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# DECISION
## of 30 January 2001

**Case Number:** T 0888/96 - 3.3.5

**Application Number:** 87104302.2

**Publication Number:** 0239070

**IPC:** B01J 23/88

**Language of the proceedings:** EN

**Title of invention:**
Process for production of composite oxide catalysts

**Patentee:**
MITSUBISHI CHEMICAL CORPORATION

**Opponent:**
BASF Aktiengesellschaft, Ludwigshafen

**Headword:**
Catalyst/MITSUBISHI

**Relevant legal provisions:**
EPC Art. 123(2), 123(3), 56
EPC R. 67

**Keyword:**
"Extension of the scope of protection (main request, yes)"
"Inventive step (auxiliary request, yes)"
"Reimbursement of the appeal fee (no), substantial procedural violation - not established"

**Decisions cited:**
-

**Catchword:**
-

**Case Number:** T 0888/96 - 3.3.5

# DECISION
## of the Technical Board of Appeal 3.3.5
## of 30 January 2001

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|---|---|
| **Appellant:**<br>(Proprietor of the patent) | MITSUBISHI CHEMICAL CORPORATION<br>5-2, Marunouchi 2-chome<br>Chiyoda-ku<br>Tokyo (JP) |
| **Representative:** | Hansen, Bernd, Dr. Dipl.-Chem.<br>Hoffmann Eitle<br>Patent- und Rechtsanwälte<br>Postfach 81 04 20<br>D-81904 München (DE) |
| **Respondent:**<br>(Opponent) | BASF Aktiengesellschaft, Ludwigshafen<br>-Patentabteilung - C6-<br>Carl-Bosch-Strasse 38<br>D-67056 Ludwigshafen (DE) |
| **Representative:** | Isenbruck, Günter, Dr.<br>Patentanwälte Bardehle, Pagenberg, Dost, Altenburg, Geissler, Isenbruck<br>Postfach 86 06 20<br>D-81633 München (DE) |

**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office posted 30 July 1996 revoking European patent No. 0 239 070 pursuant to Article 102(1) EPC.**

**Composition of the Board:**

**Chairman:** R. K. Spangenberg
**Members:** M. M. Eberhard
M. B. Günzel

## Summary of Facts and Submissions

I. European patent No. 239 070 based on application No. 87 104 302.2 was granted on the basis of five claims. The respondent (opponent) filed a notice of opposition requesting revocation of the patent on the grounds of lack of novelty, lack of inventive step and insufficiency of disclosure. The following documents were relied on:

D1: DE-A-2 653 863

D2: DE-A-3 006 894

D3: DE-B-2 203 709

II. The opposition division revoked the patent. The decision was based on amended claim 1 submitted on 22 December 1993 as the main request and amended claim 1 filed on 25 June 1996 as the auxiliary request. The opposition division held that the requirement of sufficiency of disclosure was met and that the subject-matter of claim 1 according to both requests lacked an inventive step over the disclosure of D1. It had not been shown that the claimed process led to a catalyst having improved properties over the catalyst of Example 1 of D1, which represented the closest prior art. The separation of the catalyst by a **preheating** step instead of **filtration** merely represented a choice between two separation techniques both well-known in the art. The skilled person would have extended the teaching of the examples of D1 to the preparation of catalysts with higher Bi amounts.

III. The appellant lodged an appeal against this decision and submitted a test report (hereinafter D4) together with the statement of grounds of appeal. Claim 1 according to the auxiliary request of 25 June 1996 became the main request at the appeal stage. In a communication, the Board expressed doubts regarding the allowability of the amendments in claim 1 of this request. The Board further questioned whether or not comparative experiment 3 of the test report was representative of Example 2 of D1. On 20 June 2000, the appellant filed an amended claim 1 as the main request and five auxiliary requests I to V each containing a single claim. Oral proceedings were held on 30 January 2001. At the end of the oral proceedings the appellant abandoned auxiliary requests II to V. Claim 1 of the main request reads as follows:

