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DECISION
of 27 May 2003

Case Number: T 0829/00 - 3.3.1

Application Number: 92914179.4

Publication Number: 0590053

IPC: C07C 209/02

Language of the proceedings: EN

Title of invention:
Method of preparing 4-Aminodiphenylamine

Patentee:
FLEXSYS AMERICA L.P.

Opponent:
Dr. Milan Petro

Headword:
4-Aminodiphenylamine/FLEXSYS

Relevant legal provisions:
EPC Art. 56, 111(1)

Keyword:
"Inventive step (yes) - non obvious solution"
"Remittal to the first instance for adapting the description (yes)"

Decisions cited:
-

Catchword:
-

Case Number: T 0829/00 - 3.3.1

DECISION
of the Technical Board of Appeal 3.3.1
of 27 May 2003

Appellant: (Proprietor of the patent)	FLEXSYS AMERICA L.P. 260 Springside Drive Akron Ohio 44333 (US)
Representative:	Schalkwijk, Pieter Cornelis AKZO NOBEL N.V. Patent Department (Dept. APTA) P.O. Box 9300 NL-6800 SB Arnhem (NL)
Respondent: (Opponent)	Dr. Milan Petro Pankuchova 5 SK-85104 Bratislava (SK)
Representative:	Jeck, Anton, Dipl.-Ing. Jeck Fleck Herrmann Patentanwälte Postfach 14 69 D-71657 Vaihingen/Enz (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 16 June 2000 revoking European patent No. 0590053 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman:	A. J. Nuss
Members:	P. F. Ranguis S. C. Perryman

Summary of Facts and Submissions

I. The Appellant (Proprietor of the patent) lodged an appeal against the decision of the Opposition Division to revoke the European patent No. 0 590 053 (European patent application No. 92 914 179.4).

II. The patent as granted (main request before the Opposition Division) contained eighty one claims.

The auxiliary request contained fifty one claims (Claims 24 to 72 of the patent as granted). Independent Claim 1 of this auxiliary request read as follows:

"1. A method of producing 4-aminodiphenylamine (4-ADPA) or substituted derivatives thereof comprising the steps of bringing aniline, and nitrobenzene into reactive contact in a suitable solvent system, characterized in that aniline or aniline derivatives, substituted on the aromatic moiety, and nitrobenzene are being reacted in a confined zone at a suitable temperature, and in the presence of a suitable base and a controlled amount of protic material to produce one or more 4-aminodiphenylamine intermediates, and that the 4-aminodiphenylamine intermediates are being reduced under conditions which produce 4-aminodiphenylamine or substituted derivatives thereof."

III. The opposition sought revocation of the patent in suit on the grounds that the claimed subject matter lacked novelty and did not involve an inventive step (Article 100(a) EPC). The opposition was supported by several documents including:

(1) Ber. **1903**, 36, 4135-4138

(2) Ukrain. Chim. Zur. **1955**, 21, 350-360 (translation into English)

(5) Uspechi Chimii, **1955**, 24, 313-45 (translation into English)

(6) Zur. Obscej Chim, **1952**, 22, 502-509 (translation into English)

(7) J. Org. Chem. **1983**, 48, 1700-1705

IV. The Opposition Division held that the subject-matter of Claim 1 of the patent as granted (main request before the Opposition Division) lacked novelty over the disclosure of documents (1) or (7).

Regarding the subject matter of Claim 1 of the auxiliary request, the Opposition Division held, relying upon the prior art discussed in the patent in suit on page 2, lines 15 to 39 which disclosed methods of preparation of 4-aminodiphenylamine (4-ADPA) by condensation of p-chloronitrobenzene and aniline followed by reduction of the nitro moiety, that it would have been obvious for the person skilled in the art wishing to avoid the use of p-chlorobenzene to replace the said condensation step by the condensation of aniline and nitrobenzene as taught by documents (1) and (7) and thereby arrive at the claimed invention.

