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Datasheet for the decision of 20 October 2021

Case Number: T 2353/18 - 3.2.07

Application Number: 11161718.9

Publication Number: 2508316

IPC: B28C5/38, C04B28/14, C04B38/10

Language of the proceedings: EN

Title of invention:
Method for manufacturing gypsum products

Patent Proprietor:
SAINT-GOBAIN PLACO

Opponent:
Knauf Gips KG

Headword:

Relevant legal provisions:
EPC Art. 100(a), 54, 56, 83, 84, 100(b), 100(c)
RPBA 2020 Art. 12(2), 12(3), 15(1)
RPBA Art. 12(4)

Keyword:
Grounds for opposition - insufficiency of disclosure (no) - extension of subject-matter (no) - lack of patentability (no)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:
G 0002/10, G 0003/14, T 0409/91

Catchword:

Europäisches Patentamt
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Office européen des brevets

Beschwerdekammern

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Case Number: T 2353/18 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 20 October 2021

Appellant: (Patent Proprietor)	SAINT-GOBAIN PLACO Tour Saint-Gobain 12 place de l'Iris 92400 Courbevoie (FR)
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Appellant: (Opponent)	Knauf Gips KG Am Bahnhof 7 97346 Iphofen (DE)
Representative:	Zech, Stefan Markus Meissner Bolte Patentanwälte Rechtsanwälte Partnerschaft mbB Widenmayerstraße 47 80538 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 12 July 2018 concerning maintenance of the European Patent No. 2508316 in amended form.**

Composition of the Board:

Chairman	I. Beckedorf
Members:	S. Watson
	V. Bevilacqua

Summary of Facts and Submissions

I. Appeals were lodged by both the patent proprietor and the opponent within the prescribed period and in the prescribed form against the decision of the opposition division to maintain European patent No. 2 508 316 in amended form.

II. The opposition was directed against the patent in its entirety and was based on all grounds for opposition pursuant to Article 100(a) to (c) EPC.

III. The opposition division found that claim 6 of the patent as granted (main request) contained subject-matter which extended beyond the content of the application as originally filed, whereas the set of claims according to auxiliary request 1 fulfilled the requirements of the EPC.

IV. In preparation for oral proceedings, scheduled at the parties' requests, the Board gave its preliminary assessment of the case by means of a communication pursuant to Article 15(1) RPBA 2020. The Board indicated that the appeal of the opponent was likely to be dismissed, whereas the patent proprietor's appeal was likely to be allowed.

V. Neither party filed a substantive response to this communication.

VI. Oral proceedings before the Board took place by videoconference on 20 October 2021.

At the conclusion of the proceedings the decision was announced. Further details of the proceedings can be found in the minutes thereof.

VII. The final requests of the parties are as follows:

for the opponent

that the decision under appeal be set aside and that the patent be revoked;

for the patent proprietor

that the decision under appeal be set aside and that the patent be maintained as granted (main request);
that the appeal of the opponent be dismissed (first auxiliary request);
or, when setting aside the decision,
that the patent be maintained in amended form according to one of the set of claims filed as auxiliary requests 1A, 2, 2A, 3 to 9 with the proprietor's reply to the opponent's statement setting out the grounds of appeal.

VIII. Independent claim 1 of the patent as granted and as maintained by the opposition division reads as follows (feature referencing as used in the decision under appeal):

M1.1 "A method of producing a gypsum product
M1.2 wherein calcined gypsum is mixed with water;
M1.3 wherein at least two different foam feeds are introduced into the gypsum and water mix simultaneously,
M1.4 the first foam feed comprising a different

bubble size distribution when compared to the second foam feed,

M1.5 wherein the first foam feed is generated in a first foam generator (20,120) using a first foam generation process

M1.6 and the second foam feed is generated in a second foam generator (22,122) using a second foam generation process,

M1.7 at least one physical parameter of the first foam generation process being controlled independently of the second foam generation process;

M1.8 and further wherein the foam-generating surfactant used in the first foam generation process has the same composition as the foam-generating surfactant used in the second foam generation process."

IX. Claim 6 of the patent as granted reads as follows:

"Method according to claim 1, wherein the first foam generator process uses a foaming solution having a higher concentration of surfactant than the foaming solution that is utilised by the second foam generation process."

X. Claim 7 of the patent as granted reads as follows:

"A method according to claim 1 wherein the method comprises calcined gypsum being mixed with water in two mixers, the mixers comprising a first mixer and the second mixer positioned downstream of the first mixer so as to receive gypsum slurry produced in the first mixer, the first mixer receiving the first foam feed and the second mixer receiving the second foam feed."

