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**Datasheet for the decision  
of 22 May 2024**

**Case Number:** T 2080/22 - 3.3.05

**Application Number:** 08786793.3

**Publication Number:** 2176183

**IPC:** C03C25/32, E04B1/78, D06M15/03

**Language of the proceedings:** EN

**Title of invention:**  
MINERAL WOOL INSULATION

**Patent Proprietor:**  
Knauf Insulation SPRL

**Opponents:**  
Saint-Gobain Isover  
ROCKWOOL INTERNATIONAL A/S

**Headword:**  
Mineral wool insulation/KNAUF

**Relevant legal provisions:**  
EPC Art. 84, 123(2)  
EPC R. 80  
RPBA 2020 Art. 11, 12(2)

**Keyword:**

primary object of appeal proceedings to review decision -  
appeal case directed to requests on which decision was based  
(yes)

Amendment occasioned by ground for opposition - (yes)

Amendments - allowable (yes)

Claims - clarity (yes)

Remittal - special reasons for remittal - (yes)

**Decisions cited:**

G 0003/14, T 0750/11, T 0993/07, T 1473/19

**Catchword:**



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Case Number: T 2080/22 - 3.3.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.05**  
**of 22 May 2024**

**Appellant:**  
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**Decision under appeal:**

**Decision of the Opposition Division of the  
European Patent Office posted on 27 May 2022  
revoking European patent No. 2176183 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

<b>Chairwoman</b>	S. Besselmann
<b>Members:</b>	T. Burkhardt
	R. Winkelhofer

## Summary of Facts and Submissions

- I. The patent proprietor's (appellant's) appeal is against the opposition division's decision to revoke European patent No. 2 176 183 B1.
- II. The opposition concluded, *inter alia*, that auxiliary request 3 then on file did not meet the requirements of Article 123(2) EPC.
- III. With the grounds of appeal, the appellant re-submitted auxiliary requests 3 to 9, which were dealt with in the decision under appeal.

In the appeal proceedings, auxiliary request 3 was made the main request.

- IV. The independent claims of the main request read as follows:

"1 A method of manufacturing a mineral fibre thermal insulation product which comprises glass wool fibres and has a density in the range of 8 to 50 kg/m<sup>3</sup>, the method comprising the sequential steps of:

- Forming mineral fibres from a molten mineral mixture;
- spraying a substantially formaldehyde free binder solution on to the mineral fibres, the binder solution comprising: a reducing sugar, an acid precursor derivable from an inorganic salt and a source of nitrogen; in which the acid precursor of the binder solution derivable from an inorganic salt comprises an ammonium salt; and in which the inorganic ammonium salt makes up between 5% and 25% by dry weight of the binder solution;

- Collecting the mineral fibres to which the binder solution has been applied to form a batt of mineral fibres; and
- Curing the batt comprising the mineral fibres and the binder by passing the batt through a curing oven so as to provide a batt of mineral fibres held together by a substantially water insoluble cured binder."

"2 A method of manufacturing a mineral fibre thermal insulation product which comprises stone wool fibres and has a density in the range of 25 to 180 kg/m<sup>3</sup>, the method comprising the sequential steps of:

- Forming mineral fibres from a molten mineral mixture;
- spraying a substantially formaldehyde free binder solution on to the mineral fibres, the binder solution comprising: a reducing sugar, an acid precursor derivable from an inorganic salt and a source of nitrogen; in which the acid precursor of the binder solution derivable from an inorganic salt comprises an ammonium salt; and in which the inorganic ammonium salt makes up between 5% and 25% by dry weight of the binder solution;
- Collecting the mineral fibres to which the binder solution has been applied to form a batt of mineral fibres; and
- Curing the batt comprising the mineral fibres and the binder by passing the batt through a curing oven so as to provide a batt of mineral fibres held together by a substantially water insoluble cured binder."

Claims 3 to 14 relate to embodiments.

- V. The arguments made by the appellant during the appeal proceedings relevant to the present decision can be summarised as follows.

The main request (former auxiliary request 3) should be admitted, and its compliance with Rule 80 EPC, Article 84 EPC and Article 123(2) EPC should be acknowledged.

VI. The arguments made by opponent 1 (respondent 1) and opponent 2 (respondent 2) during the appeal proceedings relevant to the present decision can be summarised as follows.

The main request should not be admitted.

It further did not meet the requirements of Rule 80 EPC.

The claims of the main request were also unclear.

Claims 1, 2, 7, 8 and 10 of the main request did not meet the requirements of Article 123(2) EPC.

VII. On substance, the appellant requests that the decision under appeal be set aside and amended such that the patent be maintained on the basis of the main request or one of auxiliary requests 4 to 9 (filed with the statement of grounds of appeal).

