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Datasheet for the decision of 22 October 2015

Case Number: T 0276/13 - 3.3.10

Application Number: 06719081.9

Publication Number: 1846046

IPC: A61L15/00, A61L15/16

Language of the proceedings: EN

Title of invention:
ABSORBENT STRUCTURE WITH IMPROVED WATER-ABSORBING MATERIAL

Patent Proprietor:
The Procter & Gamble Company

Opponent:
Unicharm Corporation

Headword:

Relevant legal provisions:
EPC Art. 100(c), 100(a), 56

Keyword:
Grounds for opposition - added subject-matter (no)
Inventive step - (yes)

Decisions cited:

Catchword:

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Case Number: T 0276/13 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 22 October 2015

Appellant: (Opponent)	Unicharm Corporation 182 Shimobun, Kinsei-cho Shikokuchuo-City, Ehime (JP)
Representative:	Maiwald Patentanwalts GmbH Elisenhof Elisenstrasse 3 80335 München (DE)
Respondent: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	Heide, Ute Procter & Gamble Service GmbH IP Department Frankfurter Strasse 145 61476 Kronberg im Taunus (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 26 November 2012 rejecting the opposition filed against European patent No. 1846046 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	P. Gryczka
Members:	R. Pérez Carlón
	T. Bokor

Summary of Facts and Submissions

I. The appellant lodged an appeal against the decision of the opposition division to reject the opposition against European patent No. 1 846 046.

II. Notice of opposition had been filed on the grounds of added subject-matter (Article 100(c) EPC) and lack of novelty and inventive step (Article 100(a) EPC).

III. The documents filed during the opposition proceedings included the following:

D1: EP 0 641 835 A1
D4: US 5,731,365

IV. The opposition division concluded that the claims of the patent as granted found a basis in the application as originally filed and that the claimed process was novel over document D4, which also represented the closest prior art. The problem underlying the claimed invention was to provide a process which led to an absorbing structure having improved gel-blocking properties. The solution, which was characterised by the presence of 0.1% to 6% by weight of a coalescing agent, was not obvious having regard to the prior art.

V. Claim 1 of the main request, filed during the oral proceedings before the board, which took place on 22 October 2015, is identical to claim 1 as granted and reads as follows:

"Process for making an absorbent structure suitable in an adult or infant diaper or feminine hygiene article, comprising the steps of

a) *obtaining water-absorbing material by*

i. spray-coating water-absorbing polymeric particle with an aqueous dispersion or solution of an elastic film-forming polyurethane polymer in a fluidized bed reactor at a temperature in the range from 0°C to 150°C; and

ii. heat-treating the coated polymeric particles of a) at a temperature above 50°C, wherein in step i) and/or ii) from 0.1% to 6% by weight of the elastic film-forming polyurethane polymer of a coalescing agent is added; and

b) *incorporating the water-absorbing material in a absorbent structure."*

VI. The appellant contested the conclusions of the opposition division with respect to added subject-matter and inventive step.

The subject-matter of claim 1 did not find a basis in the application as originally filed since there was no word-by-word basis for step b) of claim 1 and since claim 1 contained features which had not been originally disclosed in combination.

Document D4 was the closest prior art. It disclosed all the features of claim 1 with the exception of the required amount of coalescing agent. The problem of providing a process which allowed obtaining an absorbent structure with enhanced gel-blocking properties was not credibly solved by the process of claim 1 of any of the requests on file in view of the

lack of fair comparative data. Thus, the technical problem had to be reformulated in such a way as to provide a further method for making an absorbing structure. The solution, which was characterised by a defined amount of coalescing agent, was a straightforward choice for a person skilled in the art. The claimed process was thus not inventive.

With a letter dated 14 August 2015, the appellant requested a decision according to the state of the file.

VII. The board informed the parties with a communication dated 16 September 2015 that it was not in a position to cancel the scheduled oral proceedings. It stated that it had to be discussed whether the required amount of coalescing agent had been disclosed in combination with steps i and/or ii or only in combination with step i of claim 1, and whether the problem of providing a process for making an absorbing structure with improved gel strength had been credibly solved having regard to the evidence filed in this respect.

VIII. The arguments of the respondent relevant for the present decision were the following:

Feature b) of claim 1 merely resulted from the change of category of the claim, and its remaining features had a word-by-word basis in the application as originally filed. For these reasons claim 1 did not contain added subject-matter.

Document D4 was the closest prior art. The problem underlying the claimed invention was to provide a process for making an absorbing structure having an improved gel strength, and neither D4 nor D1 led to the

claimed solution, which was characterised in that water-absorbing particles were coated with polyurethane as film-forming polymer by spray coating, the claimed process also requiring a defined amount of a coalescing agent.

Even if the problem were formulated as the mere provision of a further process for making an absorbing structure, the state of the art did not lead to the proposed solution, with the consequence that the subject-matter of claim 1 was inventive.