XI. The auxiliary requests do not form part of this decision so that it is unnecessary to reproduce them here.

XII. The following documents are referred to in this decision:

D1: WO 03/000620 A1;
D2: WO 2005/080294 A1;
D3: GB 300,843;
D4: EP 0 458 843 B1;
D5: JPH0214889 A;
D7: US 2005/0248049 A1;
D8: EP 1 488 920 A1;
D9: JP 2001-300933 A;
D10: US 2,985,219;
D11: WO 97/23337 A1;
D12: EP 1 555 099 A1;
D13: US 4,455,271;
D14: WO 02/12141 A1.

XIII. The lines of argument of the parties are dealt with in detail in the reasons for the decision.

Reasons for the Decision

1. *Revised Rules of Procedure of the Boards of Appeal (RPBA 2020) - transitional provisions*

The present proceedings are governed by the revised version of the Rules of Procedure which came into force on 1 January 2020 (Articles 24 and 25(1) RPBA 2020), except for Article 12(4) to (6) RPBA 2020 instead of

which Article 12(4) RPBA 2007 remains applicable (Article 25(2) RPBA 2020).

2. *Article 100(c) EPC – claims 1 and 6 as granted*

2.1 In the decision under appeal, the opposition division found:

- that feature M1.8 is directly and unambiguously derivable from the application as originally filed (decision under appeal, II.2.2.4 to II.2.2.7); but
- that the combination of feature M1.8 with the feature of granted claim 6 is not directly and unambiguously derivable from the application as originally filed (decision under appeal, II. 2.2.11).

2.2 Feature M1.8

2.2.1 It is uncontested that the phrase "the foam-generating surfactant used in the first foam generation process has the same composition as the foam-generating surfactant used in the second foam generation process", is not found *expressis verbis* in the application documents.
However, it is established case law that literal support is not required for an amendment (see Case Law of the Boards of Appeal [CLB], 9th edition 2019, II.E. 1.3.2).

Instead, it must be considered whether the amendment is within the limits of what a skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the description, claims and drawings as filed. In this respect, the Board concurs fully with the opponent that any

amendment to an application must be assessed according to the "gold standard" (G 2/10, Reasons 4.3).

2.2.2 The opposition division found that M1.8 was directly and unambiguously derivable from paragraph [0027], first sentence, of the published application, when this sentence was "read in the context in which it is defined", *i.e.* together with the last sentence of paragraph [0027] (decision under appeal, points II. 2.2.4 and II.2.2.5).

2.2.3 Paragraphs [0026] to [0028] of the published application correspond to page 5, line 26 to page 6, line 11, of the application as originally filed, and read as follows:

"The used surfactant is typically a standard anionic foaming agent used in plasterboard production plants, such as sodium alkyl ether sulphate or ammonium alkyl ether sulphate having a carbon chain length between 8 to 12C.

The use of two or more foam generators may allow bubble size distribution within a gypsum product to be controlled without the need to change the composition of the foam-generating surfactant. That is, the structure of the foams injected into the mixer for forming the gypsum product may be controlled substantially or entirely through the modification of physical parameters of the foam generation process.

However, in certain cases, a first one of the two foam generators may be arranged to utilise a first surfactant and a second one of the two foam generators may be arranged to use a second surfactant having a different composition to the first surfactant.

Also, a first one of the two foam generators may utilise a foaming solution having a higher concentration of surfactant than the foaming solution that is utilised by the second one of the foam generators. For example, the first one of the two foam generators may..."

2.2.4 The opponent argued essentially, that there is no disclosure that the surfactants in the first and second foam generation process have the same composition, only that their composition does not need to be changed.

The Board disagrees and follows the reasoning of the opposition division and the patent proprietor that paragraph [0027] of the published application (which corresponds to page 5, line 30 to page 6, line 4 of the application as originally filed) clearly and unambiguously discloses feature M1.8.

Even if the opponent's reasoning regarding the phrase "without the need to change the composition...", when read in isolation, were to be followed, the Board disagrees with the opponent's conclusions because this passage must be read in context. The following paragraph (page 6, line 1 ff) commencing with, "However, in certain cases,...", makes it clear to the skilled person that the first sentence refers to using the same composition in the first and second foam generator.

The Board agrees with the opponent that the application documents as originally filed show paragraph [0027] as two separate paragraphs.

However, this does not lead to the conclusion that there is no link between the two paragraphs. The skilled person, noting that the first sentence on page 6 starts with the word "however", immediately recognises that the sentence following this word does not relate to the same embodiment. Therefore, regardless of whether the two statements are in one paragraph or two, the skilled person clearly understands that the statements are linked but referring to contrasting embodiments.

The skilled person therefore understands from the whole of paragraph [0027], that the first sentence unambiguously refers to one surfactant: "without the need to change the composition of the foam-generating surfactant", rather than two surfactants with different compositions.