The respondents request on substance that the appeal be dismissed.

The parties subsidiarily request remittal to the opposition division.

## **Reasons for the Decision**

### *Main request*

For the reasons set out below, the main request is to be considered and meets the requirements of Rule 80 EPC, Article 84 EPC and Article 123(2) EPC.

#### 1. Admission/consideration

In the respondents' view, the main request was not substantiated. Moreover, it did not meet the requirements of Rule 80 EPC. Hence, this claim request should be disregarded.

However, this request is identical to auxiliary request 3 dealt with in the decision under appeal (see point II.5).

Under these circumstances and in line with Article 12(2) RPBA, the main request is part of the appeal proceedings, and, under established case law, there is no legal basis for excluding it (Case Law of the Boards of Appeal, 10th edn., 2022, V.A.3.4.4).

Moreover, contrary to the respondents' view, the appellant explicitly substantiated this request at the appeal stage, as required by Article 12(3) RPBA, at least by stating that it overcame objections under Article 123(2) EPC (see, for example, pages 20 and 21 of the grounds of appeal where reference is made to the then main request and where it is also indicated that the claims are based on claims 22 and 23 of the application as originally filed).



Moreover, as is shown below, the main request meets the requirements of Rule 80 EPC, Article 84 EPC and Article 123(2) EPC.

For these reasons, there is no basis for disregarding this request under Article 12 RPBA 2020.

2. Two independent claims

2.1 In the respondents' view, the introduction of a further independent claim (i.e. claim 2) in the main request did not meet the requirements of Rule 80 EPC since these amendments were not occasioned by a ground for opposition under Article 100 EPC. They referred to T 993/07 (Reasons 1.5).

However, these arguments are not convincing.

2.2 Compared to the subject-matter of the unique independent claim 1 of the granted version, the subject-matter in the main request has been limited to the specific embodiments of granted dependent claims 14 and 15 respectively, resulting in independent claims 1 and 2 respectively.

In fact, the broader subject-matter of claim 1 as granted ("mineral fibres") has been limited in the main request to the embodiments relating to "glass wool fibres" (claim 1) and "stone wool fibres" (claim 2) and the corresponding density ranges.

Such a limitation clearly relates to meeting the ground for opposition under Article 100(a) EPC (Case Law of the Boards of Appeal, 10th edn., 2022, IV.C.5.1.1; see also T 750/11, Reasons 2.3.2).

In this case, carrying out the limitation while formulating two independent claims allows retaining the wording and the structure of the claims as granted and thus avoids potential points of dispute raised for a previous request (see point II.2.2.3.2 of the decision under appeal).

Under these circumstances, the amendments are an appropriate and necessary response to grounds for opposition under Article 100 EPC (Case Law of the Boards of Appeal, 10th edn., 2022, IV.C.5.1.2.c) (ii)).

The requirements of Rule 80 EPC are therefore met.

2.3 T 993/07, relied on by the respondents, is not applicable to the case at hand.

In that case, the independent claim as granted was replaced in the main request and in the first auxiliary request by a multitude of independent claims comprising features from the description (the main request contained 20 independent claims, auxiliary request 1 contained 10 independent claims). The patent proprietor argued that the "multiplicity of independent claims was presented with a view to testing the extent to which they could replace a single independent claim whose validity had come into question in opposition proceedings" (Facts and Submissions VII).

Under the circumstances of that case, the competent board concluded that "the addition of one or more further independent claims leaves unimpaired the question of whether or not arguments submitted by the proprietor and/or amendments made to the opposed

independent claim overcome an objection based on a ground for opposition against that claim" (Reasons 1.5). The board, consequently, concluded that several amendments in the main request and in auxiliary request 1 did not meet the requirements of Rule 80 EPC (Reasons 2.2-2.7 and 3.2).

In the case at hand, by contrast, the amendments are taken from two parallel dependent claims and represent a limitation compared with the independent claim as granted. The amendments do relate to the ground for opposition under Article 100(a) EPC

3. Amendments (and clarity issues occasioned by amendments)

In the respondents' view, claims 1, 2, 7, 8 and 10 of the main request extend beyond the disclosure of the application as originally filed.

However, for the reasons set out below, this is not convincing. The main request thus meets the requirements of Article 123(2) EPC.

