

***Case No IV/M.550 -
UNION CARBIDE /
ENICHEM***

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**REGULATION (EEC) No 4064/89
MERGER PROCEDURE**

Article 6(1)(b) NON-OPPOSITION
Date: 13/03/1995

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 13.03.1995

PUBLIC VERSION

MERGER PROCEDURE
ARTICLE 6(1)(b) DECISION

Registered with advice of delivery

To the notifying parties

Dear Sirs,

Subject : Case No IV/M.550 - UNION CARBIDE/ENICHEM

Notification of 10 February 1995 pursuant to Article 4 of Council Regulation No 4064/89

1. The above mentioned notification concerns the creation of a joint venture between Union Carbide Corporation (UCC) and Enichem S.p.A. (Enichem) that will produce, market and sell polyethylene (PE) resins in Europe.
2. After examination of the notification, the Commission has concluded that the operation falls within the scope of application of Council Regulation (EEC) No. 4064/89 ("the Merger Regulation") and does not raise serious doubts as to its compatibility with the common market and with the functioning of the EEA Agreement.

I THE PARTIES

3. Enichem is an Italian company active in the development, production, marketing and sale of chemical products. Enichem is part of the State-owned holding ENI, the subsidiaries of which are mainly active in the petroleum and chemical industries.

4. UCC is a U.S.-based company active worldwide in the development, production, marketing and sale of various chemical products and plastics.

II THE OPERATION

5. Enichem and UCC intend to establish a new company, called POLIMERI EUROPA Srl (POLIMERI EUROPA) which will constitute a joint venture. Enichem will transfer to its wholly-owned subsidiary, Brindisi Etilene Srl (BES), all of its interests in the field of PE, excluding the wire and cable compounds business. BES will be renamed POLIMERI EUROPA Srl. UCC will buy fifty percent of the equity of the company and Enichem will retain ownership of the remaining fifty percent. Enichem will contribute to the venture its PE resin technology, its manufacturing facilities and sales activities in this field. Two ethylene steam crackers will be transferred to the venture, one at Brindisi, Italy, and the other at Dunkirk, France. Within the framework of the operation, UCC will grant the venture a non-exclusive license of its Unipol technology.
6. UCC has recently established a joint venture with the French company Elf Atochem (ATO), called ASPEN. On 2 December 1994, this operation was notified to the Commission under article 85 of the Treaty of Rome, pursuant to article 4 of Regulation 17/62. The ASPEN joint venture is therefore assessed within the framework of a different procedure. Nevertheless, both operations affect the market position of the notifying parties and cannot be viewed in isolation. Accordingly this decision also takes into account the UCC/ATO transaction.
7. The ASPEN joint venture will produce PE resins to be used mostly for the manufacture of wire and cable compounds. UCC will sell on behalf of ASPEN the wire and cable compounds production of the joint venture, and ATO will sell on behalf of ASPEN the other PE resins production. ATO will remain as an independent PE producer outside ASPEN.
8. Within the framework of the ASPEN joint venture, ATO will transfer to ASPEN three PE production lines at Gonfreville (France), namely a slurry line, a high pressure reactor, and a low pressure gas phase reactor. ATO will grant ASPEN licences for its gas phase technology and wire and cable technology, as well as for its slurry, compounding and high pressure technologies. UCC will grant ASPEN licences of its wire and cable technology, its high pressure technology and of its Unipol technology.

III CONCENTRATION

Joint control

9. According to the Shareholders' Agreement, POLIMERI EUROPA will be jointly controlled. The Board of Directors will consist of at least six members, an equal number of which will be designated by Enichem and UCC. For a period of five years, the President of the Board will be designated among the directors nominated by Enichem, and the Managing Director will be designated among the directors nominated by UCC. The Managing Director will carry out the day-to-day management of the company under the instructions and supervision of the Board of Directors, which will decide by a majority of its members on matters of fundamental importance, including in particular the approval of

the annual business plan or any strategic plan and the capital budget of the company. On this basis, POLIMERI EUROPA will be jointly controlled by Enichem and UCC.

Autonomous economic entity

10. POLIMERI EUROPA will be of unlimited duration. [...]⁽¹⁾
11. POLIMERI EUROPA will be an undertaking performing all the tasks of an autonomous economic entity since Enichem will contribute to the venture :
- its PE resin manufacturing business with the exception of its PE resin facility in Porto Torres (Sardinia, Italy);
 - its 100 % of the capital stock of ECP Enichem Polymères France SA and its 100% of the capital stock of Enichem Deutschland GmbH;
 - its ethylene steam cracker at Brindisi and its interest in an ethylene plant at Dunkirk;
 - its PE resin technology.

UCC will grant the venture a non-exclusive licence of its UNIPOL technology.

12. The above mentioned crackers at Brindisi and Dunkirk will supply the joint venture with approximately [...]⁽¹⁾ % of its initial ethylene needs. POLIMERI EUROPA will enter into a series of supply agreements with Enichem for the supply of ethylene mainly in Italy through its crackers at Priolo, Porto Marghera and Gela. These will be retained by Enichem, because they produce ethylene used in certain of Enichem's other chemical businesses.
13. According to the ethylene purchase and swap agreement, Enichem will supply the venture for an initial period of [...]⁽¹⁾ years, extendable by either party for an additional [...]⁽¹⁾-year period. Thereafter, the supply arrangements will continue on annual basis.
14. At the request of POLIMERI EUROPA, Enichem will supply the venture within a range originally set at [...]⁽¹⁾ KT. Enichem shall supply a further quantity, up to a total of [...]⁽¹⁾ KT, provided that [...]⁽¹⁾.
15. These supply agreements do not call into question the functioning of the joint venture as an autonomous economic entity. Given the significant added value between the raw material, ethylene, and the product manufactured, PE, POLIMERI EUROPA cannot be considered as a commercial agency of Enichem.
16. Enichem will also enter into long-term agreements to buy from POLIMERI EUROPA all the ethylene by-products (C6 cut, C7 steam, crude C4, pygas and propylene) currently

(1) Contractual provision - deleted as business secret
 (2) between 40 % and 60 %
 (3) deleted - business secret
 (4) deleted - business secret
 (5) deleted - business secret
 (6) deleted - business secret
 (7) contractual provision - deleted as business secret

produced by the two ethylene steam crackers that will be contributed to the venture. [...]⁽⁸⁾. These purchases of ethylene by-products do not call into question the autonomy of the joint venture, because these by-products are of minor interest for the joint venture.