2.2.5 The opponent has therefore failed to convincingly demonstrate that the decision of the opposition division was incorrect regarding the extension of subject-matter relating to the introduction of feature M1.8.

2.3 Dependent claim 6 as granted

2.3.1 The opposition division found that the combination of the feature of claim 6 as granted, together with feature M1.8 was not literally disclosed in, and could not be directly and unambiguously derived from the application as filed (see point II.2.2.11 of the decision under appeal).

The opposition division reasoned that although the wording of claim 6 as granted is found in paragraph [0028], the teaching of paragraphs [0027] and [0028]

could not be combined as paragraph [0027] did not form part of the specific embodiment starting from paragraph [0015] and including paragraph [0028].

2.3.2 In its statement of grounds of appeal (point 2.3), the patent proprietor argued that the finding of the opposition division was incorrect, as paragraphs [0027] and [0028] of the published application were clearly linked through the use of the word "also" at the beginning of paragraph [0028], such that a literal disclosure of the combination is present. In addition, the reference to "two or more foam generators" in paragraph [0027] rather than "the two foam generators" of paragraph [0028] would be understood by the skilled person as a minor inconsistency. As it is not technically incompatible to have two foam-generating surfactants with the same composition being used in different concentrations in their respective foaming solutions, the skilled person would seriously contemplate combining the two features.

2.3.3 The opponent, with its reply to the patent proprietor's statement of grounds (section A.IV.), argues that the word "also" does not provide a direct link between paragraphs [0027] and [0028] and that the technical compatibility of two features is not a criterion for assessing whether there is a direct and unambiguous disclosure of the combination. Taking into account the application as a whole, the feature of the first sentence of paragraph [0027] refers to the general concept of the invention whereas the last sentence of paragraph [0027] and paragraph [0028] refer to a specific embodiment.

2.3.4 The Board cannot follow the reasoning of the opposition division that paragraphs [0015] to [0026] and [0028]

relate to a specific embodiment, but paragraph [0027] does not. The opposition division appears to base this reasoning on the use, at the beginning of paragraph [0027] of the phrase "two or more foam generators", whereas in paragraph [0028] "a first one of the two foam generators" is used. According to the opposition division this means that paragraph [0027] does not refer to the specific embodiment and therefore paragraphs [0027] and [0028] cannot be combined.

In the Board's view, the skilled person reading the disclosure as a whole, in the light of their common general knowledge, would not make an artificial separation between the different statements. The skilled person would not understand the disclosure from paragraph [0015] to [0031] onwards as relating to one specific embodiment with the exception only of the first two sentences of paragraph [0027]. Therefore the disclosure of the feature of first and second foam generators utilising foaming solutions having different concentrations of surfactant is understood to relate to the surfactants in the first and second foam generators having either the same or differing compositions.

2.3.5 The patent proprietor has therefore convincingly shown that the decision under appeal is incorrect on this point and the subject-matter of the patent as granted does not extend beyond the content of the application as originally filed.

3. *Article 100(b) EPC - granted patent*

3.1 In the contested decision, the opposition division found that the contested patent does disclose the invention in a manner sufficiently clear and complete

to be carried out by a person skilled in the art (see the decision under appeal, II.2.1).

3.2 The opponent argued that the opposition division was incorrect and that the skilled person is unable to carry out the invention as

(a) the configurations shown in figures 1 and 2 of the patent in suit do not show two different foam feeds, as required by the opposition division's interpretation of claim 1;

(b) the embodiment of claim 7 contradicts the requirement of claim 1 that two different foam feeds are introduced simultaneously;

(c) the patent in suit does not disclose how to carry out the invention across the whole range of the broadly formulated claim 1, in particular with respect to the control of the "physical parameters".

3.3 The Board notes that it is established jurisprudence of the Boards of Appeal that a lack of sufficiency of disclosure presupposes that there are serious doubts, substantiated by verifiable facts. In order to establish insufficiency of disclosure in inter partes proceedings, the burden of proof lies with the opponent to show, on the balance of probabilities, that the skilled person is unable to carry out the invention (CLB, *supra*, II.C.9.).

The opponent has not provided any evidence that the skilled person is unable to introduce two different foam feeds into a gypsum and water mix simultaneously.

The differing interpretations used by the parties for the terms "feed" and "simultaneously" in claims 1 and 7 as granted may lead to a differing scope of protection

of the claims, but this is a matter of clarity. Therefore, regarding objections (a) and (b), the Board finds that these alleged contradictions between claims and between the description and claims, based on interpretations of features, relate to Article 84 EPC, rather than Article 83 EPC.

As all the features concerned were already present in the granted claims, no examination for compliance with Article 84 EPC can be carried out (G 3/14).

