COMMISSION DECISION of 09/08/1999 declaring a concentration to be compatible with the common market (Case No IV/M.1378 - *** HOECHST/RHÔNE - POULENC) according to Council Regulation (EEC) No 4064/89 (Only the English text is authentic)

Brussels, 09.08.1999

to the notifying parties

Dear Madam/Sir,

Subject: Case No IV/M. 1378 Hoechst / Rhône-Poulenc
Your notification of 24.06.1999 pursuant to Article 4 of Council Regulation No 4064/89 [1]
[1] OJ L 395, 30.12.89 p.1; corrigendum OJ L 257 of 21.09.90, p.13; Regulation as last amended by Regulation (EC) No 1310/97 (OJ L 180, 09.07.97, p.1, corrigendum OJ L 40, 13.02.98, p.17).

1. On 24.06.1999, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EEC) No 4064/89 by which Hoechst AG ("Hoechst"), Frankfurt am Main, Germany, and Rhône-Poulenc S.A. ("Rhône-Poulenc") enter into a full merger within the meaning of Article 3(1)(a) of the Council Regulation.
2. In the course of the proceedings, the parties submitted undertakings designed to eliminate competition concerns identified by the Commission, in accordance with Article 6(2) of the ECMR. In the light of these modifications, the Commission has concluded that the notified operation falls within the scope of Council Regulation (EEC) No 4064/89 as amended 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' ACTIVITIES AND THE OPERATION

The parties and their activities

3. Hoechst is a holding company of an international group of companies mainly active in the pharmaceutical, plant production and protection, animal health, and chemicals businesses.
Hoechst is active in the pharmaceutical industry through its 100% participation Hoechst Marion Roussel AG (HMR), its 32,5 % participation in Dade Behring Inc, which is active in the sale of diagnostics, and its 50 % stake in Centeon LLC, the blood plasma protein joint venture with Rhône-Poulenc. HMR is a research-based pharmaceutical group of companies, which concentrates on discovering, developing, manufacturing and marketing a broad range of branded pharmaceutical products. HMR has a broad portfolio of both marketed drugs and drugs under development in therapeutic fields such as cardiovascular, respiratory, anti-infective, metabolim, rheumatology and central nervous system.
Hoechst is active in the plant protection business through its 60 % participation in

AgrEvo.
Hoechst is active in the animal health sector through its 100 % subsidiary Hoechst Roussel Veterinar GmbH ("HRVet").
Hoechst is active in the chemical or related industries through its 100 % subsidiaries Celanese AG, Ticona GmbH and Hoechst Trespaphan and participations in the following undertakings : Messer Griesheim GmbH (67 %), Wacker-Chemie GmbH (50 %), DyStar Textilfarben GmbH & Co Deutschland KG and DyStar Textilfarben GmbH (joint venture 50-50 with Bayer), Dyneon LLC (joint venture between Hoechst, 46 %, and 3M, 54 %), Targor GmbH (50 % of Hoechst, the balance is held by BASF) and Clariant AG (45 %).
4. Rhône-Poulenc is also a holding company of an international group of companies mainly active in life science, chemicals and related businesses.
Rhône-Poulenc is active in the pharmaceutical industry through its affiliates Rhône-Poulenc Rorer Inc (RPR), which, inter alia, holds a 50 % stake in Centeon, and Rhône-Poulenc Pharma S.A. (with its subsidiaries Rhône-Poulenc Biochimie and Pasteur Mérieux Vaccines, which is active in the vaccines business).
Rhône-Poulenc is active in the plant protection business through Rhône-Poulenc Agro (RPA) S.A. and its subsidiaries.
Rhône-Poulenc is active in the animal health sector through its 100 % affiliate Rhône-Poulenc Animal Nutrition S.A. and its 50 % participation in Merial LTD, a joint venture with Merck & Co, Inc.
Rhône-Poulenc is active in the chemical industry through its 67,4 % stake in Rhodia S.A.
The operation
5. The parties' goal is to form a single undertaking, named Aventis, with a unified shareholder base. Aventis shall focus on life sciences, i.e. activities related to human, plant and animal health. It will thus be active in pharmaceuticals, plant protection and production, and animal health. In the areas of pharmaceuticals and plant protection and production, the activities of both parties will be combined and in the area of animal health, Aventis will carry on the existing activities of Rhône-Poulenc.

II. CONCENTRATION
6. Technically, the merger shall be effected by an exchange offer by Rhône-Poulenc for all shares in Hoechst in exchange for newly issued shares in Rhône-Poulenc. Following a public exchange offer, expected to be launched in October 1999, current Hoechst shareholders will receive as consideration newly issued shares in Rhône-Poulenc. Rhône-Poulenc will change its legal name into "Aventis S.A." and relocate its headquarters to Strasbourg. The operation is therefore a concentration since the operations described above will result in a full merger between Hoechst and Rhône-Poulenc.
III. COMMUNITY DIMENSION
7. Hoechst and Rhône-Poulenc had a combined aggregate worldwide turnover in excess of EUR 5,000 million in 1998 (Hoechst, EUR 22,300 million; and Rhône-Poulenc, EUR 13,200 million). Each of them had a Community-wide turnover in excess of EUR 250 million in 1998 (Hoechst, EUR 9,489 million; and Rhône-Poulenc, EUR 5,916 million), but they do not achieve more than two-thirds of their aggregate Community-wide turnover within one and the same Member State. The operation does not qualify for co-operation with the EFTA surveillance Authority pursuant to article 57 of the EEA Agreement.
IV. COMPETITIVE ASSESSMENT
A. Relevant product markets

8. The creation of Aventis will mainly involve product markets in the following economic sectors: pharmaceuticals, plant protection and production, and animal health. However, overlaps will only occur with respect to pharmaceuticals and plant protection including non-agricultural pesticides.

1. Pharmaceuticals

9. The Commission has on many occasions dealt with the definition of the relevant market in the case of pharmaceutical products and has established a number of principles in its previous decisions [2]. On the basis of these decisions, product markets in the pharmaceutical industry can be grouped into pharmaceutic specialities, active substances and future products.

[2] Case Sanofi/Sterling Drug (IV/M.072), Procordia/Herbamond (IV/M.323), Rhône-Poulenc/ Cooper (IV/M.426), la Roche/Syntex (IV/M.457), AHP/Cynamid (IV/M.500), Glaxo/Wellcome (IV/M.555), Behringwerke AG/Armour Pharmaceutical Co. (IV/M.495), Hoechst/Marion Merell Dow (IV/M.587), Upjohn/Pharmacia (IV/M.631), Ciba-Geigy / Sandoz (n IV/M.737), Hoffman La Roche/Boehringer Mannheim (IV/M.950), American Home Products/Monsanto (IV/M.1229), Astra / Zeneca (IV/M. 1403), Sanofi / Synthélabo (IV/M.1397).

Pharmaceutic specialities

10. Pharmaceutic specialities are used for the treatment of human illnesses and diseases. In its previous decisions, the Commission noted that medicines may be subdivided into therapeutic classes by reference to the "Anatomical Therapeutic Chemical" classification (ATC), which is recognised and used by the World Health Organisation. This classification allows medicines to be grouped together by reference to their composition and their therapeutic properties. The third level of the ATC classification allows medicines to be grouped in terms of their therapeutic indications, i.e. their intended use, and can therefore be used as an operational market definition. These groups of products generally have the same therapeutic indication and cannot be substituted by products belonging to other ATC 3 classes.

11. However, the Commission has in earlier decisions considered that the third level of the ATC is not in all cases an appropriate basis for the definition of products markets and that it may be appropriate in certain cases to carry out analyses at other levels of the ATC classification. For example, it may be necessary to combine certain groups of pharmaceutic specialities. This would be the case where certain products from different ATC classes are substitutes for the treatment of a specific illness or disease. On the other hand, it may also be appropriate to apply a narrower market definition where the pharmaceutic specialities forming part of a certain ATC 3 class have clearly differing indications. In certain cases, pharmaceuticals could also be split further into a prescription and a non-prescription segment.

12. In order to define the relevant markets and calculate the corresponding market shares, the parties refer to information based on the databases of IMS Inc (IMS). IMS is used internationally and regularly issues a pharmaceutic speciality classification scheme, which is based upon the ATC. Therefore the Commission agreed to use this basis for its market definition and assessment.

13. The parties claim that the third level of the ATC is not appropriate in this case with respect to ATC 3 classes B1B, B2C, J1F, J1X and T2X.

Injectable anti-coagulants (ATC 3 class B1B)

14. The parties maintain that injectable anti-coagulants are used for rather different indications. There are four classes on ATC 4 level, three of which concern heparins and one of which concerns hirudins. ATC 4 class B1B1 concerns unfractionated heparins, ATC 4 class B1B2 concerns fractionated heparins. According to information provided by the parties, both kinds of heparins are mostly used for

thrombo-embolic prophylaxis in general. ATC 4 class B1B3 concerns heparins for flushing. Heparins for flushing are special solutions made from inexpensive unfractioned heparins. They are used to rinse ("flush") infusion systems (e.g. catheters) to prevent coagulation. Therefore, the parties indicate, heparins for flushing are not interchangeable with heparins or the immediately below-mentioned hirudins, which are used therapeutically. ATC 4 class B1B9 concerns hirudins, which are mainly biotechnically engineered products used, in particular, for anti-coagulant and anti-thrombotic treatment of thromboembolic events due to heparin induced thrombocytopenia or deep vein thrombosis following hip surgery. B1B9 products are pharmaceuticals with a highly specific mode of action. There are significant price differences between heparins and hirudins. Hirudins are only administered to high-risk patients where heparins are less effective or inappropriate. Consequently the parties claim that the heparins contained in ATC 4 classes B1B1 and B1B2, the heparins for flushing (B1B3) and the hirudins (B1B9) constitute at least three different product markets.

15. The market investigation broadly confirms the position of the parties. In particular, as it will indicated below in paragraphs 74. to 85., the Commission considers that hirudine-based direct thrombin inhibitors (DTI) belonging to ATC4 class B1B9 do constitute a separate and relevant product market.

Proteinase inhibitors (ATC 3 class B2C)

16. ATC 4 class B2C1 relates to coagulation inhibitors, i.e. products used for the prophylaxis and therapy of blood clotting (thromboembolic) complications due to a congenital or acquired AT-III (a factor required for proper blood clotting) deficiency. Products belonging to ATC 4 class B2C2 are used for, inter alia, the treatment of hereditary angioneurotic-oedema and acute pancreatitis. ATC 4 class B2C3 relates to fibrinolysis inhibitors, which are, inter alia, indicated for haemorrhages due to hyper fibrinolytic disorders of hemostasis. Because of the heterogeneous indications of products grouped in ATC 3 class B2C, the Commission, in its decision Hoechst/MMD, referred to ATC 4 classes when assessing the competitive situation in that case. The parties state that the products in each of the above ATC 4 classes and even within the ATC 4 class of B2C2 have completely different therapeutic applications and they hold the view that neither the ATC 3 class B2C nor the ATC 4 class B2C2 can be regarded as one single product market. However, it is not necessary to further delineate the relevant product markets because, in all alternative market definitions considered, the operation will not lead to the creation or strengthening of a dominant position.

Macrolides and other types (ATC 3 class J1F)

17. The parties took the view in the notification that the J1F class cannot be viewed as a single product market as it comprises products used against dental infections on the one hand and products used against mild respiratory infections on the other. They argued that mild respiratory infections were also treated with products belonging to ATC 4 class J1C1 (amoxillines). The parties submitted that all products designed to treat mild respiratory infections contained in ATC classes J1C1 and J1F form one product market while all products specifically designed to treat dental infections included in ATC 3 class J1F form a separate product market.

18. The Commission's market investigation has shown that most macrolides in the ATC 3 class J1F have both respiratory and dental indications, and can be promoted among both targets (GPs and dentists). The only exception is an RPR product named Rodogyl, an antiinfective exclusively targeted against dental infections, which should thus not be included in the same class. The market investigation also showed that if the definition of the parties according to which mild respiratory infections

treatments had to be considered as a separate market were to be accepted, the market definition would still differ from the proposal of the parties and should include relevant parts of J1F, J1C1, J1D1 and J1G. Since most macrolides in the ATC 3 class J1F have both respiratory and dental indications, the J1F ATC 3 class except Rodogyl seems sufficiently homogeneous at this stage of the market investigation to constitute the relevant market.

Other antibiotics (ATC 3 class J1X)

19. The parties state that this class comprises products with different features. Hoechst's only product in the ATC 4 class J1X1 (glycopeptide antibiotics) is Targocid (teicoplanin). Targocid and other J1X1 products such as vancomycine are indicated to treat severe infections by gram (positive) pathogens (bone and joint infections, septicaemia, endocartis). They can only be applied intravenously and are thus typically used in hospitals for severe cases. Rhône Poulenc is not active in J1X1, but only in J1X2 (polymyxins) with its products Colimycine and Belcomycine, and in J1X9 (any other antibiotics) with its product Pyostacine. The parties state that J1X2 products such as Colimycine are only effective against gram (negative) pathogens and for this reason cannot be substituted for Targocid and any other J1X1 product. Pyostacine is indicated for lighter infections from mainly gram (positive) pathogens (furuncles, sinusitis and otitis). Unlike Targocid or the vancomycins marketed by Lilly and other competitors, the product can only be applied orally and is not efficient in severe cases. For these reasons, the parties state that the relevant product market should rather be defined according to the fourth level of the ATC classification. Their opinion has largely been confirmed by the market test.

Other diagnostics (ATC 3 class T2X)

20. The parties state that this class comprises a wide variety of very different products and is inappropriate to define the product market. The parties submit that diagnostics designed for one specific diagnostic test may form one product market. Thus, in principle, there are as many product markets as diagnostic indications. The market test has confirmed this view.

21. The parties also claim that it is doubtful whether the third level of the ATC is appropriate for ATC 3 classes N2B (analgesics) and C3A (diuretics) and that it might be more appropriate to split them up into different product markets. Yet, they claim this question can be left open as the notified operation will not result in the creation of a dominant position irrespective of how the product market is defined.