17. In the light of the above factors, the Commission has concluded that POLIMERI EUROPA will be an autonomous economic entity.

Absence of coordination of competitive behaviour

18. The venture will manufacture, market and sell PE resins in Western and Eastern Europe, excluding the CIS countries. Enichem will withdraw from this business activity except through its interest in the joint venture and its manufacturing plant in Porto Torres which produces only HDPE. The current capacity of the Porto Torres plant amounts to some 110 KT, a very small proportion of W. European HDPE resin capacity. [...]⁽⁹⁾
19. UCC is active in the production and sale of PE products in Europe only through its 50 % participation in the ASPEN. ASPEN will also have a HDPE resin production capacity. However, once its new production facility is finished (in less than two years), essentially all of ASPEN's HDPE production will be used captively for the manufacture of wire and cable compounds. ASPEN will be present on the HDPE market only to a residual extent.
20. In the light of the above factors, there is no appreciable risk of coordination between the parents in the market for PE resins.
21. UCC and Enichem will remain active in the downstream market for wire and cable compounds. UCC through ASPEN will produce wire and cable compounds and will market ASPEN's production as the agent of ASPEN. Enichem will continue to produce and sell wire and cable compounds outside POLIMERI EUROPA. Nonetheless, this is not expected to lead to the coordination of the parent companies' competitive behaviour on that market, since Enichem's sales of wire and cable compounds in Western Europe represent less than 1 % of Enichem's PE resins business. Wire and cable compounds are separate downstream products from PE resins -distinct technology, different applications, different customers and high value added.
22. The parent companies have both developed PE technology, in both the high pressure and low pressure fields (for the product market definition see below). UCC will remain active on the low pressure market through its UNIPOL gas-phase technology. It has never marketed its high-pressure technology and it has no significant interest in licensing it in the future since there is little demand for this technology (see below). Enichem will contribute its PE technologies (gas-phase, slurry and high pressure) to the joint venture but it will be granted a non-exclusive royalty free licence to enable it to continue to license that technology (and maintain existing licences) outside Europe. However, Enichem is present only on the market for its high pressure technology. It has never licensed its slurry technology, which is outdated, and it abandoned development of its gas phase technology before it reached the stage of commercial viability.

⁽⁸⁾ contractual provision - deleted as business secret

⁽⁹⁾ sentence deleted for reasons of business secrecy stating that the Porto Torres plant is likely to play a minor role on the market.

23. In the light of the above-mentioned factors, it is unlikely that the joint venture will lead to the coordination of the parent companies' competitive behaviour in any of the above-examined markets.

IV COMMUNITY DIMENSION

24. The combined world-wide turnover of Enichem and UCC exceeds ECU 5 billion and they have each EC-wide turnovers in excess of ECU 250 million. Neither Enichem nor UCC have more than two-thirds of their respective EC turnovers in one and the same Member State.

V PRODUCT MARKET DEFINITION

ETHYLENE

25. Ethylene is one of the base chemicals and belongs to the olefins group which comprises ethylene, propylene and butadiene. In Western Europe ethylene is primarily produced from naphtha by means of steam cracking. The majority of ethylene is used for the production of polyethylene through polymerization, a process during which monomers are reacted with each other to produce long chains of a repeated series of monomers, called polymers.
26. There are a number of by-products of the ethylene production process, the most important of which is propylene. For each ton of ethylene produced, about half a ton of propylene is obtained. Propylene is primarily used for the production of polypropylene through polymerisation.

PE PRODUCTION AND SALE

27. POLIMERI EUROPA will be involved in the production and sale of polyethylene (PE) resins. Within PE, one can identify three main families of resins, Low Density Polyethylene (LDPE), Linear Low Density Polyethylene (LLDPE) and High Density Polyethylene (HDPE).
28. PE resins are produced from ethylene. Ethylene as a gas or in solution or in a diluent is polymerised in the presence of a catalyst or initiator to produce PE. The final stage is the downstream manufacture of consumer goods (e.g. film, moulded goods and other end-use applications). The types of technology needed to produce PE resins from ethylene are discussed in the section on the PE technology market below.
29. PE is a milky white, solid thermoplastic material. The properties of PE are influenced by the degree of crystallinity determined by the total degree of branching along the PE molecule. PE density increases with higher degrees of crystallinity. As indicated above, there are three basic families of PE resins, LDPE, LLDPE and HDPE. Within each of these three families, there are different grades produced by varying the conditions of polymerization or by using different additives. The relative ease with which manufacturers can, as a result, switch production from one grade to another gives rise to a very high degree of supply-side substitutability.