"1. A process for producing a Mo-Bi composite oxide catalyst of formula $Mo_aBi_bCo_cNi_dFe_eNa_fX_gY_hSi_iO_j$ wherein X represents at least one element selected from K, Rb, Cs and Tl; Y represents at least one element selected from B, P, As and W; a-j represent the atomic ratios of the various constituent elements, such that when a equals 12, then b = 2 to 7, c = 0 to 10, d =0 to 10, c+d = 1 to 10, e = 0.05 to 3, f = 0 to 0.6, g = 0.04 to 0.4, h = 0 to 3, i = 0 to 48 and j is a numeral which satisfies the oxidation state of the other elements, said process comprising the steps of:

(i) adding aqueous solutions of catalyst components other than Bi and Si to an aqueous solution of molybdenum compound wherein molybdenum is comprised in an amount such that it is, after step (v), in excess of that required for forming the molybdate salts of iron, cobalt and nickel and composite oxides of the other compounds;

(ii) if necessary, adding particulate or colloidal silica;

(iii) adding bismuth oxide and/or bismuth subcarbonate in the form of a powder,

(iv) agitating and then drying the resulting slurry;

(v) subjecting the dry product to a heat treatment in a short period at a temperature in the range of 270 to 350°C to form an oxide;

(vi) forming the decomposition product thus obtained into a desired shape; and

(vii) subjecting said product to a final thermal treatment in a non-reducible atmosphere at a temperature condition of 450 to 600°C for 1 to 16 hours to obtain a catalyst."

Claim 1 of auxiliary request I differs from claim 1 of the main request in that the additional feature "**said bismuth oxide and/or bismuth subcarbonate are/is insoluble in the aqueous system of step (i)**" has been introduced after the word "powder" in step (iii).

IV. The appellant's arguments can be summarised as follows:

Claim 1 of the main request met the requirements of Article 123(3) EPC. The fact that neither bismuth oxide nor bismuth subcarbonate was dissolved in the aqueous system of step (i) was an automatic consequence of the procedure of steps (i) and (iii) and had been proven by

X-ray diffraction and Raman spectroscopy. According to the description bismuth still remained in the form of the raw material at the end of step (v). It was not indicated in the description that a strong acid might be used and such a use would not be in agreement with the concept of the invention. According to Article 69 EPC, the description of the patent should be used to interpret the claims. It was derivable from the description, page 2, lines 49 to 51; page 3, lines 10 to 12 and 20 to 22; page 4, lines 27 and 45 to 47, that Bi oxide and Bi subcarbonate were insoluble in the aqueous medium of step (i). Therefore, the corresponding feature in claim 1 as granted never limited the scope of protection. The appellant further made reference to decision T 166/90 in support of his arguments.

The additional feature incorporated in claim 1 of auxiliary request I did not contravene Article 123(2) EPC. The statement in the description that Bi remained in the form of the raw material indicated that the Bi starting materials had not dissolved in the aqueous system of step (i), since, otherwise, a bismuth salt would have been detected. The respondent's arguments that the Bi starting materials might have been converted into the Bi nitrate in step (iv) and the nitrate into the Bi oxide during the heat treatment of step (v) were not in agreement with the essence of the invention that the Bi compound should not dissolve in the aqueous medium. There was no basis in the description for the assumption that Bi nitrate was produced. In the case of Bi subcarbonate, the subcarbonate could not have formed again in step (v).

The closest prior art was Example 2 of D1 since the latter concerned a "non-homogeneous" process contrary to Example 1. The problem to be solved with respect to this prior art was to provide a process for preparing a bismuth molybdate catalyst having higher activity and selectivity. The claimed solution differed from Example 2 of D1 by (1) the catalyst composition, (2) the fact that bismuth molybdate was produced by reaction of Bi oxide or Bi subcarbonate with the molybdenum **excess,** (3) the lower calcination temperature and (4) the heat treatment of step (v). The test report D4 showed that an improvement in activity and selectivity had been achieved. Comparative experiment 3 was representative of Example 2 of D1 as the drying method was not considered to have a significant influence on the catalyst activity.

