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**Datasheet for the decision
of 28 November 2017**

Case Number: T 1816/13 - 3.3.10

Application Number: 02763540.8

Publication Number: 1450873

IPC: A61L15/60

Language of the proceedings: EN

Title of invention:

SUPERABSORBENT COMPOSITION CONTAINING TRANSITIONAL
CROSSLINKING POINTS

Patent Proprietor:

KIMBERLY-CLARK WORLDWIDE, INC.

Opponents:

Nippon Shokubai Co., Ltd.
BASF SE

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (no) - all requests

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

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

Case Number: T 1816/13 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 28 November 2017

Appellant: Nippon Shokubai Co., Ltd.
(Opponent 1) 1-1, Koraibashi 4-chome, Chuo-ku, Osaka-shi
Osaka 541-0043 (JP)

Representative: Glawe, Delfs, Moll
Partnerschaft mbB
von Patent- und Rechtsanwälten
Postfach 13 03 91
20103 Hamburg (DE)

Respondent: KIMBERLY-CLARK WORLDWIDE, INC.
(Patent Proprietor) 401 North Lake Street
Neenah, WI 54956 (US)

Representative: Beacham, Annabel Rose
Dehns
St Bride's House
10 Salisbury Square
London EC4Y 8JD (GB)

Party as of right: BASF SE
(Opponent 2) GVX/G
67056 Ludwigshafen (DE)

Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
26 June 2013 concerning maintenance of the
European Patent No. 1450873 in amended form.

Composition of the Board:

Chairman P. Gryczka
Members: R. Pérez Carlón
 F. Blumer

Summary of Facts and Submissions

I. The appellant (opponent 1) lodged an appeal against the interlocutory decision of the opposition division to maintain European patent No. 1 450 873 in the form of the second auxiliary request then pending.

II. Two notices of opposition had been filed on the grounds of added subject-matter (Article 100(c) EPC), insufficiency of disclosure (Article 100(b) EPC) and lack of novelty and inventive step (Article 100(a) EPC).

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

D3 WO 00/5364

D5 Experimental evidence filed as "sworn text result report", signed by Mr Ishizaki on 29 September 2011.

D12 Experimental evidence filed by BASF as "Versuchprotokoll betreffend EP 1 450 873", dated 31 August 2011.

The following document was filed during appeal proceedings:

D25a English translation of JP 64-29257

IV. The opposition division concluded *inter alia* that document D3 was the closest prior art. It disclosed a disposable absorbent article comprising a polyacrylate superabsorbent material having an absorbency change lower than that required by claim 1, obtainable by mixing polyacrylate superabsorbent material and an aqueous solution of an in-situ reactive agent, followed

by drying. The problem underlying the claimed invention was the provision of alternative disposable absorbent articles comprising a superabsorbent and the solution, which was an absorbing article characterised by comprising an absorbent obtainable by dry mixing in-situ reactive reagents with polyacrylate superabsorbent, and having an absorbency change of at least 20% upon saturation, was not obvious having regard to the prior art.

V. With the response to the grounds of appeal, the respondent (patent proprietor) filed its first to eighth auxiliary requests. Under cover of a letter dated 10 November 2017 it filed auxiliary requests 9 to 17. Claim 1 of the latter requests corresponds to claim 1 of the main request and auxiliary requests 1 to 8, respectively.

VI. Claim 1 of auxiliary requests 8 and 17 reads as follows:

"A disposable absorbent article selected from a diaper, a training pant, an incontinence product or a feminine care product, the article comprising an absorbent composition comprising:

a polyacrylate superabsorbent material having a plurality of permanent crosslinking points and a plurality of transitional crosslinking points, the superabsorbent material exhibiting a free swell absorbency of at least 15 g/g and an Absorbency Change of at least 20% upon saturation, when measured according to the absorbency under zero load (AUZL) test as defined herein; wherein the plurality of transitional crosslinking points are newly established upon use subsequent to saturation of the superabsorbent material; and wherein the

plurality of transitional crosslinking points comprises a plurality of in-situ reactive agents that are mixed with polyacrylate superabsorbent material in a dry state and in-situ form transitional crosslinking points upon saturation, and wherein the plurality of in-situ reactive agents comprise a dry powder selected from the group consisting of $Al_2(SO_4)_3$, Fe_2Cl_3 , $Ce(SO_4)_2$, ammonium zirconium carbonate, aluminum hydroxide, aluminum chloride and ceric ammonium sulfate."

- VII. Claim 1 of the remaining requests on file (main request, auxiliary requests 1-7 and 9-16) is also directed to a disposable absorbent article, and differs from claim 1 of auxiliary requests 8 and 17 merely by virtue of the definition of the required reactive agents.

Aluminium sulphate ($Al_2(SO_4)_3$), which is a reactive agent required by claim 1 of auxiliary requests 8 and 17, represents an embodiment of the active agents required by every other request on file.