30. On the other hand, the question arises whether distinct product markets can be identified corresponding to the three main families (LDPE, LLDPE, HDPE) of PE resins.
31. LDPE is manufactured by high pressure processes. It has a molecular structure with both long-chain and short-chain branching which results in low crystallinity. It is primarily used in film applications where high clarity, flexibility and vapour barrier properties are required -in 1992, more than 70% of LDPE production was used in film applications.
32. HDPE is manufactured by low pressure processes. It has high crystallinity and it is stiffer than LDPE. It has better chemical resistance and lower permeability to gases and vapours. It is mainly used for rigid bottles, large blow mouldings (drums, automotive fuel tanks) and large diameter pipes. In 1992, 40% of HDPE production was used in injection-moulding applications.
33. LLDPE was introduced as a hybrid between HDPE and LDPE. It is produced by the low pressure polymerisation of ethylene with alpha-olefin comonomers which results in the formation of short-chain, side branches on the linear backbone. It is more crystalline (linear) than LDPE, and it is generally less flexible. In 1992, 70% of LLDPE production was used in the sector of film packaging.
34. It can be considered that HDPE constitutes a separate product market in view of its different characteristics -in terms of its performance in the conversion process and/or in the properties of moulded parts. As far as LDPE and LLDPE are concerned, it appears that they are to a certain extent substitutable, at least for commodity products. They are both mostly used for film applications. On the other hand, for specific applications one may be more suitable than the other. For instance, LLDPE offers some significant advantages over LDPE, including the ability to downgauge film and to improve tear, puncture and heat resistance and stiffness for injection moulded parts. On the other side, traditionally LLDPE grades have not been able to achieve the clarity and processability of LDPE, which limited considerably the penetration of LLDPE into certain sectors of the market, like flexible films for food packaging and for consumer goods. With new technology it is, however, expected that there will be more potential for substitution between the different PE families in the future.
35. In any event, it is not necessary to conclude on a precise market definition, since even on a basis of the narrowest markets (LDPE, LLDPE, HDPE), the market share of POLIMERI EUROPA will not create or strengthen dominance.

PE TECHNOLOGY

36. In the Shell/Montecatini⁽¹⁾ decision the Commission identified a relevant product market for the licensing of polypropylene ("PP") technology and other associated services, distinct from the market for the production and sale of PP. The PE sector displays the same basic characteristics in this respect. Most PE producers that have developed their own PE production technology offer it for license. There are a large number of PE producers operating under technology licence, either because they do not have their own proprietary technology or because they require a mix of technologies to enable them to produce the range of products needed to serve their defined consumer product market. Licensing is organised as a distinct business activity and forms at least in some cases a

⁽¹⁰⁾ OJ L332 of 22.12.94

significant source of revenue for licensors. As a result, the Commission has concluded that there is a PE technology market distinct from the market for the production and sale of PE.

37. There are basically four types of PE production technology being used:
- high pressure (examples of such technologies are those developed by ICI, Enichem)
 - solution (examples of such technologies are Sclairtech, Dowlex)
 - slurry (examples of such technologies are those developed by Phillips Petroleum, Mitsui)
 - gas phase (examples of such technologies are those developed by Union Carbide Corporation, BP, Montedison).
38. High-pressure processes produce LDPE resins in high-pressure autoclave or tubular reactors. The three other kinds of technologies are low-pressure processes used to produce LLDPE, HDPE or both LLDPE and HDPE. Slurry processes involve the suspension of the polymer in a diluent during polymerisation. The polymer is subsequently separated and recovered from the diluent, dried and pelletised. Solution processes involve the use of a solvent in which the polymer is dissolved during polymerisation. The solvent is subsequently distilled and the polymer dried and pelletised. Gas-phase processes are fluid bed processes using gas. The polymer is removed from the lower section of the polymerisation chamber while the gas is removed overhead. As a result, unlike slurry and solution processes, gas-phase processes require no additional steps for the recovery of the polymer.
39. PE processes also have to be differentiated as regards their use of catalysts. High pressure processes use an initiator in the form of either peroxide or oxygen rather than true catalysts. The other types of processes use Ziegler or other types of catalysts, the exact type being specific to each individual process. Processes are normally licensed with a specific catalyst determining the process characteristics. The licensor's performance guarantee is related to the use of the catalyst licensed with the process. Although some licensees may over time use catalysts other than the one originally licensed, they do so at their own risk. Consequently, it appears that for the purposes of determining the relevant product market, PE technology can be defined as a process-plus-catalyst combination.
40. High pressure processes were the first to produce PE in the form of LDPE. Technical developments in the 1950's led to the production of HDPE by slurry processes-commercial production of HDPE started in 1956, in the United States by Phillips Petroleum, and in Germany by Hoechst. HDPE is still one of the world's most important commodity chemicals and its consumption is expected to increase in the future. Data indicate that a growth in world consumption of some 30% will take place between 1991 and 1996. In Western Europe the comparative figure is some 16%. In the 1960's HDPE was also produced by gas-phase (e.g. Unipol in use since 1968) or solution processes (e.g. Sclairtech commercialised since 1960).
41. In 1977, UCC announced that it had adapted its HDPE gasphase process to make a new type of PE, LLDPE, resulting in major energy and cost savings and in an improvement of product performance compared to the conventional LDPE. This means of production was followed by BP and Himont. LLDPE can also be manufactured using solution processes (Dow, Novacor) or slurry processes (Phillips Petroleum).