A skilled person in the field of catalysts would have recognised that the calcination temperature in Example 2 of D1 was not arbitrarily selected. Therefore, he would have had no incentive to combine the process according to Example 2 of D1 with the calcination temperature disclosed in Example 1 for entirely different conditions. Neither D1 nor the other documents suggested the use of a molybdenum excess so as to provide a source of Mo which could easily react with Bi oxide in the final calcination step. The present invention employed an entirely different inventive concept. The skilled person could not have expected that the simultaneous variation of four features in Example 2 of D1 would have led to a catalyst having an improved activity and selectivity.

Moreover, a substantial procedural violation had occurred. The opposition division had considered Example 1 of D1 as being the closest prior art at the oral proceedings contrary to its previous assessment in the second communication. Despite this unexpected change of opinion at the oral proceedings, it had refused the patentee's request for granting an opportunity to present experimental evidence showing the superior performance of the catalyst prepared by the claimed process over that of Example 1 of D1. The appellant's representative made a declaration at the oral proceedings before the Board in support of his request for reimbursement of the appeal fee.

V. The respondent contested that claim 1 of the main request and claim 1 of auxiliary request met the requirements of Article 123(3) and Article 123(2) EPC respectively. The respondent argued that the sentence "bismuth still remains in the form of the raw material" did not imply that the Bi starting materials were insoluble in the aqueous system of step (i). As an important amount of nitrates was present in the aqueous system, the pH thereof might have been low. Consequently, Bi oxide or Bi subcarbonate might have been converted into Bi nitrate during step (iv). It was not impossible that the formed Bi nitrate had then been converted again into Bi oxide during the heat treatment of step (v). It was likely that the word "remains" had been used in this sentence without checking whether or not the said conversions occurred. The respondent did not present any comments on inventive step and indicated at the oral proceedings that he had no objection against the maintenance of the patent on the basis of claim 1 according to either the main request or auxiliary request I, both filed on 20 June 2000.

VI. The appellant requested, as a main request, that the decision under appeal be set aside and that the patent be maintained with claim 1 and amended description pages 2, 2a, 3 to 5 according to the main request filed on 20 June 2000, the remaining pages being as granted. As an auxiliary request, the appellant requested that the patent be maintained on the basis of claim 1 of "Auxiliary Request I" filed on 20 June 2000 and the description submitted as "Hilfsantrag" during the oral proceedings. The appellant further requested reimbursement of the appeal fee. The respondent did not submit a request.

## Reasons for the Decision

1. The appeal is admissible

*Main request*

2. The question arises whether or not claim 1 meets the requirements of Article 123(3) EPC as granted claim 1 contains the feature that "the bismuth oxide and/or bismuth subcarbonate are/is insoluble in the aqueous system of step (i)" whereas this feature is not indicated in claim 1 of the main request. In granted claim 1, the aqueous system of step (i) is defined by the fact that compounds which act as sources of the elements constituting the catalyst are incorporated in an aqueous system. The feature stated above clearly puts a restriction on the aqueous system of step (i), in particular on the kind of compounds present therein, since bismuth oxide is soluble in acids and bismuth subcarbonate is easily soluble in nitric or hydrochloric acid. In other words, according to granted claim 1, the starting compounds to be incorporated in the aqueous system of step (i) are chosen such that Bi

oxide and Bi subcarbonate do not dissolve in the aqueous system.

As regards amended claim 1, the kind of compounds used as sources of the catalyst components other than Bi in the aqueous system of step (i) is likewise not stated in the claim. Consequently, there is no automatic limitation resulting from an indication of the starting compounds incorporated in the aqueous system. The wording of amended claim 1 thus does not exclude that the aqueous system of step (i) contains compounds in such amounts that a small but non-negligible part of the Bi oxide and/or of the Bi subcarbonate is dissolved in the aqueous system.

