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**D E C I S I O N**  
**of 3 July 2002**

**Case Number:** T 0797/97 - 3.3.7

**Application Number:** 90306107.5

**Publication Number:** 0403141

**IPC:** B01J 29/06

**Language of the proceedings:** EN

**Title of invention:**  
Improved cracking catalyst and process

**Patentee:**  
ExxonMobil Research and Engineering Company

**Opponent:**  
Akzo Nobel N.V.

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 84, 123(2), (3)  
EPC R. 64(b), 65(1)

**Keyword:**  
"Form of appeal - admissible (yes) - extent of request not expressly stated - more than one request in first instance"  
"Clarity (no) - inconsistency in wording"  
"Amendment - added subject-matter (yes)"

**Decisions cited:**  
-

**Catchword:**  
-





Case Number: T 0797/97 - 3.3.7

**D E C I S I O N**  
**of the Technical Board of Appeal 3.3.7**  
**of 3 July 2002**

**Appellant:** ExxonMobil Research and Engineering Company  
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**Respondent:** Akzo Novel N.V.  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 28 May 1997  
revoking European patent No. 0 403 141 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** R. E. Teschemacher  
**Members:** B. J. M. Struif  
B. L. ter Laan

## Summary of Facts and Submissions

I. The mention of grant of European patent No. 0 403 141 in respect of European patent application No. 90 306 107.5, filed on 5 June 1990 was published on 26 January 1994. Independent claims 1 and 9 read as follows:

"1. A catalyst composition comprising: (a) a crystalline metallosilicate zeolite; (b) a non-zeolitic inorganic oxide matrix, said zeolite being dispersed in said matrix, and (c) discrete particles of phosphorus-containing alumina also dispersed in said matrix, said discrete particles having been prepared by contacting alumina having a BET surface area greater than 20 square meters per gram with a phosphorus compound selected from the group consisting of a salt of phosphoric and/or phosphorous acid and mixtures thereof, for a time sufficient to incorporate phosphorus in said alumina, said contacting being effected before and/or after the alumina is mixed with other component(s) of the catalyst composition characterized in that said salt of phosphoric and/or phosphorous acid is a salt of an alkaline earth metal (e.g., Be, Mg, Sr, Ca or Ba)."

"9. A process for the catalytic cracking of a hydrocarbon feed which comprises contacting the feed at hydrocarbon cracking conditions with a catalyst composition characterized in that said catalyst composition is in accordance with any one of claims 1 to 8."

Claims 2 to 8 and 10 were dependent claims.

II. A notice of opposition was filed against the granted patent, in which the revocation of the patent in its entirety was requested on the grounds of Article 100(a) EPC with respect to lack of novelty and lack of inventive step. The opposition was *inter alia* supported by the following document:

D1: EP-A-0 188 841.

III. The opposition division decided that the patent should be revoked. The decision was based on the claims as granted (main request) and five auxiliary requests. The decision can be summarized as follows:

- (a) As to the main request the subject-matter of claims 1, 2, 5 and 8 to 10 was considered to be not novel over D1.
- (b) Regarding the first, second and third auxiliary request the amendments of the claims were not allowed under Article 84 EPC.
- (c) Regarding the fourth auxiliary request the subject-matter of claims 1, 2, 5 and 8 to 10 was considered to lack novelty over D1.
- (d) As to the fifth auxiliary request the subject-matter of claims 9 and 10 was considered to lack novelty over D1 whilst the subject-matter of claims 1 to 8 was considered to be novel and inventive.

IV. On 21 July 1997, the patentee (appellant) filed a notice of appeal against the above decision with simultaneous payment of the prescribed fee. The

statement of grounds of appeal was filed on 22 September 1997, by which the appellant submitted an amended set of claims 1 to 8 as the main request as well as two auxiliary requests (A) and (B).

Claim 1 of the main request reads as follows:

"A method of making a catalyst composition comprising a non-zeolitic inorganic oxide matrix in which are dispersed (a) particles of a crystalline metallosilicate zeolite component, and (b) discrete particles of a phosphorus-containing alumina component, the method comprising forming respective dispersions in the matrix of said zeolite component particles and said alumina component particles, wherein the alumina component particles are prepared from alumina having a BET surface area greater than 20 m<sup>2</sup>/g by dry mixing and/or ball-milling with an alkaline earth metal salt of phosphoric and/or phosphorous acid or by contacting the alumina component with a slurry consisting solely of water and acidified water and an alkaline earth metal salt of phosphoric and/or phosphorous acid, said contacting being effected before and/or after the alumina is mixed with other component(s) of the catalyst composition."

Claim 1 of auxiliary request (A) differs from claim 1 of the main request in that the term "acidified water" has been replaced by "water with phosphoric acid".