V. With the statement of grounds of appeal, the Appellant filed as main request a set of fifty eight claims. Claim 1 was identical to Claim 1 of the auxiliary request before the Opposition Division (cf. point II above) and the further independent Claims 26, 51, 52, 53, 55 and 57 read as follows:

"26. A method of producing alkylated p-phenylenediamines or substituted derivatives thereof comprising the steps of bringing aniline and nitrobenzene into reactive contact in a suitable solvent system, characterized in that aniline or aniline derivatives, substituted on the aromatic moiety, and nitrobenzene are being reacted in a confined zone at a suitable temperature, and in the presence of a suitable base and a controlled amount of protic material to produce one or more 4-aminodiphenylamine intermediates, that the 4-aminodiphenylamine intermediates are being reduced to produce 4-aminodiphenylamine or substituted derivatives thereof; and that the 4-aminodiphenylamine or substituted derivatives thereof are reductively alkylated."

"51. A method of producing one or more 4-aminodiphenylamine intermediates comprising:

a) bringing aniline and nitrobenzene into reactive contact in a suitable solvent system; and
b) reacting the aniline and nitrobenzene in a confined zone at a suitable temperature, and in the presence of a suitable base and a controlled amount of protic material to produce one or more 4-aminodiphenylamine intermediates;

wherein said suitable solvent is aniline, said protic material is water, said base is tetramethyl ammonium hydroxide dihydrate, which is combined with aniline, to which mixture nitrobenzene is added at a controlled rate, the reaction temperature is 50°C to 65°C, the reaction is carried out under anaerobic conditions and the amount of protic material at the beginning of the reaction is about 9.8% water based on the total volume of the reaction mixture".

"52. A method of producing one or more 4-aminodiphenylamine intermediates comprising:

a) bringing aniline and nitrobenzene into reactive contact in a suitable solvent system; and
b) reacting the aniline and nitrobenzene in a confined zone at a suitable temperature, and in the presence of a suitable base and a controlled amount of protic material to produce one or more 4-aminodiphenylamine intermediates;

wherein said suitable solvent is aniline, said protic material is water, said base is tetramethyl ammonium hydroxide, which is combined with aniline, to which mixture nitrobenzene is added at a controlled rate, the reaction temperature is 70°C, the reaction is carried out under anaerobic conditions under continuous removal of water by azeotropic distillation, and the amount of protic material at the beginning of the reaction is about 13.8% volume based on the total volume of the reaction mixture".

"53. Tetrasubstituted ammonium salts of 4-nitrodiphenylamine and substituted derivatives thereof wherein each substituent of the tetrasubstituted ammonium ion is independently selected from the group consisting of alkyl, aryl and arylalkyl groups".

"55. Tetrasubstituted ammonium salts of 4-nitrosodiphenylamine and substituted derivatives thereof wherein each substituent of the tetrasubstituted ammonium ion is independently selected from the group consisting of alkyl, aryl and arylalkyl groups".

"57. Alkyl substituted diammonium salts of 4-nitrodiphenylamine or 4-nitrosodiphenylamine wherein each alkyl substituent of the alkyl substituted diammonium ion is independently selected".

The Appellant also filed an auxiliary request. However, in view of the outcome of this appeal, it is not necessary to deal with it.

VI. Oral proceedings took place on 27 May 2003.

VII. The Appellant's submissions in the written proceedings and during oral proceedings may be summarised as follows:

- Document US-A-4 122 118 (10) acknowledged in the application as filed and the patent in suit was to be considered as the closest state of the art. This document disclosed the manufacture of 4-aminodiphenylamine (4-ADPA) by first reacting aniline and p-chloronitrobenzene in the presence of potassium carbonate and a catalyst, consisting of the reaction product of a copper compound with N-methyl-pyrrolidone, to form 4-nitrodiphenylamine and next reducing the formed 4-nitrodiphenylamine to yield the corresponding 4-aminodiphenylamine. The technical problem to be solved in view thereof was to provide a further process to prepare 4-ADPA using less expensive raw material, displaying less or no corrosivity to the reactors and placing less burden on the environment.