Analgesics (ATC 3 class N2B)

22. As regards N2B, there would be big differences of market share depending on which level of the ATC is applied and thus the question of market definition cannot be left open. For N2B, there would be hardly any market share addition if ATC 3 class N2B were split up into two different product markets based on level of pain treated. If, on the other hand, N2B were regarded as one product market, the parties would have an aggregated market share of more than [35-45] % in France. The parties claim that this ATC 3 class comprises two different kind of analgesics and that it might be helpful to refer to the classification of analgesic products issued by the WHO, classifying them into three different pain categories. They claim that pain category I (milder to moderate pain) and II (moderate to severe pain) which are both part of the same ATC 3 class, only partly overlap as regards the treatment of moderate pain and that it is thus doubtful if N2B constitutes one product market. It should rather be split up into two different product markets based on level of pain treated. Nevertheless it appears that products in the N2B class are all non-narcotic analgesics in contrast to the N2A class of narcotic analgesics, and do partly compete

for pain I as well as for pain II. If these types of products had to be split up into different categories according to pain level, some of the pain II products would come from the N2A class. Therefore, as the market test confirmed, the N2B AT3 class cannot be split up according to the definition proposed by the parties. Some competitors suggested the only correct split would be between N2B1 (non-narcotic analgesics, prescription) and N2B2 (non-narcotic analgesics, non-prescription). In conclusion, the ATC 3 level N2B appears to be the relevant market in this case.

Diuretics (ATC 3 class C3A)

23. The market definition cannot be left open for ATC class C3A since there would be no overlap on ATC 4 level as Hoechst's main product is used to treat oedemia and hypertension in general, while Rhône-Poulenc's main product is specifically designed for patients with a low potassium blood level. If, on the other hand, C3A were regarded as one product market, the parties would have a market share of more than [20-30] % in two member states and more than [30-40] % in two others. The parties state that it is questionable whether the diuretics grouped in the ATC 3 class C3A can be regarded as one product market because some of them are especially designed to treat patients with a low potassium blood level. The market test has however shown that the ATC 3 class C3A could be regarded as one product market. The products have in common the principle of diuresis and their main indications are hypertension and congestive heart failure. It is true that there are "potassium sparing" products but this is only one of the numerous characteristics used to subdivide this class further and the differences are of rather gradual than principal nature. Therefore the ATC 3 class C3A will be considered to be the relevant market for the present case and the assessment of the merger will be conducted at this level.

24. The parties claim that the market for other pharmaceutical products can be defined on the basis of the third level of the ATC 3 class. The market inquiry has largely confirmed this view.

Active substances

25. The manufacturing process for pharmaceutical products includes two separate steps : the manufacturing of active substances, followed by the manufacturing of pharmaceutical products. Pharmaceutical products are produced by mixing the active substance with other substances and by presenting the result under a galenic form (pills, tablets). The Commission considers that active substances are separate and specific markets, which are upstream to the markets for pharmaceutic specialities. Active substances are produced from chemical and biological products and may be both manufactured for in-house purposes as well as traded. There are markets for active substances to the extent that such substances are the object of transactions between a producer and a buyer of these substances.

Future Products

26. In the pharmaceuticals industry, a full assessment of the competitive situation requires examination of the products which are not yet on the market but which are at an advanced stage of development. The potential for these products to enter into competition with other products which are either at the development stage or already on the market can be assessed by reference to their characteristics and intended therapeutic use. The Commission has to look at R&D potential in terms of its importance for existing markets, but also for future market situations.

27. In so far as research and development must be assessed in terms of its importance for future markets, the relevant product market can, in the nature of things, be defined in a less clear-cut manner than in the case of existing markets. Market definition can be based either on the existing ATC classes or it can be guided primarily by the characteristics of future products as well as by the indications to

which they are to be applied.
2. Plant Protection
28. In the plant protection area, a distinction is usually made between the following:
- herbicides for weed control;
- fungicides for disease control;
- insecticides for insect control;
- seed treatment for the protection of seeds and subsequent plants against disease and insects;
- trace elements to overcome deficiency symptoms, e.g. iron deficiency;
- growth regulators;
- active substances.
The parties do not have any seed treatment activities and no overlap in trace elements. Apart from agricultural pest control the parties are active in the markets for non-agricultural insecticides - also referred to as environmental health or desinfestation - and industrial weed control.
Herbicides
29. The Commission has concluded in previous decisions that herbicides which protect different types of plants constitute separate relevant product markets (see IV/M:737 Ciba Geigy/Sandoz (Novartis), points 109 et seq.; IV/M.392 Hoechst/Schering, points 16 et seq., and IV/M.354 American Cyanamid/Shell, points 11 et seq.). This definition will be maintained for all crops with the exception of cereal herbicides.
30. In IV/M.354 American Cyanamid/Shell the Commission based its decision on a product market for cereal herbicides encompassing all crops such as wheat, barley, rye etc., since the competitive assessment did not change irrespective of the market delimitation chosen. The notification is based on this product market definition. However, two complainants submitted narrower product market definitions.
31. According to the first complainant, there is a separate product market for cereal herbicides containing Isoproturon (IPU) either straight or blended with other active substances. IPU- herbicides have the broadest scope of application. They can be applied against both grass and broadleaf weeds in spring as well as in fall in all varieties of wheat, rye and barley. Moreover, IPU is considerably cheaper than any other possible substitute product (according to the market investigation IPU-herbicides are 2 to 4 times cheaper) making them by far the most cost effective cereal herbicide. Several market players supported this view.
32. The second complainant maintains that there are separate product markets for wheat, barley and other cereals. The reason is that some cereals such as barley show sensitivity to many herbicides. In other words, not all cereal herbicides can be used on all cereal crops. This view also got some support from the market place.
33. The precise definition of the relevant product market concerning cereal herbicides can be left open, since even on the broadest market definition, i.e. one market for all cereal herbicides, the operation as notified leads to serious doubts within the meaning of Article 6(1)(c) of the Merger Regulation.
Fungicides
34. Fungicides are used to prevent the deterioration of plants and plant products through fungi and moulds prior to and after harvesting. Since the various plants display differing (albeit partly overlapping) disease patterns, a breakdown of fungicides by type of plant is appropriate.
Insecticides
35. Insecticides are products used to control insects that damage cultivated plants. The Commission has found in previous decisions (see IV/M.737 Ciba Geigy/Sandoz

(Novartis), points 116 et seq.) that a breakdown of insecticides by type of plant rather than by insects is appropriate in general.
36. However, a further breakdown seems to be appropriate with regard to crops such as potatoes and sugar beets. Some of the potato or beet insecticides solely treat nematodes and soil insects within the soil and are applied by bringing them on or into the soil. These products are called nematicides. Other products are designed to protect potato or beet plants against lice and other foliar insects and are applied to the leaves by spraying. These products are called foliar insecticides. The two different kind of products are based on different active substances and are not substitutable by each other.
Growth regulators
37. Plant growth regulators (PGR) are used to enhance and regulate plant growth. Each individual plant type requires specific products as concerns the enhancement and regulation of its growth. According to the parties growth regulators for individual plant types form separate relevant product markets. However, the precise product market definition can be left open since irrespective of the market definition chosen the transaction does not lead to a creation or strengthening of a dominant position in this area.
Active substances
38. Plant protection products are made of active substances. Each active substance has unique properties and, where appropriate, is patented. These substances are produced by most companies active in the plant protection business and traded among them and with third parties. There are therefore markets for active plant-protection substances.
Non-agricultural insecticides
39. Non-agricultural insecticides are applied against cockroaches, flies, ants etc. According to the parties there are different product markets not only in respect to the type of insect but also to the type of application, i.e. sprays or baits. However, several sprays contain active ingredients which show a residual activity against crawling insects just like products sold in baits. There is, therefore, considerable overlap between the two modes of application with regard to cockroaches. Consequently, the relevant market is considered to be the market for insecticides against cockroaches.
Industrial weed control
40. Industrial weed control products are used for clearing weeds in a variety of non-agricultural applications. These include weed clearance at industrial sites, railway tracks, electricity wires, car parks, high ways and aquatic applications. Therefore, industrial weed control products are a separate product market from agricultural herbicides.
B. Relevant geographic market(s)
1. Pharmaceuticals
Pharmaceutic specialities
41. The parties are of the opinion that there are a number of developments leading to a standardisation of European pharmaceutical markets. Such developments include the harmonisation of technical provisions within the Community and the new registration procedures for pharmaceutic specialities. They consider that there already is a Common Market in terms of the scientific and technical requirements applying to pharmaceutic specialities. This trend has been recognised by the Commission in 1996 in its Novartis decision and the parties are of the opinion it has become even stronger meanwhile.
42. However, the sale of medicines is influenced by the administrative procedures or

purchasing policies which the national health authorities have introduced in the Member States. Some countries exercise a direct or indirect influence on prices, and there are different levels of reimbursement by the social security system for different categories of medicines. For this reason, the prices for medicinal products may differ from one Member State to another. In addition, there are far-reaching differences in terms of brand and pack-size strategies and in distribution systems. These differences lead to national market characteristics.

43. The markets for pharmaceutical products have therefore been defined as national markets in the decisions previously adopted by the Commission. The markets for pharmaceutic specialities affected by the concentration will thus be regarded as national.

Active substances

44. In previous decisions, the Commission has established that the upstream markets for active substances are at least EEA-wide [3]. For the purposes of this particular case, it is noted that the only active substances which are relevant for its assessment are cobalamines as well as the active substance called OP PRIME DDD. For cobalamines, the market investigation has on the one hand provided indications that the relevant geographic market for these substances is a world-wide market, basically for the reason that competitors active in this market tend to supply different areas of the world. On the other hand, when assessing entry into Europe by non-European producers, the market investigation has generally revealed that, although theoretically possible, this entry, which is extremely limited at the moment, is not likely in the short term due on the one hand to quality and logistics considerations on the other to the very small size of the market which renders market penetration unattractive. This last conclusion would stand also in case the market would increase to a certain extent, for example by 5%. In addition, it is necessary to obtain a Certificate of Suitability (COS) for a company to sell cobalamines in Europe. The COS is granted by the Certification Unit of the Commission of European Pharmacopoeia (CEP), which has the task of checking that the active substance is produced according to the specifications issued by the CEP. For the assessment of this case it is therefore concluded that the relevant geographic market for cobalamines is currently limited to the EEA. The same conclusion stands for OP PRIME DDD as the investigation has made clear that this substance is only traded within the EEA.

[3] For example decisions Ciba-Geigy / Sandoz (Case No. IV/M.737), of 4.2.1998, American Home Products/Monsanto (Case No. IV/M.1229), of 14.8.1998.

Future Products

45. To the extent that products not yet on the market must be taken into account on the basis of research and development in particular areas, the said national restrictions do not have the same degree of effectiveness than for existing pharmaceuticals. Normally, a characteristic of such products is that they have not yet been registered. Because research and development is normally global, the consideration of future markets should therefore at least focus on the territory of the Community and possibly on worldwide markets.

2. Plant Protection

Formulated products and growth regulators

46. On one hand, some of the market players support the view that the markets for formulated plant protection products (herbicides, fungicides and insecticides) and growth regulators are Community-wide. This market definition is supported by the following: the existence of a large number of major multinational groups, central production plants, low transport costs as a proportion of total costs and, in most

cases, Community-wide patent protection for individual plant protection products. In addition, the marketing of plant protection products in the EU has been harmonized by Directive 414/91.
47. On the other hand, arguments in favour of national markets are equally plentiful. Firstly, plant protection products, including the active substances and the formulations, must still be registered in a Member State before they may be marketed. Secondly, prices differ enormously between Member States. According to a study undertaken by the European Association of young farmers (CEJA), pesticide prices can vary by over 200% between Member States. Furthermore, customers (agricultural cooperatives, other wholesalers) purchase the relevant products at national level, i.e. not on a Europe-wide basis. The suppliers therefore in most cases have national sales organisations or distribute their products via the sales organisation of another manufacturer operating in the relevant Member State. The distribution of market shares in the Member States also differs quite widely, and this similarly suggests national differences in competitive relationships.
48. However, it is not necessary to further delineate the relevant geographic markets because, in all alternative market definitions considered, the competitive assessment will not change.
Active substances
49. Active substances are registered European-wide according to Annex I of Directive 91/414. They are traded between manufacturers and large wholesalers across Europe. Transport costs are insignificant. Therefore, the markets for active substances are EEA-wide.
Non-agricultural insecticides and Industrial weed control products
50. Like formulated products used for crop protection, insecticides used for desinfestation and industrial weed killers have to be registered in Member States before they can be marketed. This indicates, that the relevant geographic market for these products is national.
C. Assessment
1. Pharmaceuticals
51. There has been a global move to consolidation within the pharmaceuticals industry in recent years in response to a rapidly changing business environment characterised by efforts to react to health-care costs containment, increasing R&D costs, new therapies, and the desire to achieve both synergies and economics of scale. Notwithstanding the ongoing consolidation in the global pharmaceutical industry, the industry remains largely fragmented with no single pharmaceutical company accounting for more than 5 % of the 1998 world market.
Size is an increasingly important competitive factor in the pharmaceutical industry. It allows firms to leverage increasing R&D costs across a broader range of products and to spread the risk inherent in every new research project over a large capital base. The greater resources of a larger company can be used to fund additional R&D projects, to devote more resources to long term projects and to increase spending on already advanced projects to accelerate the development process.
52. The parties' main competitors include companies such as American Home Products (USA), AstraZeneca (Sweden/UK), Bayer (Germany), Bristol-Meyers Squibb (UK), Eli Lilly (USA), Glaxo Wellcome (UK), Novartis (Switzerland), Roche (Switzerland), Schering-Plough (USA), Johnson&Johnson (USA) and SmithKline Beecham (UK). Aventis will become No. 2 in terms of worldwide turnover after No. 1 Merck, closely followed by Glaxo Wellcome, AstraZeneca, BMS and Novartis.
Pharmaceutic specialities

