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**Datasheet for the decision
of 11 November 2021**

Case Number: T 1297/19 - 3.3.06

Application Number: 10722642.5

Publication Number: 2440647

IPC: C11D17/00, C11D3/386, A01N25/26

Language of the proceedings: EN

Title of invention:
MICROCAPSULES CONTAINING MICROORGANISMS

Applicant:
Devan Chemicals NV

Headword:
MICROCAPSULES CONTAINING MICROORGANISMS / Devan Chemicals NV

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1297/19 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 11 November 2021

Appellant: Devan Chemicals NV
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Representative: Stafford, Jonathan Alan Lewis
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 7 November 2018
refusing European patent application No.
10722642.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman C. Heath
Members: P. Ammendola
L. Li Voti

Summary of Facts and Submissions

- I. This appeal was filed by the applicant (hereinafter, the appellant) against the decision of the examining division to refuse European patent application 10722642.5 because the claims of the then pending main request and auxiliary requests did not comply with Article 56 EPC in view of the combination of **D1** (US 2008/0107699 A1) with **D3** (US 2004/0022990 A1).
- II. With the grounds of appeal the appellant filed, *inter alia*, several sets of claims as main and auxiliary requests.
- III. In a communication of 2 August 2021, issued in preparation for the then forthcoming oral proceedings of 11 November 2021, the board, *inter alia*, raised new objections of insufficiency of disclosure (Article 83 EPC) and of lack of clarity and support by the description (Article 84 EPC) against each version of claim 1 on file. The appellant reacted thereto with letter of 8 November 2021 enclosing several new sets of claims as main and auxiliary requests.
- IV. During the oral proceedings held before the board, the appellant withdrew all previously filed requests and filed three sets of claims including one labelled as "new main request" (hereinafter also referred to as **the main request**).

The final appellant's requests were the following:

- the appellant requests that the decision under appeal be set aside and that a European patent be granted on

the basis of claims 1 to 15 according to the "new main request" filed during oral proceedings.

- V. Claims 1, 9, 14 and 15 of the main request read as follows (the amendments with respect to the corresponding claims of the main request refused by the examining division are made apparent):

"1. A composition for delivery of a microorganism onto a textile selected from the group consisting of carpets, furnishings and a mattress surface, the composition comprising friable microcapsules having a diameter from 1 to 300 μm dispersed within a treatment solution, the microcapsules adapted for delivery of a liquid onto said textile by rupture under the action of direct external pressure and/or shear forces during conventional use of said textile, the microcapsules comprising a polymer shell having an outer face and an inner face, the inner face encapsulating the liquid, the proportion by weight of shell with respect to the liquid core being from 1:500 to 1:5000 wherein the liquid contains the microorganism in a vegetative state and the polymer shell is a polymeric material impervious to the materials in the liquid core and materials which may come into contact with the outer face of the shell."

"9. A method for treatment of a textile selected from the group consisting of carpets, furnishings and a mattress surface comprising:

- a) providing a composition according to any one of claims 1 to 8,
- b) applying the composition to the textile whereby the microcapsules are deposited onto the textile to provide a treated textile."

"14. A method of maintaining beneficial microorganism colony on a textile selected from the group consisting of carpets, furnishings and a mattress surface, the method comprising; depositing friable microcapsules, holding liquid comprising the microorganism, onto the textile by application of a composition according to any one of claims 1 to 8, and subsequent evaporation of the treatment solution to provide a treated textile, and releasing the microorganism onto the treated fabric during use of the treated textile by rupture of the friable microcapsules caused under the action of direct external pressure and/or shear forces during ~~by~~ conventional use of the treated textile."

"15. The use of a composition, according to any one of claims 1 to 8, to provide a beneficial microflora on a textile selected from the group consisting of carpets, furnishings and a mattress surface by rupture of friable microcapsules deposited onto the textile to release microorganism onto the textile under the action of direct external pressure and/or shear forces during conventional use of the textile."

The remaining claims 2 to 8 and 10 to 13 of the main request respectively define preferred embodiments of the composition of claim 1 or of method of claim 9.

