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**Datasheet for the decision
of 28 February 2014**

Case Number: T 1012/11 - 3.3.06

Application Number: 05793278.2

Publication Number: 1825901

IPC: B01D53/04, B01J29/70,
B01J29/035, C07C7/12,
C01B39/04, C01B37/02

Language of the proceedings: EN

Title of invention:

Separation method using an ITQ-29 zeolite material

Applicants:

Consejo Superior de Investigaciones Cientificas
UNIVERSIDAD POLITECNICA DE VALENCIA

Headword:

ITQ-29 Zeolite Material

Relevant legal provisions:

EPC Art. 83, 84, 123(2), 111(1)

Keyword:

Amendments - added subject-matter (no)
Claims - clarity (yes)
Sufficiency of disclosure - (yes)
Remittal to the department of first instance - (yes)

Decisions cited:

T 0737/90

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 1012/11 - 3.3.06

**D E C I S I O N
of Technical Board of Appeal 3.3.06
of 28 February 2014**

Appellants: Consejo Superior de Investigaciones Cientificas
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted on 10 December
2010 refusing European patent application No.
05793278.2 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: B. Czech
Members: G. Santavicca
U. Lokys

Summary of Facts and Submissions

I. The appeal lies from the decision of the examination division to refuse European patent application 05793278.2.

II. The grounds of the decision under appeal read as follows:

"In the communication(s) dated 30.06.2010, 05.11.2010 the applicant was informed that the application does not meet the requirements of the European Patent Convention. The applicant was also informed of the reasons therein.

The applicant filed no comments or amendments in reply to the latest communication but requested a decision according to the state of the file by a letter received in due time on 10.11.2010.

The application must therefore be refused."

III. Claims 1 to 24 then pending before the examining division (filed with letter dated 12 May 2008) are identical to Claims 1 to 24 of the application as originally filed under the PCT (translation into English received on 13 March 2007).

IV. Claim 1 as originally filed reads as follows:

"1. A method for separating components of a mixture characterized in that it comprises:

- a) bringing into contact the components of a mixture selected from:
 - at least two hydrocarbons,

- a mixture containing at least nitrogen and oxygen, and
 - at least one hydrocarbon and water,
- with an ITQ-29 zeolite material having a T(IV)/T(III) ratio of greater than 7, whereby T(IV) denotes one or more tetravalent elements and T(III) denotes one or more trivalent elements
- b) preferential adsorption of one or more of the components by ITQ-29 zeolite material and
 - c) recovery of one or more of the components.

V. The following objections were raised in the communications of the examining division referred to in the decision under appeal (Point II, *supra*):

- a) Lack of clarity; allegedly arising because Claim 1 was restricted to a "*ITQ-29 zeolite material*", which restriction did not allow, in the light of the disclosure of the whole application, for any metals other than Si and Al to be present, whereas Claim 1 also contained the feature "*whereby T(IV) denotes one or more tetravalent elements and T(III) denotes one or more trivalent elements*", which encompassed metals other than Si and Al, thus contradicted the first restriction);
- b) Insufficiency of the disclosure; allegedly arising because the description as such, e.g. Examples 1-4, supported only Si as tetravalent element and no trivalent element at all, let alone all conceivable combinations of tetravalent and trivalent elements encompassed by Claim 1; the supplementary technical information provided by the applicant concerned only one combination, namely Si+Ge/Al having a ratio of 7; the description did not disclose any concept fit for generalisation, which would enable the skilled person to achieve the envisaged results without

undue burden within the whole breadth of Claim 1;
and,

- c) Lack of an inventive step; allegedly arising because although the examples in the application as filed and the comparative examples submitted subsequently convincingly showed that ITQ-29 zeolites comprising Si/Al, or (Si+Ge)/Al or Si alone attained the sought-for technical effects, these results could not be attained by all possible combinations of tetravalent and trivalent elements encompassed by Claim 1).

VI. With their statement setting out the grounds of appeal, the appellants submitted a new set of amended claims as the sole claim request as well as a new item of evidence (Examples 1 to 6 on page 9 of the statement setting out the grounds of appeal and "Annex" 2 pages).

In their statement, the appellants argued that the claims on file met the requirements of Articles 123(2), 84 and 83 EPC, and that the claimed subject-matter was novel and inventive. The appellants also argued that the examining division had committed a substantial procedural violation because the decision under appeal was not adequately reasoned, which warranted the requested reimbursement of the appeal fee.

VII. The appellants were summoned to oral proceedings to take place on 28 February 2014.

VIII. Under cover of their letter dated 28 January 2014, the appellants filed five sets of further amended claims as auxiliary requests 1 to 5.