IX. The final requests of the parties were the following:

- The appellant requested that the decision under appeal be set aside, and that the patent be revoked.

- The respondent requested that the decision under appeal be set aside and the patent be maintained in an amended form on the basis of the main request or any of the first to sixth auxiliary requests, the main and the first auxiliary request having been filed during the oral proceedings before the board, all other requests having been filed with a letter dated 21 September 2015.

X. At the end of the oral proceedings, the decision was announced.

Reasons for the Decision

1. The appeal is admissible.

Main request:

Amendments

2. Claim 1, directed to a process for making an absorbent structure, finds a basis in claim 2 as originally filed, whose features are also disclosed on page 5, lines 4-10, of the description, in combination with the following features:

- "with an aqueous dispersion or solution of an elastic film-forming polyurethane", which can be found on page 36, lines 16-19.

- "from 0.1% to 6% by weight of the elastic film-forming polyurethane polymer of a coalescing agent", which can be found on page 45, line 23.

- feature b) of claim 1, which does not find a word-by-word basis in the application as originally filed but which is, nevertheless, implicitly disclosed therein for the reasons explained in point 6. below.

3. The appellant argued that the application as originally filed failed to disclose, in combination, the feature "aqueous dispersion or solution of an elastic film-forming polyurethane" and the amount of coalescing agent required by claim 1. For that reason, claim 1 contained added subject-matter.

However, according to the application as originally filed, aqueous dispersions or solutions of polyurethane are the preferred starting material for applying a film-forming polymer to water-absorbing particles (page 36, lines 17-18). In addition, the relative amount of

coalescing agent is also disclosed as essential (see summary of the invention on pages 4 and 5). There is no reason why the skilled reader would not directly und unambiguously consider that these two preferred essential features are not to be combined.

4. The appellant also argued that the application as originally filed failed to disclose, in combination, an aqueous dispersion or solution of polyurethane and the temperature required by step i.

However, the temperature required by step i of claim 1 is the broadest temperature range with respect to this step disclosed in the application as filed, namely on page 36, line 10. Consequently, this temperature range cannot be disregarded when considering the other characteristics of step i. Therefore, the argument that the use of an aqueous dispersion or solution was not combined with the temperature disclosed in the application as filed for step i cannot be followed.

5. The appellant further argued that the feature "spray-coating" had not been disclosed, in combination, with "an aqueous dispersion or solution of an elastic film-forming polyurethane".

However, spray-coating is already a feature of claim 2 as originally filed and can be found in its counterpart in the description (page 5, lines 4-10). Spray-coating is the sole coating method disclosed in the application as filed, and aqueous dispersions or solution of polyurethane are the preferred polymeric material for the claimed process. The skilled reader will thus consider these features disclosed in combination.

6. Lastly, the appellant argued that feature b) of claim 1, which does not have a word-by-word basis in the application as originally filed, represented added subject-matter.

However, claim 2 as filed refers to "an absorbing structure comprising a water absorbent material obtainable by...", which inherently discloses that the water absorbent material has to be incorporated into the absorbing structure. The first paragraph of the description also mentions that the invention is directed to absorbent structures containing water absorbent material and indicates that said material needs to be incorporated into said absorbing structure.

7. The board had expressed in its communication dated 16 September 2015 doubts whether the required amount of coalescing agent on page 46, lines 8-11, was combined with steps i and/or ii of claim 1 having regard to the passage on page 45, line 23, which seemed to indicate that a coalescing agent was only required during step a), which corresponds to step i of claim 1.

However, the passage on page 46, lines 8-11, is not linked to that on the previous page, and a basis for the feature of claim 1 requiring adding a coalescing agent during step i and/or ii can be found in claim 2 as originally filed and on page 5, lines 4-10.

8. Other objections raised by the appellant or the board with respect to the claims as granted have been rendered moot by the amendments carried out by the respondent in response to the communication of the board.

9. The board thus concludes that the claims of the main request do not contain added subject-matter.

Inventive step

10. Closest prior art

The opposition division and the parties considered that document D4 was the closest prior art, and the board sees no reason to differ.

Document D4 discloses absorbents suitable for hygiene articles containing a hydrophilic, highly swellable hydrogel coated with a non-reactive, water-insoluble film-forming polymer (column 2, lines 46-48). The most suitable polymers are homo- and copolymers of acrylic and methacrylic acid esters and polymers based on polyacetals (column 4, lines 25-28); however, polyurethanes are also suitable film-forming polymers (column 3, line 53).

The coating process can be carried out using an aqueous polymer dispersion, emulsion or suspension (column 6, lines 32-35), which may also contain organic solvents such as water-miscible solvents (column 6, lines 37-55). These type of solvents are coalescing agents according to the patent in suit [224].

Example 1 of D4 discloses the preparation of polyacetal coated particles by mixing superabsorber particles with a solution of 2.0 g of polyacetal in 200 g of methanol, which is subsequently removed at reduced pressure.

