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**Datasheet for the decision
of 10 February 2009**

Case Number: T 0088/07 - 3.3.10

Application Number: 00303141.6

Publication Number: 1145724

IPC: A61L 15/60

Language of the proceedings: EN

Title of invention:

Absorbent material and method of production

Patentee:

Bristol-Myers Squibb Company

Opponents:

- (1) BASF SE
(2) Paul Hartmann AG

Headword:

-

Relevant legal provisions:

EPC Art. 56, 84, 123(2)

Keyword:

"Inventive step (no: all requests): improvement not credible
in the absence of evidence - obvious alternative"

Decisions cited:

T 0939/92

Catchword:

-



Case Number: T 0088/07 - 3.3.10

D E C I S I O N
of the Technical Board of Appeal 3.3.10
of 10 February 2009

Appellant: BASF SE
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Representative: -

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
13 November 2006 concerning maintenance of
European patent No. 1145724 in amended form.

Composition of the Board:

Chairman: R. Freimuth
Members: P. Gryczka
F. Blumer

Summary of Facts and Submissions

I. Two notices of opposition were filed in which revocation of European patent 1 145 724 in its entirety was requested on the grounds of insufficiency of disclosure and lack of novelty and inventive step (Article 100(a) and (b) EPC).

II. In an interlocutory decision issued in writing on 13 November 2006, the Opposition Division found that the European patent could be maintained in amended form on the basis of claims 1 to 26 of the then pending main request (present main request). Claim 1 of said main request reads as follows:

"1. A liquid absorbent article comprising a compressed structurally consolidated mass, the mass comprising:
(i) superabsorbent particles that are coated with silica in an amount of at least 6 parts by weight per 100 parts by weight of the superabsorbent;
(ii) water; and
(iii) a non-volatile lubricious polyhydroxy compound which is water-soluble or water-dispersible at or below 40°C and is liquid at at least one temperature within the range of 15 to 20°C."

The Opposition Division came to the conclusion that the amended claims fulfilled the requirements of Articles 84 and 123 EPC, that the invention was sufficiently disclosed and that the claimed subject-matter was novel. The problem solved by the claimed invention considering that the closest prior art was represented by document

(6) GB-A-2 301 350

was to reduce the tendency of shedding without detracting significantly from the other advantageous characteristics of the absorbent. The solution to that problem, namely the addition of silica which enabled the absorbent to take up more glycerine, was not taught by the prior art documents, *inter alia*, not by document

(4) DE-A-3 523 617,

which did not concern a compressed structurally consolidated mass. Thus, the claimed absorbent involved an inventive step.

III. The Opponent 1 (Appellant) lodged an appeal against the above decision.

IV. With a letter dated 9 January 2009, the Respondent (Proprietor of the patent) filed six sets of claims as auxiliary requests 1 to 6. At the oral proceedings held in front of the Board on 10 February 2009 he withdrew the first auxiliary request.

Claim 1 of auxiliary request 2 differs from claim 1 of the main request by the addition in component (i) of the feature specifying that the silica coats "at least the majority of the surface area of the superabsorbent".

Claim 1 of auxiliary request 3 differs from claim 1 of the main request by the addition in component (i) of the feature specifying that the silica coats "substantially entirely the surface area of the superabsorbent".

Claim 1 of auxiliary request 4 differs from claim 1 of auxiliary request 3 by the addition of the features specifying that the article is "in sheet form" and that the consolidated mass is "sandwiched between upper and lower sheets".

Claim 1 of auxiliary request 5 reads as follows:

"1. A method of producing a liquid absorbent article, the method characterised by:

(a) providing superabsorbent particles which are substantially entirely coated with silica in an amount of at least 6 parts by weight of silica per 100 parts by weight of the superabsorbent and

(b) mixing with the silica coated superabsorbent, water and a non-volatile lubricious polyhydroxy compound which is water-soluble or water-dispersible at or below 40°C and is liquid at at least one temperature in the range of 15 to 20°C; and

(c) compressing the mixture obtained after step (b) to form a compressed structurally consolidated mass."