3.3.1 Regarding objection (c), the opponent argued that the patent does not provide the skilled person with sufficient information to carry out the invention across the whole range claimed, as there is no information as to which physical parameters should be controlled and how they can be controlled to achieve the result of the invention over the broad range of apparatus configurations covered by method claim 1 (see statement of grounds of appeal, paragraphs [54] to [55]; submissions of 12 August 2020, paragraph [23]).

The opponent cited decision T 409/91 (Reasons 3.5), and argued that even if one single way of carrying out the invention were to be considered sufficiently disclosed, this would not allow the invention to be carried out over the whole range claimed. However, as noted by the responsible Board in that decision, in the same passage as cited by the opponent:

> "...the question whether the disclosure of one way of performing the invention is sufficient to enable a person skilled in the art to carry out the invention in the whole claimed range is a question of fact which must be answered on the basis of the available evidence, and on the balance of probabilities in each individual case".

The opposition division reasoned in point II.2.1.1 of the decision under appeal, that the opponent had not provided examples of embodiments that are within the scope of claim 1 but not sufficiently disclosed.
The opponent, with its statement of grounds of appeal (page 15) provided multiple examples of different arrangements of inputs, generators and mixers that allegedly fall within the scope of the claim, but still did not provide any evidence that the skilled person is unable to carry out the invention according to any of these embodiments.

The opponent argued that the skilled person does not have sufficient information to determine which "physical parameters" need to be controlled and in what way they should be controlled in order to obtain different bubble size distributions for the first and second foam feed.

The opposition division found (see points II.2.1.8 to II.2.1.9 of the decision under appeal) that the patent indicates in the description that "physical parameters" of the foam generation process are parameters which affect characteristics of the foam and are not "chemical parameters" of the foam generation process. The patent gives examples of physical parameters, such as temperature, air inflow rate, the rotation speed of a dynamic foam generator, and the pore size of a static foam generator.

The opponent argued further in paragraph [53] of its statement of grounds of appeal that the patent in suit does not teach how to obtain the alleged effect of the invention (an improved combination of properties in the gypsum/water/foam slurry) for the embodiments

illustrated by the opponent. However, it is established case law that an objection of insufficiency of disclosure cannot legitimately be based on an argument that the application does not enable the skilled person to achieve a non-claimed technical effect (see CLB, *supra*, II.C.3.2).

The Board finds that paragraphs [0013], [0014], [0015], [0023], [0024] and [0025] of the published application disclose the "physical parameters" sufficiently, so that the skilled person is able to control at least one of them in a first foam generation process, independently of a second foam generation process, and produce foams having different bubble size distributions, regardless of the exact feed configuration of the different foams into the gypsum and water mix.

3.4 In the absence of any evidence to the contrary, the Board finds that the skilled person, using their common general knowledge, is able to carry out the claimed method.

The opponent has therefore failed to convincingly show that the decision of the opposition division was incorrect with respect to the ground for opposition pursuant to Article 100(b) EPC.

4. *Article 100(a) EPC - novelty - claim 1 as granted*

In the decision under appeal, the opposition division found in respect of claim 1 of the patent in amended form held by the opposition division to meet the requirements of the EPC, which corresponds to claim 1 of the patent as granted, that

- feature M1.3 was not disclosed in document D4;

- both embodiments shown in figures 4 and 6 of document D7 failed to disclose at least feature M1.7.

4.1 Novelty with respect to the disclosure of document D4

4.1.1 The opposition division found that the foam generating apparatus disclosed in D4, which shows two foam generators in series, did not disclose feature M1.3 as only the second foam stream is fed into the gypsum board core slurry mixer (decision under appeal, II. 3.3.6).

4.1.2 The opponent has argued that it is clear from the embodiments of the patent (figures 1 and 2), that the foam feeds do not have to be introduced separately into the gypsum and water mix, but may be mixed or unified in a single conduit, as described in paragraphs [0038] and [0039] of the published application. Therefore, document D4 does show feature M1.3, as it shows two different foam feeds introduced into the gypsum and water mix simultaneously as a combined (or mixed) foam feed (see statement of grounds of appeal, V.1., and submissions of 12 August 2020, C.1.).

4.1.3 The Board, however, agrees with the opposition division, that document D4 does not show feature M1.3.

The disclosure of document D4 describes (see column 8, lines 1 to 7, figure 17) that the "partially generated" foam from the first foam generator 64 is passed through the second foam generator 66 and then fed from the second foam generator into the mixer. Document D4 further describes that the control valves 68 positioned after each foam generating pump can be used to vary the back pressures in the system to establish steady

running conditions "while generating foam of the desired density" (column 8, lines 13 to 18). Therefore, document D4 clearly discloses a single feed of foam being introduced into the gypsum and water mix. Nowhere in document D4 is it suggested that two different foam feeds, having different bubble size distributions, are introduced into the gypsum and water mix simultaneously.