3.1 Claims 1 and 2

3.1.1 Independent method claims 1 and 2 of the main request each contain the following expression (claim 1: lines 9 to 12; claim 2: lines 25 to 28):

"in which the acid precursor of the binder solution derivable from an inorganic salt comprises an ammonium salt;

and in which the inorganic ammonium salt makes up between 5% and 25% by dry weight of the binder solution"

(emphasis added by the board)

- 3.1.2 The respondents and the opposition division (see points II.5.3.2, II.5.4.2 and II.2.2.3.3 of the decision under appeal) held that, due to the semicolon in the expression marked above, the requirement that "the inorganic ammonium salt makes up between 5% and 25% by dry weight of the binder solution" was not limited to the inorganic ammonium salt functioning as an "acid precursor" but possibly included inorganic ammonium salt used as the "source of nitrogen".

In their view, this differed from the disclosure in the application as originally filed. The claim structure of claims 7 and 8 of the application as originally filed made it clear that the amount of inorganic ammonium salt required by claim 8 of the application as originally filed could only refer to the acid precursor. This was corroborated by the fact that "ammonium salt" was not mentioned in the claims preceding claim 7 of the application as originally filed.

Also according to the respondents, such an understanding of the application as originally filed corresponded to how the binder solution was prepared, i.e. by mixing the acid precursor comprising the inorganic ammonium salt in the claimed amount, and mixing the nitrogen source, which allowed easily distinguishing between both components.

The respondents referred to T 1473/19 (Reasons 4.2 and 6.1), which confirmed that punctuation could have an

impact on claim interpretation and the assessment of Article 123 EPC.

- 3.1.3 However, these arguments are not convincing. The expression inserted into claims 1 and 2 of the main request is based on claims 7 and 8 as originally filed (the latter exclusively depending on claim 7 as filed). These claims have been inserted word for word into each of claims 1 and 2 of the main request, concatenated and separated by the semicolon marked above. This word-for-word insertion does not result in any change of meaning. The situation in T 1473/19 is thus not comparable.

While from a general point of view, punctuation may have an influence on claim interpretation and the assessment of Article 123 EPC (as shown by T 1473/19), this evaluation is always case specific. In the case at hand, the semicolon does not alter the meaning.

The semicolon does not change the fact that the expression "the acid precursor ... comprises an ammonium salt" (taken from claim 7 as originally filed) is the only antecedent of the expression "*the* inorganic ammonium salt" making up the indicated amount (taken from claim 8 as originally filed; emphasis added). As already indicated, both expressions are identically contained in each of claims 1 and 2 of the main request, the antecedent thus remaining the same.

The exclusive dependency of claim 8 on claim 7 of the application as originally filed does not change this finding either. Because of this dependency, the subject-matter defined by claim 8 as originally filed is not limited to that of only claims 7 and 8 of the application as originally filed. Rather, since claim 7

of the application as originally filed in turn depends on "any preceding claim", the subject-matter of at least claim 1 of the application as originally filed has also to be considered in combination with that of claims 7 and 8 of the application as originally filed.

Hence, contrary to the respondents' assertion, the amount of "inorganic ammonium salt" of claim 8 of the application as originally filed does not exclusively relate to the "acid precursor", in spite of the exclusive dependency on claim 7 as originally filed.

It has not been disputed that the claimed amount of the ammonium salt of claims 1 and 2 of the main request could also refer (in addition to the "acid precursor") to the "source of nitrogen". But this possibility is also encompassed by claims 7 and 8 as originally filed.

The description confirms this view.

The passage on page 2, lines 18 to 26 of the application as originally filed (paragraph [0006] of the patent in suit) indicates that the inorganic ammonium salt can be a part of both the "acid precursor" and the "nitrogen source" (and even of a "pH control system"). This is confirmed by Examples 2.1 and 2.2 (table on page 21 of the application as originally filed; paragraph [0081] of the patent in suit). In these examples, only ammonium sulphate is present as a nitrogen containing compound. Ammonium sulphate hence plays the role of both the acid precursor and the nitrogen source.

It is thus clear that the inorganic ammonium salt may additionally be the nitrogen source, and there is no reason why this would not be true for the inorganic

ammonium salt mentioned in claim 8 as originally filed. Even though its antecedent is the ammonium salt comprised in the acid precursor, this does not exclude that the inorganic ammonium salt has an additional function, i.e. to provide a nitrogen source.

In this context, the different possible functions of the inorganic ammonium salt may create ambiguity as to whether or how the intended function is to be taken into account when calculating the stipulated amount.

The respondents' argument that a distinction was possible because the "acid precursor" and the "source of nitrogen" had to be added separately is not convincing because there are no such steps in the claim. The claimed method is directed to using a (finished) binder solution; it does not specify any mixing steps to prepare a binder.

In fact, there is no possibility in practice to distinguish an inorganic ammonium salt contained in a binder solution on the basis of the intended function to determine the corresponding amount. However, this possible ambiguity is present in the claims as granted and is therefore not open to an objection under Article 84 EPC (G 3/14).