Claim 1 of auxiliary request 6 differs from claim 1 of auxiliary request 5 by the feature requiring that the liquid absorbent article is "in sheet form" and by the replacement of step (c) by the following steps:

"(c) arranging the mixture obtained after step (b) between upper and lower sheets to sandwich the mixture between the sheets; and

(d) compressing the sandwich obtained from step (c) to structurally consolidate the mixture and form a sheet article."

V. According to the Appellant there was no support in the application as filed for the expression "compressed structurally consolidated mass" introduced in claim 1 of the main request and of the auxiliary requests 2 to 5. In addition, the term "structurally" was not clear since it could refer to the internal or the external structure of the article. The claimed liquid absorbent article differed from that disclosed in the closest prior art document (6) only by the fact that the superabsorbent particles were coated with at least 6 parts by weight of silica per 100 parts by weight of superabsorbent. There was no evidence that the technical problem underlying the invention, namely to reduce shedding and improve flexibility, had effectively been solved by the claimed articles. Furthermore, since the reduction of shedding and improvement of flexibility was linked to the amount of polyhydroxy compound and water, claim 1 which gave no indication in this respect, encompassed absorbent articles which could not solve this technical problem. Thus, the claimed absorbent articles could merely be seen as alternatives to those described in the closest prior art, said alternatives being characterised by the fact that the superabsorbent particles were coated with at least 6% by weight of silica. Since, it was known *inter alia* from document (4) that superabsorbent particles could be coated with silica while maintaining the absorbent properties, the subject-matter of claim 1 of the main request did not involve an inventive step. No effect was shown for the feature introduced in claim 1 of the auxiliary requests 2 and 3 specifying that the silica coated, respectively, the majority or substantially entirely the surface of the particles. In addition, since the amount of silica disclosed in

document (4) corresponded to that required for the claimed articles, the extend of coating specified in the amended claims was already known from document (4). Therefore, the articles according to claim 1 of the auxiliary requests 2 and 3 lacked also an inventive step. That the article was in sheet form as required by claim 1 of the auxiliary request 4 was already disclosed in the closest prior art document (6), which also described the process steps required by claim 1 of the auxiliary requests 5 and 6. Thus, also claim 1 of these requests did no define an inventive subject-matter.

VI. The Respondent considered that the expression "compressed structurally consolidated mass" had a support in the application as filed and that the term "structurally" was clear. Document (6) represented the closest prior art and the claimed subject-matter was characterised by the fact that the superabsorbent particles were coated with at least 6% by weight of silica. The technical problem solved by the invention was to reduce shedding which resulted in an improved flexibility of the material while maintaining the advantageous characteristics of the superabsorbent. Although no results of comparative examples were filed, it had to be considered that this technical problem was effectively solved by the claimed article since more glycerol and water could be taken up by the formulation in the presence of silica, water and glycerol improving flexibility and reducing shedding. This technical problem had to be solved in the context of a compressed structurally consolidated mass. Already for this reason, there was no motivation for the skilled person trying to solve these problems to turn to document (4) which

did not relate to absorbent articles in the form of a compressed structurally consolidated mass. In addition, since that document taught in essence to add silica in order to avoid the superabsorbent particles from sticking together, there was a technical prejudice against the addition of silica in the context of the present invention where sticking was required to form a consolidated structure. Furthermore, according to document (4) silica was simply added to the formulation whereas the claimed invention required that the absorbent particles were coated with silica. It was neither obvious that such coating would enhance cohesive sticking in the consolidated mass, nor that such coating would not have a negative impact on the absorption capacity. There was, consequently, no motivation for the skilled person to coat the superabsorbent particles with silica in order to solve the technical problems underlying the invention. This was even more true for the subject-matter of claim 1 of the auxiliary requests 2 and 3 which required respectively that "at least the majority" of the surface or "substantially entirely" the surface of the superabsorbent was coated. Thus, the claimed subject-matter involved an inventive step.

VII. The Opponent 2 (Party as of right) did not submit any argument or request in writing and announced with letter dated 16 January 2009 that it will not attend the oral proceedings in front of the Board.