4.2 Novelty with respect to the disclosure of document D7

4.2.1 The opposition division found that neither of the embodiments shown in figures 4 and 6 of document D7 disclosed feature M1.7 (decision under appeal, II. 3.3.12 and II.3.3.10).

4.2.2 The opponent has argued (statement of grounds of appeal, V.2.) that document D7 does show feature M1.7 as the opposition division failed to take into account that

(a) the first and second foam generators of figure 6 cannot be identical (paragraph [91] of opponent's statement of grounds of appeal); and

(b) the skilled person derives from the overall disclosure of document D7, that the physical parameters of the mesh strainers can vary and the foam generation processes should be modified (paragraphs [93] to [99] of the opponent's statement of grounds of appeal).

4.2.3 (a) first and second foam generators are not identical

The opponent argued, in paragraph [91] of its statement of grounds of appeal, that the first and second foam generators in figure 6 of document D7 inherently cannot be identical. Therefore feature M1.7 is disclosed in

document D7 (figure 6) as the pore size of the mesh strainers is controlled independently.
The opponent further argued that the opposition division was inconsistent in the decision under appeal in finding that feature M1.4 was disclosed in D7, but that feature M1.7. was not disclosed.

The Board, however, agrees with the patent proprietor (reply to the opponent's statement of grounds, point 6.2) that the possibility of minor, unintentional variations between the two foam generators (mesh strainers 142) in document D7 cannot be regarded as an unambiguous disclosure of the method step, M1.7, as such a method step requires an intentional independent control of a parameter of one of the foam generation processes.

Regarding the opponent's argument that the opposition division were inconsistent in finding M1.4 disclosed, but not M1.7, the Board finds that feature M1.4 is also not unambiguously disclosed in document D7.
The opposition division reasoned that it was inevitable that there will be some difference between the bubble size distribution of each feed as the operating conditions of the two foam generators of figure 6 can never be exactly the same. The Board however, does not see this as an unambiguous disclosure of a method of producing a gypsum product wherein a first foam feed has a different bubble size distribution to a second foam feed. There is no disclosure anywhere in D7 relating to the bubble size distribution in the foam feeds, nor of providing different bubble size distributions in different foam feeds.

With its submissions of 12 August 2020 the opponent argued that with a static foam generator there is no

"active" control of the physical parameter once the filler medium has been chosen and that the values for the physical parameter may be the same for both foam generators, the claim only requires that they can be set separately without depending on each other.

However, the Board finds that, even when using a static foam generator, it is still necessary to perform the method step of introducing foam feeds having different bubble size distributions into the gypsum and water mix.

4.2.4 (b) overall disclosure of D7 shows physical parameters can vary

The Board finds that document D7 does not disclose that the mesh strainer sizes in figure 6 (or figure 4) should be chosen independently of one another. There is no mention in the disclosure of D7 that the two foam feeds have a different bubble size distribution and there is no mention of varying the mesh strainers separately for each feed. The passage cited by the opponent on paragraph [0024] merely indicates to the skilled person that, in the system of figure 2, one or more strainers may be used and any number of sizes and spacings of the mesh strainer are within the scope of the invention. Paragraph [0030] does not mention choosing different mesh strainers in order to independently control different foam feeds, or to provide different bubble size distributions in different foam feeds, it indicates only that the number of strainers used (in figures 2 or 3) may be varied and the location of the strainers may be modified. There is also no indication that the teachings of these paragraphs are also intended to relate to the embodiments shown in figures 4 and 6.

There is thus no disclosure in D7 of features M1.4 and M1.7.

4.3 The opponent has therefore failed to convincingly show that the decision of the opposition division was incorrect with respect to the ground for opposition pursuant to Article 100(a) EPC together with Article 54 EPC.

5. *Article 100(a) EPC - inventive step - claim 1 as granted*

5.1 Combination of the teaching of document D7 (figure 4 or 6) with common general knowledge

The opposition division found that feature M1.7 is the distinguishing feature and that paragraphs [0031] to [0035] of document D7 do not provide any hint to independently control at least one physical parameter of both foam generators (see contested decision, II. 3.4.1.4 and II.3.4.1.7).

5.1.1 As explained above in point 4.2.3, the Board finds that document D7 (figure 4 or 6) does not show either feature M1.4 or M1.7.

5.1.2 The opponent contended in its statement of grounds of appeal (paragraphs [108] to [113]), that the skilled person is well aware that a bi-modal bubble-size distribution in a slurry can be beneficial for the pore structure and the mechanical properties of the resulting board depend on the pore structure. It is therefore obvious for the skilled person to adapt the mesh strainers in figures 4 or 6, such that foams having different bubble size distribution are produced.

