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**Datasheet for the decision  
of 18 March 2009**

**Case Number:** T 1465/05 - 3.3.07

**Application Number:** 98117814.8

**Publication Number:** 0908235

**IPC:** B01J 37/18

**Language of the proceedings:** EN

**Title of invention:**

Bimetallic catalyst for the simultaneous selective hydrogenation of diolefins and nitriles, method of making same and process for the hydrogenation of diolefins and nitriles

**Applicant:**

Intevep SA

**Opponent:**

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**Headword:**

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**Relevant legal provisions:**

EPC Art. 83, 84, 123(2)

**Relevant legal provisions (EPC 1973):**

EPC Art. 122

**Keyword:**

"Re-establishment of rights - all due to care (yes)"

"Amendments - added subject-matter (no)"

"Clarity (yes)"

"Sufficiency of disclosure (yes)"

**Decisions cited:**

J 0005/80, T 0949/94, T 1062/96

**Catchword:**

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Case Number: T 1465/05 - 3.3.07

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.07  
of 18 March 2009

**Appellant:** Intevep SA  
Apartado 76343  
Caracas 1010 A (VE)

**Representative:** Hiebsch, Gerhard F.  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 25 July 2005  
refusing European application No. 98117814.8  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** S. Perryman  
**Members:** D. Semino  
B. ter Laan

## Summary of Facts and Submissions

I. The appeal lies from the decision of the Examining Division refusing European patent application No. 98 117 814.8 having a filing date of 19 September 1998 and published as EP-A-0 908 235. The application as filed comprised 18 claims. Claims 1, 6, 8 and 9 read as follows:

"1. A catalyst useful for the simultaneous and selective hydrogenation of diolefins and nitriles present in a hydrocarbon feedstock, comprising:

(a) a support material selected from the group consisting of inorganic oxide, carbon, zeolite and mixtures thereof; and

(b) a catalytically active metal phase comprising at least two metals selected from the group consisting of partially reduced Group IB metals and completely reduced Group VIII metals, said active metal phase being present in an amount of about  $\geq 0.03$  wt%."

"6. A catalyst according to one of the claims 1 to 5 wherein the active metal phase is present in an amount of between about 0.03 to 25 wt%."

"8. A catalyst according to claim 1 or 6 wherein the active metal phase is nickel and copper or wherein the active metal phase is nickel and cobalt or wherein the active metal phase is nickel and iron."

"9. A method for preparing a catalyst useful for the simultaneous and selective hydrogenation of diolefins and nitriles present in a hydrocarbon feedstock, especially for preparing a catalyst according to at

least one of the claims 1 to 8, comprising the steps of:

(a) providing a support material selected from the group consisting of inorganic oxide, carbon, zeolite and mixtures thereof;

(b) impregnating the support material with a salt of a catalytically active metal phase comprising at least two metals selected from the group consisting of Group IB metals and Group VIII metals, said active metal phase being present in an amount of about  $\geq 0.03$  wt% based on the final catalyst; and

(c) calcining and activating the impregnated support at a temperature between about 150°C and about 650°C so as to completely reduce said Group VIII metals and partially reduce said Group IB metals."

II. In its decision posted on 25 July 2005, the Examining Division refused the application on the grounds that the application did not comply with the requirements of Articles 83, 84 and 123(2) EPC. All the requests before the Examining Division included claims having as a technical feature "partially reduced Group IB metals". The decision can be summarized as follows:

(a) The application did not comply with the requirements of Article 83 and 84 EPC in relation to the features that the Group IB metals present in the catalytically active metal phase should be partially reduced and the Group VIII metals present in the same phase should be completely reduced.

(b) With respect to this, the examples did not provide any specific reduction conditions, no method was

disclosed how to determine the reduction states, no verification of the obtained result was accomplished and the definitions given in the application as filed not only deviated from the common use of the terms "partially reduced" and "completely reduced", but created confusion. In particular, the definition of partial reduction on original page 7, lines 10-14, namely "By partial reduction it is meant that metal sites consist of one or more than one oxidation state different than zero, more particularly catalyst exhibit metal sites with a net charge on them" was so unclear as to even embrace a full oxidation state.