- A table submitted at the oral proceedings (and attached to the minutes) showed that none of the documents cited in the proceedings and related to the manufacture of 4-ADPA would have directed the person skilled in the art, faced with the technical problem defined above, to the claimed process. In particular, none of documents US-A-4 760 186 (11), US-A-4 404 401 (12) and US-A-4 479 008 (13), all published after the date of publication of document (10), had the slightest resemblance to the claimed solution.

- It was only with hindsight that the Opposition Division had relied upon documents (1) and (7) to deny inventive step:

  Document (1) dating back to 1903 did not concern the preparation of 4-ADPA and only disclosed the isolation of p-nitrosodiphenylamine in a yield of 3.3% by reacting nitrophenol and anilin, in the presence of alcali, followed by treatment with carbonic acid. The person skilled in the art would not have found document (1) since it was not concerned with making 4-ADPA.

Although document (7) disclosed in one experiment the formation of 4-nitrodiphenylamine by reacting aniline with nitrobenzene in a base catalysed reaction, this document concerned a remote technical field, namely the study of senescence inhibition in plants by cytokinins. The person skilled in the art would not have found document (7) either, since it was concerned with a different field of art and, furthermore, gave no hint to hydrogenate the 4-nitrodiphenylamine.

- As a further evidence of inventive step, documents

  (14) The Presidential Green Chemistry Challenge Award (1998)

  (15) US-A-5 739 403

  (16) WO-A-35 853

  showed the breakthrough character of the invention of the present patent.

VIII. The Respondent (Opponent) denied that the subject-matter of Claim 1 of the main request provided an improvement over the process described in document (10). Indeed, the advantages linked to the absence of chlorine compounds (chloronitrobenzene) were counter-balanced by the use of tetramethylammoniumhydroxid (TMAH) the manufacture of which was detrimental to the environment and which involved a costly maintenance of the plant.

There was no example in the patent in suit disclosing a process according to Claim 1.

In view of documents (1) and (7), it would have been obvious to prepare the 4-nitrodiphenylamine and/or 4-nitrosodiphenylamine by reacting anilin with nitrobenzene in specific conditions. The reduction of the nitro- and /or nitroso-compounds was a common step as admitted in the patent in suit and as confirmed by documents

(17) Ullmanns Encyclopädie der technischen Chemie, Band 13, Seite 491, Urban and Schwarzenberg, München-Berlin 1962

(20) US-A- 4 313 002

(21) EP-A- 184 914

(23) J. Org. Chem., 42, 1786 (1977)

Furthermore, it could be derived from document (21) that 4-nitrodiphenylamine was toxic and unstable. For these reasons, this product was not used as raw material and directly hydrogenated.

Thus the subject-matter of Claim 1 of the main request which resulted from the combination of two known steps did not involve an inventive step.

IX. The Appellant requested that the decision under appeal be set aside and that the patent be maintained as main request on the basis of Claims 1 to 58 of the main request submitted on 25 October 2000 or as auxiliary request on the basis of Claims 1 to 44 of the auxiliary request submitted on 27 May 2003 at the oral proceedings before the Board of Appeal.

The Respondent requested that the main request of the Appellant be refused.

X. At the end of the oral proceedings the decision of the Board was announced.

Reasons for the decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is admissible.

Main request

2. Novelty is no longer contested by the Respondent and the Board sees no objection in that respect. The sole question to be decided is thus whether the subject-matter of this request meets the requirements of Article 56 EPC.