42. Demand for LLDPE in W. Europe is expected to increase. In North America LLDPE now accounts for some 45% of total LDPE/LLDPE demand; in Western Europe the comparative figure is only some 20%. The breadth of LLDPE application is increasingly expanding into areas that were previously held by LDPE. This is certainly true for the commodity segment of the market. As to the specialty products, while LDPE produced by high-pressure processes has better characteristics than LLDPE produced by low-pressure processes for certain specific applications, emerging low-pressure technologies may increase the substitutability of LDPE/LLDPE for at least some of those niche applications. As a result, although LDPE products will for the time being remain on the market, especially since the existing high-pressure plants producing LDPE are in most cases fully depreciated, future demand in W. Europe will tend to concentrate on LLDPE, rather than LDPE, except for some niche applications.
43. The expected concentration of future demand on LLDPE and HDPE, rather than LDPE, has consequences for the technology licensing market. Already in the past 15 years, licensed LDPE capacity represented only some 10% of total demand for PE licences. On the basis of the above, it is not expected that there will be a great demand for high-pressure technology in the future, especially in W. Europe.
44. According to the Commission's enquiries, the most important criterion, on the basis of which potential licensees make an initial determination of the PE technologies for which they would consider obtaining a licence, is the possibility to produce the range of products required by their manufacturing and commercial strategy -naturally once, this initial determination has been made, a potential licensee will make the final selection on the basis of a number of other criteria, such as investment and production costs. As stated above, high-pressure processes only produce LDPE and do not allow other types of PE resins to be produced. As a result, taking also into account the above-mentioned future demand trends for PE products, it can be concluded that for the purposes of defining the relevant product market, at least a distinction between high-pressure and low-pressure process should be drawn. The former segment is declining in importance, from a licensing perspective.
45. As far as the HDPE/LLDPE segment of the PE technology market is concerned, the following should be noted. Depending on their manufacturing and commercial strategy, potential licensees would either seek to obtain a licence for HDPE or LLDPE only, or a licence allowing them to produce both HDPE and LLDPE, either at the same plant ("swing" plant) or at different plants. It is not, however, necessary to decide whether this segment of the PE technology market should be further divided into a HDPE and a LLDPE segment, because, irrespective of the precise market definition to be adopted in this respect, the assessment of the notified concentration will not change.

VI GEOGRAPHIC MARKET DEFINITION

ETHYLENE

46. Ethylene is difficult to transport and store because of its high flammability. Ethylene is transported over long distances either in compressed form by pipeline or in liquid form by dedicated refrigerated ships, and it requires significant investment in logistic facilities (pipelines, sea terminals)⁽¹⁾. In Northern Europe, where there is one large pipeline network

⁽¹¹⁾ For propylene, which is problematic to a lesser extent, barges, rail and road are also used.

(ARG) and associated pipelines linking various production sites in different countries, the geographic area for the supply of ethylene tends to be larger than national.

47. However, in Italy, there is no national pipeline. In that area ethylene is generally produced near sea terminals and polyethylene plants are normally located near ethylene crackers to reduce transport costs and logistical difficulties. Although it is possible to use refrigerated tanker ships to form an alternative source of supply, imports by sea require port facilities and the related transport and storage costs are prohibitive unless significant ethylene amounts are involved. Such imports into the Italian market are thus exceptional. As a result, it can be considered that in Italy the geographic markets for the supply of ethylene are regional. However, it is not necessary to decide upon the exact geographic market definition, because this would not, in any event, change the Commission's assessment.

PE PRODUCTION AND SALE

48. The relevant geographic market for PE resins is at least the whole of W. Europe. PE resins are easily transported across Europe. Transport costs are relatively low (about 6%) when compared to the value of the products in question. There are no tariff or other barriers to trade between Member States. There are significant trade flows between Member States. For example, in 1993 imports into Italy from other countries in W. Europe amounted to 49 % of LDPE consumption, 56 % of LLDPE consumption and 45 % of HDPE consumption.
49. From all these elements it can be concluded that the relevant geographic area is larger than national and that it includes at least the whole of W. Europe. This area cannot for the moment be enlarged since :
- a) For imports from countries outside Europe there is a custom duty of 11.9% (to be reduced to 6.5% within a period of four years). Imports from most developing countries are subject to duties equivalent to 70% of this amount.
 - b) Actual imports of PE resins from non-European countries do not exceed 10%.

PE TECHNOLOGY

50. Competition in the PE technology market takes place in a wider geographic market than that of the manufacture and sale of PE resin itself. Historically technology has been developed in either North America, Western Europe or Japan and currently these areas continue to provide licensing know-how to the rest of the world. Licensors are active world-wide and there appear to be no geographic constraints on the licensees' choice of supplier. In fact during the last 15 years licensors have licensed their technology in 37 different countries. It is also apparent that licensees often choose a licensor that is not located within their own geographic area.
51. The Commission has therefore come to the conclusion that the PE technology market is worldwide.

VII ASSESSMENT

ETHYLENE

52. Prior to the operation, Enichem was the only producer of ethylene in Italy. Subsequent to the operation, Enichem will retain all its Italian ethylene crackers, with the exception of Brindisi which will be transferred to the joint venture. UCC will not contribute any ethylene facilities to the joint venture. Consequently it is clear that the establishment of the joint venture does not create or reinforce dominance relating to the supply of ethylene in Italy.
53. The argument has been made to the Commission that the creation of the joint venture would lead to an incentive for either Enichem or POLIMERI EUROPA to curtail their third party ethylene supplies in the future. The Commission notes in this respect that even if this took place, this would, if anything, constitute an abuse of a pre-existing dominant position to be examined under Article 86 of the Treaty of Rome. By contrast, this would not be relevant for the present analysis, because the Merger Regulation only examines whether a concentration will create or reinforce a dominant position. As stated above, this is not the case here.
54. As concerns the northern European plants, given the existence of an international pipeline network and a variety of suppliers, the creation of the joint venture will not have any effect on the supply of ethylene in this region.
55. Concern was also expressed to the Commission about the future supply of one of ethylene's by-products, propylene. The Commission notes in this respect that, similarly to ethylene, there is no addition of market shares as a result of the creation of the joint venture and that as a result, dominance is not created or reinforced with regard to the supply of propylene. Moreover, with regard to the crackers transferred to the joint venture, it must be noted that the joint venture will not use any of the propylene produced, because it is not a PP producer. It is therefore provided that it will sell this propylene to third parties.