VIII. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

- IX. The Respondent requested that the appeal be dismissed or, subsidiarily, that the patent be maintained on the basis of one of the auxiliary requests 2 to 6 filed with the letter dated 9 January 2009.
- X. At the end of the oral proceedings held in the absence of the duly summoned party as of right, the decision of the Board was announced.

Reasons for the Decision

1. The appeal is admissible.
2. The Appellant did not raise objections with regard to novelty and sufficiency of disclosure of the invention in the appeal proceedings and the Board sees no reasons to raise such objections *ex officio*.

Main request

3. *Amendments*

According to the Appellant there was no support in the application as filed for the expression "compressed structurally consolidated mass" introduced in claim 1 of the main request. In addition, the term "structurally" was not clear since it could refer to the internal or the external structure of the article.

That the liquid absorbent comprises a "compressed structurally consolidated mass" can however be taken from page 4, lines 17 to 23 of the application as filed which discloses that compression structurally

consolidates the powder. In addition, the term "structurally" is clear to the skilled person since it refers to the structure of the mass without making any distinction between an internal or external structure, thereby simply defining the structure of the mass as a whole. Therefore, the objections of the Appellant with regard to that amendment to claim 1 have to be rejected.

The Board on its own is satisfied that the other amendments to claim 1 satisfy also the requirements of Article 123(2) and (3) EPC.

Thus, it remains solely to be decided whether or not the claimed subject-matter involves an inventive step.

4. *Inventive step*

- 4.1 The patent in suit is directed to a liquid absorbent article. Absorbent articles already belong to the state of the art as illustrated by document (6) which was considered in the decision under appeal and by the parties as representing the closest prior art document for the assessment of inventive step. The Board sees no reason to depart from this finding.

Document (6) discloses a liquid absorbent article comprising a formulation including 100 parts per weight of superabsorbent particles, 0,5 to 6 parts per weight of water and 5 to 30 parts by weight of glycerol, which in terms of the patent in suit is a non-volatile lubricious polyhydroxy compound which is water-soluble or water-dispersible at or below 40°C and is liquid at at least one temperature within the range of 15 to 20°C (claims 1, 4 and 5). The formulation which forms a

coherent structure on exposure to pressure (page 3, lines 26 to 28), is present in the article as "a compressed structurally consolidated mass" in the terms of the patent in suit since the method of making the article includes pressing the formulation between flat platens or forming a sheet between one or more pairs of rollers (page 3, lines 6 to 8). The prepared articles have the advantage that shedding of dust and particles is substantially avoided (page 3, lines 15 and 16).

- 4.2 Having regard to this prior art, the Respondent submitted that the technical problem underlying the patent in suit was to provide an article having a reduced shedding resulting in an improved flexibility while maintaining the advantageous characteristics of the superabsorbent.
- 4.3 As the solution to this problem the patent in suit proposes the article according to claim 1, which is characterized by the fact that the superabsorbent particles are coated with silica in an amount of at least 6 parts by weight per 100 parts by weight of the superabsorbent.
- 4.4 The Appellant and the Respondent were divided as to whether or not the technical problem defined herein above was successfully solved by the claimed absorbent article.

The Respondent while conceding the lack of any result of comparative experiments, explained on the basis of the drawings filed with its letter dated 1 October 2007 that the technical problem was effectively solved by the claimed articles since more water and glycerol

could be taken up when the superabsorbent particles were coated with silica. The increased amounts of water and glycerol provided greater structural stability so that the formed article was less prone to shedding and was more flexible, this explanation being in line with the description of the invention on page 3, line 36 of the patent specification.

According to this passage of the patent specification and the arguments of the Respondent, the improvements in terms of flexibility and shedding are linked causally to the amount of water and glycerol, the alleged improvements requiring the presence of a higher amount of glycerol and water than in the articles of the prior art. However, since the amount of water and glycerol is not defined in claim 1 in suit, the claimed subject-matter encompasses articles in which the amount of water and glycerol is lower than the amount present in the articles of the prior art document (6), i.e. 0,5 to 6 parts per weight of water and 5 to 30 parts by weight of glycerol (see point 4.1 *supra*). Since an improvement of flexibility and reduction of shedding requires a higher amount of glycerol and water than in the closest prior art, the alleged improvement cannot be credible at least for those articles encompassed by claim 1 which contain less water and glycerol than the articles of the prior art.

