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Datasheet for the decision of 22 November 2007

Case Number: T 1441/04 - 3.3.05

Application Number: 98948554.5

Publication Number: 1019320

IPC: C01B 37/00

Language of the proceedings: EN

Title of invention:
Novel method for making molecular sieves and novel molecular sieve compositions

Applicant:
ABB LUMMUS GLOBAL INC.

Opponent:
-

Headword:
In situ molecular sieve/ABB

Relevant legal provisions:
-

Relevant legal provisions (EPC 1973):
EPC Art. 123(2)

Keyword:
"Amendments not allowable (noth requests)"

Decisions cited:
-

Catchword:
-

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Case Number: T 1441/04 - 3.3.05

D E C I S I O N
of the Technical Board of Appeal 3.3.05
of 22 November 2007

Appellant: ABB LUMMUS GLOBAL INC.
1515 Broad Street
Bloomfield
New Jersey 07003 (US)

Representative: Patentanwälte
Zellentin & Partner
Rubensstrasse 30
D-67061 Ludwigshafen (DE)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 23 August 2004 refusing European application No. 98948554.5 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: B. Czech
Members: J.-M. Schwaller
C. Vallet

Summary of Facts and Submissions

I. The present appeal was lodged against the decision of the examining division to refuse the European patent application No. 98948554.5.

II. In the contested decision, the examining division held that the subject-matter of each of the three independent claims according to both requests then on file extended beyond the content of the originally filed documents, contrary to the requirements of Article 123(2) EPC.

III. With its statement of the grounds of appeal, the appellant filed an amended set of claims as main and sole request. Claim 1 of this request reads as follows:

"1. A process for making molecular sieve having a framework-structure containing large pore composite porosity which comprises impregnating an amorphous silicon comprising cation oxide-framework-structure with aqueous nutrients suitable for forming a synthetic molecular sieve, at least one of which comprising Al or Na, wherein the amount of aqueous nutrient provided to the impregnation does not exceed the incipient wetness point of the cation oxide framework to form a paste-free composition, and subjecting the impregnated cation oxide-framework-structure to controlled hydrothermal reaction."

IV. In the annex to the summons to oral proceedings, the board raised several objections under Article 123(2) EPC against *inter alia* the above amended claim 1. In particular, the board observed that the features

"*amorphous silicon comprising cation oxide-framework*" and "*aqueous nutrients suitable […], at least one of which comprising Al or Na*" did not appear to have a basis in the original PCT application, in particular in the passages indicated by the appellant in the statement of the grounds of appeal.

V. On 8 November 2007, the appellant filed two new amended claims 1 labeled main and auxiliary requests, respectively.

Claim 1 according to the main request reads:

"1. A process for making a molecular sieve comprising impregnating an amorphous silica-containing cation oxide-framework-structure with aqueous nutrients suitable for forming a synthetic molecular sieve, at least one of which comprises an aluminum salt or a sodium salt, by an incipient wetness method to form a paste-free composition, and subjecting the impregnated cation oxide-framework-structure to a hydrothermal reaction."

Claim 1 according to the auxiliary request reads:

"1. A process for making a large pore composite molecular sieve having a framework-structure containing large pore composite porosity comprising impregnating an amorphous silica-containing cation oxide-framework-structure with aqueous nutrients suitable for forming a synthetic molecular sieve, at least one of which comprises an aluminum salt or a sodium salt or sodium hydroxide, by an incipient wetness method to form a paste-free composition, and subjecting the impregnated

cation oxide-framework-structure to a controlled hydrothermal reaction preserving at least 25 volume percent of the amorphous framework-structure."

VI. At the oral proceedings, which took place on 22 November 2007, the allowability under Article 123(2) EPC of these amended claims was discussed. In particular, the question arose whether the following features recited in either of the above claims 1, namely: "*amorphous silica-containing cation oxide-framework-structure*", *"aqueous nutrients […], at least one of which comprises […] or a sodium salt"* (hereinafter called features (i) and (ii), respectively), had a basis in the PCT application as filed in its version published as WO 99/16709 (hereinafter called "application as filed").

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

Amended claim 1 was based *inter alia* on claim 2 of the application as filed. Feature (i) had a basis in the passages at page 15, lines 23-26 and page 16, lines 5-7 of the application as filed. Feature (ii) was supported by the working examples 1 to 10 of the application as filed. Moreover, it belonged to common general knowledge that sodium salts were usual nutrients for forming molecular sieves, as could be seen for instance from the background art discussion at pages 1 to 7 of the application as filed.