The appellant argued that the description should be relied on to interpret the claims and that the insolubility of the Bi oxide and Bi subcarbonate in the aqueous system of step (i) was derivable from the description and was an essential feature of the invention. The Board observes in this respect that it is indeed directly derivable from the paragraph on page 4, lines 45 to 49, of the description that Bi oxide and Bi subcarbonate are insoluble in the aqueous system of step (i) (see the detailed reasons given in point 3 below). However, the statement in this paragraph that bismuth still remains in the form of the raw material in the heat treated product of step (v) belongs to a passage of the patent in suit, which is said to describe a **"specific example"** of the process (see page 4, line 33). Therefore, this statement cannot be regarded as a general statement applying to all embodiments of the invention. The other passages referred to by the appellant on page 2, lines 49 to 51 and page 3, lines 10 and 20 to 22, disclose that Bi is used "in a state of a non-homogeneous system". This does not exclude that a small but non-negligible part of the Bi oxide and/or subcarbonate is dissolved in the aqueous system since, even in this case, the major part of the Bi compound is "in a state of a non-homogeneous system". This possibility is, thus, not in contradiction with the concept of the invention. The statement on page 4, line 27, that Bi oxide and Bi subcarbonate are insoluble in water gives no information as to their solubility in the aqueous system of step (i). The information concerning the starting compounds used to form the aqueous system of step (i) on page 4, lines 12 to 14, do not exclude the use of acids or of acidic solutions of starting compounds. Therefore, although the description implicitly discloses in the context of a "specific example" that the Bi oxide and Bi subcarbonate are insoluble in the aqueous system of step (i), it cannot be unambiguously inferred from the remaining passages referred to by the appellant that the use of an aqueous system which dissolves a small but non-negligible part of the said Bi starting compounds is excluded. In these circumstances, the feature of granted claim 1 that "the bismuth oxide and/or bismuth subcarbonate are/is insoluble in the aqueous system of step (i)" cannot be considered as redundant or not-restricting the claim and omission of this feature in amended claim 1 is considered to extend the protection conferred by granted claim 1.

The Board observes that in decision T 166/90 cited by the appellant the situation was very different from the present one, since the granted claim was a product claim which had been replaced during the appeal procedure by a process claim and the claimed process led automatically to a product exhibiting the deleted property. In the present case the process features stated in steps (i) and (iii) do not automatically result in the Bi oxide and/or Bi subcarbonate being insoluble in the aqueous system of step (i) in the absence of any precise information concerning the starting compounds incorporated in the aqueous system.

It follows from the above that claim 1 of the main request does not meet the requirements of Article 123(3) EPC. Therefore, the main request cannot be granted.

*Auxiliary request*

3. The amendments in steps (i) to (vii) of claim 1 other than the feature concerning the insolubility of the Bi compounds are directly and unambiguously derivable from the description as filed, namely from page 6, line 30 to page 7, line 35 and original claim 5 (corresponding to page 4, line 37 to page 5, line 3 of the patent and claim 5). At the oral proceedings the respondent expressed doubts that the feature "said bismuth oxide and/or bismuth subcarbonate are/is insoluble in the aqueous system of step (i)", which has been re-introduced into claim 1, meets the requirements of Article 123(2) EPC.

According to page 7, lines 7 to 11, of the description as filed (corresponding to the passage on page 4, lines 45 to 46 of the patent), it has been found from analyses by the X-ray diffraction method and Raman spectroscopy that in the product which has been heat treated for a short time at a temperature in the range of 270 to 350°C, Fe, Co and Ni have already formed salts with acidic oxides, but bismuth still remains in the form of the raw material. As the raw material added to the aqueous system of step (i) is bismuth oxide and/or bismuth subcarbonate in the form of a powder and bismuth **still remains in the form of the raw material** after agitation, drying, and heat treatment at 270 to 350°C, it is directly derivable therefrom that these Bi compounds have not been dissolved (or are insoluble) in the aqueous system of step (i). The Board observes in this respect that the meaning of the term "insoluble" stated in claim 1 is construed in relation to the two said methods of analysis used for establishing this insolubility.