53. Both HMR and Rhône-Poulenc manufacture and market pharmaceutic specialities. Generally speaking, the parties' product portfolios are complementary rather than overlapping. The parties state that the focus of Hoechst and Rhône-Poulenc has traditionally been on rather different product areas. For example, there is no overlap in the most important pharmaceutic specialities marketed by both parties in Europe (all 10 products are in different ATC 3 classes).
54. HMR sells about 380 pharmaceutic specialities in the EU, which belong to 142 ATC 3 classes, and Rhône-Poulenc sells 570 specialities belonging to 157 ATC 3 classes. Despite this, there will be a comparatively small number of product markets in which the operation will lead to an addition of market shares : the operation will result in horizontally affected product markets (on a national level) in 24 of the existing 390 ATC classes).
55. The operation involves 39 horizontally affected pharmaceutic specialities markets where the combined sales of Hoechst and Rhône-Poulenc result in market shares of 15 % or more.
In 17 markets, the operation does not give rise to competition concerns because the aggregated market share of the parties remains below 25 % and a certain number of competitors are present at the European level (Class 1 markets). The markets concerned are antacids (A2A), cephaslosporins (J1D), anti-histamines systemic (R6A) in Ireland, antiulcerants (A2B), coronary therapy (C1D), cerebral + peripheral vasotherapeutics (C4A), ace inhibitors plain (C9A), antiseptics and disinfectants (D8A), cytostatic hormone antagonists (L2B), antirheumatics (M1A), anti-gout preparations (M4A), cough sedatives (R5D) in France, diuretics (C3A), topical nasal decongestants (R1A) in Belgium, cephaslosporins (J1D) in the UK, treatment of mild respiratory infections (J1F/J1C1) in Germany, anti-histamines systemic (R6A) in Norway.
In another 10 markets, the aggregated market share of the parties is between 25 % and 35 % while the increment is smaller than 5 % (Class 1 markets). The markets concerned are the oral antidiabetics (A10B) in the Netherlands, the vitamin A&D combinations (A11C), the diuretics (C3A), the urinary anti-infectives (G4A), the hypnotics & sedatives (N5B) in France, the fluoroquinolones (J1G) in Germany, the antirheumatics non-steroidal (M1A) in Portugal, the hypnotics & sedatives (N5B), the anti-infectives eyes (S1A) in the UK, the anti-infectives eyes (S1A) in Ireland. In each market, there is at least one competitor with a market share, which is almost as high as or even higher than the parties'aggregated market share. Moreover, there are always several other competitors, which, regardless of their lower market shares, have proven innovative potential in their pharmaceutical activities.
In 5 affected markets, the parties' aggregated market share amounts to 25-35 % while the market share increment is 5 % or more (Class 2 markets). The markets concerned are bile therapy and cholagogues (A5A), cephalosphorins (J1D) in France, bile therapy and cholagogues (A5A) in Portugal, diuretics (C3A) in Ireland and in the UK.
In 7 affected markets, the aggregated market share of the parties will exceed 35 % (Class 3 markets). The markets concerned are diuretics (C3A) in Greece and Italy, B-blocking agents (C7A), macrolides and others (J1F), fluoroquinolones (J1G) and non-narcotic analgesics (N2B) in France, and fluoroquinolones (J1G) in Belgium.
Class 2 Markets
56. In the market for bile therapy and cholagogues (A5A) in France, the combined market share of the parties amounted to [25-35] % in 1998 (Hoechst [10-20] % and Rhône-Poulenc [5-15] %). The new entity will thus acquire a strong position on this market but will face important competitors (Synthélabo [5-15] %, Jolly [5-15] % and

Merck [0-10] %).
57. In the market for bile therapy and cholagogues (A5A) in Portugal, the combined market share of the parties amounted to [25-35] % in 1998 (Hoechst [10-20] % and Rhône-Poulenc [10-20] %). The operation will not lead to the creation of a single dominant position since there are two competitors with comparative market shares : the Portuguese undertaking ISF ([20-30] %) and Merck ([15-25] %). Boehringer Ingelheim also has a share of [0-10] %. Furthermore, ISF was able to increase its market share by [15-25] % between 1995 and 1998. Nor will the operation lead to collective dominance, even if the four largest companies active in this market will have an aggregated market share of more than [70-80] %. The respective market shares of these companies are indeed not static but rather fluctuate and are asymmetric. For example, the parties' aggregated market share changed from [15-25] % in 1995 to [25-35] % in 1998, while ISF increased its market share from [15-25] % in 1995 to [20-30] % in 1998. In the same period of time, Merck's market share dropped from [20-30] % to [15-25] %. Secondly, demand is growing : the market had a size of ? 4.892 million in 1995 and of ? 5.334 million in 1998. Thus each of the companies may increase its sales without necessarily implying a reduction in the other companies' market shares.
58. In the market for diuretics (C3A) in Ireland, the combined market share of the parties amounted to [25-35] % in 1998 (Hoechst [0-10] % and Rhône-Poulenc [20-30] %). In this market, Rhône-Poulenc is active with its product Frumil whereas Hoechst mainly markets Lasix. The parties argued that both products are in different ATC 4 classes (Hoechst's Lasix : C3A2 ; Rhône-Poulenc Frumil : C3A4) with Frumil being targeted to patients with a low potassium blood level. Considering this market as a whole, the new entity would have three main competitors (Leo [15-25] %, Ivax [5-15] % and Servier [5-15] %). Both Hoechst and Rhône-Poulenc have lost market shares in recent years : Lasix is off patent and only had a market share of [0-10] % in 1998. The market share of Rhône-Poulenc has decreased by [5-15] % from [20-30] % in 1995 to [20-30] % in 1998. While the loss was partly due to the termination of minor products, it also came from the fact that Frumil was growing slower than the market and was facing the competition of the generic products produced by IVAX, a UK competitor, who raised its market share in the same time period from [0-10] % to [5-15] %.
59. In the market for diuretics (C3A) in the United Kingdom, the combined market share of the parties amounted to [20-30] % in 1998 (Hoechst [0-10] % and Rhône-Poulenc [15-25] %). The situation in this market is similar to the situation as regards diuretics in Ireland. Rhône-Poulenc has lost [5-15] % of its market share betwwen 1995 and 1998. The parties' main competitors include Leo ([0-10] %), Ivax ([0-10] %) and Searle ([less than 5 %] %). Other producers, mainly generic suppliers, hold the remaining [50-60] %.
60. In the market for cephalosporins (J1D) in France, the combined market share of the parties amounted to % in 1998 (Hoechst [15-25] % and Rhône-Poulenc [5-15] %), with products under patent protection until end [before 2010]. The operation will not lead to the creation of a dominant position because the parties will face the competition of strong competitors like Roche ([10-20] %), Bristol Myers Squibb ([10-20] %) and Glaxo Wellcome ([10-20] %).
Class 3 Markets
61. In the market for diuretics (C3A) in Greece, the combined market share of the parties amounted to [35-45] % in 1998 (Hoechst [10-20] % and Rhône-Poulenc [15-25] %). The parties' aggregated market share will not allow them to act independently from their competitors. Servier ([20-30] %) and Merck ([20-30] %)

are both strong competitors with successful products. Servier, with its product Fludex, was able to increase its share from [15-25] % in 1995 to [20-30] % in 1998. Nor will the operation lead to the creation of a position of collective dominance. Although the three largest companies active in this market would have an aggregated market share of more than [70-80] %, the market shares are not stable but rather fluctuate and are asymmetric. For example, the parties' aggregated market share increased from [30-40] % in 1995 to [35-45] % in 1998. In the same period, the market share of Merck decreased from [25-35] to [20-30] % and Servier could increase its market share from [15-25] % to [20-30] %. Other significant life sciences companies like Novartis ([less than 5] % market share in 1998) and Monsanto ([less than 5] %) are active in the market.

62. In the market for diuretics (C3A) in Italy, the combined market share of the parties amounted to [35-45] % in 1998 but the addition of market share is very small because Rhône-Poulenc had only a market share of [less than 5] %. The operation will thus leave the market position almost unchanged. In addition, Aventis will face competition from two important pharmaceutical companies, namely Dupont ([10-20] % market share) and BASF ([5-15] % market share).

63. In the market for B-blocking agents, plain (C7A) in France, the combined market share of the parties amounted to [30-40] % in 1998 but the transaction will also result in a small addition of market share since Hoechst has a market share of [less than 5] %. Hoechst's sales have been declining since 1995 and the parties claim they will most likely divest their sole product [Deleted for publication ; name of the product] this year, which would remove all overlapping activities between the parties in the betablocking business. In addition Aventis will face competition from Zeneca ([15-25] % market share), AHP ([5-15] %), Merck ([0-10] %), BMS ([0-10] %) and Novartis ([less than 5 %] %). AHP and BMS have recently increased their respective market shares from [0-10] % and [0-10] % to [5-15] % and [0-10] %. Between 1994 and 1998, 15 new generics have been launched in this market.

In its Novartis decision, the Commission took the view that C7A Betablocker plain and C7B betablocker Comb. could be combined as one market. As regards the present operation, if ATC 3 classes C7A and C7B would be regarded as one product market, there would also be no significant market share addition as neither Rhône-Poulenc nor Hoechst pursue significant activities in ATC 3 class C7B in France. In ATC 2 class C7, Rhône-Poulenc would have a market share of [30-40] % followed by Zeneca ([20-30] %), AHP ([5-15] %), Merck ([0-10] %) and BMS ([0-10] %). Hoechst would have a market share of just [less than 5] %.

64. In the J1F ATC 3 class except Rodogyl market, the parties have an aggregated market share of [50-60] % in France (Rhône-Poulenc [20-30] % and Hoechst [20-30] %). The main competitors are Abbott ([10-20] %), Pfizer ([5-15] %) and Sanofi [5-15] %. The parties argue that there is no competition concern because the macrolides product of the parties belong to the first generation of macrolides and face increasing competition from the new generation of macrolides marketed by Abbott, Pfizer and Sanofi. They argue that as a consequence of this increasing competition, the aggregated market share of the parties has decreased from [55-65] % in 1995 to [50-60] % in 1998. However, this decrease is likely to stop as Hoechst has a new product in the pipeline, Ketolide, which would enter this J1F class as a respiratory tract infections treatment and would reinforce the position of the parties on the French market. Therefore, serious doubts within the meaning of Article 6(1)(c) of the Merger regulation exist with regard to this market. In order to solve competition concerns, the parties have proposed a commitment (cf. paragraph 120).

65. In the market for fluoroquinolones (J1G) in Belgium, the combined market share

of the parties amounted to [30-40] % in 1998 (Hoechst [25-35] % and Rhône-Poulenc [0-10] %). The operation will not result in the creation of a single dominant position for the following reasons. The parties will face the competition of the market leader Bayer ([40-50] % market share). The parties' market share has fallen from [35-45] % in 1995 to [30-40] % in 1998 (in particular, the market share of Rhône-Poulenc's product Peflacine decreased from [5-15] % in 1995 to [0-10] % in 1998), whereas, in the same time period, Bayer raised the share of its product Ciproxine from [30-40] % to [40-50] %. There will be no creation of duopolistic dominant position because of the above-described different evolution of Aventis and Bayer's market shares and because there is also another significant player in this market, Merck (1998 market share: [10-20] %).

66. In the market for fluoroquinolones (J1G) in France, the combined market share of the parties amounted to [35-45] % in 1998 (Hoechst [30-40] % and Rhône-Poulenc [0-10] %). The operation will not result in the creation of a single dominant position for the following reasons. The parties will face the competition of the strong competitor Bayer with [35-45] % market share. The parties' market share has fallen from [50-60] % in 1995 to [35-45] % in 1998 (in particular, the market share of Rhône-Poulenc's product Peflacine decreased from [15-25] % in 1995 to [0-10] % in 1998), whereas, in the same time period, Bayer raised the share of its product Ciproxine from [25-35] % to [35-45] %. There will be no creation of duopolistic dominant position because of the above described different evolution of Aventis' and Bayer's market shares and because there is also another significant player in this market : Merck (1998 market share : [5-15] %).

67. In the market for non-narcotic analgesics (N2B) in France, the combined market share of the parties on the ATC 3 level amounted to [35-45] % in 1998 (Hoechst [20-30] % and Rhône-Poulenc [10-20] %). The operation will not result in the creation of a single dominant position for the following reasons. The parties will face the competition of a strong competitor Bristol-Myers Squibb, with a market share of [30-40] %. Synthélabo and Boots are also active on this market with respectively [0-10] % and [0-10] % market share. Synthélabo produces generically Hoechst's main product, Di-Antalvic since September 1998. There will be no creation of duopolistic dominant position either because the structural market conditions are as such to exclude a duopoly between BMS and Aventis in the future. Between 1995 and 1998, the volume of the N2B segment has increased by [10-20] % and this growth has been steady and is likely to continue in the future. In the time period from 1995 to 1998, the market share have developed in a divergent way (BMS has increased by [less than 5 %] % whereas the market share of Hoechst has increased ten times as much, by [25-35] %, and the market share of Rhône-Poulenc has gone down by [10-20] %). There has been constant product innovation with 16 new launches of new products between 1994 and 1998, including 4 by the parties and 1 by BMS. The products in N2B are quite diverse in their formulation and there is no structural link between BMS and the parties, which might indicate that Aventis and BMS would have any incentive to coordinate tacitly.

Active substances

68. Both parties' activities overlap with respect to certain active substances known as cobalamines (in particular, cyanocobalamines and its derivatives hydroxocobalamines and dibeconzide), which are active substances used in the production of Vitamin B12 (ATC class A11). For cyanocobalamines and its derivatives the combined market shares of the parties in the EEA is around [75-85] %. There are basically no other producers in Europe and the parties' products appear to be excellent in qualitative terms. The parties have argued for potential entry by in

particular Chinese and Japanese producers (some of their products being already sold in the EEA through dealers). The parties moreover insist that the market is very small: the 1998 colabamines market in the EEA was worth less than 20 million EURO.

69. The market investigation however shows that whilst entry by non-European producers is possible and to a very limited extent it already takes place today, the products of the parties remain clearly superior in qualitative terms. In addition, substantial entry to the European market by non-European producers cannot at present be foreseen in the short term, but rather in the medium-long term. The market test moreover shows that customers in this market tend to stick to their source of supply and are resistant to changes. Therefore, a replacement of the parties' products by non-European producers does not seem to constitute a sufficient competitive constraint. For all these reasons, the proposed transaction raises serious doubts in this field. In order to solve serious doubts, the parties have proposed a commitment (cf. paragraph 122. of this decision).

70. In addition, it is noted that Hoechst is the only producer of an active substance called "OP PRIME DDD". The only customer of OP PRIME DDD is a Rhône-Poulenc affiliated named "Cooper". The market for this substance is extremely small. As to OP PRIME DDD, the market investigation, which the Commission has carried out, clearly shows no competition concerns, which would result from the proposed transaction.

Future Products

71. In the notification, the parties have indicated that, with the exception of Ketolide for ATC3 class J1F, no product under development by Hoechst or Rhône-Poulenc will fall into an existing Class 2 or Class 3 Pharma market. It is therefore not to be expected, with the exception of class J1F, that the market position of the parties will be substantially affected by new products which have been registered very recently or which are awaiting registration. The market investigation broadly confirms this conclusion.

72. In the notification, the parties have further indicated that there is hardly any overlap in the R&D pipelines of Hoechst and Rhône-Poulenc, or in their recently launched products.