PE PRODUCTION AND SALE

56. Both parent companies, UCC and Enichem, are active on the market for the production of PE resins. Prior to the concentration, Enichem was active in the production of each of the three main types of PE resins (LDPE, LLDPE and HDPE). Although UCC had not been active as a PE producer in W. Europe for a number of years, it became a producer following the recent establishment of its 50/50 Aspen joint venture with ATO. ASPEN will produce PE resins, as well as wire and cable compounds.
57. Before the operation, Enichem had an approximate share of 15% of LDPE production capacity, 20% of LLDPE, 7% of HDPE, and around 13% of all PE resins (1994 figures). Through the ASPEN joint venture, UCC's share of production capacity will be very small (less than 5% in any PE segment). Moreover, its production will be used captively. As a result, after the operation the market share will not be very high (less than 25%), even on the basis of the narrowest product market definition.
58. On the other hand, subsequent to the concentration, POLIMERI EUROPA will combine Enichem's polyethylene production facilities, UCC's Unipol technology and some of Enichem's ethylene production facilities (Brindisi and Dunkirk). As a result, it can be

argued that POLIMERI EUROPA's position on the PE production market will be stronger than what the above-mentioned shares would indicate.

59. However, the Commission has concluded that this will not, in any event, lead to the creation of a dominant position for the following reasons. Following the concentration, other important players will remain active on the market, some of which belong to big chemical vertically integrated groups, and either operate under advanced technology licence or possess their own, advanced proprietary technologies. Such players include inter alia Borealis (13% LDPE, 8% LLDPE, 14% HDPE), BP (7% LDPE, 18% LLDPE, 11% HDPE), BASF (8% LDPE, 7% HDPE), Cipen (17% LLDPE), DOW (30% of LLDPE).
60. With regard to PE technology in particular, the Commission has considered the operating costs that a new entrant or existing producer of PE resins would face. [...]⁽⁴⁾, these costs would appear to be broadly comparable for the production of LLDPE, whether by a gas phase or a slurry process (\$ [...]⁽¹²⁾/t to \$ [...]⁽¹²⁾/t); similarly for HDPE, whether using gas phase or solution method, the costs are in the range of \$ [...]⁽¹²⁾/t to \$ [...]⁽¹²⁾/t. Consequently, potential or existing producers are faced with a range of broadly competitive operating costs for LLDPE and HDPE. As far as LDPE is concerned, as explained above, this is manufactured by high pressure processes, which consume a large amount of energy and are thus more expensive - high pressure processes have operating costs of around \$ [...]⁽¹²⁾/t.
61. As far as ethylene is concerned, it must be considered whether Enichem's position as the sole producer of ethylene in Italy -with the exception of the Brindisi cracker which will be transferred to POLIMERI- will be likely to produce a reinforcement of POLIMERI's position on the PE resins market. The Commission notes that Italy does not account for a sufficiently large proportion of W. European ethylene production (about 10%). As a result, the regional strength of Enichem will not significantly reinforce POLIMERI's position with regard to PE resin production. There is thus no possibility of a dominant position being created.

PE TECHNOLOGY MARKET

UCC's market position

62. As far as the high-pressure segment of the PE technology market is concerned, UCC has a high-pressure technology which it developed in the early 1970s. This technology has never been licensed to third parties. UCC used this technology to construct two bulk reactors at its Seadrift, Texas plant in 1977. Upon the development of Unipol (see below), no additional high-pressure facilities were constructed by UCC, nor were any significant R & D efforts dedicated to further advance this technology. The two bulk reactors at Seadrift were modified to produce specialty products only.
63. By contrast, UCC's strength on the PE technology market lies in its gas-phase PE process (Unipol). This process is capable of producing a wide range of LLDPE/HDPE products for a variety of PE applications. The production units operating under the Unipol technology are able to produce HDPE and LLDPE interchangeably (swing units), although a change of catalyst is required to switch from one mode of production to the other. UCC's latest development in PE process technology, known as Unipol II, allows the

⁽¹²⁾ deleted as business secrets, data contained in private reports provided by the parties

manufacture of LLDPE resins with properties much closer to LDPE in terms of processability and film strength.

64. UCC is the leading world-wide licensor of PE technology. In terms of market shares (calculated on the basis of PE plant capacity operating under third-party licence), Unipol accounts for about [...] ⁽¹⁾ % of world-wide plant capacity, excluding high-pressure plants (this share has been calculated on the basis of the number of low-pressure licences granted in the last 15 years). Other competitors on that market include BP (about [...] ⁽¹⁾ %), Novacor (Sclairtech) and Mitsui (each with a market share of about [...] ⁽¹⁾ %), Montedison (Spherilene) and Phillips (each with a market share below 10%).
65. UCC has long experience in gas-phase technology, and its Unipol process is recognised as the leading PE process available for license. However, other competing technologies are also available. BP has a gas-phase LLDPE/HDPE process which has been licensed since the 1980s. BP's process has a "swing" capability similar to Unipol, that is a change of catalyst is required. Another important gas-phase technology is Montedison's Spherilene LLDPE/HDPE process. Two plants using this technology are currently in operation, one of them operating under third-party licence. Spherilene has a wide product range and real "swing" capability, i.e. it enables production switches without the need to change catalysts. In addition, there are a number of potential entrants in gas-phase technology including Borealis (LLDPE/HDPE), and Exxon/Mitsui (LLDPE/HDPE using metallocene catalysts). Finally, there are also a number of non gas-phase processes available for license, for instance Novacor's Sclairtech solution process, providing a range of PE products over the full density, and Phillips slurry technology, initially developed for the production of HDPE - an area where Phillips has a well-established expertise- and subsequently adapted for commercial LLDPE production.
66. The Commission considers that it is not necessary to examine the competitive strength of the above-mentioned technologies, in order to decide whether or not UCC's strong position on the technology market amounts to dominance within the meaning of Article 2 of the Merger Regulation for the following reason. Even assuming that UCC were dominant, this position existed before the proposed concentration. As explained below, the Commission has concluded that the notified operation will not significantly enhance UCC's position on the PE technology market in a manner leading to the creation or strengthening of dominance on that market.