Claim 1 of auxiliary request (B) differs from claim 1 of the main request in that the term "or acidified water" has been cancelled.

V. In a communication of 13 March 2002, the board

addressed *inter alia* the following points to be discussed under Article 123(2) and (3) and 84 EPC with respect to claim 1 of all requests:

- (a) the change of category from product-by-process type claims as granted to a method of making a catalyst composition;
- (b) the basis in the application as originally filed for the amended term "and/or ball milling";
- (c) the proper antecedent of the phrase "said contacting being...composition" in the amended version.

VI. By letter of 22 May 2002, the respondent raised the point of admissibility of the appeal under Rule 65(1) EPC for non-compliance with the requirements of Rule 64(b) EPC.

VII. By letter of 24 May 2002, the appellant announced that he would not attend the oral proceedings and requested that a decision being issued on the basis of the written submissions. In substance the appellant referred to the favourable arguments in the decision under appeal on novelty and inventive step with respect to claims 1 to 8 according to the fifth auxiliary request underlying the decision under appeal.

VIII. Oral proceedings were held on 3 July 2002 in the absence of the appellant in compliance with Rule 71(2) EPC.

The arguments of the respondent can be summarized as follows:

- (a) As to the admissibility of the appeal, the decision under appeal comprised six separate requests but the notice of appeal did not state the extent to which amendment or cancellation of that decision was requested. This case was different from decisions of the boards of appeal where the missing extent of the request in the notice of appeal was construed as maintaining unchanged the sole request made in the first instance.
  
- (b) Regarding the formal requirements of the appellant's requests, the amended phrase "the method comprising forming respective dispersions in the matrix of said zeolite component particles and said alumina component particles" was not understood and lacked clarity. The amended feature "or ball milling" had no basis in the application as filed. The feature "said contacting ... catalyst composition" had no proper antecedent in claim 1. Furthermore, the term "solely of ..." was inconsistent with the feature "said contacting ..." as far as the alumina component has been already mixed with other component(s) of the catalyst composition. Therefore, the requirements of Articles 84 and 123(2) EPC were not satisfied.

IX. The appellant requested in writing that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the main request, or, alternatively, one of the two auxiliary requests, all filed with a letter dated 22 September 1997.

The Respondent requested that the appeal be dismissed.



## **Reasons for the Decision**

### *Admissibility of the appeal*

1. The respondent argued that the appeal was not admissible because of non-compliance with the requirement of Rule 64(b) EPC that the notice of appeal shall identify the extent to which amendment or cancellation of the decision is requested.
  - 1.1 According to the established jurisprudence, the appeal's scope can be ascertained from the totality of the appellant's submissions, in particular, if the extent to which cancellation of the decision is requested is not expressly stated in the notice of appeal. If no indication was made to the contrary, it can be assumed that the appellant wished to file a request in the appeal proceedings along the same lines as that filed in the proceedings before the opposition division (Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001, VII.D.7.4.1).
  - 1.2 The decision under appeal revokes the patent in its entirety. That decision was based on claims as granted (main request) and five auxiliary requests. Consequently, the broadest request to which the appellant referred in the opposition proceedings was that the opposition be dismissed in its entirety and that the patent be maintained as granted (see decision under appeal, facts and submissions, point 3.; patentee's letter of 1 June 1995, page 5, requests F and point 3.1 of the decision under appeal).
  - 1.3 Since in the decision under appeal none of the requests

mentioned above was allowed, the patentee (appellant) had completely lost the case in the first instance. In the notice of appeal it is stated that "The proprietor ... is a party which is adversely affected by the decision dated 28 May 1997" and "The proprietor hereby gives notice of appeal ...". There is nothing in the file at the time of filing the appeal to conclude that the main request was no longer maintained. In particular, the fact that the proprietor filed auxiliary requests as a fall back position in first instance proceedings gives no basis for the assumption that the appellant does not want to proceed with his previous main request in the appeal proceedings. Consequently, in accordance with the cited case law, the request in the notice of appeal can only be construed in such a way that the decision under appeal be set aside in its entirety.

- 1.4 The respondent argued that the filing of amended requests in the statement of grounds of appeal confirmed that it had not been clear from the notice of appeal which requests were made.

However, the patentee, being the appellant, is not bound to his requests in the notice of appeal and can formulate any further requests to the extent to which he is adversely affected by the contested decision and, in particular, may file amended requests with the statement of grounds of appeal or even at a later stage of the appeal. Therefore, the submission of more restricted claims in the course of appeal proceedings cannot influence the interpretation of the notice of appeal.

- 1.5 From the above reasons it follows that the requirements

of Rule 64(b) EPC are met.

- 1.6 Since the appeal also meets the other formal requirements under Rule 65(1) EPC, it is admissible.

