropylene resins and (ii) polypropylene compounds. Within polypropylene resins, the Commission distinguished (i) homopolymers, (ii) random copolymers and (iii) impact (block) copolymers.

10. Polyethylene is also a commodity polymer, used in a wide array of applications, such as films, coatings, packaging, bags, plastic pipes, bottles and various moulded plastic products. There are three categories of polyethylene: (i) HDPE, (ii) LDPE and (iii) LLDPE. This last category can be further divided based on the co-polymer used in the manufacturing process between (i) C4 LLDPE, (ii) C6 LLDPE and (iii) C8 LLDPE. In previous decisions<sup>4</sup>, the Commission established that HDPE and C8 LLDPE constitute two distinct markets but left open the question whether LDPE, C4 LLDPE and C6 LLDPE were part of the same market.
11. The parties submit, in line with previous Commission decisions<sup>5</sup>, that the markets for polypropylene, HDPE and LDPE are at least Western-European and possibly EEA wide.

### *2) Olefins*

12. In the market of olefins, Basell has production facilities of ethylene and propylene in the EU, while Lyondell purchases these products as inputs for its propylene oxide activities and resells any excess supplies to the merchant market on an ad-hoc basis.
13. Ethylene is a basic chemical product, used for example as a raw material for the production of polyethylene and PVC. The Commission has established<sup>6</sup> that ethylene constitutes a separate product market. With regard to the geographic market, the Commission left the definition open in recent decisions<sup>7</sup> and considered two options: an EEA-wide market and a market limited to the areas connected by the pipeline networks.
14. Propylene is also a basic chemical product, used for example as a raw material for the production of polypropylene and propylene oxide. In previous decisions<sup>8</sup>, the Commission considered that propylene constitutes a separate market, at least Western-European and possibly EEA wide.

### *3) Propylene oxide*

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3 Case COMP/M.4426 Sabic/Huntsman Petrochemicals UK, Case COMP/M.2806 SABIC/DSM Petrochemicals, Case COMP/M.1751 Shell/BASF/Project Nicole.

4 Case COMP/M.4426 Sabic/Huntsman Petrochemicals UK, Case COMP/M.3733 - Dow/DDE, Case COMP/M.2806 SABIC/DSM Petrochemicals, Case COMP/M.1671 - Dow /UCC.

5 Case COMP/M.4426 Sabic/Huntsman Petrochemicals UK, Case COMP/M.4401 Basell/Münchsmünster Cracker and Associated Assets.

6 Case COMP/M.2389 Shell/DEA

7 Case COMP/M.4401 Basell/Münchsmünster Cracker and Associated Assets, Case COMP/M.4094 Ineos/BP Dormagen.

8 Case COMP/M.4426 Sabic/Huntsman Petrochemicals UK, Case COMP/M.4401 Basell/Münchsmünster Cracker and Associated Assets, Case no COMP/M.2345 Deutsche BP/Erdölchemie.

15. Lyondell produces and sells propylene oxide, its co-products (including styrene monomer and tertiary butyl alcohol) and derivatives (including propylene glycol, propylene glycol ethers and butanediol).
16. Propylene oxide is a chemical compound deriving from the co-oxidation of propylene with other chemicals, used for example for the production of polyether polyols, propylene glycols and propylene glycol ethers. In previous decision<sup>9</sup>, propylene oxide was considered to be separate product market which is at least EEA-wide.

#### *4) Technologies for polyolefin production*

17. In the market for technologies for polyolefin production, Basell licenses technologies for both polyethylene and polypropylene production, while Lyondell owns several polyethylene technologies.

##### *4.1) Polypropylene Technology*

18. The Commission held in previous decisions<sup>10</sup> that the relevant market for “PP technology is the market for the licensing of advanced process technology plus catalyst”, together referred to as the market for “PP technology package licensing”. PP technology to manufacture PP requires a process, the hardware, and a suitable catalyst. A PP process technology is the enabling technology to produce PP resins in a plant of specific design. All PP processes are capable of producing homopolymer and random copolymer PP and all processes require one or more additional reactors to produce impact copolymer. It considered this market to be distinct from the market for the production of polypropylene.
19. In its previous decisions<sup>11</sup>, the Commission concluded that the relevant geographic market for PP technology package licensing is global.

##### *4.2) Polyethylene Technology*

20. In previous decisions<sup>12</sup>, the Commission concluded that there is a PE technology market distinct from the market for the production and sale of PE, owing to the fact that most PE producers that have developed their own PE production technology offer it for license. Therefore a significant proportion of PE producers operate under technology licenses, and licensing is organised as a distinct business activity. Within this polyethylene technology market, the Commission distinguished between<sup>13</sup>:

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9 Case COMP/M. 1796-Bayer/Lyondell

10 Case COMP/M.1751 Shell/BASF/JV – Project Nicole, Case IV/M.269 – Shell/Montecatini

11 Case COMP/M.1751 Shell/BASF/JV – Project Nicole, Case IV/M.269

12 Case COMP/M.1671 Dow Chemical/Union Carbide, Case COMP/M.1751 Shell/BASF/JV – Project Nicole, Case No IV/M.550 Union Carbide/Enichem.