73. As to cardiovascular specialities, the parties have indicated that Hoechst's future product "Cariporide" does not compete with Rhône-Poulenc's "Adenosine", essentially because of their different mode of action. The market investigation has indicated that the combination of these two products is not likely to adversely affect competition, as indeed they have different indications, [Deleted for publication ; commercially sensitive information],, and because there are a number of companies with similar products in their pipelines.

74. As regards blood and blood forming organs, firstly the parties claim that there is no overlap between Hoechst's "Refludan" and Rhône-Poulenc's "Lovenox". They indicate in particular that the two very recently launched products belong to different ATC classes, B1B2 for Lovenox and B1B9 for Refludan. In addition, Lovenox is only approved for thromboembolic prophylaxis in general and orthopedic surgery as well as for hemodialysis in particular; furthermore, it has been very recently approved for anti-coagulation in the acute phase of unstable angina pectoris (UAP). Refludan is presently only approved for the treatment of thromboembolic events due to heparin induced thrombocytopenia (HIT) and is in Phase III presubmission for the treatment of UAP. The parties indicated that for UAP the two products will not compete, as Refludan is a biotechnologically engineered product with a highly specific mode of action, and will be much more expensive than Lovenox.

75. Second, the parties indicate that Hoechst's Refludan and Rhône-Poulenc's very recently launched product Revasc will not compete. Both products would be highly specialised products belonging to ATC class B1B9 which target very narrow segments of the market. In addition, Revasc would only be indicated for deep venous thrombosis prophylaxis after hortopaedic surgery (DVT), and for hospital use exclusively. Revasc is a product originally developed by Novartis and exclusively licensed to Rhône-Poulenc.

General Remarks on pharmaceutical products to be marketed under the ATC class B1B2 and pharmaceutical products to be marketed under the ATC class B1B9

76. Lovenox is a product belonging to the ATC class B1B2. Normally, products belonging to this category are heparin-based. Heparin is a substance of natural origin; it is a heterogeneous mixture of polysaccharides characterised by a wide molecular weight range and powerful anticoagulant properties. The substance was first used in humans in 1936 and has since become a widely used anticoagulant for the treatment and prevention of thrombotic diseases and for maintaining blood fluidity in extra corporeal devices. The basis for the anticoagulant activity of heparin in plasma is that it binds to antithrombin, the major inhibitor of the coagulation cascade in plasma. In particular, Lovenox is a LMWH (low molecular weight heparin) (ATC 4 Class B1B2). LMWH refer to a heparin preparation obtained by the fractionation of natural low molecular weight unfractionated heparin or by depolymerization of unfractionated heparin. Reduction in the chain length of heparin reduces its affinity to plasma proteins, vascular matrix proteins, endothelial cells, macrophages and platelets. As a result, it has higher bioavailability, prolonged plasma half-life (once a day regimen in DVT prophylaxis), a more predictable therapeutic response to fixed doses and reduced platelet-associated side effects. LMWHs are easier to monitor than standard heparin. This is an important factor for hospital care as it simplifies procedures and has proven to be cost-effective. In addition, outpatient care can be used when venous thrombosis is uncomplicated.

77. Revasc and Refludan are products belonging to ATC 4 class B1B9. Hirudins (ATC 4 Class B1B9) are pharmaticeuticals which are no longer of animal origin but are based on recombined human DNA. They are characterised by a highly specialised mode of action in which they outperform heparins. The higher efficacy of hirudin-based anticoagulants as compared to heparins results from their more specific intervention in the formation process of thrombosis. Thrombosis is caused by prothrombin turning into thrombin, an enzyme which triggers the formation of blood clots when combined with fibrinogen. Heparins intervene at an early stage of this process and inhibit the formation of blood clots after thrombin and fibrinogen have reacted. Consequently, their range of indications is limited. Hirudins act as direct thrombin inhibitors (DTI). This means they act as an anticoagulant by blocking the activity of thrombin itself.

78. Hirudins, which act as direct thrombin inhibitors (DTI), have proven more effective than unfractionated and fractionated heparins. Other than LMWH, hirudins show effects immediately after application, while LMWH may take up to 3 days of administrative time before becoming effective. Therefore, DTI are administered within 30 minutes before surgery and afterwards for several days. LMWH, on the other hand, is used to continue the treatment when patients are discharged from hospital. Furthermore, the price of hirudine-based DTI is nearly ten times higher than the price of LMWH like Lovenox.

79. For all the above reasons, for the purpose of this decision and with regard to the specific question of delimitating the competitive relationships between Lovenox, Refludan and Revasc, the Commission considers that LMWH like Lovenox and

hirudine-based DTI like Refludan and Revasc do belong to separate product markets. This conclusion is broadly confirmed by the market investigation.

Revasc vs Refludan - Hirudine-based DTI

80. On the other hand, the allegations of the parties concerning the combination of Refludan and Revasc do not appear to be confirmed and this combination will lead to, prima facie, the creation or strengthening of a dominant position. The reasons are the following. Even if it clear that currently Refludan and Revasc have been approved in Europe for different indications, it is nonetheless also clear that the two products, being both hirudine-based, are essentially identical as to their molecular composition and mode of action. This is the main consideration which flows from the market investigation.

81. Indeed, with the proposed operation, Aventis will get control of the two most advanced DTI in development, namely the virtually identical recombinant hirudin-based DTI Revasc and Refludan. These drugs are nearly perfect substitutes. Aventis, through the control of Revasc and Refludan, will likely eliminate any competition between the two most advanced drugs in the DTI market. While the parties stress that Revasc and Refludan have been initially tested in clinical trials with different clinical efficacy endpoints and approved initially for different indications (venous indications -DVT- for Revasc and HIT and arterial indications for Refludan) they cannot dispute that Revasc and Refludan are each others closest substitutes and most likely competitors in particular for all thrombotic indications. More specifically, the market investigation has revealed the possibility of a negative impact resulting from the combination as far as DVT indications are concerned.

82. The parties have indicated that the trials and studies undertaken with respect to Refludan were only directed at a possible registration as a means to treat DVT therapy, but not to prevent DVT, which is the current indication of Revasc. In addition, the parties indicate that since March 1994 Hoechst did no longer pursue any research and development with respect to Refludan as a DVT speciality and that there is no incentive for Hoechst to take up the development of Refludan for DVT therapy. In addition, even assuming that these trials were carried out, then a registration could not possibly be obtained before a three-year period.

83. As to these arguments the following is noted. First, DVT indications could indeed be attractive for Hoechst given the relatively low costs involved (because of the similarity between Refludan and Revasc, the dosing of Refludan should be fairly easy to establish based on the Revasc data, potentially allowing a combined Phase II/Phase III study) and the likely rather limited period of time necessary for the registration (easily two years and not three years as the parties have indicated). Secondly, expanding the indications for Refludan would allow Hoechst to reduce the high costs of production of Refludan, by a higher return across all Refludan indications. These possible incentives for Hoechst to develop Refludan for entry into the DVT area would be eliminated by the proposed operation.

84. As a last point, the parties indicate that there are a number of competing products to Refludan and Revasc that would enter the European market within a period of three years. According to the information available to the Commission, it appears that no effective source of competition is likely to come from any of these products, for a number of reasons. There appear to be only two companies worldwide developing hirudine-based DTI. Peg hirudine of Knoll (BASF) is focused on its development on "Acute Coronary Syndromes" indication. This drug has been in development for a number of years already (currently it is in Phase II). According to information collected on the market, it is unlikely to reach the market until 2005. Hirulog is developed by a very small US company called Biogen, which would not

have alone the capability to enter the European market. Other products mentioned by the parties are not hirudine-based and cannot therefore be considered direct substitutes to Refludan and Revasc.

85. On the basis of all these elements the Commission concludes that the proposed operation raises serious doubts within the meaning of Article 6(1)(c) of the Merger regulation as far as the combination of Refludan and Revasc is concerned. In order to solve competition concerns, the parties have proposed a commitment (cf. paragraph 121. of this decision).

86. In the area of anti-infectives, the parties have indicated that while Hoechst's future product ketolide will be indicated for the fist-line therapy of respiratory tract infections such as chronic bronchitis, pneumonia or sinusitis in adults and children, and will belong to the ATC 3 class J1F, Rhône-Poulenc's Synercid will become a member of ATC 4 class J1X9 and the planned indications are nosocomial pneumonia, complicated skin and soft tissue infections and clinically significant infections. As to the horizontal overlap between Ketolide and Synercid, the market investigation has confirmed that given in particular their different indications (since ketoline is a first-line treatment, while Synercid is regarded to be a last resort treatment for a few resistant bacterial strains) the two products cannot be considered as directly competing. In addition, it is noted that due to the growing number of resistant bacteria, older antibiotics will rapidly lose efficacy and will have to be replaced by new products. Therefore, the combination of the parties' products does not seem to be critical. On the other hand, the question of ketolide is of relevance when assessing the parties' combined market position in France on the market for macrolides included in the ATC 3 class J1F since it is a future product which will be integrated in the J1F class and thus reinforce the position of the parties in this market.

87. As to the other areas where the parties have both products which are in the pipelines or which are recently launched, namely the areas of central nervous system, oncology, respiratory/allergy, rheumatoid arthritis and osteoporosis, the market investigation has confirmed that the combination of the parties' respective products in each of these area does not lead to competitive concerns, either because of the different indications of the product in question (central nervous system, rheumatoid arthritis, osteoporosis) or because of the substantially different focus of the parties' R&D activities (oncology).

88. In that area, where the parties' allegations are not confirmed, namely the respiratory/allergy area, the combination of the parties' future products does not appear in any event to give rise to competition concerns. In the notification, the parties claim that while Hoechst's recently launched product Telfast is designed to seasonal allergic rhinitis, Rhône-Poulenc's Kestine would have the additional indications of treatment of perennial allergic rhinitis, conjunctivitis and paediatric indications. Therefore, the two products would not compete. The market investigation has however generally revealed that the products are basically to be used for the same indications in several Member States, that is the treatment of allergic rhinitis. However, the combination of Telfast and Kestine is generally not perceived as a threat to competition, to the extent in particular that a number of existing and future products are present in a number of competitors' portfolios. In addition, it is noted that the combined market share of the parties on the downstream market of pharmaceuticals belonging to ATC class R6A (which is going to be the ATC class of both Telfast and Kestine) in those countries where the parties' activities overlap, namely Ireland and Norway, is below [20-30]%.

2. Plant protection

89. The plant protection business has witnessed a tendency towards concentration during the last years. In order to remain competitive, manufacturers of plant protection products have to invest heavily in R&D. Due to the need for better cost efficiencies as well as environmental concerns regarding existing products, the market increasingly requires new products. On a worldwide level, Hoechst's plant protection activity Hoechst Schering Agrevo ranks no. 4 in terms of turnover, whereas Rhône-Poulenc ranks no. 9. Based upon 1998 turnover figures, Aventis may become the world leader in terms of turnover, but not with regard to the profit/turnover ratio.
90. The parties claim that so far they had to spent relatively more on R&D than most competitors because they were forced to spred their budget over a smaller turnover. The parties hope to overcome this deficiency by joining forces. Aventis is expected to have an R&D expenses/turnover ratio of approximately 10.3 %, which means, however, that highly innovative competitors such as Novartis, DuPont, AstraZeneca and Monsanto will still have a lower R&D expenditure/turnover ratio than Aventis.
a) Pesticides and Growth Regulators
91. According to the Commission's investigations, the merger will affect the markets listed below in the fungicide, herbicide, insecticide and growth regulator areas. The market share calculations submitted by the parties are based - at any rate as far as the larger Member States are concerned - on so-called "panel" studies carried out by specialised undertakings such as Kleffmann or BVA. In the case of the smaller Member States, the calculations were carried out by the parties. The figures were checked by the Commission on the basis of comparative data provided by competitors.
92. In 47 markets the combined market share of the parties is below 25%. In another 9 markets the aggregated market share is between 25% and 35%, while the increment is smaller than 5%. These markets are beets herbicides in France (AgrEvo [25-35]%, RPA [less than 5] %), Germany (AgrEvo [25-35]%, RPA [less than 5] %), Italy (AgrEvo [20-30] %, RPA [less than 5] %) and Spain (AgrEvo [20-30] %, RPA [less than 5] %), vegetable herbicides in Spain (AgrEvo [less than 5]%, RPA [20-30] %), vegetable insecticides in Italy (AgrEvo [15-25] %, RPA [less than 5]%), vegetable fungicides in Sweden (AgrEvo [less than 5]%, RPA [20-30] %), potato fungicides in the Netherlands (AgrEvo [20-30] %, RPA [less than 5]%) and rapeseed fungicides in Great Britain (AgrEvo [less than 5]%, RPA [25-35] %). In three out of these 9 markets the increment is 2 percentage points or less. In 5 markets including the latter three the parties would become only number two. In all 9 markets there a number of powerful international competitors. Moreover, market shares vary considerable over time in all of these 9 markets.
93. According to the parties, the aggregated market share accruing to Aventis will be higher than 25% with an increment of more than 5% in 29 affected markets. The parties' market shares in these markets are listed below:

Herbicides
94. In the market for cereal herbicides, at a national level, the merger will result in Spain and in the UK in combined market shares of [20-30]% and [25-35]% respectively. Competitor[Deleted for publication ; name of the competitor], which has a market share of around [5-15] % in the UK and [0-10] % in Spain, depends on the parties for the supply of the active ingredient IPU. In Belgium, France, Germany and Portugal the market share increment as a result of the merger is substantial and

results in a combined market share of the parties of above [35-45] %. Also a wider geographic market, in this case an EEA-wide market, would not change the assessment substantially, because the share of the parties would still be [35-45]% with no close second competitor (Novartis as number 2 in the market has [10-20]%).
95. The market investigation revealed certain indications that a narrower product market definition might be more appropriate. In that case, the combined market share of the parties would be up to [85-95]% in some countries if IPU-based herbicides are looked at separately. For example, in the UK, the parties would have a market share of up to [60-70]% in the case of a separate market for IPU-based herbicides. If barley herbicides were a separate product market the market share of the parties could be as much as [75-85]% in Germany.
96. It must therefore be concluded that serious doubts exist regardless of which of the possible market definitions is taken, and that the operation could lead to the creation or strengthening of a dominant position in this market. In order to solve serious doubts, the parties have proposed a commitment (cf. paragraph 123).
97. In the market for beets herbicides in Italy, the parties have [20-30]% of the market in 1998 down from [40-50% in 1997. Competitors include Novartis ([15-25]%), Dow ([10-20]%), Solplant ([5-15]%) and Bayer ([5-15]%).
98. In the markets for beets herbicides in the Netherlands and pea and sunflower/soybean herbicides in France the market share increment is very small.
99. In the market for vegetable herbicides in Belgium and France the parties have a combined share of [20-30]% and [25-35]% respectively. In Belgium there is competition from Protex ([20-30]%), Zeneca ([15-25]%) and BASF ([15-25]%), whilst the French market has a much larger number of players, the main competitors being BASF ([5-15]%), Sopra ([5-15]%), ACC ([0-10]%), Novartis ([0-10]%), Monsanto ([0-10]%), Dow ([less than 5]%) and Bayer ([less than 5]%).
Fungicides
100. In the market for cereal fungicides in Italy, the parties' share was [30-40] % in 1998. Competitors include Novartis ([20-30]%), Bayer ([10-20]%) and Solplant ([10-20%). In the market for cereal fungicides in Norway, which is a very small market of less 4 Mio. ?, the market investigation showed that the share of the parties is in fact below 25%.
101. In the market for ornamental fungicides in Belgium and the Netherlands the market share increments are, at [5-15]% and [0-10]% respectively, less than for some other class 2 markets. Between 1997 and 1998, the parties' combined share of the Belgian market increased from [15-25]% to [25-35]%. Novartis is the main competitor, with [10-20]% of the market in the Netherlands and [5-15] % in Belgium in 1998. In the same year BASF had [0-10] % of the Belgian market and Zeneca [5-15] % of the Dutch market.
102. In the market for rapeseeds fungicides in Germany, there is strong competition from Bayer, with [50-60] % of the market, and BASF ([0-10] %).
103. In the market for vegetable fungicides in Portugal, Spain and the UK, the parties' combined shares range from [20-30]-to [30-40] %. In Portugal their share of [30-40] % in 1998 is down from [35-45] % in 1995. Main competitors are Sapec ([10-20] % in Portugal), Bayer ([5-15] % in Portgual, [10-20] % in Spain and also active in the UK), Zeneca ([5-15] % in Portugal, [0-10] % in Spain and also active in the UK), Novartis ([15-25] % in Spain and also active in the UK) and Masso ([0-10] % in Spain). Concerning vegetable fungicides in the Netherlands the market shares of the parties went down from [45-55] % in 1995 to [30-40] % in 1998, whereas competitors such as Bayer was able to more than double its market share form [0-10] % in 1995 to [10-20] % in 1998. Other competitors are Novartis ([10-20] %) and

BASF ([5-15] %).
104. In the market for vine fungicides in France the parties increased their market share from [25-35] % in 1995 to [30-40] % in 1998. Over the same time period Novartis managed to increase its share from [5-15] % to [15-25] %. Other competitors include Elf Atochem and DuPont ([5-15] % each) and Zeneca ([5-15] %).
Insecticides
105. In the market for fruit insecticides in France, Belgium and Portugal, the parties have shares of [25-35] %. There is competition in France from Novartis ([10-20] %), Bayer ([10-20] %) and ACC ([10-20] %), in Belgium from Bayer ([10-20] %), Zeneca ([10-20] %) and Novartis ([5-15] %) and in Portugal strong competition from Bayer ([20-30] %), Sapec ([15-25] %) and Novartis ([5-15] %).
106. In the market for maize insecticides in Portugal, Aventis would have had [25-35] % of the market in 1998, up from [15-25] % in 1995 but less than the [30-40] % achieved in 1997. Main competitors are Zeneca ([10-20] %), Sapec ([5-15] %), Agroquisa ([0-10] %), Bayer ([0-10] %) and Novartis ([less than 5] %).
107. The parties were able to increase their market share from [20-30] % in 1995 to [35-45] % in 1997, but lost 5 points in 1998 ([30-40] %) in the market for vegetable insecticides in Portugal. The increase results mainly from a new product by AgrEvo, whereas RPA is losing market share constantly. The main competitors are Novartis ([5-15] %, up from [0-10] % in 1995) Zeneca ([0-10] %) and Bayer ([less than 5] %).
Growth Regulators
108. In the market for cereal growth regulators in Germany, the parties had a share of [20-30] % of the market in 1998, down from [25-35] % in 1997. The main competitors are Novartis ([20-30] % in 1998, [10-20] % in 1997) and BASF ([15-25] % in 1997) and Feinchemie ([5-15] % in 1997).
Conclusion
109. With the notable exception of cereal herbicides, the conclusion drawn in the Novartis case (IV/M.737 at 176) with regard to plant protection seems to be still valid. While it is true that the parties have very high market shares in some cases, have been the market leaders in certain of these markets for some time and could also remain so on account of their strong position in the R&D sphere,
- the significant market share fluctuations over time,
- the large number of competitors in all the markets concerned,
- the likewise significant R&D capacities of competitors,
- the large number of product launches completed and also expected in the future,
- the entries to and exits from all the markets concerned,
- the (price) disciplining effect of generic products, and
- the countervailing power of wholesalers and agricultural cooperatives,
all show that the concentration does not create or strengthen a dominant position in any affected markets except the markets for cereal herbicides as a result of which effective competition would be significantly impeded in the common market or a substantial part of it.
b) Active substances
110. According to the parties there is only one affected market, where the share of the parties exceeds 15%. This affected market is the market for Isoproturon (IPU technical), a commodity used for the formulation of cereal herbicides. The parties submit that they use the bulk of their production captively and only minor parts are sold to third parties. The combined market share of the parties is, according to their own estimation, [25-35] %. However, this figure seems to be understated. While it

was not possible to obtain the overall market volume since supply data from India and Israel were not available at source, data from competitors and customers resulted in a higher market share of the parties. In addition, customers point at the low quality of Indian IPU in terms of purity and the lack of reliability of supply. In one instance, a customer of Gharda's IPU technical reported that the low quality had caused considerable commercial damage. Gharda and the other Indian producers are perceived by customers as suppliers active in the spot market, which might explain their market share fluctuations.

111. Isoproturon is a rather old product first introduced in the early seventies and now off-patent. The parties are the only producers in the Community who have formed a joint task force in order to fulfil the requirements under Directive 91/414 as regards the submission of comprehensive sets of data in order to obtain registration. According to competitors and customers the main obstacle to enter the market for IPU technical is the cost and time needed to obtain registration. Moreover, there is a direct link between the registration of the active substance IPU and the registration of formulated products containing IPU. When a producer of a formulated product containing IPU wishes to switch to another supplier of IPU he/she is required to first register the "new" IPU from the new supplier, which can take several months.

112. Given the relatively high barriers to enter this market, the link between this market and the downstream market for cereal herbicides containing IPU and the strong position of the parties in both markets, serious doubts exist, that the operation would lead to the creation or strengthening of a dominant position in the market for IPU technical. In order to solve competition concerns, the parties have proposed a commitment (cf. paragraph 125).

c) non-agricultural insecticides

113. Assuming a single market for insecticides against cockroaches the parties would have a combined market share of [45-55]% in France, [20-30]% in Spain, [20-30]% in Austria and [10-20]% in Germany. However, the parties are of the opinion that in reality there are two separate product markets depending on the use of the products. If products used as gels/baits by professional pest controllers constitute a separate market there would be no overlap at all. The market investigation supported the definition of a single market. Therefore, serious doubts exist as concerns the French market for insecticides against cockroaches. In order to solve competition concerns, the parties have proposed a commitment (cf. paragraph 124).

d) industrial weed control

114. The parties have a combined market share of [25-35]% in France and [10-20]% in the UK in the market for industrial weed control products. The market share increment in the UK is very small. AgrEvo adds only [less than 5]% to Rhône-Poulenc's [10-20]%. In France, AgrEvo' market share of [5-15]% is generated by the sale of products based on active ingredients bought from third parties. In both markets there are a number of strong competitors. In the UK Monsanto is the market leader with [25-35]%, In France, Monsanto is number two with [15-25]%, followed by CFPI ([10-20]%), BHS ([5-15]%) and Novartis ([0-10]%). Therefore, it is unlikely, that the proposed merger will lead to the creation or strengthening of a dominant position in these markets.

e) Future Products

115. The main thrust of the parties R&D activities will be directed towards biotechnology, in particular herbicide- resistant crops marketed under the trade name "Liberty Link." However, given the regulatory uncertainty in Europe, it is rather unlikely that genetically modified crops will play a significant role in European

markets within the next 3-5 years. Moreover, the parties will face strong competition from Monsanto, whose "Roundup Ready"-program is already fairly advanced in Northern America.

116. Both parties also pursue R&D activities as regards cereal herbicides. RPA introduced a new product with the new active ingredient Pyraflufen and the off-patent active substance bifenox under the brand name "Milan" this year. However, the product was no immediate success. AgrEvo has two products in the pipeline for launch in [before 2005] and [before 2005]. [Deleted for publication ; commercially sensitive information], the product due to be marketed in [before 2005] (active substance [Deleted for publication ; commercially sensitive information]) is, according to the parties, designed to replace existing products and to keep up with new products launched recently by competitors such as, in particular, DuPont's "Lexus". Therefore, these products, if successful, will most likely not result in the strengthening of the parties' position. Moreover, several competitors are also developing and introducing new cereal herbicides. Monsanto started marketing its product this year, Dow will introduce its product in the year 2000.

3. Chemical business

117. Apart from their respective life science activities, both parties are currently active in certain non-life science businesses, especially in the chemical and related businesses. With respect to certain chemical markets, in particular silicone elastomers, silicone sealants and polymer powders, the combined market share of the parties amounts to [40-50]%, [40-50]% and [50-60]% respectively. Therefore, as regards these three markets, the merger of the parties' businesses would raise serious doubts within the meaning of Article 6(1)(c) of the Merger Regulation. The parties have submitted commitments (see paragraph 119).

4. Animal health

118. Rhône-Poulenc will transfer all of its animal health activities to Aventis. These activities include its 50% participation in Merial Ltd, a joint venture with Merck & Co, as well as its 100 % affiliate Rhône-Poulenc Animal Nutrition S.A. In the animal health sector, the parties' combined market share in the market for endocides for the treatment of companion animals, in particular horses, in Sweden and the UK, would amount to more than [35-45]%. Similarly, the parties would have an aggregated market share of more than [35-45]% as regards vaccines to treat Marek's disease in chicken. Therefore, serious doubts exist within the meaning of Article 6(1)(c) of the Merger Regulation for these two markets and the parties have submitted a commitment (see paragraph 125.).

V. MODIFICATIONS TO THE PROPOSED OPERATION

In order to remove the serious doubts resulting from the proposed transaction, the parties have offered to the Commission a number of undertakings. The detailed text of these undertakings is annexed to this decision. The full text of all the annexed undertakings forms an integral part to this decision.

119. The parties have undertaken that certain activities in the chemical business be discontinued. In particular, Rhône-Poulenc has committed itself vis-à-vis the Commission to divest its chemical activities which consist of its 67.4 % stake in Rhodia S.A, according to the text contained in Annex 1. In addition, Hoechst on its part will divest the majority of its chemical and other non-life science participations by means of spinning-off its 100 % affiliate Celanese to its shareholders before the completion of the proposed transaction. To this end there is a Celanese- demerger clause in the merger agreement according to which Hoechst must demerge Celanese prior to the completion of the concentration. Since it cannot be excluded that there are vertically affected markets in relation to some downstream life-science activities

(chemical active substances for pharmaceutical products) Hoechst undertakes not to agree to any modification of this demerger clause without prior approval of the Commission, according to the text contained in Annex 2.

120. In order to remove the competition concerns in the ATC 3 class J1F market, the parties have committed themselves to hand back the license for Rhône-Poulenc's product Josacine. Josacine is a J1F product that Rhône-Poulenc has licensed in from Yamanouchi under a licence agreement [Deleted for publication ; the text details the terms of the licence]. With respect to France, the parties are prepared to ensure that Aventis will either grant the licence back to Yamanouchi or to a third viable competitor. Since this product represents [10-20]% of the market, the commitment appears appropriate to avoid the creation of a dominant position in this market in France. The text of the undertaking is contained in Annex 3.

121. In order to solve the competition concerns arising from the proposed operation with respect to the combination of Revasc and Refludan, the parties have offered the Commission either to licence back the Revasc licence to Novartis or to offer it to a viable third competitor for DVT indications and for the whole of the European territory. Since this commitment eliminates the potential overlap between Refludan and Revasc as far as DVT indications in Europe are concerned, it appears appropriate to avoid the creation or strengthening of a dominant position in this market in Europe. The full text of the undertaking is contained in Annex 4.

122. In order to solve the competition concerns arising from the proposed operation with respect to the active substances cobalamines, the parties have offered the Commission to grant a non-exclusive licence for Europe on the technology of either Hoechst or Rhône-Poulenc for the production of cyanocobalamines to third parties. This commitment solves competition concerns by allowing a third party to introduce good quality products on the market. The circumstance that derivatives are excluded from the commitment does not change this conclusion, to the extent that the market investigation has made clear that any producer of cyanocobalamines can easily, without incurring in substantial costs and in a relatively short period of time, produce the derivatives. The text of the undertaking is contained in Annex 5.

123. The strong presence of the parties in the market for cereal herbicides results to a large extent from their sale of IPU-based herbicides (either straight or blended). Therefore, the parties have offered a commitment to sell and transfer AgrEvo's existing national registrations for straight IPU formulated products in all Member States, the trademark of AgrEvo's straight IPU formulated products in the EU, the possibility for the purchaser to get a toll manufacturing agreement for IPU from AgrEvo, to return the licences of AgrEvo regarding the active substances [Deleted for publication ; commercially sensitive information]and a back-to- back registration for AgrEvos' mixed products based on the active ingredients Amidosulfuron and Fenoxaprop. This would create a second European supplier of the active substance IPU as well as a supplier of IPU-based formulated cereal herbicides and appears to be appropriate to avoid the creation or strengthening of a dominant position. The text of the undertaking is contained in Annex 6.

124. Concerning the market for insecticides against cockroaches, the parties have offered a commitment to divest one of the brands currently marketed by AgrEvo in France. This would bring down the market share of the parties to a figure of less than 40%, which, given the characteristics of this market, seems sufficient to redress the competition problem. The text of the undertaking is contained in Annex 7.

125. Concerning the sector of animal health, the parties have offered an irrevocable commitment to sell Hoechst Roussel Veterinär GmbH (HRVet), the animal health division of Hoechst, within a time frame agreed by the Commission. Therefore, any

overlap as regards the animal health business will be eliminated. The text of the undertaking is contained in Annex 8.