5.1.3 The Board disagrees and follows the arguments of the opposition division and the patent proprietor (see reply to opponent's statement of grounds of appeal, 7.2) that D7 does not include any hint to independently control at least one physical parameter of the first foam generation process. D7 contains no indication that foam feeds with different bubble size distributions can be produced, let alone that they would be advantageous. The teaching of D7 in paragraph [0024], that the "openings 45 of mesh strainers 44 and 46 may have any of a number of sizes and spacings within the scope of the present invention", does not provide the skilled person with any indication that the two mesh strainers 142 shown in figure 6 should be controlled independently and that foam feeds with different bubble size distributions should be produced.

5.1.4 During oral proceedings, the opponent brought forward the argument that the skilled person, when carrying out routine maintenance work, would change a broken mesh strainer for a new one which could have different properties, and added that this would inevitably lead to a foam with a different bubble size distribution being generated.

The Board however agrees with the patent proprietor that there is no motivation for the skilled person, based on common general knowledge, to change the mesh strainer in the method of document D7 for a different type of strainer.

5.2 Combination of the teaching of document D7 (figure 4 or 6) with D13 or D14

The opposition division found that, whilst D13 and D14 disclose that at least one physical parameter of a foam generator can be controlled, the documents do not show two foam generators where at least one physical parameter of the first foam generator is controlled independently of the second foam generator (contested decision, II.3.4.1.5).

5.2.1 The opponent argued (statement of grounds of appeal, paragraph [116]) that the opposition division overlooked the fact that D7 already disclosed the use of two foam generators. The Board however cannot follow this argument and finds the opposition division was correct in noting that none of documents D7, D13 or D14 shows two foam generators where at least one physical parameter of the foam generation process of one foam generator is controlled independently of the other. Therefore a combination of the teachings cannot lead to the subject-matter of claim 1.
Even if D13 and D14 were considered to show some form of control of a physical parameter of one foam generator, they do not show independent control of two foam generators. In addition, as they do not show two foam generators, they cannot show two foam feeds having different bubble size distributions.

5.3 Combination of the teaching of document D7 with document D3

The opposition division found that a combination of the teachings of documents D7 and D3 did not render the subject-matter of claim 1 obvious as document D3 does not show a method of producing a gypsum product and the

processes for obtaining foamed masses in the two documents differ greatly. Due to the differing nature of the processes and the number of steps required to combine the two documents to arrive at the claimed subject-matter, the skilled person would not consider the combination (see decision under appeal, II. 3.4.1.9).

5.3.1 The opponent (statement of grounds of appeal, paragraphs [129] to [135]) argued that the skilled person would turn to D3 as it shows how to obtain optimal structural strength for a given weight of the product, the skilled person would learn from D3 that it is beneficial to control physical parameters of two foam generators independently of each other to adapt bubble size distribution.

5.3.2 The Board, however, agrees with the opposition division and the patent proprietor (reply to the opponent's statement of grounds of appeal, page 9, second to fourth paragraphs) that the skilled person would not use the teaching of document D3 in the method of document D7. Even if the skilled person were to consider the teaching of D3, the foam generation processes in the two documents are so different that the skilled person would view the teachings as technically incompatible.

5.3.3 The opponent argued during oral proceedings that the teachings of documents D7 and D3 are combinable. The skilled person would understand that the teaching of document D3 also applied to a gypsum and water mix, as the passage on page 1, lines 32-34 disclosed that the invention uses a mixture of "hydraulic cement or similar material and water". That the process of document D3 is different from the claimed method is not

relevant, as starting from document D7 the only feature needed from document D3 is that of the independent control of at least one physical parameter of one foam generation process, which is known from page 1, line 75ff of document D3.

5.3.4 The Board cannot agree. The difference between the processes in D7 and D3 is relevant, regardless of whether document D7 discloses the same type of process as the claimed invention. The question to be considered is whether the skilled person could (and would) combine the processes of D7 and D3 and thereby arrive at the claimed invention in an obvious manner.

Document D7 discloses using mesh strainers within pipes to create foam from a mixture of water, foaming agent and air, whereby the foam is then introduced into a gypsum and water mix. Document D3 discloses making a cellular cementitious product by agitating and aerating a slurry of cement and water with a frothing flotation reagent, using rapidly rotating members, such that the air bubbles formed are coated with a shell of the cement mixture and collect in the form of a self-sustaining froth or spumous mass. The skilled person would not turn to the method disclosed in document D3 when trying to improve the method disclosed in document D7 due to the fundamental differences in the processes disclosed.