IX. In a communication issued in preparation for oral proceedings, the board commented on some particular

issues to be dealt with, *inter alia* clarity, sufficiency of the disclosure, validity of the priority date claimed, novelty and inventive step. In particular, the board referred to the following further documents:

D0: Priority document ES 200402255 with sworn translation into English (as filed with letter dated 5 June 2007);

D6: WO 2005/087663 A1 (referred to as PCT/ES2005/000120 in the application as filed); and,

D7: Corma et al, *Supramolecular self-assembled molecules as organic directing agent for synthesis of zeolites*, Nature, Vol. 431, 16 September 2004, pages 287-290 (cited in the International Search Report).

X. In response thereto, the appellants, with letter dated 19 February 2014, submitted seven sets of claims as new main request and as new auxiliary requests 1 to 6, as well as the following documents:

D8: Ch.Baerlocher et al, Atlas of Zeolite Framework Types, fifth revised edition, 2001, Elsevier, one page relating to the LTA Framework Type;

D9: S.M.Auerbach et al, Handbook of Zeolite Science and Technology, 2003, Marcel Dekker, Inc., page 74; and,

D10: J. Čejka, Introduction to Zeolite Science and Practice, 3rd revised edition, 2007, Elsevier, page 140.

XI. In a further communication dated 25 February 2014 the Board pointed out that Claim 2 of the new main request

did not appear to validly enjoy the claimed priority date.

- XII. With their response faxed on 25 February 2014, the appellants submitted three sets of claims as new main request and as new auxiliary requests 1 and 2. The previously filed auxiliary requests 3 to 6 were maintained. Also, the appellants stated that:
"... the request for oral proceedings and the request for reimbursement of the appeal fee are withdrawn in the event that the Board considers the claims of the Main Request or Auxiliary Request 1 to be allowable (at least to the extent that the case may be remitted to the examining division for further prosecution)".
- XIII. With order faxed on 25 February 2014 the oral proceedings appointed for 28 February 2014 were cancelled.
- XIV. The appellants requested that the decision under appeal be set aside and that a European patent be granted on the basis of the claims according to the main request filed with letter dated 25 February 2014, alternatively on the basis of the claims according to one of auxiliary requests 1 and 2 filed with letter dated 25 February 2014 or any of auxiliary requests 3 to 6 filed with letter dated 19 February 2014.

Reasons for the Decision

1. The appeal is admissible.

Main Request

Admissibility

2. The main request submitted with letter dated 25 February 2014 was filed shortly before the scheduled oral proceedings. However, the amendments in the claims of the main request were made in response to objections raised by the board and *prima facie* overcome said outstanding objections. Thus, the board, having regard to Articles 114(2) EPC and 13(1)(3) RPBA, has decided to admit the new main request into the proceedings.

Basis for the amended claims

3. Compared with Claim 1 of the application as originally filed, Claim 1 according to the main request comprises the additional (emphasis by the Board) features "having an **LTA structure**", to qualify the ITQ-29 zeolite material referred to.
 - 3.1 This amendment finds a direct and unambiguous basis in the most general disclosure in the (translated) application as filed (page 6, lines 6-7), reading (emphasis added): "**According to the invention**, in said separation method, the **ITQ-29 zeolite material**, which **has an LTA structure**".
 - 3.2 Dependent Claims 2 to 4 and 5 to 20 respectively correspond to Claims 3 to 5 and Claims 9 to 24 of the (translated) application as originally filed.

3.3 Hence, the amended claims of the main request have a direct and unambiguous basis in the application as filed, and the requirements of Article 123(2) EPC are thus met.

Clarity and support by the description

4. The board is satisfied that Claim 1 of the main request is clear under Article 84 EPC for the following reasons:

4.1 Claim 1 concerns a method for separating components of a mixture as defined, which requires bringing into contact the mixture with a zeolite (a generally recognised term in the art, as apparent from all the documents on file, in particular D8 to D10), which is defined in Claim 1 by the following features:

- (a) the designation ITQ-29;
- (b) the framework type "LTA structure";,
- (c) the T(IV)/T(III) ratio of greater than 7; and,
- (d) the feature "whereby T(IV) denotes one or more tetravalent elements and T(III) denotes one or more trivalent elements".

4.1.2 The designation ITQ-29, as disclosed in D7, is generally recognised as such in the field of zeolites, as apparent from e.g. D8, or D8a (Ch.Baerlocher and L.B.McCusker, database of Zeolite Structures: http://izasc.ethz.ch/fmi/xsl/IZA-SC/ftc_rm.xsl?db=Atlas_main&-lay=ref&STC=LTA&-find, 2007).