- VIII. The arguments of the appellant which are relevant for the present decision are the following:

Document D3 was the closest prior art for the absorbent articles of claim 1 of auxiliary requests 8 and 17. D3 disclosed all the features of claim 1 with the exception of the required absorbency change, which was slightly lower, and of the method for preparing the required absorbent by dry-mixing. The method for preparing the absorbent, however, did not lead to any difference in the claimed absorbent articles compared to those of D3, as dry absorbents contained a non-negligible amount of water. Following paragraph [0009]

of the patent in suit, the absorbents of document D3 necessarily had the possibility of forming transitional crosslinking points, as their absorbency change was higher than 10%.

The problem underlying the claimed invention was merely to provide further absorbing articles. The claimed solution, which was characterised by an absorbency change only slightly higher than that of D3, was obvious to the skilled person.

As the subject-matter of claim 1 of auxiliary requests 8 and 17 was an embodiment of claim 1 of every other request in these appeal proceedings, the same arguments applied.

Consequently, all requests on file should be refused for lack of inventive step.

IX. The arguments of the respondent which are relevant for the present decision are the following:

Closest prior-art document D3 neither referred to transitional crosslinking points nor disclosed the method of forming an absorbent containing said transitional crosslinking points by dry-mixing as required by claim 1.

The problem underlying the claimed invention was to provide a disposable absorbent article having, like that of the prior art, good absorbency under load and good free swell capacity. The claimed solution, which was characterised by having an absorbent with transitional crosslinking points, obtainable by dry-mixing with a reactive agent, was inventive having

regard to the available prior art.

- X. In a communication in preparation for the oral proceedings dated 29 August 2017, the board summarised the arguments already on file, and it regarded document D3 as the closest prior art and the problem underlying the claimed invention as being the provision of an alternative superabsorbent article having, like those of the prior art, good absorbency under load and good free swell capacity.
- XI. With a letter dated 10 November 2017, the respondent, beside filing auxiliary requests 9 to 17, provided arguments with respect to added subject-matter, requested that documents D31 to D33 not be admitted into the appeal proceedings, and informed the board that it would not be attending the oral proceedings, which took place on 28 November 2017.
- XII. The party as of right (opponent 2) did not make any submission during these appeal proceedings, and informed the board with a letter dated 19 September 2017 that it would not attend the oral proceedings.
- XIII. The final requests of the parties were the following:
- The appellant requested that the decision under appeal be set aside and the patent revoked.

It further requested that auxiliary requests 9 to 17, filed with a letter dated 10 November 2017, not be admitted into these appeal proceedings.
 - The respondent requested in writing that the appeal be dismissed or, subsidiarily, that the patent be

maintained on the basis of any one of auxiliary requests 1 to 17, auxiliary requests 1 to 8 as filed with the response to the grounds of appeal dated 7 March 2014, auxiliary requests 9 to 17 as filed with a letter dated 10 November 2017.

The respondent further requested in writing that neither documents D31 to D33, filed by the appellant with a letter dated 3 November 2017, nor the experimental report by Dr. Matsumoto, filed by the appellant with a letter dated 29 September 2014, be admitted into the proceedings.

- The party as of right did not file any requests in the appeal proceedings.

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

Reasons for the Decision

1. The appeal is admissible.

Inventive step

2. Claim 1 of auxiliary requests 8 and 17 is directed to a disposable absorbent article comprising an absorbent composition. This absorbent composition contains a polyacrylate superabsorbent material and an in-situ reactive agent, selected from a list which includes aluminium sulphate.

The superabsorbent material required by claim 1 has a free swell absorbency of at least 15 g/g and an absorbency change of at least 20% upon saturation, measured using the test defined in the patent in suit.

The superabsorbent material has a plurality of permanent crosslinking points and a plurality of transitional crosslinking points, newly established upon use subsequent to saturation of the superabsorbent material.

Lastly, claim 1 requires the polyacrylate superabsorbent to be obtainable by dry mixing an in-situ reactive agent, such as aluminium sulphate, and a polyacrylate superabsorbent.

3. Closest prior art

3.1 The opposition division and the parties considered that document D3 was the closest prior art. The board sees no reason to differ.

3.2 It has not been disputed that document D3 discloses superabsorbent articles (page 1, line 6) comprising compositions containing a polyacrylate superabsorbent crosslinked with aluminium sulphate (examples 1 to 11). The free swell absorbency of said superabsorbent is higher than 15 g/g (see TB values in the tables corresponding to said examples).

3.3 It is also not disputed that the compositions of D3 had not been obtained by mixing, in dry state, a superabsorbent material and an in-situ reactive agent, as D3 discloses mixing a polyacrylate superabsorbent and an aqueous solution of ammonium sulphate.

