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**Datasheet for the decision
of 3 April 2020**

Case Number: T 0076/18 - 3.3.05

Application Number: 00125128.9

Publication Number: 1103570

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C08L51/00, C08L71/02,
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C08G65/26

Language of the proceedings: EN

Title of invention:
Cement admixtures and its use

Patent Proprietor:
NIPPON SHOKUBAI CO., LTD.

Opponent:
COATEX

Headword:
Cement admixtures/Nippon Shokubai

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 56

Keyword:

Requests and evidence filed with statement of grounds -
admitted (yes)
Inventive step - (no) - auxiliary request (yes)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0076/18 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 3 April 2020

Appellant: NIPPON SHOKUBAI CO., LTD.
(Patent Proprietor) 1-1, Koraibashi 4-chome
Chuo-ku
Osaka-shi, Osaka 541-0043 (JP)

Representative: Henkel & Partner mbB
Patentanwaltskanzlei, Rechtsanwaltskanzlei
Maximiliansplatz 21
80333 München (DE)

Respondent: COATEX
(Opponent) 35 rue Ampère
69730 Genay (FR)

Representative: Regimbeau
87 rue de Sèze
69477 Lyon Cedex 06 (FR)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 27 October 2017
revoking European patent No. 1103570 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman R. Winkelhofer
Members: G. Glod
T. Burkhardt

Summary of Facts and Submissions

I. The patent proprietor's (appellant's) appeal lies from the opposition division's decision revoking European patent No. EP 1 103 570 B1. The following documents cited in the decision are of relevance here:

D3: WO 00 48961 A1

D4: EP 0 850 894 A1

D5: US 5 661 206 A

D10: Experimental data annexed to the patent proprietor's submission dated 16.8.2012

II. With the statement of grounds of appeal the appellant submitted a main and two auxiliary requests. In addition, the following document was filed:

D12: Experimental report

III. Claim 1 of the main request is as follows:

*"1.A cement admixture comprising a copolymer as an essential component,
wherein the copolymer includes constitutional unit (I) derived from unsaturated polyalkylene glycol ether monomer (a) and constitutional unit (II) derived from unsaturated monocarboxylic acid monomer (b) as essential constitutional units, wherein the copolymer may further comprise constitutional unit (III) derived from a monomer (c), with the copolymer being characterized in that:
the ratio of constitutional unit (I)/constitutional unit (II)/constitutional unit (III) is (60 to 97)/(3 to 40)/ (0 to 30) in weight %, and the total of*

constitutional unit (I), constitutional unit (II) and constitutional unit (III) is 100 weight %, and the ratio of constitutional unit (I) and constitutional unit (II) by mole is: constitutional unit (I) < constitutional unit (II); said unsaturated polyalkylene glycol ether monomer (a) is a compound obtained by adding 10 to 300 moles of alkylene oxide having 2 to 18 carbon atoms to 3-methyl-3-buten-1-ol; and said unsaturated monocarboxylic acid monomer (b) is acrylic acid and/or its salt."

Claim 1 of auxiliary request 1 has been restricted as follows:

"1. [...] said unsaturated polyalkylene glycol ether monomer (a) is a compound obtained by adding 10 to 300 moles of alkylene oxide having 2 to 4 ~~18~~-carbon atoms to 3-methyl-3-buten-1-ol; [...]."

Claims 2 to 5 of auxiliary request 1 relate to preferred embodiments and include all the features of claim 1.

IV. The appellant's arguments relevant to the present decision can be summarised as follows:

D4 was the closest prior art. Even if D5 was considered to be the closest prior art the skilled person could not arrive at the cement admixture defined in claim 1 of the main request in an obvious manner. The objective problem to be solved was the provision of a cement admixture having improved dispersing performance at a low water/cement ratio. The working examples of the patent in suit in combination with the experimental data of documents D10 and D12 showed that the problem

was credibly solved. In view of D3 and D5, the unsaturated alcohols 3-methyl-3-buten-1-ol and 2-methyl-2-propen-1-ol on the one hand, and the unsaturated monocarboxylic acids acrylic acid and methacrylic acid on the other hand, were simply equivalents. Indeed, D3 did not teach or suggest the advantageous technical effect directly associated with the structural features distinguishing the cement admixture of claim 1 of the main request from the cement admixture produced in Example 4 of D5.

- V. The respondent's (opponent's) arguments relevant to the present decision can be summarised as follows:

D12 (including the argument based on it) and the requests submitted with the appellant's grounds of appeal should not be admitted into the proceedings. It was evident that the use of alkylene oxide having 18 carbon atoms would lead to a lipophilic copolymer that did not allow the alleged problem to be solved. It should also be noted that monomer (c) could be any type of monomer. Since the argument based on D12 was not to be admitted into the proceedings, the opposition division's position starting from D5 as the closest prior art remained valid.

- VI. In reply to the board's communication under Article 15(1) RPBA 2007 the parties withdrew their requests for oral proceedings.

- VII. The appellant requests that the impugned decision be set aside and that the patent be maintained on the basis of the main request or, alternatively, on the basis of one of auxiliary requests 1 and 2, which are all requests submitted with the statement of grounds of appeal.

The respondent requests that the appeal be dismissed.