(c) The requirements of Article 123(2) EPC were not met in view of a number of amendments.

III. On 15 September 2005, the applicants (appellants) filed a notice of appeal against the above decision. The prescribed appeal fee was not paid. With the statement setting out the grounds of appeal filed on 28 November 2005, the appellants submitted a main request and auxiliary requests I to IX.

IV. By letter of 27 December 2005, the appellants filed a request for re-establishment of rights into the period for paying the omitted appeal fee including a reasoning for the request, a payment order and evidence. The documents were received on 29 December 2005. Since the amount of the fee for re-establishment of rights had been incorrect, the appellants filed a corrected payment order on 2 January 2006.

V. In a letter of 17 February 2009, the appellants submitted auxiliary requests X and XI, mentioning the possibility of further fall-back positions.

VI. Oral proceedings were held on 18 March 2009. In response to concerns expressed by the Board as to the clarity of the feature "partially reduced" with reference to the Group IB metal present in the catalytically active metal phase, the appellants filed a new main request as the sole request replacing all the requests then on file, where this feature was no longer present. The new main request comprised two claims, which read as follows:

"1. A catalyst useful for the simultaneous and selective hydrogenation of diolefins and nitriles present in a hydrocarbon feedstock, comprising:

(a) a support material selected from the group consisting of a mixture of zeolite and alumina or zeolite and clay; and

(b) a catalytically active metal phase comprising two metals selected from the group consisting of completely reduced Group VIII metals, said active metal phase being present in an amount of between 0.03 to 25 wt%,

wherein the active metal phase is nickel and cobalt or wherein the active metal phase is nickel and iron."

"2. A method for preparing a catalyst useful for the simultaneous and selective hydrogenation of diolefins and nitriles present in a hydrocarbon feedstock, especially for preparing a catalyst according to claim 1, comprising the steps of:

(a) providing a support material selected from the group consisting of a mixture of zeolite and alumina or zeolite and clay;

(b) impregnating the support material with a salt of a catalytically active metal phase comprising at least two metals selected from the group consisting of Group VIII metals, said active metal phase being present in an amount of between 0.03 wt% to 25 wt% based on the final catalyst; wherein the active metal phase is nickel and cobalt or wherein the active metal phase is nickel and iron; and

(c) calcining and activating the impregnated support at a temperature between 150°C and 650°C so as to completely reduce said Group VIII metals, wherein the catalyst is reduced completely through treatment at temperatures above 400°C, at hydrogen pressures of greater than 250 psi, and for time periods of at least 8 hours."

VII. The arguments of the appellants can be summarised as follows:

*Re-establishment of rights*

Lodging an appeal at the EPO was a normal routine procedure within the representative's office. In the present case, this routine task had been entrusted under the responsibility of the patent attorney to a well instructed, permanently supervised and reliable assistant.

The decision of the European Patent Office had been posted on 25 July 2005. The time limit in the office was calculated on the basis of that date and it was

noted 10 days before the actual time limit in the time limit book.

The appeal letter was sent by fax on 15 September 2005 without the payment order for paying the appeal fee, since at this point the clarification of some points with a US patent attorney and technical expert was necessary before taking the final decision on the effective lodging of an appeal.

Later on the same day, the situation was clarified during a telephone conference with the US attorney who ordered the payment of the appeal fee. The representative informed his assistant of this and signed the payment order for the corresponding appeal, which had already been prepared. The assistant declared that she remembered that she did not wish to fax a copy of the payment order, but only to send the original, to avoid the risk that the amount might be debited twice, that she attached the corresponding signed payment order to the other documents for this appeal and that she believed that she had placed those in the appropriate pigeon-hole for post destined for the European Patent Office. Thereafter, she cancelled the time limit in the diary reminder system. As she was in stress that day, the last before her holiday, she may have put the documents in the wrong pigeon-hole and the payment order may have become detached and so did not reach the European Patent Office.

On 28 November 2005 the statement setting out the grounds of appeal was faxed. A routine examination of the file showed however that the appeal fee had not been paid, which was confirmed by a telephone call on



the same day with the European Patent Office. By a communication dated 13 December 2005, received on 14 December 2005, the European Patent Office notified the loss of rights.