Concerning the respondent's assumptions that Bi oxide might have been converted into Bi nitrate during step (iv) and that it was not impossible that the formed Bi nitrate had then been converted again to the oxide during the heat treatment of step (v), the Board makes the following observations. Assuming that some Bi nitrate is formed in step (iv), then it is not convincing in the absence of evidence that all this nitrate would be converted again to Bi oxide during the heat treatment of step (v) since, on the one hand, the mixture contains a number of other components with which at least a part of the nitrate might have reacted and, on the other hand, the temperature at which Bi nitrate is converted to Bi trioxide is usually higher than 350°C in the absence of other compounds in the mixture. Therefore, in the case of a complicated mixture as in the present case such assumptions cannot be accepted without any evidence to support them. Furthermore, the respondent's arguments are not in agreement with the disclosure in the patent in suit that the Bi oxide and Bi subcarbonate **still remain** in the form of the raw material. The expression "still remain" unambiguously excludes reactions of the Bi compounds in steps (iii) and (iv). The respondent's assumption that this expression might have been used improperly, ie without checking whether or not intermediate conversions occurred in steps (iv) and (v), is not convincing since for Bi subcarbonate the said expression is in any case correct in view of the fact that the subcarbonate could not be formed again during the heat treatment step. For the preceding reasons the Board considers that claim 1 meets the requirements of Article 123(2) EPC. The amendments in the description are also in conformity with this article.

The amendments in claim 1 of this request satisfy the provisions of Article 123(3) EPC since the omitted feature concerning the insolubility of bismuth oxide and/or bismuth subcarbonate in the aqueous system of step (i) has been re-introduced in claim 1 and the scope of protection of amended claim 1 has moreover been clearly restricted over that of granted claim 1 by the introduction of further features.

4. The process according to claim 1 is new with respect to the cited prior art. Further considerations in this respect are not necessary since this was not disputed.

5. D1 was considered by the parties and by the opposition division to represent the closest prior art. The Board can follow this approach taking into account that D1, in contrast to D2, discloses a process in which bismuth oxide is used for the preparation of the catalyst instead of bismuth nitrate. From the two examples of D1, Example 2 is clearly the closest prior art since

bismuth oxide is used as the source of the Bi component in the catalyst instead of bismuth nitrate or bismuth molybdate. The reasons given in the decision appealed for choosing Example 1 cannot be followed by the Board since, as pointed out by the appellant, it is implicit to the skilled person that the catalyst of Example 2 also contains Bi molybdate as an active component.

Example 2 of D1 discloses a process for the preparation of a catalyst having the composition $Mo_{10}Co_{3.92}Fe_{2.59}Ni_{2.18}Bi_{0.86}O_x$ and containing 50 wt% $SiO_2$ as the support. Fe, Ni and Co molybdates are prepared and separated from their respective preparation solutions by filtration through the same filter. After washing, the precipitates are slurried with water and bismuth oxide is added to the slurry as well as a silica sol. The slurry is thoroughly mixed and then spray-dried. Calcination is performed at 750°C for one hour (see pages 17 and 18 of D1, typed page numbers at the bottom of the pages).

5.1 Starting from this closest prior art, the technical problem underlying the claimed process can be seen in the provision of a process for preparing a catalyst having an improved performance, ie an improved activity and selectivity, in the vapour phase oxidation of propylene to acrolein.

It is proposed that this problem be solved by the process as defined in claim 1, which differs from the process according to Example 2 of D1 by (a) the catalyst composition, (b) the presence of an excess of molybdenum compound in step (i) with respect to the amount of molybdenum required for forming the molybdate salts of Fe, Co, and Ni and the composite oxides of the other compounds, (c) the calcination temperature of 450 to 600°C and (d) the heat treatment of step (v).

