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**D E C I S I O N**  
**of 29 January 1997**

**Case Number:** T 0638/93 - 3.3.1

**Application Number:** 88303436.5

**Publication Number:** 0292114

**IPC:** C10G 11/05

**Language of the proceedings:** EN

**Title of invention:**

Process for the catalytic cracking of feedstocks containing high levels of nitrogen

**Patentee:**

UNION OIL COMPANY OF CALIFORNIA

**Opponent:**

-

**Headword:**

Catalytic cracking/UNION OIL

**Relevant legal provisions:**

EPC Art. 54(1)

**Keyword:**

"Novelty (no) - no new use - inevitable result of known process"

**Decisions cited:**

T 0012/81

**Catchword:**

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Boards of Appeal

Chambres de recours

Case Number: T 0638/93 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 29 January 1997

**Appellant:** UNION OIL COMPANY OF CALIFORNIA  
1201 West 5th Street  
Los Angeles, California 90017 (US)

**Representative:** Jack, Bruce James  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 16 February 1993  
refusing European patent application  
No. 88 303 436.5 pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** A. J. Nuss  
**Members:** R. K. Spangenberg  
W. Moser

## Summary of Facts and Submissions

- I. The present appeal was filed on 24 March 1993. It lies from the decision of the Examining Division refusing European patent application No. 88 303 436.5, filed on 15 April 1988 and published under No. 0 292 114. This decision was announced orally on 10 December 1992 and delivered in writing on 16 February 1993.
- II. The decision under appeal was based on Claims 1 and 3 to 7 filed on 15 July 1992 (with the letter dated 10 July 1992). The only independent Claim 1 read as follows:

"1. A process for making an attrition resistant cracking catalyst having a surface area of at least about 150m<sup>2</sup>/g, which comprises:

- (a) mixing a dealuminated Y zeolite with a silica sol, a clay and aluminum chlorhydrol to form a slurry; and
- (b) spray drying said slurry to form said attrition resistant catalyst.

The sole ground of refusal was that the subject-matter of the above Claim 1 was not novel in the sense of Article 54, paragraphs (1), (3) and (4) EPC for all designated Contracting States with respect to the content of document

- (1) EP - A 0 240 136.

The Examining Division, relying on decision T 666/89 (OJ EPO 1993, 495), held that this document disclosed subject-matter falling within the ambit of the above claim, since this document specifically referred to

Y-type zeolites having an overall silica to alumina ratio above about 6,0, which zeolites are normally produced by dealumination and, therefore, were "dealuminated Y zeolites" within the meaning of the above Claim 1. The Examining Division also considered an auxiliary request relating to a set of claims comprising, as the only independent claim, Claim 2 of the set filed on 15 July 1992. This claim read as follows:

"2. A process for making an attrition resistant cracking catalyst having a surface area of at least about 150m<sup>2</sup>/g, which comprises:

- (a) mixing a rare earth exchanged Y zeolite and a zeolite selected from the group consisting of non-rare earth-exchanged Y zeolites, stabilized Y zeolites, ultrastable Y zeolites, X zeolite, offretite, mordenite, ferrierite, ZSM-5 type zeolites and LZ-210 zeolite with a silica sol, a clay and aluminum chlorhydrol to form a slurry; and
- (b) spray drying said slurry to form said attrition resistant catalyst."

It was held that this set of claims related to novel subject-matter.

III. The Appellant (the Applicant) submitted that document (1) failed to disclose two limitations of the process according to the above Claim 1, which limitations followed from the definition of the product to be obtained, viz. an "attrition resistant cracking catalyst having a surface area of at least about 150m<sup>2</sup>/g". In his opinion these features would render the claimed subject-matter novel, even if it turned out that indeed, as alleged by the Examining Division, Examples 1 to 3 of document (1) would lead to products identical

with those obtained according to Examples I, II and III of the application in suit. In addition, he argued that there was no disclosure in Example 1 of document (1) to the effect that the "low soda, rare earth exchanged Y zeolite used therein was a "dealuminated Y zeolite" as used in the process according to the application in suit, and that the interpretation of the disclosure of document (1) by the Examining Division in this respect was based on hindsight.

- IV. The Appellant requests that the decision under appeal be set aside and a patent be granted on the basis of one of several sets of claims submitted on 14 June 1993 together with the statement of grounds of appeal. As the main request he resubmitted Claims 1 to 7 already filed on 15 July 1992, and as alternatives two sets of 7 claims marked "Main Request Annex A" and "Main request Annex B", wherein Claims 1 and 2 were drafted in the form of use claims and product-by-process claims, respectively.

Claim 1 of "Main Request Annex A reads as follows:

"1. Use of the process which comprises:

- (a) mixing a dealuminated Y zeolite with a silica sol, a clay and aluminum chlorhydrol to form a slurry; and
- (b) spray drying said slurry to form said attrition resistant catalyst,

for making an attrition resistant cracking catalyst having a surface area of at least about 150m<sup>2</sup>/g.

Claim 1 of "Main Request Annex B reads as follows:

"1. An attrition resistant cracking catalyst having a surface area of at least about  $150\text{m}^2/\text{g}$  obtainable by:

- (a) mixing a dealuminated Y zeolite with a silica sol, a clay and aluminum chlorhydrol to form a slurry; and
- (b) spray drying said slurry to form said attrition resistant catalyst.

As a first auxiliary request he resubmitted the claims rejected in the decision under appeal (see point II above).