3. *Article 56 EPC*

3.1 The patent in suit in the form of the main request relates to a method of producing 4-aminodiphenylamine (4-ADPA) or substituted derivatives thereof and consists in a two step process involving, first, the formation of one or more 4-aminodiphenylamine intermediates or the substituted derivatives thereof, e.g., 4-nitrodiphenylamine, 4-nitrosodiphenylamine and the salts thereof, followed by the reduction of said intermediates to produce 4-ADPA or substituted derivatives thereof (cf. page 2, lines 5 to 11; page 2, lines 53 to 55; page 5, lines 45 to 46).

3.2 Document (10) acknowledged in the patent in suit (cf. page 2, line 20) and cited by the Appellant in the statement of grounds of appeal as the closest state of the art refers to a process for producing nitrodiphenylamines by reacting nitrochlorobenzenes such as p-nitrochlorobenzene with aromatic amines such as aniline in the presence of potassium carbonate and a copper containing catalyst for accelerating the reaction (cf. column 1, lines 6 to 9 and lines 44 to 60; col.2, lines 30 to 31 and lines 51 to 52). The nitrodiphenylamines produced by the process can be readily reduced by known methods to form aminodiphenylamines (cf. column 3, lines 37 to 41). It is not contested that the aminodiphenylamines obtained through the reduction step may correspond to the 4-ADPA prepared by the claimed method. This document aims, thus, at the same objective as the claimed subject-matter. From the examples, it can be deduced that the reaction of condensation occurs with a good yield and since the further reduction step to 4-ADPA is quasi-quantitative ("readily reduced"), it can be concluded that 4-ADPA may obtained in good yield by this process.

3.3 The Respondent disputed the Appellant's view and argued that the gist of the patent in suit was the first step involving the condensation of aniline or aniline derivatives, substituted on the aromatic moiety, with nitrobenzene. By contrast, the second step consisting in reducing the nitro or nitroso intermediate compound obtained was trivial. Therefore, a document describing the first step should be considered as the closest prior art. In that respect, document (7) disclosed the reaction of aniline with nitrobenzene, in the presence of tert-butoxyde in benzene to yield 24% of 4-nitrodiphenylamine and was to be considered as the closest state of the art (cf. page 1704, right-hand column, Table II).

3.4 The Board does not accept the Respondent's view. Indeed, a prerequisite for a document to be qualified as the closest state of the art is that it aims at the same objective as the patent in suit. In particular, where a claimed invention relates to a process for manufacturing a known product as is the case here, then the closest state of the art is confined to documents describing that compound and its manufacture (cf. Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001, I.D.3.6). Since document (7) does not relate to the preparation of 4-aminodiphenylamine (4-ADPA) or substituted derivatives thereof, it cannot qualify as the closest state of the art.

3.5 Moreover, the Board is not aware of any other documents aiming at the same objective as the patent in suit and requiring less structural and functional modifications than the disclosure of document (10) with respect to the claimed subject-matter. Nothing relevant was submitted in that respect by the Respondent.

For the above reasons, the Board considers, in agreement with the Appellant, that the disclosure of document (10) represents the closest state of the art, and, hence, the starting point in the assessment of inventive step.

3.6 In view of this state of the art the technical problem underlying the patent in suit, as already acknowledged in the specification, consists in providing a further process for preparing, in good yield, 4-ADPA or substituted derivatives thereof which does not involve a halide source and therefore eliminates the halide removal from the waste stream (cf. page 2, lines 8 to 10 and 40 to 41).

The other advantages put forward by the Appellant relating to the lesser cost of the process (less expensive raw material) or to a favourable impact on the environment (less of a burden) are not sufficiently substantiated with respect to the whole claimed area to be taken in consideration. Therefore, none of these alleged further advantages are to be taken into account in the determination of the problem to be solved.

3.7 As the solution to the above stated problem, the patent in suit proposes to condense aniline or aniline derivatives substituted on the aromatic moiety with nitro benzene in the presence of a suitable base and a controlled amount of protic material to produce one or more 4-aminodiphenylamine intermediates, and to reduce said 4-aminodiphenylamine intermediates under conditions which produce 4-aminodiphenylamine or substituted derivatives thereof.