Concerning the test report D4 filed at the appeal stage, the appellant submitted that comparative Example 3 of the test report was a reproduction of Example 2 of D1. However, in comparative Example 3 the slurry was not dried by spray-drying as in Example 2 of D2 but dried by heating and formed into pellets. The appellant has argued in this respect that both oven-drying and spray-drying were disclosed as alternative methods in D1, and that D1 did not teach that the activity of the catalyst would depend on the type of drying method. Therefore, according to the appellant, the use of oven-drying instead of spray-drying was not supposed to have a significant influence on the catalytic activity and this was consistent with the fact that the catalytic component bismuth molybdate was only formed in the subsequent calcination step. These arguments were not contested by the respondent. In these circumstances and in the absence of evidence to the contrary, the Board can accept that this difference would not have a significant influence on the performance of the catalyst and that comparative Example 3 is representative of the process disclosed in Example 2 of D1. A comparison of comparative Example 3 with the catalyst prepared by the claimed process (see experiment called "embodimental experiment 1") shows that the catalyst prepared according to the claimed process has a considerably higher activity than that of comparative Example 3 and its selectivity for acrolein is also higher. Furthermore, it can be inferred from comparative experiment 3 and comparative experiment 4, which only differ from each other by the calcination temperatures (750°C and 500°C), that not only the composition of the catalyst but also the calcination temperature has a substantial influence on the performance of the catalyst. In view of this test report and in the absence of evidence to the contrary, it is credible that the technical problem has actually been solved by the claimed process. This was not disputed by the respondent.

5.2 Concerning the calcination temperature, D1 discloses that calcination is performed at a temperature higher than 450°C, preferably 500 to 650°C. In Example 1 where the molybdates of Ni, Co, Fe and Bi are first formed separately, then mixed, separated from the preparation solutions by filtration, washed, slurried in water, spray-dried and calcined, calcination is carried out at 550°C. In the less preferred Example 2, bismuth is not added to the slurry of filtered molybdates of Ni, Co and Fe as bismuth molybdate but as bismuth oxide. In this case, the spray-dried mixture is calcined at 750°C for one hour (see page 7, lines 14 to 18; page 10, last paragraph; Examples 1 and 2). As pointed out by the appellant, the skilled person would have recognised in view of this teaching that the higher calcination temperature in Example 2 was not selected arbitrarily but in order to form the desired catalytically active bismuth molybdate. As explained by the appellant, there is no extra source of molybdenum which would provide Mo in a form which can be easily reacted with bismuth oxide in Example 2 of D1. Therefore, it is required that Bi-molybdate is formed through an exchange reaction of Bi oxide with Fe molybdate, Co molybdate and/or Ni molybdate. This can be achieved only with a large amount of energy, such as at a temperature of 750°C as used in Example 2. Otherwise, the catalytically active Bi molybdate is not formed to a significant extent. Therefore, the skilled person would have expected that when Bi oxide is used as the source of the Bi component the lower range of temperatures disclosed in D1 would not be suitable for obtaining a catalyst having a higher performance than the catalyst of Example 2. Therefore, the teaching of D1 would not have encouraged the skilled person to combine the catalyst process of Example 2 of D1 with the lower calcination temperatures disclosed in Example 1 or at page 10 in order to solve the technical problem stated above.

Furthermore, in order to achieve a catalyst exhibiting improved activity and selectivity over the catalyst of Example 2 of D1, it is also necessary that an excess of molybdenum is used in step (i) of the claimed process so as to provide a source of Mo which can easily react with the bismuth oxide in the final calcination step at a temperature of 450 to 600°C. There is no suggestion in D1 to use an excess of molybdenum as defined in step (i) of claim 1 in combination with the said range of calcination temperature in order to obtain a catalyst having an improved performance.