As a second auxiliary request he submitted a set of 4 claims, the only independent one of them corresponding to Claim 2 of the set submitted on 15 July 1992 (with the letter dated 10 July 1992) (see point II above).

- V. Furthermore, the Appellant requested oral proceedings which were appointed for 29 January 1997. In an Annex to the summons to attend oral proceedings the Board made some observations concerning the novelty of the subject-matter of the main and the first auxiliary request. In reply, the Appellant withdrew his request for oral proceedings and informed the Board that he would not attend any oral proceedings, but wished to rely solely upon his written submissions.
- VI. Oral proceedings took place on 29 January 1997, at which the duly summoned Appellant was not represented. At the end of the oral proceedings, the Chairman of the Board announced the decision to remit the case to the Examining Division for further prosecution on the basis of the claims of the second auxiliary request.

## Reasons for the Decision

1. The appeal is admissible.
2. The first issue to be decided in these appeal proceedings is the one concerning novelty of the subject-matter of Claim 1 according to the main and first auxiliary requests in respect of the disclosure in document (1).
  - 2.1. In the Board's judgment, the subject-matter of Claims 1 of "Main Request Annex A" and "Main Request Annex B", on the one hand, and of Claim 1 according to the main and first auxiliary request, on the other hand, is identical, although the wording is different, so that the considerations concerning novelty are identical for all these claims.
  - 2.2. The Appellant does not dispute that Example 1 of D1 (page 6, lines 20-30) describes a process wherein a "low soda, rare earth exchanged Y zeolite" is mixed with a silica sol, the mixture being formed into a slurry, to which kaolin is then added. Aluminium chlorhydrol is admixed, a slurry is formed, which is spray dried to form a catalyst. Suitable "low soda, rare earth exchanged Y zeolites" for this process are disclosed at page 3, line 54 to page 4, line 4. It is stated there that "for the purposes of this invention, a Y zeolite is one having the characteristic crystal structure of a Y zeolite ... and includes Y-type zeolites having an overall silica-to-alumina mole ratio above about 6.0", and that such Y-zeolites having an overall silica-to-alumina mole ratio above about 6.0 are known and are normally produced by dealumination.

2.3. Furthermore, the Appellant does not dispute (see his letter dated 16 March 1992) that carrying out the procedures described in Examples 1, 2 and 3 of document D1 would necessarily result in the same products as carrying out the identically described procedures in Examples I, II and III of the application in suit. In addition, he has conceded that the procedures described in Examples 1, 2 and 3 in D1 would lead to products having the physical properties tabulated for catalysts I, II and III, respectively, in Table 1 of the application in suit, and that these products would also have the characteristic attrition resistance discovered to be possessed by all catalysts prepared by the general procedure defined in present claim 1 of the application in suit and demonstrable for the products of all the Examples I - VI of the application in suit.

2.4. In these circumstances the use of a dealuminated Y zeolite as the zeolite of step (a) cannot render the subject-matter of claim 1 novel, since it follows from the identity of the process steps in Example 1 of document (1) and Example VI of the application in suit that a catalyst having the properties indicated in Claim 1 (attrition resistance and surface area of at least about 150m<sup>2</sup>/g) are the inevitable result of carrying out the process of Example 1 of document (1) with a Y-type zeolite having an overall silica-to-alumina mole ratio above about 6.0, specifically recommended as a suitable starting material for that process in that document.

2.5. Having regard to the Appellant's line of argument in respect of novelty of the claimed subject-matter set out under point III above, consideration has not only to be given to the examples of the prior art document but also to whether the disclosure of such a document as a whole is such as to make available to the skilled



person the subject-matter for which protection is sought. This means, that the technical teaching of the examples in a document must be considered in the context of all related technical information disclosed in that document.

In document (1), Example 1 describes a process in which any one of the "low soda, rare earth exchanged Y zeolites" mentioned as suitable for this process at page 3, line 54 to page 4, line 4, can be used. A skilled person following that teaching and employing as the Y-type zeolite one having an overall silica-to-alumina mole ratio above about 6.0, produced by dealumination and specifically recommended in document (1), would inevitably perform a process according to the present Claim 1. A catalyst having the properties (attrition resistance and surface area of at least about 150m<sup>2</sup>/g) is the inevitable result of this activity, so that such a catalyst must be regarded as being implicitly disclosed in document (1) (see decision T 12/81 (OJ EPO 1982, 296, Reasons No.10). Therefore, Claim 1 as set out in the main request (in all three alternative texts) and in the first auxiliary request covers known subject-matter.

- 2.6. For these reasons the main and the first auxiliary request must fail.
3. The subject-matter of the claims according to the second auxiliary request are not open to objection under Art. 54(1) EPC for the reasons already set out in the decision under appeal. Since, however, the Examining Division has not yet taken a final position

in respect of the other requirements of the EPC, in particular the issue of inventive step, the case is not yet ready for a decision to grant a patent. The Board therefore deems it appropriate to remit the case to the Examining Division for further prosecution on the basis of the second auxiliary request.

### Order

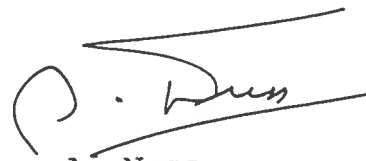
For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division for further prosecution on the basis of Claims 1 to 4 according to the second auxiliary request.

The Registrar:

  
E. Görgmaier

The Chairman:

  
A. Nuss