VI. CONCLUSION

126. The Commission concludes that the undertakings are sufficient to address the competition concerns raised by this concentration. Accordingly, subject to the commitments proposed by the notifying parties it decides 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 Council Regulation (EEC) No 4064/89.

For the Commission,

ANNEXES

ANNEXES OF THE DECISION IN CASE 1378 - HOECHST / RHÔNE-POULENC

ANNEX 1) COMMITMENT BY RPSA CONCERNING THE DIVESTITURE OF RHODIA

ANNEX 2) COMMITMENT BY HOECHST AKTIENGESELLSCHAFT TO THE COMMISSION OF THE EUROPEAN COMMUNITIES REGARDING CELANESE

ANNEX 3) UNDERTAKING RELATED TO THE PHARMACEUTIC SPECIALTY "JOSACINE"

ANNEX 4) UNDERTAKING RELATED TO THE PHARMACEUTIC SPECIALTY "REVASC"

ANNEX 5) COMMITMENT REGARDING THE PHARMACEUTIC ACTIVE SUBSTANCE CYANOCOBALINE

ANNEX 6) COMMITMENT REGARDING THE ACTIVE SUBSTANCE IPU

ANNEX 7) COMMITMENT REGARDING COCKROACH INSECTICIDES

ANNEX 8) COMMITMENT BY HOECHST TO THE COMMISSION OF THE EUROPEAN COMMUNITIES REGARDING HRVET

COMMITMENT BY RPSA
CONCERNING THE DIVESTITURE OF RHODIA

In accordance with article 6(2) of Council Regulation n 4064/89 of 21 December 1989 on the control of concentrations between undertakings, and with the intention of clarifying any uncertainties concerning the competitive effects that the AVENTIS transaction between RHÔNE-POULENC and HOECHST may be susceptible to produce in the chemical sector, RHÔNE-POULENC S.A. (acting on behalf of AVENTIS) undertakes to comply with the following :

I Independent Management

* From the date of the submission of this commitment up until the date of divestiture, the management of RHODIA shall be kept separate from all other chemical activities originating from, or belonging to HOECHST so that there will be no risk of co-ordination of competitive behaviour of these entities.

* In order to achieve this objective, RPSA, with the agreement of the Commission, shall designate an independent Auditor, who will act on behalf of the Commission, whose mission shall be to verify this independence of RHODIA's management as well as the absence of risk of co-ordination of residual chemical activities. The Auditor shall inform the Commission regularly. RPSA and RHODIA shall provide the Auditor with all necessary resources, for the accomplishment of this mission in full knowledge of its circumstances.

* RPSA undertakes to ensure that there will be no directors in common to the boards of RHODIA and the ex-HOECHST chemical companies, and also, that no director of Aventis having been a former director of HOECHST, shall form part of the Board of Directors of RHODIA.

* All financial or industrial transactions (outsourcing, licences, services agreements, etc.) that may be necessary between RHODIA and the aforementioned companies and/or between RHODIA and AVENTIS will be undertaken at arm's length and will be notified immediately to the Commission, and can be implemented if the Commission does not oppose to the transaction in a period of seven working days. All commercial transactions between RHODIA and the aforementioned companies and/or between RHODIA and AVENTIS will not have to be notified to the Commission, and will be undertaken at arm's length under the general supervision of the independent Auditor.

II. Divestiture of RHODIA

* As of the date of this commitment RPSA will nominate an advising bank. RPSA, with the assistance of banks and consultants whose names shall be communicated to the Commission, undertakes to evaluate and negotiate the divestiture of RHODIA at the best financial conditions, within a period of [confidential information] from the

date of the filing of the merger notification (period 1).

* On termination of this period, RPSA/AVENTIS S.A. will give an irrevocable mandate to an independent advising bank which shall be subject to prior approval by the Commission. This advising bank will be responsible for the co-ordination with the other banks, to sell the residual participation of AVENTIS S.A. in RHODIA[Deleted for publication ; commercially sensitive information]. This mandate shall be for a period of [confidential information] with the possibility for the Commission to extend this delay for a further [confidential information], followed by a second [confidential information]period, upon justification by the advising bank that all efforts to proceed to the divestiture have been made, and, in particular, in the event that the chemical stock market is in a unfavourable cycle at that moment, an assertion which Aventis shall justify with external analysis. The advising bank will regularly inform the Commission of the progress of all operations concerning the divestiture during this second period (period 2).

* If, at the end of this second period, no solution has been found, RPSA/AVENTIS S.A. will give the advising bank an irrevocable mandate to progressively sell the participation in RHODIA at market price by means of progressive placements with financial institutions, so that AVENTIS S.A. no longer retains control, in fact or in law, of RHODIA, and so that AVENTIS S.A. no longer retains, in particular, the majority on the Board of Directors of RHODIA, [confidential information]. This delay shall be automatically extended for [confidential information] to the extent that respectively one or both [confidential information] extension periods above mentioned in the second period have been granted. During this third period, AVENTIS would only be a financial shareholder, at the exclusion of an industrial shareholder (period 3).

* If the market conditions are such that the sale would cause a particularly serious prejudice for the company, AVENTIS shall justify its position to the Commission, knowing that in any case it will have lost majority control, in both law and in fact, at the above mentioned date. AVENTIS will therefore be no more than a shareholder, and shall preserve no position or power of an industrial holding while awaiting the complete sale of RHODIA which may occur within a delay which shall be examined by the Commission having regard to the conditions at that moment.

This commitment shall take effect as of the date of filing of the notification of the AVENTIS merger notification with the Commission.

RHÔNE-POULENC S.A. requests that the delays contained in this commitment benefit from protection as Business Secrets.

Signed at Courbevoie, on June 21, 1999

Commitment by Hoechst to the Commission to the
European Communities Regarding Celanese

Hoechst Aktiengesellschaft, Frankfurt am Main ("Hoechst"), hereby offers the following Com mitment to the Commission in connection with concentration case IV/M.1378 Hoechst Rhône-Poulenc ("Concentration") which is the subject of the notification of June 15, 1999 ("Noti fication"):

§ 1.5 (b) in connection with § 1.2 (i) of the Business Combination Agreement between Hoechst and Rhône-Poulenc of May 20, 1999 (Annex 5.1 to the Notification) provides that the concentration is subject i. a. to the suspensive condition that the demerger of Celanese has entered into the Commercial Register of Celanese and Hoechst and thereby has become effective. Hoechst will not agree to amend or to waive such suspensive condition without the prior approval of the Commission.
ANNEX 3

The undertakings set out in this letter are given by Hoechst AG and Rhône-Poulenc S.A. to the Commission of the European Communities pursuant to Council Regulation (EEC) No. 4064/89 of 21 December 1989 on the control of concentrations between undertakings (as amended) in the context of the proposed merger between Hoechst AG ("Hoechst") and Rhône-Poulenc S.A. ("RP") into the new entity Aventis, S.A. ("Aventis"). Pursuant to article 6(2) of the above referred Council Regulation , and in order to remove any anti-competitive effect which the proposed merger of Hoechst AG and Rhône-Poulenc S.A. (together collectively referred to as « the Parties ») may have on the J1F market in France, the Parties submit to the Commission the hereinafter commitment.

Definitions

(i) "Hoechst" means Hoechst AG, its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions, groups and affiliates controlled by Hoechst, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

(ii) "RP" means Rhône-Poulenc S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions, groups and affiliates controlled by RP, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

(iii) "Aventis" means Aventis S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns: the subsidiaries, divisions, groups and affiliates controlled by Aventis, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

(iv) "Commission" means the Commission of the European Communities.

(v) "Josacine_" means the corresponding pharmaceutical product that is the subject of the licence agreement dated February 7,1978 by and between Yamanouchi International Limited (now Yamanouchi Pharmaceuticals Co., Ltd) and Bellon (legal successor of Pharmuka Groupe Pechiney Ugine Kuhlmann, and part of the Rhône-Poulenc Group), all rights relating to the research, development, manufacture,

existing product and marketing registration and sale of Josacine_ in France, including patent rights, know-how and the solutab technology for Josacine in France granted in the additional licence agreement dated July 13, 1998 by and between the same parties.

(vi) "Yamanouchi" means Yamanouchi Pharmaceutical Co.,Ltd, a Japanese corporation, and Yamanouchi Europe B.V. with its office and principal place of business located respectively at n 3-11, Nihonbashi-Honcho 2-chome, Chuo-ku, Tokyo, Japan, and Elisabethhof 19, 2353 EW Leiderdorp, The Netherlands, and includes its directors, officers, employees, agents and representatives, predecessors, successors, and assigns, licensees, the subsidiaries, divisions, groups and affiliates controlled by Yamanouchi, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

(vii) "Know-how" means all technological, technical, scientific, chemical, biological pharmacological, toxicological, regulatory, marketing and other information, including without limitation all formulae, trade secrets, inventions, techniques, patents, patent applications, discoveries, compounds, compositions of matter, assays, reagents, and biological materials, trademarks, research data, technical data and information, testing data, preclinical and clinical data, toxicological and pharmacological data, statistical analysis, analytical data, clinical protocols, specifications, designs, drawings, processes, testing and quality assurance/quality control data, manufacturing data and information, regulatory submissions, and any other information and experience.

(viii) "Josacine_ Know-how" means all Confidential Business Information and Know-How presently owned by RP which relates directly to and is necessary to a full and proper exploitation of Josacine_, including without limitation information stored on management information systems, proprietary software used in connection with RP's Josacine_, and all data, contractual rights, materials and information relating to obtaining European registrations for RP's Josacine_, and any other information and experience relating directly and necessary to a full and proper exploitation of Josacine_ with regard to France.

(ix) "Confidential Business Information" means all information concerning the research, development, marketing, distribution, cost, pricing, sale and commercialisation of Josacine_ in France.

(x) "Josacine_ Patent Rights" means any and all patents and patent applications owned, licensed or controlled by Hoechst, RP and Aventis related directly and necessary to a full and proper exploitation to Josacine_ in France, and any and all reissues, extensions, substitutions, confirmations, registrations, revalidations, additions, continuations or divisions of or to any of the aforesaid patents.

(xi) "Merger" means the proposed full merger of Hoechst and RP as notified to the Commission of the European Communities on 24.6.1999.

(x) "France" means the Metropolitain France and its overseas territory such as Martinique, Guadeloupe, Islands' of Réunion, Island of Maurice.

Object of the Undertaking

Hoechst, RP and Aventis undertake to the Commission to implement the following steps:

1. Immediately after the Commission having issued a decision pursuant to Article 6(1)(b) of the Merger Regulation clearing the Merger (the « Clearance »), Rhône-Poulenc undertakes to enter into negotiations for the conclusion of one or more agreements to take effect immediately on their execution (the « Transition Agreements») with Yamanouchi for :

(a) the surrender to Yamanouchi of Rhône-Poulenc Rorer (RPR) exclusive licence (agreements respectively dated February 7, 1978 and July 13, 1998) (the « Licence ») to make, have made, use, import, sell or otherwise exploit the pharmaceutical product « Josacine_» with respect to France ;
(b) the reassignment of the « Josacine_» trademark, industrial and commercial responsibility of « Josacine_» to Yamanouchi as well as, as soon as practically possible, all authorisations provided by the Public Authorities concerning « Josacine_» with respect to France ;
(c) the transfer or return to Yamanouchi of all Josacine_ Know-How, information and other materials that have been received or generated by RPR relating to the actual or proposed development, promotion, manufacture or sale of « Josacine_» in France in its role as licensee of « Josacine_»; (the « Information »).The Transition Agreements will provide that, with respect to France :

(i) Yamanouchi will be entitled to request copies of the Information from RPR as from the date of the execution of the Transition Agreements until the expiration of the Transitional Period as defined in paragraph 2(a) below ;

(ii) RPR will be obliged to return or transfer to Yamanouchi all Information as and when RPR no longer requires such Information in order to perform the arrangements set out in paragraph 2(a) below and in any event on the expiration of the Transitional Period ;

(iii) all Josacine_ Patent Rights (including rights in the Information) which are generated by RPR in the performance of the Transition Agreements or in connection with the performance of the arrangements set out in paragraph 2(a) below shall be transferred to Yamanouchi as and when RPR no longer requires such rights in order to perform the arrangements set out in paragraph 2(a) below and in any event on the expiry of the Transitional Period ;

(d) the termination of the licence agreement between RPR and Yamanouchi as far as France is concerned within a period of three months following the Clearance.

(e) RPR shall receive adequate compensation for the transfer of Josacine_ taking into account the present turnover of the product and future developments on the market for the product.

2. In connection with the Transition Agreements, and in order to maintain and develop as fully as possible the marketability and viability of Josacine_, Rhône-Poulenc also undertakes with regard to France to :

(a) enter into negotiation for the conclusion of arrangements for regulatory, manufacturing and commercial support of Josacine_ in France as may be agreed with Yamanouchi for an appropriate period of time to be agreed with Yamanouchi which may be either until the completion of the relevant arrangements or until the selection by Yamanouchi of a new licensee for Josacine_ or thereafter, but which period shall be of a minimum of [confidential information] from the date of the Clearance or such longer period not exceeding [confidential information] from the date of the Clearance as Yamanouchi may request and the Commission (based on the advice of the trustee) approves at being reasonably necessary for the completion of the relevant arrangement (the « Transitional Period ») ;

(b) introduce internal communication arrangements to ensure that no Confidential Business Information directly relating to and necessary to a full and proper exploitation of Josacine_ in France (including, for the avoidance of doubt, the Information) from those Rhône-Poulenc employees hitherto involved with Josacine_ or providing the support referred to in the paragraph 2(a) above or otherwise involved in the performance of the Transition Agreements is supplied to any other Rhône-Poulenc employee or any Hoechst employee or any unauthorised third party other than those Rhône-Poulenc employees who strictly need to know the same as agreed with Yamanouchi ;

(c) refrain (and insure that its affiliates and subsidiaries from time to time will refrain) from using or disclosing any non-public information described in paragraph 2(b) above ;

(d) RPR shall receive adequate compensation for the work done during the duration of the Transition Agreement.

3. If at the end of the [confidential information] following Clearance, no suitable arrangement has been concluded between Rhône-Poulenc and Yamanouchi, the Parties will grant to the hereinafter referred Trustee an irrevocable mandate to negotiate and conclude a similar arrangement to the one described in paragraphs 1 and 2 with a viable and independent third party . The trustee shall have the right to take all necessary action required to implement this arrangement with a viable and independent third party, such arrangement to be made at fair and reasonable prices within a period of [confidential information]. The period of [confidential information] may be extended by the Commission on request of Hoechst, RP and Aventis for a further maximum and non-extendable period of [confidential information].