The ASPEN joint venture

67. As stated above, UCC has entered into a joint venture with ATO to produce PE resins as well as PE compounds, *inter alia* for the wire and cable market. In the context of this joint venture, UCC will grant ASPEN a Unipol licence for the manufacture and sale of PE resins. ASPEN will use this licence to convert its PE reactors contributed to ASPEN to the Unipol technology. At the same time, ATO will grant ASPEN a licence to use the PE gas-phase technology that ATO has been developing since the late 1970s. ATO's technology currently produces only a limited number of commercial HDPE grades for injection moulding. Further substantial investments and R & D efforts are required to improve the economic and technical performance of the process and to expand its product range to LLDPE, which is offered by all gas-phase processes. In view of the different stage of

⁽¹³⁾ between 40 and 60 %

⁽¹⁴⁾ between 15 and 25 %

⁽¹⁵⁾ below 25 %

development of Unipol and ATO's process, it is not expected that UCC's technological capability will be significantly enhanced through its partnership with ATO, except possibly in some minor technical details.

68. It must be noted that apart from the above-mentioned gas-phase technology, ATO also has a proprietary slurry technology for the manufacture of HDPE, as well as a high-pressure technology for the manufacture of LDPE and LLDPE (retrofit). However, these technologies are not contributed to ASPEN. ATO will simply grant ASPEN a licence to use them, but will retain the right to continue their independent development outside ASPEN and to license them to third parties.
69. The determination of the impact of the ASPEN joint venture on competition in the PE technology market will be made by the Commission in the context of a separate procedure under Reg. 17. The ASPEN joint venture is, however, taken into account for the assessment of the proposed concentration. Without prejudice to the Commission's assessment of ASPEN under Regulation 17, the effects of the proposed concentration on competition will be thus analyzed on the assumption that the ASPEN joint venture goes ahead.

The technology arrangements under POLIMERI EUROPA Srl

70. UCC will grant POLIMERI EUROPA a non-exclusive licence to use Unipol for the manufacture and sale of low density and high density PE. Enichem will assign its own proprietary PE technology to the joint venture with UCC. This consists of: (i) a high-pressure technology used to manufacture LDPE at Enichem's plants at Dunkirk, Brindisi, Gela, Ragusa and Ferrara, as well as some LLDPE at Enichem's plant at Dunkirk (high-pressure retrofit⁽¹⁾); (iii) a slurry technology used to manufacture HDPE at Enichem's plant at Brindisi⁽¹⁾.
71. In addition, Enichem has in the past experimented with PE gas-phase technology in its pilot plant in Ferrara. However, Enichem has not been able to develop gas-phase technology to a commercial level. In early 1992, more than two years before discussions with UCC about the creation of POLIMERI EUROPA Srl had started, Enichem decided to abandon development of this technology because of the high costs and risks involved, and began using its Ferrara pilot plant to develop resins based on its own catalysts. The pilot plant will be transferred to POLIMERI EUROPA along with all information developed therein.
72. Subsequent to its decision to abandon development of its own experiments in gas-phase technology, Enichem obtained a licence from BP in May 1992 to manufacture and sell PE resins using BP's gas-phase process. This licence will not be assigned to Polimeri Europe Srl. The licence agreement between BP and Enichem contains secrecy provisions obliging Enichem to treat as confidential and not to disclose to UCC or the venture any information received from BP.

⁽¹⁶⁾ This retrofitting capability allows the conversion of existing LDPE plants to the production of certain LLDPE grades by using Ziegler catalysts.

⁽¹⁷⁾ At the moment Enichem also used two other technologies under licence from third parties, namely Sclairtech technology to manufacture LLDPE at Priolo and Imhausen technology at a LDPE plant at Oberhausen, which Enichem leases from Hoechst.

73. To allow Enichem to continue operating existing licenses for Enichem's PE technology outside Europe and to continue licensing outside Europe, the venture will grant Enichem an exclusive, royalty-free license for this purpose (Articles 2.3 and 2.4. of the Enichem Technology Agreement). By contrast, Enichem will not continue offering its PE technology for license within W. Europe. However, for the reasons explained below, the Commission considers that this will not lead to the creation or strengthening of a dominant position on the PE technology market.
74. Enichem has never been particularly active on the technology licensing market. Enichem never licensed its slurry technology. Prior to the concentration, it had a number of licensees of its high pressure technology only, mostly outside W. Europe. One of the main reasons for Enichem's participation in POLIMERI EUROPA was the need to manufacture HDPE and LLDPE more efficiently and at a lower cost by using a technology offering distinct advantages compared to Enichem's own technology⁽¹⁾. The parents' contributions to the joint venture will in fact be complementary: UCC will provide an expertise in gas-phase technology, and Enichem will provide a PE manufacturing basis in W. Europe.
75. Enichem's technologies have not been widely licensed and they are either distinct from Unipol - in that they are suited to the needs of licensees which are totally different from those of potential Unipol licensees (high-pressure technology)- or not comparable to Unipol, for instance in terms of product range and performance. The proposed concentration will not significantly enhance UCC's pre-existing technological capability and position. The specific characteristics of Enichem's technology are set out below.
76. As far as the high-pressure segment of the market is concerned, as stated above, UCC's high-pressure technology has never been licensed and has not been developed since 1977. Enichem's high-pressure technology has been licensed, mostly outside Europe. As a result, there is only a potential overlap, which would not in any event lead to the creation or strengthening of dominance on that market segment, because to the extent that there is still demand for high-pressure processes in the future, there will be other comparable technologies available on the market -including those by BASF, ICI/Simon Carves, DSM, Sumitomo and Exxon.
77. Enichem, like some other LDPE producers, has the capability to retrofit its existing LDPE plants to produce LLDPE. This capability was used 17 years ago by Orkem to retrofit the Dunkirk plant acquired by Enichem in the late 1980's. Since then Enichem has never used or licensed this capability.
78. The argument has been made to the Commission that a current LDPE producer who wants to move into LLDPE production, has two technology choices: either to retrofit existing plants using LLDPE retrofit technology or to build a new LLDPE facility. As a result, competition between retrofit high-pressure and gas-phase processes such as Unipol may occur at the time when the LDPE producer is considering how he should switch from LDPE to LLDPE. According to this line of argument, the proposed concentration will strengthen UCC's position on the PE technology market.
79. As stated above, Enichem's retrofitting technology has only been used once and its ability successfully to switch LDPE production to LLDPE at other plants has not been tested in