VIII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claim 1 according to the main request filed on 8 November 2007 and claims 2 to 27 as filed on

17 December 2004 or, alternatively, on the basis of claim 1 according to the auxiliary request filed on 8 November 2007 and claims 2 to 27 as filed on 17 December 2004.

Reasons for the Decision

1. *Allowability of feature (i)*

1.1 The board notes that a "*cation oxide-framework-structure*" which is "*silica-containing*" is not literally mentioned in the application as filed.

1.2 The passage at page 15 of the application as filed relied upon by the appellant as constituting a basis for this amendment, reads as follows:

"*The framework precursor to the framework-structure of the molecular sieve of the invention may be any one of a variety of cation oxide containing nutrients used in making molecular sieves. It may be a silica, an alumina, a titanium oxide, a zirconium oxide, a gallium oxide, an arsenic oxide, a germanium oxide, a metal phosphate, and the like.*"

The board observes that feature (i) covers for instance structures such as those composed of amorphous silica in combination with amorphous alumina or titania. Such structures can however not be directly and unambiguously derived from the above passage, which defines the "*framework precursor to the framework-structure of the molecular sieve of the invention*" only in a generic way: "*any **one** of a variety of cation oxide*

containing nutrients used in making molecular sieves" (emphasis added by the board) and by listing specific compounds, such as for instance "*silica*".

1.3 The further phrase on page 16 of the application as filed relied upon by the appellant reads: "*A very desirable framework-structure is silica, typically a pure silica (i.e. it does not contain any other cation oxide component), that has been reacted with a solvent soluble aluminum source incorporated by impregnation up to incipient wetness of the silica, without destroying the amorphous framework-structure of the silica, allows on heating the formation of an aluminum silicate therefrom.*"

1.3.1 The appellant argued that this passage taught that the term "*silica*" according to the present invention encompassed not exclusively pure silica, but also silica containing other cation oxide components.

1.3.2 This argument cannot be accepted because the term "*silica*" specifically designates silicon dioxide and even if the board accepted that the above passage also discloses implicitly the use of impure silica containing another cation oxide component, such a disclosure could not be equated to the disclosure of silica containing other cationic oxide components in more than just minor amounts. Feature (i) is anyhow not limited to cation oxide-framework-structures made of pure or impure silica (see 1.2 *supra*).

1.3.3 At the oral proceedings, the appellant also referred to the various silicates mentioned in the application, e.g. the aluminum silicate mentioned in the quoted passage

on page 16, and argued that these silicates could be regarded as silica-containing cation oxides. The board cannot accept this argument because a skilled person would not equate the disclosure of a specific silicate with the disclosure of "*silica*". In any event, the application does not support this view either.

1.3.4 The board is thus of the opinion that feature (i) is also not directly and unambiguously derivable from the passage on page 16.

2. *Allowability of feature (ii)*

2.1 The board notes that a "*sodium salt*" is not literally mentioned in the application as filed.

2.2 The appellant contended that this feature was supported by the working Examples 1 to 10 of the application as filed, since they disclosed the use of $NaNO_3$ and NaOH as aqueous nutrients.

The board does not share this view because although the use of NaOH or of $NaNO_3$ is indeed disclosed in said examples, these specific disclosures cannot - in the absence of further indications in the application - serve as a basis for a generalisation to the more generic feature "*sodium salt*".

2.3 As pointed out by the appellant during the oral proceedings, claim 2 and the description of the application as filed (page 9, lines 20-22; line 12; last paragraph) refer generally to an impregnation with nutrients suitable for forming a synthetic molecular sieve. The appellant has however not provided evidence

corroborating that it belonged to common general knowledge to use sodium salts in general for forming molecular sieves. Furthermore, no sodium compounds other than NaOH and/or sodium aluminate (page 3, line 28; page 5, lines 5 and 20; page 6, line 3) are mentioned as nutrients on pages 1 to 7 of the application as filed, which contain an overview over the background art. Under these circumstances, the board concludes that the intermediate generalisation of the sodium compounds specifically mentioned to the more generic expression "*sodium salts*" is not based on a corresponding, direct and unambiguous disclosure in the application as filed.

3. For the reasons indicated above, and as the board did also not find elsewhere in the application as filed any basis for the features (i) and (ii), the board concludes that the amended claims 1 according to both requests cover subject-matter which extends beyond the content of the application as filed. Since the amendments in question thus do not comply with the requirement of Article 123(2) EPC, both of the appellant's requests must be rejected.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar: The Chairman:

C. Vodz B. Czech