13 Case COMP/M.1671 Dow Chemical/Union Carbide, Case No IV/M.550 Union Carbide/Enichem.

- High pressure polyethylene technology processes, which are the only production processes available for the manufacture of LDPE. This includes tubular and autoclave based processes.
  - Low pressure polyethylene technology processes. The Commission considered a possible distinction between three types of processes, which differ by their characteristics and also the grades of polyethylene (HDPE, C4/C6/C8 LLDPE) achievable: (i) solution processes, (ii) slurry processes and (iii) gas phase processes.
21. In its Dow Chemical/Union Carbide decision, the Commission concluded that a distinction can be made between the high pressure technology packages and low pressure technology packages. However, it left it open if further segmentation of low pressure technology (gas phase, slurry and solution) is necessary. This approach can be used in the present case as no competition problems will arise no matter on any reasonable product market definition.
22. In previous decisions<sup>14</sup>, the Commission has considered that the relevant geographical market for polyethylene technologies was global.

## V. COMPETITIVE ASSESSMENT

23. The parties' activities in Europe are largely complementary due to their different production focus in Europe, where Basell produces polyolefins while Lyondell produces propylene oxide. Accordingly, in the EEA, the proposed transaction will create:
- (1) A horizontal overlap between (i) Basell's production and sale of polyolefins and (ii) Lyondell's import sale of polyolefins from the US;
  - (2) A horizontal overlap between (i) Basell's production and sale of olefins and (ii) Lyondell's re-sale of olefins;
  - (3) A vertical link between (i) Basell's production and sales of olefins (ethylene and propylene) and (ii) Lyondell's production of propylene oxide and related products;
  - (4) A horizontal overlap between the parties' activities on the technology markets for polyolefins production.

### *1) Polyolefins*

24. In the EEA, Basell's shares of merchant sales are estimated by the parties at [10-20%] for HDPE, [10-20%] for LDPE and [20-30%] for polypropylene. Lyondell's import sales of polyethylene and polypropylene were made to only one customer and represented less than [<5%] of the European merchant markets for polypropylene, HDPE and LDPE. Other suppliers of HDPE, LDPE and polypropylene include Borelis, Ineos, SABIC and Total Petrochemical. Therefore, on the polyolefin markets, the proposed transaction will not change the market structure in any significant way and will not give rise to competition problems under any possible market definitions.

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<sup>14</sup> Case COMP/M.1671 Dow Chemical/Union Carbide, Case No IV/M.550 Union Carbide/Enichem.

## *2) Olefins*

25. In the EEA, Basell's shares of merchant market sales are estimated by the parties at [0-10%] for propylene and [0-10%] for ethylene. Lyondell re-sale activities of olefins in the EEA are minimal ([<5%] of the merchant market for ethylene and [<5%] for propylene). Therefore, on the olefin markets, the transaction does not give rise to competition problems under any reasonable market definitions.

### *3) Vertical overlap between Basell's olefin and Lyondell's propylene oxide activities*

26. Basell has production facilities of ethylene and propylene in the EU, while Lyondell purchases these products as raw materials for its propylene oxide and propylene derivatives production.
27. According to the parties, Basell uses most of its olefin production captively for its polyolefin activities and sells only limited quantities of ethylene and propylene on the merchant market. In 2006, Basell sales of ethylene and propylene represented [0-10%] and [0-10%] of the respective merchant sales in Europe. Lyondell's requirements of ethylene and propylene for its downstream activities amount to [0-10%] and [10-20%] of the respective merchant markets in the EEA. Lyondell share of the EEA market for merchant sales of propylene oxide is approximately [20-30%]. Therefore, this vertical overlap will not significantly impede competition in the EEA as the parties have modest market shares on both the upstream and the downstream markets.

### *4) Technologies for polyolefin production*

28. In the market for technologies for polyolefin production, Basell licenses technologies both for polyethylene and polypropylene production. Lyondell owns several polyethylene technologies.

#### *4.1 Polypropylene technology*

29. As a condition for the authorisation of the creation of Basell by BASF and Royal Dutch /Shell, the parties offered to divest the Novolen polypropylene technology to an independent third party. The technology business was acquired by a joint venture between ABB, Engelhard and Equistar (now a wholly owned subsidiary of Lyondell).
30. Lyondell sold, on [...], its stake in a joint-venture, Novolen Technology Holdings C.V., a leading supplier of polypropylene technology to ABB. Following the transaction, Lyondell retains no rights on this technology. [A subsidiary of Lyondell continues to use certain PP technology under license from NTH. The agreement includes no right for the Lyondell subsidiary to sub-license NTH technology to other companies. The same Lyondell subsidiary has entered into a generic services agreement with NTH to provide NTH with certain research and development services. This agreement does not provide Lyondell with any right over current NTH PP technology or the results of NTH PP research].
31. As a result of the sale of its interest in NTH Lyondell no longer has an interest in polypropylene technology and there is no overlap in the parties' activities in this area. Furthermore, as Lyondell has disposed of its holding in NTH there is no question of Basell re-acquiring the polypropylene technology it divested in order to obtain clearance for the creation of the joint venture.