In light of the above, claim 8 as originally filed includes the possibility that inorganic ammonium salt comprised in the acid precursor also functions as a source of nitrogen. Claim 8 is therefore open to an interpretation according to which the stipulated amount includes inorganic ammonium salt used as a source of nitrogen.

This same interpretation is possible for claims 1 and 2 under consideration, which contain the same wording.

3.1.4 According to the respondents, the subject-matter of claims 1 and 2 also extended beyond the disclosure on page 3, lines 4 to 9 and 14 to 17 of the application as originally filed.

The passage on page 3, lines 4 to 9 of the application as originally filed mentions the same lower limit of 5% inorganic ammonium salt as claims 1 and 2 of the main request exclusively in relation to the "acid precursor" but only for the specific case of an acid precursor which "*consists essentially* of inorganic ammonium salt(s)" (emphasis added by the board).

Similarly, the passage on page 3, lines 14 to 17 links the amount of inorganic ammonium salt exclusively to the acid precursor. However, the amount of inorganic ammonium salt is related to the carbohydrate/sugar, not to the binder solution as in claims 1 and 2 of auxiliary request 3.

Hence, the claims and the description as filed are not congruent in this regard. This, however, does not affect the conclusion that the contentious expression (see point 3.1.1) is directly and unambiguously derivable from claims 7 and 8 as originally filed.

3.1.5 Consequently:

- claim 1 is directly and unambiguously derivable from claims 1, 7, 8 and 22 as filed
- claim 2 is directly and unambiguously derivable from claims 1, 7, 8 and 23 as filed



3.2 Claim 10

3.2.1 The respondents argued that because of the expression "the binder is selected from" preceding the three options a), b) and c), claim 10 of the main request also encompassed new combinations in the form of "mixtures" of these options not disclosed in claims 14, 15 and 16 of the application as originally filed.

3.2.2 However, this is not convincing.

Under the current circumstances, the expression "the binder solution is selected from:

a) a binder solution which *consists essentially of* an aqueous solution of: a reducing sugar; at least one acid precursor derivable from an ammonium salt selected from the list consisting of ammonium sulphate salts, ammonium phosphate salts, and ammonium carbonate salts; and, optionally, excess ammonia;

b) a binder solution which *consists essentially of* an aqueous solution of: a reducing sugar; at least one acid precursor derivable from an ammonium salt selected from the list consisting of ammonium sulphate salts and ammonium phosphate salts; and, optionally, excess ammonia, the binder solution having a pH which, in its conditions of use, prevents precipitation of sulphates or phosphates; *and*

c) a binder solution which *consists essentially of* an aqueous solution of: a reducing sugar; an acid precursor derivable from an ammonium salt; a carboxylic acid or a precursor thereof; and, optionally, excess ammonia" (emphasis added by the board)

in claim 10 has to be understood to mean that exactly one of the options a), b) and c) has to be selected because each of these options defines *the binder solution* as a whole. Otherwise, the appellant would

have chosen the expression "and/or c" and would have avoided the wording "consists essentially of" in each option.

In light of this, the "selected from" wording in claim 10 does not amount to a fresh combination of any of these options and thus does not extend beyond the content of the application as filed, in which they were defined in separate claims.

### 3.3 Claims 7 and 8

#### 3.3.1 The respondents also argued that:

- claim 7 of the main request, which was based on claims 9, 10 and 11 as filed, and
- claim 8 of the main request, which was based on claims 12 and 20 as filed

went beyond the original disclosure as "particular combinations" were generated that were not disclosed in the application as originally filed.

#### 3.3.2 However, the respondents have not indicated the precise nature of such "particular combinations", and the board cannot see any either.

Consequently, the skilled person is not confronted with new information in this regard either.

## 4. Clarity

The respondents raised clarity objections against claims 1 and 2 of the main request because of the interpretation that the amount of ammonium salt in the feature "in which the inorganic ammonium salt makes up between 5% and 25% by dry weight of the binder

solution" could also refer to the "nitrogen source" (and not only to the "acid precursor").

However, since claim 1 as granted contains this feature, its clarity is not open for discussion (G 3/14). Indeed, in this regard, claims 1 and 2 of the main request are identical to claims 14 and 15 as granted.

The main request therefore meets the requirements of Article 84 EPC.

#### *Miscellaneous*

##### 5. Remittal

Since the decision under appeal on substance only dealt with the requirements of Articles 100(c) and 123(2) EPC, there are special reasons within the meaning of Article 11 RPBA 2020 to remit the case to the opposition division for further prosecution on the other grounds for opposition.

Remittal is also in line with the parties' requests.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division for further prosecution.

The Registrar:

The Chair:



L. Malécot-Grob

S. Besselmann

Decision electronically authenticated