The two-month time-limit from the removal of the cause of non-compliance pursuant Article 122(2) EPC 1973 started from the notification of the communication informing of the loss of rights dated 13 December 2005, so that the request for re-establishment of rights which was received at the European Patent Office on 29 December 2005 was filed within the time limit. Furthermore, the one year time limit following the expiry of the unobserved time limit according to Article 122(2) EPC 1973 was observed as well.

As to the reliability of the entrusted person, it was stated that the assistant had been employed in the representative's office since spring 1999, was extraordinarily careful and reliable and handled all entrusted tasks reasonably, reliably and responsibly. Her tasks included the correspondence with clients and with domestic and foreign attorneys, the treatment of the incoming post, the supervision and notation of time limits, carrying out and monitoring of official payments, including completion of payment orders and payment lists. Thus, she was experienced with all details for filing an appeal. Her work was regularly and directly supervised by the attorneys who randomly checked her work and supervised the compliance with time limits. From the above it follows that the actions in the office were organised in such a way that they could be expected to function reliably.

The non-compliance with the time limit could thus only be considered as an unexpected and unforeseeable oversight. The representative could normally rely on the sending of the prepared payment order within the stipulated period. Therefore, the re-establishment of rights into the period for paying the appeal fee should be granted according to Article 122 EPC.

*New main request*

The catalyst and method claims of this request were based on example 7 of the application as originally filed.

Since the disputed feature that the Group IB metal present in the catalytically active metal phase should be partially reduced was no longer present in the claims which were now limited to the case in which two completely reduced Group VIII metals are present in the catalytically active metal phase, the active metal phase being either nickel and cobalt or nickel and iron, the objections of lack of clarity and insufficiency of disclosure no longer applied.

Since the Examining Division had not decided on novelty and inventive step, and since the appellants might wish to file further evidence to support inventive step, remittal to the first instance was considered appropriate.

VIII. The appellants requested that the decision under appeal be set aside, that re-establishment into the period for paying the appeal fee be granted and that the case be remitted to the first instance for further prosecution

on the basis of the new main request submitted at the oral proceedings on 18 March 2009.

## **Reasons for the Decision**

### *Re-establishment of rights*

1. In accordance with Article 1(5) of the Decision of the Administrative Council of 28 June 2001 on the transitional provisions under Article 7 of the Act revising the European Patent Convention of 29 November 2000 ("Revision Act"), Article 122 EPC 1973 remains applicable to considering the request for re-establishment of rights in this case, since the time limit for making such request had expired before the Revision Act entered into force.
  - 1.1 The appeal fee has not been paid within the time limit pursuant to Article 108, first sentence, EPC. The decision dated 25 July 2005 was deemed to be delivered on 4 August 2005 (Rule 78(2) EPC 1973) so that the time limit expired on 4 October 2005 (Rule 83(4) EPC 1973). The non-compliance with the time limit has the effect that the notice of appeal is deemed not to have been filed (Article 108 EPC, second sentence). Re-establishment of rights is available in this situation (Article 122(1) EPC 1973).
  - 1.2 The first point at issue is whether the application for re-establishment of rights was received at the EPO within the two-month time limit according to Article 122(2) EPC 1973. This time limit runs from the removal of the cause of non-compliance. Here the

earliest possible date this can be considered to have occurred was 28 November 2005, when the assistant became aware of it in the course of preparing the grounds of appeal. Since the request for re-establishment of rights was filed in writing together with a statement of grounds with a letter received on 29 December 2005 and the omitted act (i.e. payment of the appeal fee) and the payment of the fee for re-establishment of rights were completed on 2 January 2006, which is within two months of this earliest possible date of removal of the cause of non-compliance and within one year of expiry of the unobserved time limit, the formal requirements of Article 122(2) EPC 1973 are met.

- 1.3 It remains to be answered whether "all due care required by the circumstances" has been taken by the professional representative. For cases as the present one, where the cause of non-compliance with a time limit involves some error in the carrying out of the party's intention to comply with the time limit, the case law has established the criterion that due care is considered to have been taken if non-compliance with the time limit results from an isolated mistake within a normally satisfactory system for monitoring time limits (see Case Law of the Boards of Appeal, 5th edition, 2006, section VI.E.6.2). In a case of a culpable error on the part of an assistant, this criterion is considered to be met, if the professional representative is able to show that he has chosen for the work a suitable person properly instructed in the tasks to be performed, and that he has himself exercised reasonable supervision over the work (see

Case Law, *supra*, section VI.E.6.3.4(a), in particular J5/80, OJ EPO 1981, 343).