Reasons for the Decision

Main Request (the "new main request" filed during oral proceedings)

1. Admittance into the appeal proceedings

The filing of this request during the oral proceedings of 11 November 2021 followed the discussion of the requests previously submitted by the appellant in reaction to the objections - insufficient disclosure (Article 83 EPC) and lack of clarity and support by the description (Article 84 EPC) - that had been raised for the first time by the board in the communication of 2 August 2021 and of new objections raised in the oral proceedings. The board thus agrees that there were exceptional circumstances justified by cogent reasons for the filing of this new request during oral proceedings (Article 13(2) RPBA 2020).

As the main request addresses and solves the issues arising from these new objections, the board, exercising the discretion foreseen in Article 13(1), first paragraph, second sentence, and fourth paragraph RPBA 2020, decided to admit the main request into the appeal proceedings.

2. Compliance with Articles 83, 84 and 123(2) EPC

2.1 The board finds that the present set of claims has a basis in the original claims of the application as filed in combination with the original description:

- from page 3, line 1 to page 4, line 1;
- page 4, lines 6 to 10 and 21 to 23;
- page 5, lines 4 to 17;
- page 8, lines 20 to 21;

- page 10, lines 24 to 30;
- page 11, lines 1 to 4;
- from page 11, line 35 to page 12, line 1; and
- page 12, lines 7 to 9 and 15 to 19.

Hence, the present set of claims complies with the requirement of Article 123(2) EPC.

2.2 The board is satisfied that these claims also comply with the requirements of Article 84 EPC and that the subject-matter claimed therein is sufficiently disclosed as required by Article 83 EPC.

In particular, the board finds that the subject-matter of the claims of the main request has been limited to correspond to the actual disclosure of the application as filed. In fact, the skilled reader of the present application only finds disclosed therein (see the passages of the original description already listed above) the possibility of forming the microcapsules of the invention by using a polymeric shell having characteristics (thickness/impermeability) such that, after the application of the microcapsules onto textile furnishings, carpets or mattresses, "rupture" only occurs under the mere action of pressure and shear forces that are exercised onto any of these substrates during their conventional use. The board has also no doubt that the skilled person would be able to carry out/reproduce the claimed invention without undue burden by following the teaching of the application which identifies suitable polymeric materials and encapsulation methods.

No further details need to be given in respect of these findings, since the examining division only refused the

then pending claim requests for lack of inventive step (Articles 52(1) and 56 EPC).

3. Inventive step (Articles 52(1) and 56 EPC): claim 1

3.1 The closest prior art and the technical problem addressed

The board sees no reason to depart from the findings of the examining division, undisputed by the appellant, that the closest prior art is represented by the prior art disclosed in D1. The board refers in particular to paragraph [0011] of D1 in combination with paragraphs [0027] to [0039] thereof.

The technical problem addressed in the patent application undisputedly (see page 6 of the statement of the grounds of appeal) is the provision of an improved method for delivering microorganisms to a textile surface - in the present case textile furnishings, carpets or mattresses - over a prolonged period of time, capable of replenishing the microorganism population so as to suppress colonisation of the textile surface by pathogenic organisms and to deplete organic matter on the textile surface (see in the original application page 1, lines 4-8; page 2, lines 14 to 28, and page 13, lines 1 to 15).

3.2 The solution

The solution to the posed technical problem offered in claim 1 ((see V above) is a composition for delivering microorganisms which (differs from that refused by the examining division essentially because the former further):

- is for delivery of microorganisms onto carpets, furnishings and mattress surfaces;
- by means of microcapsules (comprising the microorganisms to be delivered) whose rupture must occur under the action of those mechanical forces that are encountered during the conventional use of these textiles;
- wherein the microcapsules dimensions must be within a specified range, thereby also implying (when such dimension range is considered in combination with the claimed range for the proportion in weight between the core and the polymer shell) a limitation as to the possible thickness of the shell; and
- wherein the microcapsules' shell must be made of a polymer material impervious to the materials in the liquid core as well as to the materials which may come into contact with the outer face of the shell (logically during the conventional use of the treated carpets, furnishings and mattress surfaces).