*Formal admissibility of claim 1 of all requests*

*Clarity*

2. The respondent argued that claim 1 lacked a proper antecedent with respect to the feature "said contacting being effected before and/or after the alumina is mixed with other component(s) of the catalyst composition" (Article 84 EPC).
- 2.1 According to claim 1 as granted, the discrete particles having been prepared "by **contacting** alumina ... with a phosphorus compound ... **said contacting** being effected before and/or after the alumina is mixed with other component(s) of the catalyst composition" (emphasis added by the board). In the granted version the feature "said contacting ..." therefore refers to all discrete particles. The feature "said contacting ..." has, however, a restrictive function in such a way that the claim does not include, in particular, a separate mixing of the phosphorous compound with the other catalyst components before the contacting with the alumina.

In contrast thereto, in claim 1 as amended, the "alumina component particles are prepared from alumina ... **by dry mixing and/or ball-milling** with an alkaline earth metal salt of phosphoric and/or phosphorous acid **or by contacting** the alumina component with a slurry consisting solely of water and .... an alkaline earth

metal salt of phosphoric and/or phosphorous acid, **said contacting** being effected ...." (emphasis added by the board). Thus, the preparation of the alumina component particles in the amended version is specified by different, independent alternatives wherein only one alternative uses the term "by contacting...". Consequently, in the amended version the restrictive feature "said contacting..." only refers to the feature "by contacting the alumina with a slurry ..." the antecedent of which is different from that of the granted version. Since the feature "dry mixing and/or ball milling" can be considered to include always some kind of contacting, it is not clear whether the restrictive feature was not also meant to refer to these alternatives.

- 2.2 If in the amended claim version the feature "said contacting..." was construed as to refer only to the step "by contacting..." as mentioned above (point 2.1), an objection under Article 123(3) EPC arose.

According to granted claim 1, all discrete particles are prepared by contacting alumina with a phosphorus compound and the restrictive feature "said contacting ..." applies to all discrete particles (see point 2.1 above). In comparison thereto, in the amended version the restrictive feature "said contacting..." only refers to the feature "by contacting the alumina with a slurry ..." but not to the alternatives "by dry mixing and/or ball milling". Consequently, the restrictive feature only refers to part of the preparatory step as granted. Hence, the feature "said contacting ..." in the amended version has, according to a possible interpretation, a less restrictive function than in the version as granted so that the amendment results in an

extended scope of protection and amended claim 1 contravenes Article 123(3) EPC.

- 2.3 Hence, amended claim 1 in itself is contradictory and an appropriate basis for assessing the extent of protection is, therefore, lacking. Consequently, the claimed subject-matter for which protection is sought, is not clearly defined and does not give a proper basis for determining the protection conferred by the patent so that the amended version lacks clarity under Article 84 EPC.

*Article 123(2) EPC*

3. The respondent argued that the amendment "dry mixing **and/or ball milling** ..." has no basis in the application as filed (emphasis added by the board).

- 3.1 The amended version defines the preparation of the alumina component particles by three different alternate embodiments. The first alternative is "dry mixing", the second alternative is "dry mixing and ball milling" and the third alternative is "ball milling" as such. According to the original description the component particles are prepared "by adding the phosphate to the alumina either by .... dry mixing or dry mixing coupled with ball milling" (page 11, lines 5 to 9). The first and second embodiment find their basis in this disclosure. However, the third alternative "or ball milling" of amended claim 1 can not be derived therefrom.

- 3.2 Ball milling is used in example 4 according to which 227 grams of  $Mg_2(PO_4)_2 \cdot 8H_2O$  were mixed with SRA alumina (71.6% solids) and ball milled over night (page 8,

lines 1 and 2). A similar process is used in the examples 5 and 6. Apparently, these examples describe ball milling in the absence of water and thus illustrate the embodiment "dry mixing and (i.e. coupled with) ball milling" as claimed. According to example 10, "the alumina was ball milled with the magnesium phosphate in water for a 16 hour period". Although in this example ball milling without dry mixing is used, this embodiment is restricted to the presence of water and to the use of a specific phosphate component and cannot provide a basis for the generalized separate step "ball milling". There are no other examples in which ball milling is used to prepare the discrete particles of phosphorous-containing alumina.

- 3.3 From the above it follows that the amended feature "or ball milling" in its general form, to define a separate alternate process step, cannot be directly and unambiguously derived from the application as filed. Consequently, the amended feature contravenes the requirements of Article 123(2) EPC.
4. The appellant has not made any attempt to remedy the above deficiencies which had been addressed in the board's communication.
5. From the above it follows that none of the requests meets the requirements of Article 84 as well as Article 123(2) EPC. Consequently, all requests must fail.
6. In view of the deficiencies indicated above, the board sees no need to discuss any further points addressed in the board's communication or raised by the respondent.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

C. Eickhoff

R. Teschemacher