1.4 In the present case, the Board is satisfied that the evidence provided by the appellants shows that the duty had been assigned to an experienced, responsible and supervised person, who was entrusted with routine tasks, including that of posting letters prepared and signed by the representatives. In such a case, it cannot be expected that the representative had to supervise the posting of every letter. Once he had signed the payment order and ordered his reliable assistant to post it, as shown by the evidence on file, he was therefore entitled to assume that it had been posted. In accordance with the criteria of the case law (see Case Law, *supra*, section VI.E.6.3.4(b), in particular T 0949/94 of 24 March 1995 and T 1062/96 of 11 December 1997, both not published in the OJ EPO), it is therefore concluded that non-payment in due time of the appeal fee results from an isolated mistake within a normally satisfactory monitoring system, that it is excusable and that the representative can be considered to have exercised all due care in dealing with his assistant.

2. In view of the above conclusions, the appeal is admissible.

*New main request*

3. *Amendments*

3.1 Independent product claim 1 is based on claim 1 of the original application with the following amendments:

- (a) the support material is specified to be "selected from the group consisting of a mixture of zeolite and alumina or zeolite and clay";
- (b) the group of metals from which the metals comprised in the catalytically active metal phase are selected is limited to completely reduced Group VIII metals by deletion of the partially reduced Group IB metals from the list;
- (c) the active metal phase amount is specified to be "between 0.03 to 25 wt%";
- (d) it is specified that the "active metal phase is nickel and cobalt" or "nickel and iron".

3.2 Amendments (c) and (d) are based on original claims 6 and 8 respectively, wherein claim 6 was formulated as dependent on one of the claims 1 to 5 and claim 8 as dependent on claims 1 or 6, so that they provide a basis for a claim including the features of original claims 1, 6 and 8 in combination. As to original claim 8, it is noted that out of the three listed options of metal pairs ("nickel and copper", "nickel and cobalt" and "nickel and iron") only two have been retained while the one including a Group IB metal (copper) has been deleted. Limitation to the two metal combinations of amendment (d) restricts therefore the group of metals comprised in the catalytically active phase to Group VIII metals only, so that amendment (b) is necessary for internal consistency of the wording of the claim. As to amendment (a), the introductory part of the description on original page 5, last sentence,

specifies that "Particularly suitable support materials include zeolite-clay and alumina-zeolite".

Hence, claim 1 of the new main request is based on original claims 1, 6 and 8 and the last sentence of original page 5.

3.3 Independent method claim 2 is based on claim 9 of the original application with the following amendments:

- (a) the support material is specified to be "selected from the group consisting of a mixture of zeolite and alumina or zeolite and clay";
- (b) the group of metals from which the metals comprised in the catalytically active metal phase are selected is limited to Group VIII metals by deletion of the Group IB metals from the list and similarly of their partial reduction from the purpose of the calcining and activating step;
- (c) the active metal phase amount is specified to be "between 0.03 to 25 wt%";
- (d) it is specified that the "active metal phase is nickel and cobalt" or "nickel and iron";
- (e) the operating conditions at which complete reduction of the Group VIII metals is accomplished are given by specifying that "the catalyst is reduced completely through treatment at temperatures above 400°C, at hydrogen pressures of greater than 250 psi, and for time periods of at least 8 hours".

3.4 Amendments (a) to (d) correspond to the amendments of claim 1 and are allowable for the same reasons as given in point 3.2 above in the light of the reference in original claim 9 to the preparation of "a catalyst according to at least one of the claims 1 to 8".

As to amendment (e), the introductory part of the original description (paragraph bridging pages 10 and 11) specifies the preferred operating conditions of the reduction steps for bimetallic catalysts in accordance with the present invention and discloses the conditions for complete reduction of amendment (e). Since claim 2 has been limited to bimetallic catalysts including only completely reduced Group VIII metals, it is legitimate to include in the claim exclusively the operating conditions for complete reduction as disclosed in the description.