Reasons for the Decision

1. Article 83 EPC

At the appeal stage, the respondent has not contested sufficiency of disclosure. There is no reason to take a different stance.

2. Article 12(4) RPBA 2007

Article 12(4) RPBA 2007 applies (see Article 25(2) RPBA 2020). The appellant's requests and D12 were first filed with the statement of grounds of appeal. There is no reason for not considering/admitting them under Article 12(4) RPBA 2007.

2.1 The main request is very similar to auxiliary request 1 underlying the impugned decision except that the wording "which is copolymerizable with monomer (a) and/or monomer (b)" has been deleted from claim 1. This is a reaction to a statement present in the impugned decision about the then auxiliary request 1 (see point 1.3). This amendment does not change the case, but instead makes it possible to focus on the question of inventive step. There is no reason why such a request should have been filed before the opposition division.

2.2 Auxiliary request 1 has been restricted by limiting the chain length of the alkylene oxide. Although this point was not explicitly dealt with in the decision, it is evident from the minutes of the oral proceedings before the opposition division (point 7.3) that an objection

relating to the chain length was raised by the opponent. Auxiliary request 1 is considered to be a reaction to this discussion, which does not lead to a new case.

- 2.3 D12 is an experimental report that was submitted with the statement of grounds of appeal. It is supposed to help to demonstrate an inventive step in view of D5. The opponent indicated for the first time during the oral proceedings before the opposition division that, since the priority of the patent had been held invalid, D3 was prior art under Article 54(2) EPC. The patent was in the end revoked based on the combination in particular of D5 and D3. D12 is a reaction to this discussion and to the impugned decision. Therefore, there is no reason why, in the present case, such an experimental report should have been filed before the opposition division.

3. Article 56 EPC

3.1 Main request

There is no reason to diverge from the opposition division's convincing conclusion. There is no evidence, and it is also not credible, that the effect shown in D12 (see below) would also be obtained when an alkylene oxide having 18 carbon atoms was used instead of ethylene oxide. Therefore, the problem to be solved is to provide an alternative cement admixture, as indicated in point 2.3 of the impugned decision with regard to the then auxiliary request 1, and the opposition division's conclusion that the solution is obvious still applies.

Since the requirements of Article 56 EPC are not fulfilled, this request fails.

3.2 Auxiliary request 1

3.2.1 The board agrees with the opposition division that D5 is the closest prior art, since it concerns the same problem and has most features in common with claim 1. In fact, D5 relates to water-reducing agents that are to be further improved such that air-entrainment is reduced (column 1, lines 30 to 32). The admixtures presented in D5 have good water-reducing properties and reduced air-entrainment (see also column 8, lines 55 to 63). Example 4 is a good starting point.

3.2.2 The problem to be solved according to the patent is to provide a copolymer that displays excellent dispersibility in a high water reducing ratio area (paragraph [0006]).

3.2.3 As a solution, the patent proposes an admixture according to claim 1 characterised in that the alcohol used to obtain unsaturated polyalkylene glycol ether monomer is 3-methyl-3-buten-1-ol and the unsaturated monocarboxylic acid monomer is acrylic acid and/or its salt.

3.2.4 The problem can be regarded as credibly solved, since the results (experiments 1 and 2) of the mortar test shown in Table 1 of D12 indicate that the flow value obtained for an admixture according to the patent is higher than the one obtained for an admixture according to example 4 of D5. There is no evidence that would allow this result to be questioned and/or would credibly show that the result cannot be obtained over the whole scope of the claim. It is irrelevant whether

the improvement shown is due to the choice of alcohol or to the choice of the unsaturated monocarboxylic acid monomer, or both.

- 3.2.5 It remains to be determined whether the proposed solution was obvious or not in view of the prior art. Although D3 discloses 3-methyl-3-buten-1-ol (see page 5, line 2) and acrylic acid as monomer (B) (page 5, line 6), which is also disclosed in D5 itself (column 4, line 22), there is no teaching and/or pointer that the specific choice of this alcohol and acrylic acid would allow the posed problem to be solved.
- 3.2.6 The proposed solution to the posed problem is not obvious.
- 3.2.7 When starting from D4 as the closest prior art the same conclusion is reached, since D4 does not disclose that the monomer generating the unit (II) has to be specifically acrylic acid and/or its salt and that the ratio of constitutional unit (I) and constitutional unit (II) by mole is such that constitutional unit (I) is less than constitutional unit (II). D10 shows that at least the ratio of the constitutional units has an effect on the flowability. There is no reason to doubt that the posed problem is solved. Neither D3 nor D5 provides a pointer that the specific choice of acrylic acid would allow the posed problem to be solved.
- 3.2.8 Consequently, the subject-matter of claim 1 and of claims 2 to 5, which directly or indirectly depend on claim 1, involves an inventive step, so the requirements of Article 56 EPC are met.
- 3.3 Auxiliary request 1 being allowable, auxiliary request 2 does not have to be dealt with.

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 with the order to maintain the patent in amended form on the basis of claims 1 to 5 of the first auxiliary request submitted with the grounds of appeal and a description to be adapted thereto.

The Registrar:

The Chairman:



C. Vodz

R. Winkelhofer

Decision electronically authenticated