4.1.3 The fact that ITQ-29 has a LTA structure is also generally known from D8 or D8a, *supra*.

4.1.4 The T(IV)/T(III) ratio represents a generally accepted way of expressing an aspect of the composition of the

zeolite, as apparent from e.g. D9 (page 74, first full paragraph, first sentence) and D10 (page 140, point 3, first paragraph, second sentence).

- 4.1.5 That T(IV) elements other than Si and T(III) elements other than Al may be contained in zeolites is also something generally known, as apparent from e.g. D9, second and third full paragraphs on page 74).
- 4.1.6 Hence, the mentioned items of definition present in Claim 1 are clear and generally recognised.
- 4.2 The Board is also satisfied that the claimed subject-matter is supported by the description under Article 84 EPC for the following reasons:
 - 4.2.1 Throughout the application as filed (see e.g. page 8, lines 25-27; page 9, lines 20-22; page 10, lines 1-2; page 11, lines 15-18 and 24-30 of the translation) ITQ-29 is repeatedly described as including a high content of tetravalent elements and a low content of trivalent atoms, which fact is reflected in Claim 1 by the condition that the atomic ratio between tetravalent and trivalent elements be greater than 7, or even as including no trivalent elements, which for instance is reflected in Example 1 (pure silicon dioxide).
 - 4.2.2 Hence, there is no statement in the application as filed that ITQ-29 zeolite material suitable for the claimed process must comprise only Si and Al.
 - 4.2.3 In fact, as regards the composition of ITQ-29 zeolite material, the application as filed (page 5, line 17) also refers to WO 2005/087663 A1 (D6) (*infra*).

4.3 Therefore, the claims of the main request comply with the requirements of Article 84 EPC.

Sufficiency of the disclosure

5. The Board has considered the total information contained in the present application as filed, in particular the reference to D6, the contents of which are an implicit disclosure to be taken into account when assessing sufficiency of the disclosure under Article 83 EPC (Case Law of the Boards of Appeal of the EPO, 7th edition, 2013, II.C.3.2, third paragraph and e.g. T 737/90 of 9 September 1993, Point 3 of the Reasons thereof).

5.1 D6 (e.g. Claim 1) discloses that the zeolite material ITQ-29 may contain Si, Ge, Ti and Sn as tetravalent elements and, optionally, Al, B, Ga o Fe as trivalent elements.

5.2 The decision under appeal did not consider D6, i.e. did not take it into account when examining whether the requirements of Article 83 EPC were met by the claimed subject-matter. So the objections raised under Article 83 EPC and referred to in the decision under appeal do not appear to be complete and sufficiently supported by verifiable facts, let alone convincing.

5.3 Consequently, in the board's judgement, the claimed subject-matter is not objectionable under Article 83 EPC.

Remittal

6. As apparent from e.g. Points 4.1 and 4.3 of the result of the consultation by telephone with the applicants

which took place on 5 November 2010, referred to in the decision under appeal, the sole ground for the refusal of the application under appeal was the alleged lack of clarity under Article 84 EPC.

- 6.1 As established in Points 4, *supra*, the claims of the main request are clear, i.e. overcome the objections underlying the decision under appeal.
- 6.2 As regards the issues dealt with in the examination proceedings until now, the board notes that:
 - 6.2.1 Having regard to D1 to D5, the issue of novelty has not been dealt with by the examining division in terms of differences between the claimed subject-matter and the disclosures of said documents.
 - 6.2.2 The subject-matter of Claim 1 of the main request now contains a further limitation, taken from the description ("LTA Structure").
 - 6.2.3 As concerns inventive step, in the communication dated 30 June 2010 referred to in the decision under appeal, Points 3, the Examining Division did not identify a particular closest prior art for assessing inventive step according to the problem solution approach, did not formulate a technical problem effectively solved starting from the closest prior art and did not deal with the question whether or not, and for which reasons, the claimed solution was rendered obvious by the prior art. Hence, the issue of inventive step has not, until now, been reasoned in compliance with the the problem solution approach.
- 6.3 Considering all these aspects, the board finds it appropriate to make use of its power under Article

111(1) EPC and to remit the case the examining division.

Further procedural aspects

6.4 Since the Board has found that the claims of the main request of the appellants comply with the requirements of Articles 123(2), 84 and 83 EPC, and that the case should be remitted to the examining division for continuation of the examination proceedings, there is no need, in view of the statement of the appellant quoted under Point XII, *supra*, to decide on reimbursement of the appeal fee.

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.

The Registrar:

The Chairman:



C. Rodríguez Rodríguez

B. Czech

Decision electronically authenticated