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**Datasheet for the decision
of 13 November 2019**

Case Number: T 2242/17 - 3.3.05

Application Number: 05763248.1

Publication Number: 1781570

IPC: C01F11/18, C09C1/02, B82Y30/00

Language of the proceedings: EN

Title of invention:
METHOD AND APPARATUS FOR MANUFACTURING OF A CALCIUM CARBONATE
PRODUCT

Patent Proprietor:
FP-Pigments Oy

Opponent:
Omya International AG

Headword:
Calcium carbonate/FP-Pigments Oy

Relevant legal provisions:
EPC Art. 56
RPBA Art. 13(1), 13(3)

Keyword:

Inventive step - (no)

Late filed auxiliary request - admitted (no)

Decisions cited:

Catchword:



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Case Number: T 2242/17 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 13 November 2019

Appellant: FP-Pigments Oy
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Representative: Maiwald Patent- und Rechtsanwaltsgesellschaft
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 13 September
2017 revoking European patent No. 1781570
pursuant to Article 101(3) (b) EPC.**

Composition of the Board:

Chair E. Bendl
Members: G. Glod
O. Loizou

Summary of Facts and Submissions

- I. The present appeal of the patent proprietor (appellant) lies from the decision of the opposition division revoking European patent EP 1 781 570 B for not fulfilling the requirements of Article 100(c) EPC in combination with Article 123(2) EPC.
- II. With the statement of grounds of appeal, the appellant maintained the patent as granted as its main request and filed first to fourth auxiliary requests.
- III. The following documents already cited before the opposition division are of relevance here:
- D1: GB 1 530 080 A
D2: WO 98 41475 A1
- IV. In the communication under Article 15(1) of the RPBA, the board was of the preliminary opinion that the main request and the first and second auxiliary requests did not appear to meet the requirements of Article 123(2) EPC and that the third and fourth auxiliary requests did not appear to involve an inventive step, so the appeal was likely to be dismissed.
- V. Oral proceedings took place on 13 November 2019, during which the appellant submitted a fifth auxiliary request.
- VI. Claim 1 of the patent as granted is as follows:
- " 1. A method for producing a calcium carbonate product comprising small calcium carbonate particles in one or several sequential precipitation reactors (10, 10', 10'', 10''') which method comprises*

-the feeding of calcium hydroxide (Ca(OH)₂) as drops and/or particles into a gas which contains carbon dioxide and which is inside of the precipitation reactor, in order to produce precipitated calcium carbonate particles, characterized in that

-the calcium hydroxide is fed to the precipitation reactor through a disintegration and spraying apparatus (14, 44) operating on the principle of a pin mill and fitted inside the reactor or in association with the reactor, and in that

-the temperature in the precipitation reactor is kept at < 65°C,

a) by arranging cooling elements (15, 15') in the precipitation reactor, and/or

b) by circulating the material which contains calcium carbonate, and/or the gas which contains carbon dioxide, to the cooler, equipped with a heat exchanger, from the precipitation reactor and back to the precipitation reactor from the cooler for producing a calcium carbonate product formed of essentially permanently separate, small < 100 nm sized particles."

Claim 1 of the first and second auxiliary requests is identical to claim 1 of the patent as granted.

Claims 1 of the third and fourth auxiliary request includes the wording "lowering the temperature" after "< 65°C" and before "a)".

Claim 1 of the fifth auxiliary request includes the underlined wording compared with claim 1 of the third auxiliary request:

[...] in association with the reactor and in that the particle size of the precipitated calcium carbonate is controlled by adjusting the dry matter content of the calcium hydroxide fed into the precipitation reactor or reactors, by adjusting the dry matter content to 10-25%, and in that [...]

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

The problem to be solved vis-a-vis the closest prior art, D1, was to increase energy efficiency of the method, as indicated in paragraph [0087] of the patent in suit. D1 did not teach using calcium hydroxide with a high dry matter content > 10%. The use of a pin mill was contrary to the teaching of D1, since particles that were too small would simply be "run off from the reaction column" (page 2, lines 1 to 3). The process could also be conducted with calcium hydroxide having a low dry matter content, but the advantage was that it was also adapted to higher dry matter content. Therefore, less water had to be transported through the system, which increased efficiency.

The fifth auxiliary request was only submitted at that stage of the appeal proceedings since the first time novelty and inventive step were discussed was at the oral proceedings before the board. As it came about that the feature relating to the dry matter content of the calcium hydroxide was important, the filing of this request was a direct reaction to that discussion.

VIII. The respondent's relevant arguments are reflected in the reasoning below.

- IX. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained as granted (main request) or, in the alternative, that the patent be maintained in amended form on the basis of one of the first to fourth auxiliary requests submitted with the statement of grounds of appeal or the (fifth) auxiliary request filed during oral proceedings.
- The respondent (opponent) requested that the appeal be dismissed.