3.3 The success of the solution

Considering that claim 1 is now limited by reciting all the structural and compositional features of the microcapsule shell that are mentioned as essential in the application, the success of the proposed solution in respect to the chosen textile surfaces is not only plausible in view of the features recited in the claim but also supported by experimental data supplied by the appellant during the examination, which were found convincing by the examining division (third full paragraph on page 11 of the appealed decision and by the board in its preliminary opinion (paragraph 6.4.1)).

Therefore, the board finds it plausible that the claimed composition solves the posed technical problem across the whole scope of claim 1.

3.4 Inventive step

3.4.1 It has been convincingly argued by the appellant that the combination of the prior art onto which the decision of the examining division was based does not render obvious the solution to the posed technical problem offered by subject-matter of claim 1 under consideration, if only for the reason that neither D1 nor D3 suggest to microencapsulate a core within a polymer shell impervious to the materials in the core and which may come into contact with the outer face of the shell.

Thus:

- even though D1 discloses encapsulation and lists also microencapsulation as a possibility, the only form of encapsulation explicitly disclosed in D1 is in a liquid medium (see in D1 the "encapsulation of probiotic bacterial cells within a sesame oil emulsion" described in paragraph [0027], or the bacteria "contained in liposomes" described in paragraph [0037]) and, thus, this document does not describe any shell, not to mention any polymer shell impervious to the materials in the core and which may come into contact with the outer face of the shell;

and

- the disclosure in D3 of mechanically rupturable microcapsules with a polymer shell only relates to

the encapsulation (of fragrances, anti-microbial agents and/or an odor-neutralizing components) with a material that is required to at least slowly release the encapsulated ingredients "through membrane diffusion" (see e.g. the passage bridging the two columns on page 2 of D3, also in combination with the passage reading "[a]lthough the transmigration of the ingredients can be very slow through the membrane, the present invention has particular utility in areas where active ingredients are released through compression, heat, shear, or stress" in paragraph [0023]) and which is thus not impervious to the materials in the core.

- 3.4.2 The board finds it appropriate to add that the microencapsulation of microorganisms in a vegetative state may plausibly require special preparation conditions and/or limitations as to the nature of the polymer that can be used as shell. Hence, the disclosure in D3 does not appear to enable the preparation of microcapsules of microorganisms in a vegetative state.
- 3.4.3 Finally, as convincingly argued by the appellant, the fact that the explicit disclosure in D1 as to the actual possibility of encapsulating microorganisms is only limited to the use of liquid droplets would render a skilled person dubious as to the possibility of successfully encapsulating microorganisms in a vegetative state also in microcapsules with a totally different structure (such as e.g. the core / shell structure disclosed in D3).
- 3.4.4 Hence, the board finds that the prior art disclosed in D1 and D3 upon whose combination the finding of lack of inventive step by the examining division was based,

cannot render obvious the subject-matter of claim 1 of the main request under consideration.

- 3.5 The board concludes that the subject-matter of claim 1 is not obvious in view of the available prior art and, thus, that this claim involves an inventive step (Articles 52(1) and 56 EPC).
4. Since the remaining claims 2 to 15 of the main request (see V above) either define preferred embodiments of the composition of claim 1, or methods comprising the application of the composition of claim 1 or the use of this latter onto carpets, furnishings and mattress surfaces, the same reasons given above in respect to claim 1 also apply to the subject-matter of other claims of the main request.
5. Accordingly, the main request is found to involve an inventive step (Articles 52(1) and 56 EPC).

Order

For these reasons it is decided that:

1. *The decision under appeal is set aside.*
2. *The case is remitted to the department of first instance with the order to grant a patent with the following documents:
claims 1 to 15 of the "new main request" filed during oral proceedings on 11 November 2021 and a description to be adapted thereto.*

The Registrar:

The Chairman:



A. Pinna

C. Heath

Decision electronically authenticated