3.8 In the next step, it is to be verified whether the claimed process solves the technical problem defined above within its whole area.

First, it is clear that the claimed process does not involve any halo compound such as p-chloronitrobenzene and, therefore, no halide is to be removed from the waste stream. Furthermore, regarding the good yield to be achieved by the claimed process, the Board observes that the description contains many examples which report experiments resulting in a good yield of intermediate products in the presence of a controlled amount of protic material (cf. examples Nos. 1 to 3, 9, 12, 13 and 17). Since the reduction step is quasi-quantitative (cf. examples Nos. 1A and 19), it follows that the desired products are also obtained at good yield. However, the question arose during the oral proceedings whether example No. 5 which relates to the condensation reaction in the presence of alcaline bases was carried out according to the invention, i.e. in the presence of a controlled amount of protic material. This question was critical since in the absence of water or any other protic material, it turned out that the yield was of the order of 3% as taught by document (1) (cf. point 3.11.1 below).

The Appellant convinced the Board that, although this feature could not be quantitatively defined as it depends on the solvent, type and amount of base, base cation and the like, it meant that an amount of protic material **should** be present, as confirmed by the specification on page 5, lines 4 to 6 ("minimum amount"). It was pointed out, in that respect, that example No. 5, in particular the experiment involving potassium hydroxyde, was an example according to the invention, namely involving water as protic material. Indeed, this example was described as illustrating various bases which could be utilized in the method of the invention (cf. page 9, lines 4 to 5). This example was to be understood in view of the specification which cited as bases tetramethylammonium hydroxide as well as potassium hydroxides (cf. page 4, lines 15 to 26). Since in example No. 5, the experiment conducted with potassium hydroxyde was carried out in the reaction conditions of example of 1D involving tetramethylammonium hydroxide **dihydrate**, it followed that the experiment with potassium hydroxyde was also carried out in the presence of water. This finding also applies to the other experiments disclosed in example No. 5 related to other alcaline bases. Although no yield was indicated in relation to the experiments of example No. 5, it is to be assumed in the absence of evidence to the contrary from the Respondent that the experiments of example No. 5 also achieve a good yield.

In conclusion, the examples of the description (except comparative example No. 6 not in accordance with the claimed invention) show that the technical problem defined above (cf. point 3.6 above) is solved within the claimed area. This finding was not contested by the Respondent.

3.9 It remains to be decided whether or not the claimed solution is obvious over the cited prior art.

The relevant question is whether the appropriate person skilled in the art guided by the technical problem to be solved would have been directed to implement, in view of the state of the art, a process involving the condensation of anilin or anilin derivatives and nitrobenzene in the presence of a suitable base and a controlled amount of protic material, followed by a reduction step.

3.10 When starting from the method of preparation known from document (10) it is a matter of course that the person skilled in the art, seeking to provide a further process for preparing 4-ADPA avoiding the presence of halide would turn his attention to that prior art just addressing that technical problem. Various documents were cited in that respect:

3.10.1 Document (13) relates to the preparation of 4-ADPA by N-nitrosation of diphenylamine, then rearrangement to 4-nitrosodiphenylamine by treatment with HCl, followed by a reduction step (cf. col.2, lines 3 to 17 and example 3). This document does not give any hint to the person skilled in the art on how to get to the claimed process.

3.10.2 Documents (20) and (21) are no more helpful in that respect as they relate in substance to the same process as described in document (13) (cf. respectively, column 1, lines 51 to 62 and page 7, line 10 to page 9, line 13).

3.10.3 Document (11) relates to the preparation of 4-ADPA by head-to-tail coupling of aniline in the presence of an oxidizing agent to yield an oxidation product (unidentified) which is then reduced (cf. column 1, lines 26 to 66). This document gives no hint to the person skilled in the art in the direction of the claimed process.