Reasons for the Decision

Third auxiliary request

1. Article 56 EPC - Claim 1
 - 1.1 The present invention relates to a method for producing a calcium carbonate product formed from small calcium carbonate particles.
 - 1.2 In agreement with the parties D1 is the closest prior art since it discloses a "first" process for the production of particles of calcium carbonate with an average particle size of less than 100 nm (page 1, lines 44 to 48). D1 differs from present claim 1 at least in the use of a disintegration and spraying apparatus operating on the principle of a pin mill.
 - 1.3 The problem to be solved according to the patent in suit is to present an improved, energy efficient method for producing a calcium carbonate product formed mostly of separate, stabile, and very small, < 100 nm sized calcium carbonate particles (paragraphs [0006] and [0087]).

- 1.4 As a solution to the problem the request proposes a method according to claim 1, characterised in that the calcium hydroxide is fed to the precipitation reactor through a disintegration and spraying apparatus operating on the principle of a pin mill and in that the temperature is lowered by arranging cooling elements in the precipitation reactor, and/or by circulating the material which contains calcium carbonate, and/or the gas which contains carbon dioxide, to the cooler, equipped with a heat exchanger, from the precipitation reactor and back from the precipitation reactor from the cooler.
- 1.5 Even if it were to be accepted that example KP2 of the patent shows that cooling provides smaller particles, it is not apparent that the cooling makes it possible to obtain smaller particles than as in D1, since the particles obtained in example 1 of D1 have an average size of 30 nm. It is not credible that the problem of presenting a method that is more energy efficient than D1 is solved over the whole range since claim 1 does not exclude the use of calcium hydroxide with a solids content < 10%, as used in example 1 of D1. There is no evidence that the claimed process is more efficient in such a case. Furthermore, there is no evidence that the problems possibly arising with a solids content of > 10% in D1 do not arise with the claimed process. D1 only indicates that when the solids content exceeds 10 wt.%, the calcium carbonate particles ultimately obtained have a tendency to be uneven in shape and size (page 1, lines 80 to 88). This relates more to the particle size distribution than to particle size. The wording of claim 1 does not rule out the possibility of the particles < 100 nm having a broad particle distribution, meaning that they could also be uneven in shape and size. In view of these considerations, it is

not credible that the problem is solved over the whole range claimed.

1.6 The problem therefore needs to be redefined, and can be considered to be the provision of an alternative process for producing a calcium carbonate product formed from small calcium carbonate particles.

1.7 The use of a pin mill is well known in the field of calcium carbonate production (see Figures 3 and 4 of D2) and is an obvious alternative to the pump and spray setup of D1. It cannot be argued that the pin mill would provide excessively small particles since claim 1 does not state the size of the particles exiting the pin mill.

Furthermore, D1 also teaches that the temperature has an influence on the size of the particles (see page 1, lines 38, 39 and 82 to 87; page 2, lines 119 to 123 and claim 1). D1 even indicates that in each of the three steps the temperature has to be from 1 to 30°C (claim 1). This implies that the skilled person would consider cooling as an evident measure to apply if the temperature were to exceed 30°C. Therefore, cooling in order to maintain smaller particles seems to be within the skilled person's reach in consideration of the teaching of D1. Arranging cooling elements in the precipitation reactor is certainly an obvious step to take when cooling is desired and required. Therefore, the proposed solution is considered obvious and the subject-matter of claim 1 lacks an inventive step.

Consequently, this request is not allowable.

Main request, first auxiliary request, second auxiliary request and fourth auxiliary request

2. In view of the conclusion reached for the third auxiliary request, the appellant did not contest that the same conclusion applied to the main request, first auxiliary request, second auxiliary request and fourth auxiliary request. Claim 1 of the main request and of the first and second auxiliary requests are broader in scope, while claim 1 of the fourth auxiliary request is identical to claim 1 of the third auxiliary request.

Therefore, these requests do not meet the requirements of Article 56 EPC either and are not allowable.

Fifth auxiliary request

3. Article 13(1), (3) RPBA

This request was filed during oral proceedings before the board after the previous requests had been discussed and the board had given its opinion on said requests with respect to novelty and inventive step. It was thus filed at the latest possible moment.

In the communication under Article 15(1) RPBA, which was issued approximately five months before the oral proceedings, the board had already given its preliminary opinion on novelty and inventive step, thereby granting the appellant's request to also deal with said grounds of opposition. At that point in time, the appellant was aware that the requests then on file were most likely to be held not allowable.

The appellant based its main argument with respect to the problem to be solved on the weight percentage of

the calcium hydroxide for the first time during oral proceedings. Only after it was informed that said arguments were not convincing for the board did it file the fifth auxiliary request.

This request is a combination of claims 1 and 12 as granted in combination with a feature ("lowering the temperature") originating from the description. The Board sees no reason, for example a change in the case, why such a request was not filed in reaction to the communication under Article 15(1) RPBA shortly after its receipt, which would have allowed the respondent and the board to prepare for this new request. It also cannot be argued that such a request was to be expected, since the appellant did not put the related arguments forward until the oral proceedings. In addition, the patent as granted contains several dependent claims and there was no indication that there was an intention to limit the claims on file using the features of claim 12 as granted in particular.

This request would require a new discussion regarding the issue of particle size vs particle size distribution (see point 1.5 above), which neither the board nor the respondent could really have expected.

In view of the very late submission and the unresolved questions that would have had to be discussed for the first time, the board decided not to admit the request into the proceedings (Article 13 (1), (3) RPBA 2007).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



C. Vodz

E. Bendl

Decision electronically authenticated