- 4.5 Since in the present case the alleged advantage, i.e. improved flexibility and reduced shedding, is not achieved throughout the entire ambit of the claimed subject matter, the technical problem as defined above (see point 4.2) needs to be redefined in a less ambitious way, and in view of the teaching of document

(6) can merely be seen in providing an alternative liquid absorbent article with low shedding while maintaining the absorbency properties (see decision T 939/92, OJ EPO 1996, 309, point 2.5.4 of the reasons).

4.6 It remains to be decided whether or not the proposed solution, namely the absorbent article according to claim 1, to that objective technical problem is obvious in view of the state of the art, in other terms, whether it was obvious to the skilled person in view of the prior art to coat the superabsorbent particles with silica in an amount of at least 6 parts by weight per 100 parts by weight of the superabsorbent, in order to provide alternative liquid absorbent articles with low shedding while maintaining the absorbency properties.

4.6.1 The skilled person looking for an alternative to the absorbent articles disclosed in document (6) would turn his attention to the teaching of document (4) which, as does the patent in suit, relates to absorbent articles (claim 1), and from which he explicitly learns that superabsorbent particles are mixed with up to 10 parts by weight of silica while maintaining the good properties of the adsorbent (claim 6; page 23, lines 5 to 15), the step of mixing silica with the absorbent particles resulting necessarily in coating the particles with the silica (patent-in-suit page 3, lines 22 and 23). Since no effect has been submitted or shown to be linked to the threshold of at least 6 part by weight specified in claim 1 in suit, this amount of silica can only be seen as an arbitrary choice within the amount of up to 10 parts by weight recommended by document (4).

4.7 The Board concludes from the above that document (4) gives a clear incentive on how to solve the technical problem underlying the patent in suit of providing an alternative absorbent article, namely by coating the superabsorbent particles with silica in an amount of at least 6 parts by weight per 100 parts by weight of the superabsorbent, thereby arriving at the solution proposed by the patent in suit.

For these reasons, the subject-matter of claim 1 of the main request lacks the required inventive step.

4.7.1 The Respondent argued in support of inventive step that there was no motivation for the skilled person trying to solve the technical problem underlying the invention to turn to document (4) since this document did not relate to absorbent articles in the form of a compressed structurally consolidated mass.

This argument must however be rejected as not being supported by the facts, since document (4) explicitly foresees that the adsorbent formulation can be shaped into a layer (page 24, lines 21 and 22) which implies that the prepared article is also in form of a compressed structurally mass in the sense of the patent in suit.

4.7.2 According to the Respondent since document (4) taught to add silica in order to avoid the superabsorbent particles from sticking together so as to improve their flowability, there was a technical prejudice or at least a deterrent against the addition of silica in the context of the present invention where sticking was required to form a structurally consolidated mass.

However, document (4) addresses the flowability of the absorbent particles as such, flowability of the particles being beneficial while preparing the final absorbent article since it improves the distribution of the particles and avoids sticking of the particles to the apparatus used when forming the article (page 1, lines 5 and 6; page 9, lines 10 to 16; page 10, lines 4 to 8). This very same flowability characteristic is also required for the superabsorbent particles in accordance with the patent in suit (page 2, lines 23 and 24). In addition, flowability of the particles coated with silica does not prevent the formulation according to document (4) to form a coherent structure since these formulations can be shaped into a layer (page 24, lines 21 and 22). It can thus not be taken from the teaching of document (4) that coating the particles with silica should be avoided when preparing a structurally consolidated mass. Therefore, this argument of the Respondent must also be rejected.

4.7.3 Finally, the Respondent argued that it could not be expected that coating the particles with silica would not have a negative impact on the absorption capacity of the particles. However, also this argument of the Respondent must be rejected as not being supported by the facts since document (4) explicitly states that the coated particles ("Mittel (II)") present the very good characteristics of the non-coated absorbent particles ("Mittel (I)"). According to document (4) the coating has, thus, no detrimental effect on the absorption capacity (page 17, lines 8 to 13).