#### *4.2 Polyethylene technology*

32. In terms of polyethylene technologies, both parties own (i) high pressure tubular technologies and (ii) low pressure slurry technologies. In the last [...], Lyondell has not managed to license either of these polyethylene technologies, though it participated in several bids, whereas Basell has been successful in licensing its technologies.



#### *4.2.1 High Pressure Tubular LDPE Technology*

33. In 2006, plants using Basell's technology accounted for approximately [10-20%] of the total LDPE capacity (tubular plus autoclave) and approximately [20-30%] of total installed tubular LDPE capacity. According to Lyondell, it uses its high pressure tubular technology in only one of its plants, in Laporte, Texas, United States. This technology is used in [...] other plants worldwide based on licenses concluded between 1975 and 1992.
34. Lyondell confirmed that during the last 12 years, it has only participated in [...] biddings for the supply of high pressure tubular LDPE technology [...].
35. Based on 2006 installed capacity, Basell technology represented [30-40%] of capacity for LDPE tubular technology, based on licenses that were granted for plants built since 1997. Since then, Basell granted additional [...] licenses for new plants to be built in the future and accordingly Basell estimates that its own high pressure tubular technology could represent up to [50-60%] of capacity for which licenses were granted in the past ten years if no further licenses were granted by competitors.
36. The Commission has established in its Dow Chemical/Union Carbide decision from 2000 that high pressure process tended to be replaced by low pressure process due to a decline in demand for LDPE and increasing demand for LLDPE<sup>15</sup>. This trend seems to be continuing since 2000 although from 2005 demand for LDPE increased slightly. According to Basell in the last ten years only [...] licenses for LDPE technology were concluded for plants in Europe, [...] of them granted by Basell. Accordingly, Basell estimates that the total installed capacity based on these licenses accounts for approximately [10-20%] of the total worldwide LDPE capacity based on licenses concluded in the last ten years. The major market for this technology is predominantly located in Asia and [...] does not expect to conclude significant licenses for LDPE process technology in Europe in the foreseeable future. The proposed operation will not, therefore, significantly change the current situation on the market for high pressure tubular PE technology. The parties' combined share of installed high pressure tubular LDPE capacity is [10-20%] (Basell [10-20%] and Lyondell [0-10%]). In addition Exxon/Mobil and Sabic/DSM have substantial market shares and a number of smaller suppliers license tubular LDPE technology. The comparatively modest combined market share and [...] indicates that the proposed operation will not give rise to a significant impediment to competition in the market for high pressure tubular LDPE technology.

#### *4.2.2 Low Pressure HDPE Slurry Technology*

37. In 2006 Lyondell's own low pressure HDPE slurry technology accounted for approximately [<5%] of the total installed production capacity attributable to slurry technology, while plants using Basell's technology accounted for [10-20%] of the total installed capacity of low pressure slurry technology.
38. Basell technology represented around [10-20%] of capacity for HDPE slurry technology based on licenses granted for plants that have been built after 1997 and excluding new capacity installed by Basell or joint ventures it participates in. Including licenses granted for plants with a commissioning date of implementation after 2008, Basell estimates that

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15 Case COMP/M.1671 Dow Chemical/Union Carbide, para 82

its technology could represent up to [30-40%] of slurry capacity for which licenses were granted in the last ten years. Basell's HDPE technology licensing in the last twelve years has focused predominantly on regions outside Europe and North-America, as there is no significant demand for new production capacity for HDPE in Europe and North-America due to feedstock cost advantages in the Middle East and pro-capita consumption growth in Asia-Pacific.

39. During the last [...], Lyondell has not been successful in licensing its HDPE slurry technology to the third parties although it took part in [...] competitions.
40. As a result it appears that Lyondell is not a credible competitor of Basell on the low pressure HDPE technology markets. This is confirmed by its inability to license its technology in the last [...]. Furthermore on the combined entity will face competition from ChervronPhillips and Mitsui with substantial market shares and several other licensors with smaller shares. Therefore, the transaction does not give rise to competition concerns on the market for licensing low pressure HDPE slurry technology.

#### *4.3 Conclusions Polyethylene Technology*

41. In view of the arguments set out in paragraphs 32-40 above, the operation does not give rise to serious doubts about its compatibility with the common market in relation to the markets for high pressure tubular LDPE and low pressure HDPE slurry technologies. As the parties are not active on any other PE technology licensing markets the proposed operation will not give rise to competition concerns on any wider market definitions.

## **VI. CONCLUSION**

42. 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. This decision is adopted in application of Article 6(1)(b) of the Merger Regulation.

For the Commission,  
signed  
Neelie KROES  
Member of the Commission