5.3 D2 discloses catalysts having a composition falling within the claimed ranges (see catalysts (5), (6), (7) and (8) on page 10). It teaches that the catalysts can be prepared by the conventional methods. A list of compounds which can be used as sources of the catalyst components is given on page 7, namely nitrates, carbonates, carboxylates of carboxylic acids such as formiates or acetates, or polyacids or salts thereof. According to D2 an oxide can also be used directly, for example siliceous earth (see page 7, lines 14 to 22). However, neither bismuth oxide nor bismuth subcarbonate is mentioned, and in all the examples of D2 bismuth nitrate is used as the source of the catalyst component. D3 discloses that bismuth can be introduced into the catalyst in the form of its oxide or any salt which leads to the oxide by calcination. D3 further teaches that the water-soluble salts which are easily dispersible in the catalysts and form stable oxides by calcination are most preferred, the most preferred salt for the introduction of Bi being Bi nitrate (see column 5, lines 6 to 13). In all 22 examples of D3, bismuth nitrate is used as the source of the bismuth component in the catalyst. Neither D2 nor D3 contains information which would have given the skilled person an incentive to decrease the calcination temperature disclosed in Example 2 of D1 when Bi oxide is used as the source of the bismuth component and to use an excess of molybdenum as defined in step (i) of claim 1 in order to achieve a catalyst having a higher performance.

5.4 It follows from the above that the process according to claim 1 of the auxiliary request meets the requirement of inventive step set out in Articles 52(1) and 56 EPC.

6. According to Rule 67 EPC the reimbursement of the appeal fee shall be ordered where the Board deems the appeal to be allowable if such reimbursement is equitable by reason of a substantial procedural violation. In the present case, the appellant argued that a substantial procedural violation had occurred because the appellant's request for granting an opportunity to present experimental evidence was refused at the oral proceedings before the opposition division (on 25 June 1996) despite the unexpected change of opinion of the opposition division as regards the closest prior art.

In its first communication, the opposition division has indicated that D1 was the most relevant prior art and that the subject-matter of amended claim 1 appeared to involve an inventive step. In the second communication, the opposition division expressed the view that Example 2 of D1 was the closest prior art and asked the patentee to state what technical problem had been solved by the subject-matter of amended claim 1 which was not solved by the teaching of D1. In view of these communications, it is plausible that, for the oral proceedings before the opposition division, the appellant had prepared himself to defend the patent starting from Example 2 of D1 as the closest prior art. In these circumstances it is credible that the opposition division's assessment at the oral proceedings that Example 1 of D1 was the closest prior art came as a surprise to the representative who represented the appellant at the oral proceedings before the opposition division. However, there is nothing in the minutes of the oral proceedings, in the decision under appeal or elsewhere in the file from which it could be inferred that said representative had requested an opportunity to present further experimental evidence for showing the superiority of the catalyst prepared by the claimed process with respect to the catalyst of Example 1 of D1. Furthermore, although it would be expected that in such a situation a request for correction of the minutes of the oral proceedings is submitted to the opposition division after receipt of these minutes, such a request was indeed never presented. The representative also did not resort to the possibility of submitting a declaration from himself or from another person who was present at the oral proceedings with a view to attesting that the opportunity of filing further experimental data had actually been requested, although refund of the appeal fee had been requested in the grounds of appeal on the basis of the then alleged procedural violation. It was only at the oral proceedings before the Board on 30 January 2001 that the representative representing the appellant at the oral proceedings before the Board ("present representative") filed a declaration that such an opportunity had actually been requested at the oral proceedings on 25 June 1996. Said present representative had attended the oral proceedings before the opposition division with the previous representative but had not represented the appellant in these proceedings. However, this declaration having been made about four years and seven months after the event, in the view of the Board, it cannot be excluded that is based more on a re-reading of the content of the statement of grounds of appeal filed by the previous representative on 6 December 1996 rather than on a reliable and precise memory of the present representative of what actually occurred at the oral proceedings on 25 June 1996. Also taking into account that the other possibilities indicated above (request for correction and representative's declaration after receipt of the minutes or at least together with the grounds of appeal, in which a refund of the appeal fee was requested) were not resorted to, the Board is not sufficiently convinced that an opportunity to file further experimental evidence was actually requested at the oral proceedings before the opposition division. Therefore, the Board considers that it is not established that a substantial procedural violation has occurred and reimbursement of the appeal fee is thus refused.

## 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 with claim 1 of auxiliary request 1 filed on 20 June 2000 and the description submitted as "Hilfsantrag 1" during the oral proceedings.

3. The reimbursement of the appeal fee is refused.

The Registrar: The Chairman:

S. Hue R. Spangenberg