3.10.4 Document (12) discloses a method of preparation of 4-ADPA by catalytic reduction of nitrobenzene to obtain nitrosobenzene, followed by a catalytic dimerization and finally by a reduction to 4-ADPA (cf. column 2, lines 12 to 49). This document too gives no hint to the person skilled in the art in the direction of the claimed process.

3.10.5 Document (23), consisting of the sole page 1786 provided by the Respondent, summarizes in the introduction the state of the art in the synthesis of 4-ADPA:

"p-aminodiphenylamine and derived compounds have long been used as dye intermediates and as polymer stabilizers, for example, as antioxidant or antiozonants for elastomers. The following brief review of the literature shows the scope of the methods tried for their synthesis. The nitro and nitroso products are readily reduced to aminophenylamines.

A recent Russian review of industrial process concluded that the preferred process involves N-nitrosation of diphenylamine and Fisher-Hepp rearrangement to 4-nitrosodiphenylamine. These steps...

...Another important synthesis involves condensation of aniline or an acylanilide with p-nitrochlorobenzene to 4-nitrodiphenylamine...".

This last document confirms that the state of the art had established two main routes to prepare 4-ADPA, either that disclosed in documents (13), (20) and (21) or that disclosed in document (10).

3.10.6 Document (17) relates to the preparation of 4-ADPA by hydrogenation of 4-nitroso- or 4-nitrodiphenylamine or by hydrolysis of 4-nitro- respectively 4-aminodiphenylamine-2-sulfonic acid. It was not contested that this document gave no hint to obtain such intermediate products and the person skilled in the art would have turned his attention to the previous methods of preparation disclosed above.

3.11 The Respondent, however, argued that documents (1) and (7) disclosed the first step of nitrosation or nitration according to the claimed invention and that the reduction step was a well-known step, rendering, therefore, obvious the claimed process.

3.11.1 Document (1), dated 1903, explains, first, that the condensation reaction of nitrobenzene with aniline and addition of alcaline yields, apart from azobenzene, phenazine and phenazin-N-oxyde. This reaction is explained by the transformation of the nitrophenol in alcaline solution in o-chinonmonoxime (o-nitrosophenol as tautomeric form) which condenses with aniline to yield o-nitrosodiphenylamine by elimination of water and phenazine and phenazin-N-oxyde by cyclisation (cf. page 4135).

The experiment reported in this publication aimed at confirming the above mechanism by isolating the intermediate product issued from the condensation reaction with the p-nitrosophenol, a side-product which is formed by isomerization of the o-nitrosophenol. In substance, this experiment consists in reacting aniline and nitrobenzene with dry solid soda at a temperature which starts from 110-120°C and is maintained at 120-125°C. After completion of the reaction, water is added to the resulting mixture and after cooling, a solid product, i.e azobenzene and base is recovered, while the aqueous alcaline liquid is treated with carbonic acid, and a product identified as 4-nitrosodiphenylamine crystallises. It was not contested that the molar yield of 4-nitrosodiphenylamine with respect to the starting aniline amounted only to 3% or so.

3.11.2 Moreover, document (2) confirms that upon the alkaline condensation of aniline with nitrobenzene, together with formation of phenazine N-oxyde, a side reaction takes place which leads to formation of o- and p-nitrodiphenylamines (cf. page 8, second paragraph).

3.11.3 Document (5) confirms that, in the same alcaline condensation "as a result of a side-reaction with a small yield p-nitrosodiphenylamine is formed" (cf. page 34, second paragraph). Document (6) mentions the study reported in document (1) and, fifty years later, takes up the finding that p-nitrosodiphenylamine is obtained as side product (cf. page 36).