5.4 Combination of the teaching of document D2 with any one of D7, D4, D1 or D5

The opposition division found that D2 failed to disclose features M1.3 and M1.8 (see II.3.4.4.2).

5.4.1 The opponent argued that the objective technical problem to be solved is to improve control of the second, larger type of bubbles in a bi-modal distribution in order to obtain a wallboard with improved mechanical properties, while aiming at a reduction of the amount of water introduced into the slurry. According to the opponent documents D7, D4, D1 or D5 all render the subject-matter of claim 1 obvious when combined with D2 (see paragraphs [142] to [147] of the opponent's statement of grounds of appeal).

5.4.2 The Board agrees with the opposition division that, irrespective of whether or not documents D7, D4, D1 or D5 show any or all of the distinguishing features, the skilled person would not introduce prefabricated foam into the second mixer in place of air (decision under appeal, II.3.4.4.3) in the method of D2. The introduction of foam into the second mixer goes against the central premise of document D2, which teaches explicitly that only air should be introduced into the second mixer, in order to avoid problems caused by the additional water from the foam (see D2, page 2, lines 4 to 8; page 6, lines 4 to 7).

5.4.3 The opponent implied (paragraph [139] of its statement of grounds of appeal) that the advantages given on page 6, lines 13 to 17, of document D2, relate to the alternative embodiment where prefabricated foam may be used in the first mixer, rather than water, gypsum and a foaming agent being added in the first mixer. However, it is clear from document D2, page 6, lines 4 to 17, that the advantages referred to, relate to the introduction of air rather than foam into the second mixer, not with the use of prefabricated foam in the first step.

5.5 Combination of the teaching of document D1 with D4, D13 or D14

In the decision under appeal (Reasons II.3.4.5.1) the opposition division found that document D1 does not show features M1.7 or M1.8 and that whilst the concept of control of physical parameters of the foam generation process is known from documents D4, D13 and D14, the combination of any of these teachings with the method of document D1 would not lead to the subject-matter of claim 1 (Reasons II.3.4.5.8).

5.5.1 The opponent argued that the skilled person would have recognised by considering either D4, D13 or D14 that using a single surfactant in both foam generators of D1 and controlling a physical parameter, such as the air flow rate, would result in a "simpler to handle and more economic method", in particular as the equipment necessary to handle a second surfactant could be omitted (statement of grounds of appeal, paragraph [154]).

5.5.2 The Board disagrees with the opponent and follows the findings of the opposition division that there is no hint in any of the documents D4, D13 or D14 to direct the skilled person to the use of a single surfactant in two foam generators to produce two foam feeds having different bubble size distribution.
Further the skilled person would not replace the two different foaming agents in document D1 with one single foaming agent as it would amount to a rejection of the entire teaching of D1, which is explicitly directed to the use of two foaming agents having different compositions to create different foams (D1, page 6, lines 1 to 11; page 10, lines 18 to 20).

5.6 Combination of the teaching of any one of documents D8 to D12 together with either D1 or D3

The opposition division found that documents D8 to D12 did not disclose the features M1.4, M1.7 and M1.8 (Reasons II.3.4.6.1). It further found that documents D1 and D3 disclose alternative ways of achieving different bubble sizes (II.3.4.6.3). Document D1 discloses the use of different foaming agents to create different bubble size distributions and D3 uses a frothing flotation agent with different rotation speeds for the mixers. Therefore, the combination of any of D8 to D12 with D1 or D3 would not lead to the subject-matter of claim 1.

5.6.1 The opponent argued in its statement of grounds of appeal that only feature M1.7 is not disclosed in documents D8 to D12; the objective technical problem to be solved is the same as starting from document D7 (adapting the foams introduced into the gypsum and water mix with respect to a desired bubble size distribution) and the skilled person would combine documents D1 or D3 with any of documents D8 to D12 for the same reasons as given for document D7 (see statement of grounds of appeal, paragraphs [164] and [165]).

5.6.2 The Board agrees with the opposition division that documents D1 and D3 teach alternative ways of controlling bubble size of foams in general, and do not disclose the feature of at least one physical parameter of one of two foam generators being controlled independently of the other foam generator. In addition, document D1 clearly teaches, as the core of the invention, that two different foaming agents are to be used to create the different bubble size distributions

(see page 6, first paragraph). Therefore, the skilled person, when combining the teachings of D1 with the method of any one of D8-D12, would have used two different foaming agents in order to create different bubble size distributions.
Regarding document D3, this document discloses a completely different process that the skilled person could (and would) not combine with any of the methods shown in documents D8 to D12.