⁽¹⁸⁾ The inadequacy of Enichem's own technology for Enichem's PE production is also evidenced by the fact that Enichem sought and obtained a gas-phase licence from BP, prior to the proposed concentration.

practice. In any case, according to the Commission's investigations, high-pressure processes with retrofit capability, including Enichem's process, cannot economically make LLDPE and they are thus not competitive with gas-phase or other LLDPE processes. Moreover, future demand for Enichem's retrofitting capability in W. Europe is very unlikely, because existing LDPE producers have their own proprietary LLDPE technology, or already operate a LLDPE plant under licence. As to those W. European licensees who may need a LLDPE licence in the future, according to the Commission's enquiries, if they moved into LLDPE production, they would probably seek a licence for a gas-phase technology rather than retrofit their existing LDPE plants. Finally, other LDPE producers have a retrofitting capability, including ATO - ATO's high-pressure technology remains outside ASPEN- and DOW.

80. As far as low-pressure technologies are concerned, Enichem has a slurry technology and has made some experiments in the area of gas-phase technology. Enichem's slurry technology has not been updated over the years. It only produces HDPE and, as a result, it has a more limited product range compared with other slurry technologies, such as Phillips, or gas-phase technologies. After POLIMERI EUROPA is established, Enichem's existing slurry line which will be transferred to POLIMERI EUROPA will be replaced by more advanced gas-phase technology. Finally, it is not expected that there will be scope for cross-fertilisation between Enichem's slurry technology and Unipol, in view of the fundamental technical differences between the two processes.
81. As stated above, Enichem's experiments in gas-phase technology have never been developed to the level of commercial production. At its peak, Enichem's pilot plant had an output of approximately 25 kg/hour, while an average PE resin facility has an output of approximately 25,000 kg/hour. According to Enichem, the pilot plant was designed to enable the effective utilisation of the gas-phase technology for which Enichem anticipated obtaining a licence and that a much more significant investment would have been required in order to develop an own gas-phase technology. Enichem's experiments were abandoned more than two years before the joint venture discussions with UCC had started.
82. In view of the above regarding Enichem's slurry technology and its experiment in gas-phase, the proposed joint venture will not significantly enhance UCC's technological position, on its own or taking into account the ASPEN joint venture, so that no dominance will be created or strengthened on the PE technology market.

Impact of the concentration on the availability of Unipol

83. The argument has been made to the Commission that following the proposed concentration, the Unipol technology may no longer be available for license to third parties in W. Europe. According to this line of argument, prior to the proposed operation and the creation of ASPEN, UCC was not a PE producer in W. Europe. As a result, its Unipol licensing policy was not in any way influenced by strategic considerations relating to UCC's position on the W. European PE production market. Following the two joint ventures, UCC will enter the W. European PE market and may, as a result, decide not to license Unipol to some or all of its W. European PE competitors in the future . Concerns were expressed in particular with regard to the future availability of Unipol II for license in W. Europe.
84. The Commission notes that there is nothing in the POLIMERI joint venture agreements that prevents UCC from licensing its Unipol I or Unipol II technology in W. Europe. In

any case, the Commission considers that the above-mentioned argument, irrespective of its merits, does not amount to an assertion that UCC's position on the PE technology market will be strengthened as a result of the proposed joint ventures. It only claims that UCC's policy as a PE technology licensor may change as a result of its presence on the W. European PE market. This argument is not relevant in the context of the Merger Regulation. If UCC refused to license its technology in W. Europe in the future, this conduct would have to be examined under Article 86 of the Treaty of Rome, in order to assess whether and in what circumstances it constituted an abuse of a dominant position on the PE technology market. By contrast, the purpose of the Merger Regulation is to assess whether the proposed operation will create or reinforce dominance in the common market. In view of the above, UCC's position on the PE technology market will not be significantly strengthened by the proposed concentration. Moreover, as also explained above, no dominance will be created on the W. European market for the production and sale of PE either.

VIII STATE AID

85. During the course of the procedure, the concern was expressed to the Commission that the joint venture's plans might conflict with the Commission's State aid decision concerning Enichem⁽¹⁾. The third party concerned sought assurance that:
- no part of the capital injected into Enichem has been or will be used to subsidize the joint venture directly or indirectly;
 - the remainder of Enichem [outside the joint venture] should be viable and operate on fully commercial principles;
 - Enichem will not provide unfair support to the joint venture by, for example, cheap supplies of ethylene feedstock or too low a charge to the joint venture for any shared facilities;
86. In this respect it should be noted that the Commission's State aid decision found the aid measures to be compatible with the common market as the aid was used to finance restructuring operations. Should Enichem transfer restructured assets to the joint venture this does not give rise to a conflict with the decision because the underlying aid has been found compatible. As regards the capital injections that do not form aid, Enichem is free to employ these funds as it wishes.
87. The above comments were submitted to Enichem and the Italian authorities. Enichem confirmed that none of the capital increase will be transferred to the joint venture, that the remainder of Enichem's activities will be competitively viable and that the joint venture will not be provided with any form of favourable treatment.
88. In conclusion therefore, it is not considered appropriate to pursue this point any further under this investigation.