The respondent argues that, by adding aluminium sulphate in solution, any crosslinking had taken place before the absorbent article was in use, and thus the absorbents of D3 did not have transitional crosslinking

points.

However, according to the patent in suit [0009], in the absence of transitional crosslinking points, a superabsorbent has an absorbency change upon saturation below 10%. The superabsorbents of the examples of document D3 have an absorbency change above this threshold: example 1 has an absorbency change of 16.7% (D5) and example 3 of 18.5% (D12). For this reason alone, these absorbents necessarily contain transitional crosslinking points, as defined in the patent in suit.

- 3.4 The wording of claim 1 is a combination of product and process features; the latter are to be interpreted as a product-by-process definition. It is generally accepted case law that a product is not rendered novel by virtue of a modification in the process for obtaining it, unless the modified process leads to a different product.

The respondent argued that the preparation method led to the formation of transitional crosslinking points, which were not present in the absorbents of D3. However, in view of the absorbency change of the examples of D3, it has been concluded that the absorbents of D3 do indeed have transitional crosslinking points (see point above), albeit to a lesser degree. The respondent did not argue that the preparation method would introduce any structural modification of the final product over and above the presence of said transitional linking points.

There is thus no evidence on file which could prove that the product obtainable by mixing in dry state a superabsorbent and aluminium sulphate would differ from

a product obtained, like that of D3, by adding aluminium sulphate to the superabsorbent dissolved in a relatively small amount of water (3% with respect to the total amount of polyacrylate superabsorbent) followed by drying.

In the absence of any evidence which could prove the contrary, the board can only conclude that the method by which the polyacrylate was obtained is not inevitably reflected in any structural difference in the final product.

- 3.5 The compositions of D3 do not have the required absorbency change of at least 20% upon saturation, as the experiments submitted by the appellant and the party as of right during opposition proceedings show that example 1 has an absorbency change of 16.7% (D5) and example 3 of 18.5% (D12).

4. Technical problem underlying the invention

The respondent in point 32 of its response to the grounds of appeal defined the technical problem underlying the claimed invention as being to provide a disposable absorbent article having, like that of the prior art, good absorbency under load and good free swell capacity (high retention capacity).

5. Solution

The solution to this technical problem is the disposable absorbent article containing a superabsorbent of claim 1 of auxiliary requests 8 and 17, which is characterised in that said superabsorbent has an absorbency change of at least 20% upon

saturation.

6. Success

It is not disputed that the provision of a disposable article having a superabsorbent with an absorbency change of at least 20%, has credibly solved the problem underlying the claimed invention.

7. It thus remains to be decided whether or not the proposed solution to the objective problem defined above is obvious from the prior art.

The skilled person, trying to obtain an alternative disposable absorbent article comparable to that of document D3 would consider minor modifications of the superabsorbent of said article. Both decreasing the degree of crosslinking of the superabsorbent of D3 and increasing the amount of ammonium sulphate added to it fall within the obvious modifications that the person of the art would contemplate in order to provide an alternative.

The absorbency change of the absorbents of D3 (18.5%, example 3) is already very close to the value required by claim 1 (more than 20%). Thus, in order to arrive at the claimed invention, only minor modifications of the absorbent of D3 would be required.

According to paragraph [0040], transitional crosslinks - and hence increased absorbency change - can be obtained by under-crosslinking an absorbent and adding to it a transitional crosslinker, i.e. ammonium sulphate. Thus, by carrying out obvious modifications (less crosslink of one type and/or more crosslink of

the other), the person of the art would arrive at the claimed invention without using inventive skills.

For this reason, it is concluded that the absorbent article of claim 1 of auxiliary requests 8 and 17 is not inventive, as required by Article 56 EPC, with the consequence that these requests are not allowable.

8. Claim 1 of the main request and of auxiliary requests 1-7 and 9-16 are also directed to a disposable absorbent article, and differ from claim 1 of auxiliary requests 8 and 17 merely by virtue of the definition of the required reactive agents. Aluminium sulphate represents an embodiment of those required by every other request on file.

For this reason, the arguments with respect to claim 1 of auxiliary requests 8 and 17 apply *mutatis mutandis* to claim 1 of every request on file, with the consequence that none of them is allowable (Article 56 EPC).

Procedural issues

9. The appellant requested that auxiliary requests 9 to 17, which had not been filed with the response to the grounds of appeal, not be admitted into the proceedings.

As the board has arrived at the conclusion that the subject-matter of none of these requests has inventive subject-matter, it is not necessary to decide on this point.

10. The respondent requested that neither documents D31 to D33, filed by the appellant with a letter dated

3 November 2017, nor the experimental report by Mr Matsumoto, filed on 29 September 2014, be admitted into the proceedings. As this decision is not based on the content of any of these documents, it is not necessary to decide on this point, either.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



C. Rodríguez Rodríguez

P. Gryczka

Decision electronically authenticated