The Trustee

4. Within [confidential information] from the date of the Clearance, Hoechst, RP and Aventis will appoint an independent Trustee acceptable to Yamanouchi to assure that they expeditiously perform their responsibilities as required by this undertaking.

5. The appointment of the Trustee is subject to approval of the Commission, such approval not to be unreasonably withheld. Hoechst, RP and Aventis shall consent to the following terms and conditions regarding the powers, duties, authorities, and responsibilities of the Trustee. The trustee shall be a person with experience and expertise in acquisitions and divestitures

6. The Trustee shall have the power and authority to monitor Hoechst, RP and Aventis compliance with the terms of this undertaking, and shall exercise such power and authority and carry out the duties and responsibilities of the Trustee in a manner consistent with the purposes of this undertaking and in consultation with the Commission on the basis of written monthly reports.

7. Within 10 days after appointment of the Trustee, Hoechst, RP and Aventis shall execute a trust agreement that, subject to the prior approval of the Commission, confers on the Trustee all the rights and powers necessary to permit the Trustee to monitor their compliance with the terms of this undertaking and in a manner consistent with the purposes of this undertaking.

8. The Trustee shall serve until the divestiture of the Licence of Josacine_ with respect to France has terminated; provided, however, the Commission may extend this period as may be necessary or appropriate to accomplish the purposes of this undertaking

9. The Trustee shall have full and complete access to Hoechst, RP and Aventis personnel, books, records, documents, facilities and technical information relating to the research, development, manufacture, importation, distribution and sale of the Products, or to any other relevant information, as the Trustee may reasonably request.

10. The Commission may on its own initiative or at the request of the Trustee issue such additional orders or directions as may be necessary or appropriate to assure compliance with the requirements of this undertaking.

11. Completion of the transactions envisaged by the above commitments will be subject to the Commission having issued the Clearance.

[] August 1999-

For Hoechst AG For Rhône-Poulenc S.A.

ANNEX 4 Undertaking Related to the Pharmaceutic Specialty "Revasc"

The undertakings set out in this letter are given by Hoechst AG and Rhône-Poulenc S.A. to the Commission of the European Communities pursuant to Council Regulation (EEC) No. 4064/89 of 21 December 1989 on the control of concentrations between undertakings (as amended) in the context of the proposed merger between of Hoechst AG ("Hoechst") into Rhône-Poulenc S.A. ("RP"), the latter to be renamed Aventis S.A. ("Aventis").

Definitions

1. "Hoechst" means Hoechst AG, its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions, groups and affiliates controlled by Hoechst, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

2. "RP" means Rhône-Poulenc S.A.,its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions, groups and affiliates controlled by RP, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

3. "Aventis" means Aventis S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns, the subsidiaries, divisions, groups and affiliates controlled by Aventis, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

4. "Commission" means the Commission of the European Communities.

5. "Revasc" means the drug substance desirudin that is the subject of the Agreement dated June 25, 1998 by and between Novartis Pharma AG and Rhone-Poulenc Rorer Inc, any of its constituent elements, active ingredients or intermediaries, and all rights relating to the research, development, manufacture, existing European product registrations and rights related to the sale of Revasc, including Revasc patent rights and Know-how relating to deep vein thrombosis granted in the Agreement dated June 25, 1998 by and between Novartis Pharma AG and Rhone-Poulenc Rorer Inc.

6. "Revasc DVT License" means the rights that RP licensed from Novartis pursuant to the Agreement dated June 25, 1998 by and between Novartis Pharma AG and Rhone-Poulenc Rorer Inc, but only as far as the indication DVT is concerned.

7. "Revasc DVT Divestiture Assets" means all rights granted to RP pursuant to the Revasc License and all assets and contracts that are related to the research, development, European existing product registrations, marketing, sale or use of Revasc, but only as far as the use of Revasc for the indication DVT in the EU is concerned.

8. "Novartis" means Novartis Pharma AG, a Swiss corporation, with its office and principal place of business located at Lichstrasse 35, CH-4002 Basel, Switzerland, and includes its directors, officers, employees, agents and representatives, predecessors, successors, and assigns, licensees, the subsidiaries, divisions, groups and affiliates controlled by Novartis, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

9. "DVT" means deep vein thrombosis.

10. "Know-how" means all technological, technical, scientific, chemical, biological pharmacological, toxicological, regulatory, marketing and other information, including without limitation all formulae, trade secrets, inventions, techniques, patents, patent applications, discoveries, compounds, compositions of matter, assays, reagents, and biological materials, trademarks, research data, technical data and information, testing data, preclinical and clinical data, toxicological and pharmacological data, statistical analysis, analytical data, clinical protocols,

specifications, designs, drawings, processes, testing and quality assurance/quality control data, manufacturing data and information, regulatory submissions, and any other information and experience.

11. "Revasc DVT Know-how" means all confidential business information and Know-how presently owned by RP to the extent it relates to the use of Revasc for the indication DVT in the European Union, including without limitation information stored on management information systems, proprietary software used in connection with RP's Revasc related to the indication DVT, and all data, contractual rights, materials and information relating to obtaining European registrations for RP's Revasc to the extent related to the indication DVT and any other information and experience relating to Revasc to the extent related to the indication DVT.

12. "Confidential Business Information" means all information concerning the research, development, marketing, distribution, cost, pricing, sale and commercialization of Revasc related to the indication DVT.

13. "Revasc DVT Patent Rights" means any and all patents and patent applications owned, licensed or controlled by Hoechst, RP and Aventis to the extent related to the use of Revasc for the indication DVT in the EU, and any and all reissues, extensions, substitutions, confirmations, registrations, revalidations, additions, continuations or divisions of or to any of the aforesaid patents.

14. "Merger" means the proposed business combination of Hoechst and RP as notified to the Commission of the European Communities on 24.6.1999.

2. Object of the Undertaking

Hoechst, RP and Aventis undertake to the Commission to implement the following steps:

15. Hoechst, RP and Aventis shall not develop, manufacture, distribute, or sell Revasc as far as its use for the indication DVT in the EU is concerned or participate in the development, manufacture, distribution or sale of Revasc as far as its use for the indication DVT in the EU is concerned and shall not assert any rights granted by the Revasc DVT License or any other contract against any person for any activities related to the use of Revasc, as far as the use of Revasc for the indication DVT in the EU is concerned. Provided, however, that Hoechst, RP and Aventis shall retain such rights under the Revasc DVT License and other contract(s) as are necessary to fulfill the requirements of paragraphs 16. through 18. of this undertaking. Nothing provided in this paragraph shall limit any right of Hoechst, RP and Aventis to develop, manufacture, distribute, or sell Revasc as far as any indication other than DVT is concerned or participate in the development, manufacture, distribution or sale of Revasc as far as any indication other than the indication DVT in the EU is concerned.

16. RP shall offer to transfer to Novartis, absolutely and in good faith, as soon as reasonably practicable, and in any event within [confidential information].from the date of the Commission decision clearing the Merger, the Revasc DVT Divestiture Assets for the EU territory against reimbursement to RP of the fair and reasonable market value of Revasc in the EU for the indication DVT by Novartis. Provided,

however that Hoechst, RP and Aventis shall take such actions as are necessary to maintain the development of Revasc and to prevent the destruction, removal, wasting, delay, deterioration, or impairment of the assets used in the research, development, manufacturing or sale of Revasc.

17. If Novartis, within [confidential information].from receipt of the RP Letter, fails to accept the return of the Revasc DVT Divestiture Assets as provided in paragraph 16. of this undertaking, then RP shall absolutely and in good faith, within [confidential information].from the date of expiration of the above [confidential information].period, sublicense, against reimbursement to RP of the fair and reasonable market value of Revasc in the EU for the indication DVT, the Revasc DVT Divestiture Assets for the European territory only to a licensee that receives the joint prior approval of the Commission and Novartis, provided the latter is required under the Revasc DVT License. This period of [confidential information].may be extended by the Commission on request of Hoechst, RP and Aventis for a further maximum and non-extendable period of[confidential information]..

18. RP shall, within [confidential information].from the date that Novartis accepts the return of the Revasc DVT Divestiture Assets, or within [confidential information].from the date that the Commission approves the sublicensee, transfer to Novartis or the sublicensee, all Revasc DVT Know-how and shall not keep copies of such Revasc DVT Know-how after the written request by Novartis if it accepts the Revasc DVT Divestiture Assets, or the sublicensee.

3. Interim Trustee

19. Within a maximum period of [confidential information].after the adoption of the Commission decision clearing the Merger, Hoechst, RP and Aventis will appoint an Interim Trustee to assure that Hoechst, RP and Aventis expeditiously perform their responsibilities as required by Section 2. of this undertaking.

20. The appointment of the Interim Trustee is subject to approval of the Commission, such approval not to be unreasonably withheld. Hoechst, RP and Aventis shall consent to the following terms and conditions regarding the powers, duties, authorities, and responsibilities of the Interim Trustee.

21. The Interim Trustee shall have the power and authority to monitor Hoechst's, RP's and Aventis' compliance with the terms of this undertaking, and shall exercise such power and authority and carry out the duties and responsibilities of the Interim Trustee in a manner consistent with the purposes of this undertaking and in consultation with the Commission on the basis of written monthly reports.

22. Within ten (10) days after appointment of the Interim Trustee, Hoechst, RP and Aventis shall execute a trust agreement that, subject to the prior approval of the Commission, confers on the Interim Trustee all the rights and powers necessary to permit the Interim Trustee to monitor their compliance with the terms of this undertaking and in a manner consistent with the purposes of this undertaking.

23. The Interim Trustee shall serve until the divestiture of the Revasc DVT Divestiture Assets has terminated; provided, however, the Commission may extend

this period as may be necessary or appropriate to accomplish the purposes of this undertaking.

24. The Interim Trustee shall have full and complete access to Hoechst, RP and Aventis personnel, books, records, documents, facilities and technical information relating to the research, development, manufacture, importation, distribution and sale of Revasc for the indication DVT in the European Union, or to any other relevant information, as the Interim Trustee may reasonably request, including, but not limited to, all documents and records kept in the normal course of business that relate to the manufacture of Revasc, provided, however, such request is limited to the indication DVT in the European Union, and all materials and information relating to regulatory approvals related to the use of Revasc for the indication DVT in the European Union. Hoechst, RP and Aventis shall cooperate with any reasonable request of the Interim Trustee.

25. The Commission may on its own initiative or at the request of the Interim Trustee issue such additional orders or directions as may be necessary or appropriate to assure compliance with the requirements of this undertaking.

6 August 1999

For Hoechst AG For Rhône-Poulenc

ANNEX 5:
Commitment Regarding the Pharmaceutic Active Substance Cyanocobalamine

The undertakings set out in this letter are given by Hoechst AG and Rhône-Poulenc S.A. to the Commission of the European Communities pursuant to Council Regulation (EEC) No. 4064/89 of 21 December 1989 on the control of concentrations between undertakings (as amended) in the context of the proposed merger between Hoechst AG ("Hoechst") and Rhône-Poulenc S.A. ("RP") into the new entity Aventis, S.A. ("Aventis") in order to take account of concerns raised by the Commission as regards any anti-competitive effects of the proposed merger in relation to the pharmaceutic active substance cyanocobalamine.

Definitions
1. "Hoechst" means Hoechst AG, its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions, groups and affiliates controlled by Hoechst, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

2. "RP" means Rhône-Poulenc S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions, groups and affiliates controlled by RP, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

3. "Aventis" means Aventis S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns: the subsidiaries, divisions, groups and affiliates controlled by Aventis, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

4. "Commission" means the Commission of the European Communities.

5. "Products" means the pharmaceutical active ingredient cyanocobalamine (excluding the derivatives dibencozide, hydroxocobalamine and methylcobalamine) as developed and marketed by Hoechst, RP and Aventis.

6. "License" means a EU- wide, non-exclusive license on the technology, including all know-how and patents, of either Hoechst or RP (at the choice of Hoechst, RP and Aventis)used for the production of the Products (excluding the derivatives dibencozide, hydroxocobalamine and methylcobalamine).

7. "Merger" means the proposed business combination of Hoechst and RP as notified to the Commission of the European Communities on 24.6.1999.

2. Object of the Undertaking
Hoechst, RP and Aventis undertake to the Commission to implement the following steps:

8. Hoechst, RP or Aventis shall use its best efforts to grant the License at fair and reasonable market value to a viable and independent third party within a period of [confidential information]from the date of the Commission decision clearing the Merger. Hoechst, RP and Aventis recognise that for a proposed licensee to be unobjectionable to the Commission, it must be a viable licensee unconnected to Hoechst, RP and Aventis and possessing the financial ressources and expertise to enable it to develop the Products in active competition with Hoechst, RP and Aventis. The period of [confidential information].may be extended by the Commission on request of Hoechst, RP and Aventis for a further maximum and non-extendable period of [confidential information].

9. In addition, H, RP and Aventis undertake, if required by such third party, to provide technical assistance[Deleted for publication ; commercially sensitive information], and supply of the Products [Deleted for publication ; commercially sensitive information].

3. Interim Trustee

10. Within [confidential information]from the date of the adoption of the Commission decision clearing the Merger, Hoechst, RP and Aventis will appoint an Interim Trustee to assure that they expeditiously perform their responsibilities as required by Section 2. of this undertaking, provided the Licence has not been granted until then.

11. The appointment of the Interim Trustee is subject to approval of the Commission, such approval not to be unreasonably withheld. Hoechst, RP and Aventis shall consent to the following terms and conditions regarding the powers, duties, authorities, and responsibilities of the Interim Trustee.

12. The Interim Trustee shall have the power and authority to monitor Hoechst, RP and Aventis compliance with the terms of this undertaking, and shall exercise such power and authority and carry out the duties and responsibilities of the Interim Trustee in a manner consistent with the purposes of this undertaking and in consultation with the Commission on the basis of written monthly reports.

13. Within ten (10) days after appointment of the Interim Trustee, Hoechst, RP and Aventis shall execute a trust agreement that, subject to the prior approval of the Commission, confers on the Interim Trustee all the rights and powers necessary to permit the Interim Trustee to monitor their compliance with the terms of this undertaking and in a manner consistent with the purposes of this undertaking.

14. The Interim Trustee shall have full and complete access to Hoechst, RP and Aventis personnel, books, records, documents, facilities and technical information relating to the research, development, manufacture, importation, distribution and sale of the Products, or to any other relevant information, as the Interim Trustee may reasonably request.