Example 2 discloses coating 50 g of coated superabsorber granules using 2 g of Mowilith (a plasticiser-free, aqueous dispersion based on acrylic

and methacrylic acid esters) diluted with 30 g of methanol, which is removed at reduced pressure.

Thus, examples 1 and 2 disclose the use of methanol, which is a coalescing agent according to claim 1, but not in connection to spray-coating or to polyurethane, and in an amount which is some orders of magnitude larger (more than 100 times larger) than that required by claim 1.

The sole reference to spray-coating in document D4 can be found in example 3. This example discloses the spray coating of 1 kg of superabsorber with 20 g of Mowilith diluted with 13 g of water, followed by drying at 140°C. Example 3 thus does not relate to polyurethane coating and does not require any coalescing agent.

11. Technical problem underlying the invention

The parties had different views as to the formulation of the technical problem effectively solved by the claimed invention.

In the following, it will be examined whether the subject-matter of claim 1 is inventive under the assumption that the technical problem underlying the claimed invention is merely that of providing a further process for making an absorbent structure. If the solution to this problem is not obvious, it will not be necessary to examine whether a more ambitious problem has also been solved.

12. Solution

The solution to this technical problem is the claimed process, which is characterised in that water-absorbing

particles are coated with polyurethane as film-forming polymer, by spray-coating, the claimed process further requiring a defined amount of a coalescing agent.

13. Success

In the light of the data provided in the examples, the problem mentioned under point 11. above is considered to be successfully solved by the process of claim 1 of the main request.

14. Lastly, it remains to be decided whether or not the proposed solution to the objective problem defined above is obvious in view of the state of the art.

14.1 Document D4 discloses that water-soluble organic solvents can be used for forming aqueous polymer dispersions, emulsions and suspensions. It further discloses that polyurethane is suitable for coating absorbing particles.

It does not, however, disclose any specific coating method which could be considered as generally applicable for every type of polymer.

The sole mention of spray-coating can be found in example 3, which does not use polyurethane and does not require any compound which could be regarded as a coalescing agent, let alone in the amount required by claim 1.

On column 6, lines 32-55, document D4 discloses that coating polymers can be applied in the form of an aqueous dispersion, emulsion or suspension. These polymers can also be employed in the form of a solution in an organic solvent and, lastly, they can be used as

aqueous dispersions, emulsions and suspensions further containing an organic solvent. This passage is silent about any suitable relative amount of organic solvent in said dispersions, emulsions or suspensions, or about any link between the presence of organic solvents and any specific drying method.

Examples 1 and 2 disclose the obtention of coated superarbsorbent particles by mixing them with a composition comprising a polymer which is not polyurethane and a relative amount of methanol to polymer, which is significantly larger (more than 100 times) than required by claim 1. Methanol needs to be subsequently removed at reduced pressure.

The sole reference to spray-coating in D4 (example 3) is thus made in the context of a different polymer and in the absence of any coalescing agent. There is no hint in D4 which would have led the skilled person to combine the polymer required by claim 1 (polyurethane), the required coating method (spray-coating) and the mandatory presence of a coalescing agent. There is thus no reason why the skilled person would consider using the claimed combination of features, and there is even less reason why it would have used the relative amount of solvent required by claim 1 in order to obtain an alternative.

The question of whether or not the problem as formulated by the respondent has been solved in all aspects can be left aside, since the board holds that even if the technical problem is reformulated as merely the provision of an alternative process, the proposed solution is not obvious.

14.2 The appellant argued that the skilled person would find in document D1 a hint to the claimed solution.

Document D1 discloses the use of urethane resins as adhesives for linking a thermoplastic resin (polyethylene) to water-absorbing particles, whereas D4 refers, as the claimed invention, to the direct coating of absorbing particles. Documents D1 and D4 thus refer to different technologies, and the skilled person would not have combined their teachings.

Notwithstanding that, even if these teachings were combined, document D1 discloses an amount of solvent of 24 and 21 ppm (see table 1) which is an order of magnitude lower than the lowest limit of 0.1% required by claim 1. For this reason alone, this argument must fail.

14.3 The appellant considered that, unless the required amount of a coalescing agent provided a new technical effect, it would be a straightforward choice for a skilled person.

However, the board considers that the solution to the claimed problem does not lie solely in the required amount of coalescing agent, but also in the combination of features required by claim 1, so that, even if the required amount were a straightforward choice, as alleged by the appellant, the available prior art does not provide any teaching which could lead to the claimed solution for the reasons already explained (see point 14.1).

14.4 It is thus concluded that, having regard to the available prior art, the process of claim 1 and of

dependent claims 2 to 11 is inventive, as required by Article 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 maintain the patent as amended in the following version:

Claims: 1-11 of the main request, filed during the oral proceedings before the board,
Description: as in the patent specification,
Figures: as in the patent specification.

The Registrar: The Chairman:

C. Rodríguez Rodríguez P. Gryczka

Decision electronically authenticated