Therefore, claim 2 of the new main request is based on original claims 9, 6 and 8, the last sentence of original page 5 and the paragraph bridging original pages 10 and 11.

#### 4. *Clarity*

4.1 In the appealed decision the application was found not to meet the requirements of Article 83 and 84 EPC due to the presence in all independent claims of the features that the Group IB metals present in the catalytically active metal phase should be partially reduced and the Group VIII metals present in the same phase should be completely reduced. In the new main request both the product and the method claim have been



limited so as to include only completely reduced Group VIII metals in the catalytically active metal phase, no partially reduced Group IB metal being present in said phase. Therefore, the grounds of refusal related to the feature "partially reduced" have been removed.

- 4.2 The expression "complete reduction" is defined in the original application on page 7, lines 14-17, where it is stated "By complete reduction it is meant the metal sites largely consist of a single species, more particularly the highest number of species exhibit the elemental state of charge, i.e., zero". Such a definition is in agreement with what the skilled person would understand from the wording of the claims alone.

In particular, in the method claim it is indicated that a support material is impregnated with a salt of a catalytically active metal phase wherein the active metal phase is nickel and cobalt or nickel and iron and that the impregnated support material is calcined and activated so as to completely reduce said nickel and cobalt or nickel and iron. The skilled person would understand from those process steps that the metals present in the salt in an ionised state are later reduced so as to obtain the metal in their unionised elemental form. A more specific definition of the starting state is not necessary as long as it is clear that the metals are transformed from one of their possible ionised forms into their unionised elemental form. This is similarly clear in the product claim where the Group VIII metals (i.e. nickel and cobalt or nickel and iron) are defined to be present as completely reduced metals, i.e. as metals in their unionised elemental form.

4.3 In addition, it is clear to a person skilled in the art that the feature "completely reduced" cannot be understood as implying that each and every atom of the metal is in its elemental form, since there is hardly a situation in chemical processing where each atom is present in a single defined state. For this reason, the presence of the term "largely" in the expression "largely consist of a single species" in the definition of complete reduction cannot be considered as resulting in a lack of clarity of the feature "completely reduced" in the claims.

5. *Sufficiency of disclosure*

5.1 Example 7, which is the single example where catalysts according to claim 1 of the new main request are produced by means of a method according to claim 2, neither specifies the characteristics of the compositions used for impregnating the support material nor does it indicate the specific operating conditions under which the reduction is accomplished. In the example only the broad ranges of operating conditions which are given in the introductory part of the description (see the paragraph bridging pages 10 and 11) are repeated, which, as far as the complete reduction is concerned, amount to temperatures above 400°C, hydrogen pressures of greater than 250 psi, and time periods of at least 8 hours. Moreover, no information is given on whether it is verified that the desired result is obtained and on how this verification could be accomplished.

5.2 However, the desired result being the complete reduction of all metals present in the catalytically active metal phase, no further information is necessary to put the invention into practice. The skilled person will be able to check on the obtained catalyst whether a further reduction is possible or not and, in case it is, to strengthen appropriately the reduction conditions (e.g. by increasing temperature, hydrogen pressure or reduction time) so as to obtain complete reduction. With the indication of minimum values for temperature, hydrogen pressure and time, the choice of the appropriate operating conditions would at most lead to a reasonable amount of trial and error without resulting in an undue burden for the skilled person aiming at reproducing the invention (see Case Law, *supra*, section II.A.4).

6. In view of the above, it is concluded that the new main request fulfils the requirements of Articles 123(2), 84 and 83 EPC, so that the reasons for the refusal of the application by the Examining Division no longer exist. As the substantive issues of novelty and inventive step have not been addressed in the appealed decision, the Board, exercising its discretion under Article 111(1) EPC, remits the case to the Examining Division for further prosecution.

**Order**

**For these reasons it is decided that:**

1. Re-establishment is granted into the period for filing the appeal fee.
2. The decision under appeal is set aside.
3. The case is remitted to the first instance for further prosecution on the basis of the new main request submitted at oral proceedings on 18 March 2009.

The Registrar:

The Chairman:

C. Eickhoff

S. Perryman