15. The Commission may on its own initiative or at the request of the Interim Trustee issue such additional orders or directions as may be necessary or appropriate to assure compliance with the requirements of this undertaking.
16.
6 August 1999

For Hoechst AG For Rhône-Poulenc

ANNEX 6: Untertaking Re: Isoproturon
The undertakings set out in this letter are given by Hoechst AG and Rhône-Poulenc S.A. to the Commission of the European Communities pursuant to Council Regulation (EEC) No. 4064/89 of 21 December 1989 on the control of concentrations between undertakings (as amended) in the context of the proposed merger between Hoechst AG ("Hoechst") and Rhône-Poulenc S.A. ("RP") into the new entity Aventis, S.A. ("Aventis").
I. Definition
1. "Hoechst" means Hoechst AG, its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, in particular its affiliates Hoechst Schering AgrEvo GmbH ("AgrEvo") and Stefes GmbH ("Stefes"), divisions, groups and affiliates controlled by Hoechst, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.
2. "RP" means Rhône-Poulenc S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions,

groups and affiliates controlled by RP, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.
3. "Aventis" means Aventis S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns: the subsidiaries, divisions, groups and affiliates controlled by Aventis, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.

4. "Commission" means the Commission of the European Communities.
5. "IPU" means the active substance Isoproturon.
II. Object of the Undertaking
6. The Parties undertake within [Confidential information] from the date of the approval of the concentration by the Commission,
(i) to sell and transfer to a third party
(a) the existing national registrations for straight IPU formulated products in EU Member States of AgrEvo and Stefes together with AgrEvo's seat in the EU-IPU registration task force with adequate sharing of the past and current actual costs thereof (i.e. without charging any premium or surcharge) as well as pertinent customers lists, including copies of all necessary documentation related to existing and ongoing studies and granting of technical support necessary for the transfer of the registrations to the acquirer vis-à-vis the competent authorities against customary remuneration,
(b) AgrEvo's existing trademark [Deleted for publication ; commercially sensitive information] as well as [Deleted for publication ; commercially sensitive information]regarding IPU straight products, [Deleted for publication ; commercially sensitive information], as far as the marketing of straight IPU formulated products in EU Member States is concerned, at fair market value,
(ii) to supply to the third party at its request at Aventis' costs such quantities of the active substance IPU as required by the third party between the date of the completion of the sale pursuant to (i) above and the date of the completion of the transfer of all national registrations referred to above in (i) in order to be in a position to already market IPU products, subject to national regulation, prior to the completion of the transfer of the registrations to it,
(iii) upon request of any acquirer of the rights mentioned in (i), who does not have IPU active ingredient production facilities of its own, to enter into an agreement with respect to the supply of up to [confidential information] t of the active ingredient IPU at [Deleted for publication ; commercially sensitive information]for a period of up to [confidential information] years,
(iv) to return the licences of AgrEvo regarding the active substances [Deleted for publication ; commercially sensitive information]and to use their best efforts to cause the licensors to transfer the licences to the third party,
(v) to grant to the third party back-to-back access to AgrEvo's registrations in the EU of its mixed IPU products based on the active substances Amidosulfuron and Fenoxaprop, and to enter into a long-term supply agreement with the third party at Aventis' average sales price of [Deleted for publication ; commercially sensitive information]or, at the third party's choice, at a price at similar fair market conditions to be negotiated between Aventis and the third party in good faith, for such quantities of Amidosulfuron and Fenoxaprop needed for the purpose of producing the above mentioned registered IPU mixtures for use in the EU. Such back-to-back registration shall not give the third party any right to have access to the data package necessary for the registration nor shall it grant any rights with respect to any technology nor grant the right to market Amidosulfuron or Fenoxaprop as straight

products or in other mixtures than the specified ones. In case the parties intend to discontinue the primary registration of such mixtures, they are obliged to offer to transfer the registration at market value to the third party before seeking de-registration,
(vi) not to actively solicit in the EU sales of IPU straight to customers of AgrEvo's existing products related to IPU straight for a period of [confidential information], provided those customers have not been previously supplied by RP.
7. The acquirer shall be a viable third party independent from the parties approved for this purpose by the Commission.

III. Appointment of a Trustee
8. Within [confidential information]after the adoption of the Commission decision clearing the Merger, Hoechst, RP and Aventis will propose to the Commission a trustee, who is independent of the parties, to assure that they expeditiously perform their responsibilities as required by Section II. of this undertaking. The trustee shall be a person with experience and expertise in acquisitions and divestitures.
9. The appointment of the trustee is subject to approval of the Commission, such approval not to be unreasonably withheld. Hoechst, RP and Aventis shall consent to the following terms and conditions regarding the powers, duties, authorities, and responsibilities of the trustee.
10. The trustee shall have the power and authority to monitor Hoechst, RP and Aventis compliance with the terms of this undertaking and shall exercise such power and authority and carry out the duties and responsibilities of the trustee in a manner consistent with the purposes of this undertaking and in consultation with the Commission on the basis of written monthly reports.
11. Within ten (10) days after appointment of the trustee, Hoechst, RP and Aventis shall execute a trust agreement that, subject to the prior approval of the Commission, confers on the trustee all the rights and powers necessary to permit the trustee to monitor their compliance with the terms of this undertaking and in a manner consistent with the purposes of this undertaking.
12. The trustee shall serve until the arrangements provided in Section II. of these commitment have been completed. The Commission, however, may extend the Trustee's term as may be necessary or appropriate to accomplish the purposes of this undertaking.
13. The trustee shall have full and complete access to Hoechst, RP and Aventis personnel, books, records, documents, facilities and technical information relating to the research, development, manufacture, distribution and sale of IPU, or to any other relevant information, as the trustee may reasonably request, including, but not limited to, all documents and records kept in the normal course of business that relate to the manufacture of IPU and all materials and information relating to regulatory approvals. Hoechst, RP and Aventis shall cooperate with any reasonable request of the trustee.
14. After [confidential information]have elapsed from the date of the approval of the concentration by the Commission, without Hoechst, RP and Aventis having entered into a binding agreement for the obligations set forth in Section II. of this undertaking, the trustee's mandate shall be extended to carry out the additional functions set out hereunder. The [confidential information] period may be extended by the Commission on request of Hoechst, RP and Aventis for a further maximum and non-extendable period of [confidential information].
15. After [confidential information]have elapsed from the date of the approval of the concentration by the Commission, the trustee shall have [confidential information] to

accomplish the arrangements provided in Section II. at a fair market price. If, however, at the end of the [confidential information]period, the trustee has submitted a plan to accomplish the arrangements provided in Section II: or believes that such arrangements can be achieved within a reasonable time, the [confidential information]period may be extended by the Commission. [confidential information]. The purchaser shall be in any event subject to the Commission's prior approval.
16. Hoechst, Rhône-Poulenc and Aventis shall execute a trust agreement that, subject to the prior approval for the Commission, transfers to the trustee all rights and powers necessary to permit the trustee to effect the divestiture of the assets as described above.
17. Hoechst, RP and Aventis shall develop such financial or other information as the trustee may request and shall cooperate with the trustee. They shall take no action to interfere with or impede the trustee's accomplishment of the divestiture
18. The Commission may on its own initiative or at the request of the Trustee issue such additional orders or directions as may be necessary or appropriate to assure compliance with the requirements of this undertaking.
19. The trustee shall report in writing to Hoechst, RP and Aventis and the Commission every thirty (30) days concerning the trustee's efforts to accomplish the divestiture.
6 August 1999
for Hoechst: for Rhône-Poulenc:

_____ _____

ANNEX 7: Undertaking re: French Cockroach Insecticides Business

The undertakings set out in this letter are given by Hoechst AG and Rhône-Poulenc S.A. to the Commission of the European Communities pursuant to Council Regulation (EEC) No. 4064/89 of 21 December 1989 on the control of concentrations between undertakings (as amended) in the context of the proposed merger between Hoechst AG ("Hoechst") and Rhône-Poulenc S.A. ("RP") into the new entity Aventis, S.A. ("Aventis") in order to take account of any doubts with respect to any potential anti-competitive effect which the proposed merger of Hoechst AG and Rhône-Poulenc S.A. (the "Parties") may have on the French cockroach insecticides business:
I. Definition
1. "Hoechst" means Hoechst AG, its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, in particular its affiliates Hoechst Schering AgrEvo GmbH ("AgrEvo") and Stefes GmbH ("Stefes"), divisions, groups and affiliates controlled by Hoechst, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.
2. "RP" means Rhône-Poulenc S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; the subsidiaries, divisions, groups and affiliates controlled by RP, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.
3. "Aventis" means Aventis S.A., its directors, officers, employees, agents and representatives, predecessors, successors, and assigns: the subsidiaries, divisions, groups and affiliates controlled by Aventis, and the respective directors, officers, employees, agents, and representatives, successors, and assigns of each.
4. "Commission" means the Commission of the European Communities.

II. Object of the Undertaking

5. The Parties undertake

(i) to licence to a third party, on an exclusive basis for an unlimited period of time, and as far is France is concerned, AgrEvo's trademark [Deleted for publication ; commercially sensitive information] for marketing of cockroach insecticides based upon [Deleted for publication ; commercially sensitive information], an active substance sourced by AgrEvo from other companies, and

(ii) to grant to such third party for the use in France access to the formulation formulae used by AgrEvo for the production of [Deleted for publication ; commercially sensitive information] cockroach insecticides subject to appropriate confidentiality commitments by the third party, and,

(iii) upon request of such third party, to enter into a supply agreement with such third party for the party's needs with respect to France with respect to the supply of [Deleted for publication ; commercially sensitive information]by AgrEvo from its existing supply sources on a [Deleted for publication ; commercially sensitive information]basis for a period of up to [Confidential information] years.

6. The third party shall be a viable undertaking independent from the Parties and approved for the purpose of this undertaking by the Commission.

III. Trustee

7. Within [Confidential information] after the adoption of the Commission decision clearing the Merger, Hoechst, RP and Aventis will propose to the Commission a trustee, who is independent of the parties, to assure that they expeditiously perform their responsibilities as required by Section II. of this undertaking. The trustee shall be a person with experience and expertise in acquisitions and divestitures.

8. The appointment of the trustee is subject to approval of the Commission, such approval not to be unreasonably withheld. Hoechst, RP and Aventis shall consent to the following terms and conditions regarding the powers, duties, authorities, and responsibilities of the trustee.

9. The trustee shall have the power and authority to monitor Hoechst, RP and Aventis compliance with the terms of this undertaking and shall exercise such power and authority and carry out the duties and responsibilities of the trustee in a manner consistent with the purposes of this undertaking and in consultation with the Commission on the basis of written monthly reports.

10. Within ten (10) days after appointment of the trustee, Hoechst, RP and Aventis shall execute a trust agreement that, subject to the prior approval of the Commission, confers on the trustee all the rights and powers necessary to permit the trustee to monitor their compliance with the terms of this undertaking and in a manner consistent with the purposes of this undertaking.

11. The trustee shall serve until the arrangements provided in Section II. of these commitment have been completed. The Commission, however, may extend the Trustee's term as may be necessary or appropriate to accomplish the purposes of this undertaking.

12. The trustee shall have full and complete access to Hoechst, RP and Aventis personnel, books, records, documents, facilities and technical information relating to [Deleted for publication ; commercially sensitive information], or to any other relevant information, as the trustee may reasonably request, including, but not limited to, all documents and records kept in the normal course of business that relate to the manufacture and distribution of [Deleted for publication ; commercially sensitive information] and all materials and information relating to regulatory approvals. Hoechst, RP and Aventis shall cooperate with any reasonable request of the trustee.

13. After [Confidential information] have elapsed from the date of the approval of the concentration by the Commission, without Hoechst, RP and Aventis having entered into a binding agreement for the obligations set forth in Section II. of this undertaking, the trustee's mandate shall be extended to carry out the additional functions set out hereunder. The [Confidential information] period may be extended by the Commission on request of Hoechst, RP and Aventis for a further maximum and non-extendable period of [Confidential information].
14. After [Confidential information] have elapsed from the date of the approval of the concentration by the Commission, the trustee shall have [Confidential information] to accomplish the arrangements provided in Section II. at a fair market price. If, however, at the end of the [Confidential information] period, the trustee has submitted a plan to accomplish the arrangements provided in Section II: or believes that such arrangements can be achieved within a reasonable time, the [Confidential information] period may be extended by the Commission. [Confidential information]. The purchaser shall be in any event subject to the Commission's prior approval.
15. Hoechst, Rhône-Poulenc and Aventis shall execute a trust agreement that, subject to the prior approval for the Commission, transfers to the trustee all rights and powers necessary to permit the trustee to effect the divestiture of the assets as described above.
16. Hoechst, RP and Aventis shall develop such financial or other information as the trustee may request and shall cooperate with the trustee. They shall take no action to interfere with or impede the trustee's accomplishment of the divestiture
17. The Commission may on its own initiative or at the request of the Trustee issue such additional orders or directions as may be necessary or appropriate to assure compliance with the requirements of this undertaking.
18. The trustee shall report in writing to Hoechst, RP and Aventis and the Commission every thirty (30) days concerning the trustee's efforts to accomplish the divestiture.
6 August 1999
for Hoechst: for Rhône-Poulenc:
_____ _____

Commitment by Hoechst to the Commission of the European Communities

Hoechst hereby offers the following commitment to the Commission in connection with the notified merger of Hoechst and Rhône-Poulenc:

1. Hoechst will divest its participation in Hoechst Roussel Vet GmbH ("HRVet") to an unconnected and viable third party, within [confidential information] after the closing of the Aventis transaction. The Commission may, subject to Hoechst showing that it has used all reasonable efforts to divest its participations in HRVet within the aforementioned period of time, extend this period by not more than [confidential information] plus [confidential information].

2. For the purpose of divesting its participations in HRVet, Hoechst has mandated [confidential information] as supporting investment bank. A copy of the agreement between Hoechst and [confidential information] has been submitted for the Commission's approval together with the submission of this commitment.

3. Hoechst will keep the HRVet business separate from the businesses of Aventis in order to maintain HRVet as an independent and viable competitive entity and to facilitate the efforts to divest its participations in HRVet. [...]

4. Hoechst will instruct [confidential information] to report about keeping HRVet as a viable business entity independent from Aventis and from the management of Aventis and about the efforts of Hoechst to divest HRVet without undue delay, on a bi-monthly basis and to eventually answer respective requests for information directly to the Commission.

August 6, 1999

Hoechst Aktiengesellschaft