3.12 From the above, it becomes clear that the person skilled in the art looking for a further process for preparing 4-ADPA in a **good** yield would have disregarded the teachings of documents (1), (2), (5) and (6) given the poor yield to be expected. Furthermore, the Board observes that even though the person skilled in the art would have paid attention to the teaching of documents (1), (2), (5) and (6), he would not have arrived at the claimed invention since as disclosed by document (1) the reaction takes place at 120°C or so, i.e. a temperature where the water formed is removed and allowed to proceed **without** protic material contrary to an essential requirement of the claimed subject-matter (cf. point 3.8 second paragraph).

3.13 Document (7) deals with the reaction of (arylmethyl)amines with superoxyde anion radical in **aprotic** media in order to study the mechanism of senescence inhibition in plant tissue (due to the generation of free radicals such as O_2^- or its derivatives in the course of biological processes) by cytokinin. The main object of this publication is to study the mechanism of scavenging of the free radicals by (arylmethyl)amines in the context of which, the authors indicate that the reaction of aniline and nitrobenzene in the presence of potassium t-butoxyde yielded 24% in mole of p-nitrodiphenylamine (cf. page 1704, Table II).

However, following the teaching of this document, the person skilled in the art would have envisaged carrying out the reaction in **aprotic** media and thus would have been directed to a route leading away from the claimed solution.

3.14 To summarize, the person skilled in the art seeking a solution to the technical problem defined above had before him several routes which could be explored.

- nitrosation of diphenylamine, as disclosed in documents (13), (20) and (21) (cf. points 3.10.1 and 3.10.2 above).

- the oxydation of aniline, as disclosed in document (11) (cf. point 3.10.3 above).

- dimerization of nitrosobenzene, as disclosed in document (12) (cf. point 3.10.4 above).

- hydrolysis of 4-nitro or 4-aminodiphenylamine-2-sulfonic acid as disclosed in document (17) (cf. point 3.10.6 above).

None of these routes lead to a process within the claimed area.

He would have furthermore disregarded the condensation of aniline and nitrobenzene as achieved in documents (1), (2), (5) and (6) since those processes in the absence of protic material lead to negligible yields (cf. point 3.12 above) and document (7) would not have directed him to the claimed solution (cf. point 3.13 above).

3.15 It is concluded that the person skilled in the art having in mind the technical problem to be solved and having all the prior art related to this technical field at his disposal would not have arrived in an obvious manner at the claimed invention in the form of Claim 1 of the main request. The subject-matter of Claim 1 meets therefore the requirements of Article 56 EPC. The same applies to dependent Claims 2 to 25 which represent particular embodiments of the subject-matter of Claim 1.

3.16 The subject-matter of independent Claims 26, 51, 52 include the same technical features which have led the Board to conclude to the inventive step of Claim 1. Those claims meet, therefore, the requirements of Article 56 EPC. The same applies to Claims 27 to 50 depending of Claim 26. This was not contested by the Respondent.

3.17 Nothing relevant was submitted by the Respondent against Claims 53 to 58 relating to intermediates involved in the claimed process. The Board finds that the subject-matter of those claims opens the way to a process for preparing known end products, itself involving an inventive step. For these reasons, the Board sees here no objection against inventive step, either.

3.18 Thus, it follows from the above considerations, that the objection pursuant to Article 100(a) EPC is to be rejected.

Auxiliary request

4. It follows from the above that the Appellant's auxiliary request need not be examined.

Remittal to the first instance - Article 111(1) EPC

5. Although the Board has come to the conclusion that the main request was to be allowed, it was noted that the description has still to be put into conformity with

the claims of the present main request. Therefore, having regard to the fact that the function of the Boards of Appeal is primarily to give a judicial decision upon the correctness of the earlier decision taken by the first instance, the Board exercises its discretion under Article 111(1) EPC to remit the case to the first instance in order for the description to be adapted to the allowable claimed subject-matter according to the main request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of Claims 1 to 58 of the main request submitted on 25 October 2000 and a description yet to be adapted.

The Registrar: The Chairman:

N. Maslin A. Nuss