⁽¹⁹⁾ OJ C 330 of 26.11.94

IX ANCILLARY RESTRAINTS

89. The notifying parties have requested that several clauses of the agreements should be considered as ancillary to the notified transaction.
90. In the Shareholders' agreement (article 6) the parties have entered into a number of specific restrictions designed to avoid competition between each of them and the venture in Europe. As long as one of the parents remains a shareholder in the joint venture, these non competition clauses are of unlimited duration. To the extent that they simply reflect the withdrawal of the parent companies, these restrictions can be considered as ancillary to the concentration.
91. The parties have also requested the Commission to consider as ancillary agreements between the venture and Enichem concerning non-exclusive, royalty-free license for use by Enichem of its formerly owned PE resin technology. These agreements form part of the concentration and they are thus covered by the present decision in so far as they might be considered restrictive.

Supply agreements

92. Enichem and the venture will enter into a long-term exclusive ethylene supply agreement. This agreement stipulates that in Italy in particular, Enichem shall sell and the venture shall buy certain quantities of ethylene from Enichem's crackers in this area. In particular, for 1995 this quantity is fixed at [...] ⁽¹⁾ KT. For the period thereafter, these quantities will range from a minimum of [...] ⁽²⁰⁾ KT to a maximum of [...] ⁽²⁰⁾ KT/y. This limit can be further increased to [...] ⁽²⁰⁾ KT/y, at the venture's request, provided that [...] ⁽²⁰⁾. The agreement has an initial term of [...] ⁽²⁰⁾ years, and it is renewable at the request of either party for an additional [...] ⁽²⁰⁾-year period. After the expiration of the [...] ⁽²⁰⁾-year period, the agreement will continue on an annual basis until cancelled by either party on [...] ⁽²⁰⁾ written notice. The Commission has been requested to consider this supply agreement as ancillary to the creation of POLIMERI EUROPA.
93. According to the Commission's practice, exclusive supply agreements are regarded as ancillary restraints within the meaning of Article 8 (2) of the Merger Regulation, in cases where they are necessary in order to ensure continuity in the supply of products required for the activities of a joint venture, for a transitional period following its creation. It is normally accepted that this transitional period can be extended up to a maximum of 5 years.
94. As stated above, Enichem is the only producer and main supplier of ethylene in Italy. Prior to the present operation, Enichem's PE plants in Italy which will now be transferred to the joint venture relied on Enichem's crackers and supply network for their ethylene. The joint venture will own only one cracker in Italy, at Brindisi, whose capacity of [...] ⁽²⁰⁾ KT/y will not be sufficient to meet POLIMERI EUROPA's ethylene needs. As a result, it appears to be necessary to maintain supply links between POLIMERI EUROPA for a transitional period after the establishment of the joint venture.
95. In addition to Enichem's plants transferred to POLIMERI EUROPA, the Shareholders' Agreement provides for the construction of a new plant at Brindisi with a capacity of [...] ⁽²⁰⁾ KT/y utilizing Unipol technology. According to the figures provided by the parties,

⁽²⁰⁾ deleted - business secret

the joint venture's ethylene needs in Italy, including the new Brindisi plant, will not exceed [...] ⁽¹⁾ KT/y. [...] ⁽¹⁾. Consequently, the parties have not shown that supply agreements for quantities beyond [...] ⁽²¹⁾ KT/y are directly related to and necessary for the implementation of the concentration.

96. As regards the duration of the supply agreement, the following factors should be taken into account in determining the length of time for which this agreement can qualify as ancillary to the concentration: (i) the time-lag in finding or creating other sources of ethylene supply; and (ii) in accordance with the principle of proportionality, the effect of the agreement on the ethylene needs of third parties (this factor is also relevant for the determination of the quantities to be supplied under the agreement).
97. With regard to (i) above, the Commission notes that certain quantities of ethylene can be imported into Italy using for instance the venture's terminal at Brindisi. However, if significant quantities of ethylene are needed, additional storage facilities will be necessary. As an alternative the venture could seek to purchase from a third party or to construct its own cracker. Nevertheless, as stated above the only producer in Italy is ENICHEM. Moreover, if the venture had to build its own cracker and related facilities, it would have no outlet for the by-products of the ethylene production, since the venture will only be active in the production of PE, and in any case it is estimated that it would take about 5 years for the cracker to be completely operational.
98. With regard to (ii) above, the following must be noted. Enichem is the sole producer on the Italian market and the total capacity of the crackers it will retain amounts to about 1700 KT/y - this figure does not include the capacity of Priolo closed in accordance with a State aid procedure ⁽¹⁾. According to the parties, Enichem could be able to de-bottleneck its existing ethylene crackers, which may lead to an additional 10% capacity. After deduction of the ethylene needed for Enichem's non-PE resin activities and on the basis of a maximum quantity of [...] ⁽²¹⁾ KT/y for the joint venture, the remaining capacity will allow third party customers' current needs to be fulfilled.
99. In the light of the above-mentioned considerations, the Commission notes that in the present case there are exceptional reasons justifying a duration of more than 5 years for the ethylene supply agreement. It has therefore come to the conclusion that these agreements should be regarded as ancillary to the concentration for an initial period of seven years and up to a maximum quantity of [...] ⁽¹⁾ KT/y.

X CONCLUSION

100. 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 functioning of the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of Council Regulation No 4064/89.

For the Commission,

⁽²¹⁾ between 600 and 800 KT

⁽²²⁾ contractual provision deleted as business secret

⁽²³⁾ OJ C 330 of 26.11.94

⁽²⁴⁾ same quantity as under footnote 22 above