5.7 Admittance into the appeal proceedings of new or unsubstantiated objections

In its communication pursuant to Article 15(1) RPBA 2020 (point 14.1), the Board raised the following points regarding the admittance of new or unsubstantiated objections into the appeal proceedings:

> "*In its statement of grounds of appeal, the opponent brought forward objections relating to the inventive step of the subject-matter of claim 1 as granted, which were not considered by the opposition division in the contested decision, namely the combinations of the teachings:*
> *document D7 with document D1 or D5 (statement of grounds of appeal, VI.1.)*
> *document D4 with common general knowledge, D1 or D5 (statement of grounds of appeal, VI.4.).*
>
> *The opponent did not indicate any reasons as to why these objections were not presented and maintained during the opposition proceedings.*
>
> *Under Article 12(4) RPBA 2007, the Board has the power to hold inadmissible facts, evidence or requests which could have been presented in the*

opposition proceedings. As the primary object of the appeal proceedings is to review in a judicial manner the decision under appeal (Article 12(2) RPBA 2020), the Board currently does not see any reason to admit these new objections into the appeal proceedings.

In its statement of grounds of appeal (VI.5., paragraphs [159] and [160]), the opponent referred, very generally, to the objection relating to a lack of inventive step with respect to a combination of the teaching of D3 with common general knowledge, D4, D1, D5 or any of D7 to D12.

According to Article 12(3) RPBA 2020 and Article 12(2) RPBA 2007, a party must set out clearly and concisely in its statement of grounds of appeal, the reasons why the decision under appeal should be reversed, and should specify expressly all the requests, facts, objections, arguments, and evidence relied on.

In section VI.5. of the statement of grounds of appeal, the opponent merely writes that the opposition division is of the opinion that document D3 is not the closest prior art, but does not indicate any reasons why the opposition division is incorrect on this point. The opponent then refers, in a blanket statement, to three submissions made during opposition proceedings.

It is established jurisprudence of the Boards of Appeal that a general reference to submissions made during opposition proceedings is not usually regarded as providing sufficient substantiation in appeal proceedings (CLB, supra, V.A.2.6.4 a)). In

the decision under appeal (reasons for the decision, II.3.4.3) the division has given detailed reasons why document D3 cannot be considered a promising starting point for the assessment of inventive step and why the skilled person would, in any case, not combine D3 with the further prior art documents. The opponent has not given any arguments as to why it considers that the reasoning of the opposition division is incorrect. It cannot be left to the Board, in particular in inter partes proceedings, to speculate as to the intended argumentation of a party.

The objections raised in section VI.4. of the statement of grounds of appeal are also regarded as unsubstantiated with respect to the combination of document D4 with document D3. The only substantive reference to D3 is made in paragraph [156], where it is stated that, "All of these documents teach that a bi-modal bubble-size distribution in a slurry can be beneficial for the pore structure of a resulting board and that the mechanical properties depend on the pore structure (see, for example, D3:"optimum structural strength",...)".

However, in the decision under appeal, the opposition division had reasoned that documents D4 and D3 could not be combined as the aims of the two documents were contrary to one another; the foaming processes were different; and substantial modifications of D4 would be necessary in order to combine the teachings. As the opponent has provided no argumentation in relation to any of these points, it is not possible for the Board to review the correctness of the decision on this point.

Therefore the Board also envisages not admitting the unsubstantiated lines of attack starting from D3 and D4 into the appeal proceedings under Article 12(4) RPBA 2007 in conjunction with Article 12(2) RPBA 2007, which corresponds to Article 12(3) RPBA 2020."

The opponent made no submissions on these points either in writing or during the oral proceedings.
After further consideration and in the absence of any submissions from the opponent, the Board confirms its preliminary opinion.

Therefore the new and the unsubstantiated objections are disregarded (Article 114(2) EPC together with Article 12(4) RPBA 2007).

5.8 As claim 1 of the patent as granted corresponds to claim 1 of the patent in amended form held by the opposition division to meet the requirements of the EPC, the onus of demonstration and proof was on the opponent. However, the opponent has failed to convincingly show that the decision of the opposition division was incorrect with respect to the ground for opposition pursuant to Article 100(a) EPC together with Article 56 EPC.

Conclusion

6. The patent proprietor has thus convincingly shown that the decision under appeal was incorrect with respect to its finding that the subject-matter of claim 6 as granted extended beyond the content of the application as originally filed, whereas none of the opponent's admissibly raised objections prejudice the maintenance of the patent as granted.

Therefore the appeal of the patent proprietor can be allowed whereas the appeal of the opponent is to be dismissed.

Order

For these reasons it is decided that:

1. The appeal of the opponent is dismissed.

2. The decision under appeal is set aside.

3. The patent is maintained as granted.

The Registrar: The Chairman:

G. Nachtigall I. Beckedorf

Decision electronically authenticated