4.8 To summarize, the liquid adsorbent article according to claim 1 does not involve an inventive step. Therefore, the main request must be refused.

Auxiliary requests 2 and 3

5. *Amendments*

Claim 1 of the auxiliary requests 2 and 3 have been amended by the addition of the feature specifying that the silica coats respectively "at least the majority of the surface area of the superabsorbent" or "substantially entirely the surface area of the superabsorbent" as disclosed respectively in claims 3 and 4 of the patent application as filed. These amendments which also restrict the scope of protection conferred by the patent as granted fulfil, therefore, the requirements of Article 123(2) and (3) EPC. This was not contested by the Appellant.

6. *Inventive step*

According to claim 1 of the auxiliary requests 2 and 3 the silica coats, respectively, "at least the majority of the surface area of the superabsorbent" or "substantially entirely the surface area of the superabsorbent".

The Respondent conceded at the oral proceedings before the Board that no effect with regard to flexibility and shedding was to be attributed to these particular degrees of covering of the particles by the silica. Therefore, also in relation to the subject-matter of claim 1 of the auxiliary requests 2 and 3, the

technical problem solved by the invention remains the same as for the main request, i.e. merely the provision of alternative liquid absorbent articles with low shedding while maintaining the absorbency properties (point 4.5 above).

The preferred amount of 6 to 10 parts by weight of silica for 100 parts by weight of absorbent particles required by the patent-in-suit (paragraph [0018]) is encompassed by the amount of up to 10 parts by weight of silica for 100 parts by weight of absorbent particles disclosed in document (4) (claim 6). Since the amount of silica is the essential element to determine to which extend the particles are covered, the degrees of covering specified in claim 1 of the auxiliary requests 2 and 3 are already achieved in document (4) when following the teaching thereof. Therefore, in the absence of any effect linked to the fact that "at least the majority" or "substantially entirely the surface" of the superabsorbent is covered by silica, these features can only be seen as arbitrary choices within the ambit of document (4). Therefore, the assessment of inventive step given in point 4 above in respect of the main request is not affected by the feature added to claim 1 of the auxiliary requests 2 and 3 and the conclusions drawn for the main request still apply.

Thus, the subject-matter of claim 1 of auxiliary requests 2 and 3 does not involve an inventive step and, therefore, these requests must also be refused.

Auxiliary request 4

7. *Amendments*

Claim 1 of the auxiliary request 4 has been amended by the addition of the features specifying that the article is "in sheet form" and that the consolidated mass is "sandwiched between upper and lower sheets" as disclosed on page 4, lines 26 to 31 and page 5, line 2 of the patent application as filed. These amendments which also restrict the scope of protection conferred by the patent as granted fulfil, therefore, the requirements of Article 123(2) and (3) EPC. This was not contested by the Appellant.

8. *Inventive step*

That the absorbent article can be "in sheet form" where the consolidated mass is "sandwiched between upper and lower sheets" is already disclosed on page 3, lines 6 to 10 and on page 8, lines 3 to 8, 11 and 12 of the closest prior art document (6). These additional characteristics do, therefore, not distinguish the claimed subject-matter from that of the closest prior art, with the consequence that these known features cannot contribute to inventive ingenuity.

Therefore, the assessment of inventive step given in point 4 above in respect of the main request is not affected by the features added to claim 1 of the auxiliary request 4 and the conclusions drawn for the main request still apply.

Thus, the subject-matter of claim 1 of auxiliary request 4 does not involve an inventive step and, therefore, this request must also be refused.

Auxiliary requests 5 and 6

9. *Amendments*

Claim 1 of the auxiliary request 5 relates to a method for preparing the liquid absorbent article defined in claim 1 of the auxiliary request 3. The process steps are based on claim 28 and on page 4, lines 17 and 18 of the application as filed.

Claim 1 of the auxiliary request 6 relates to a method for preparing the liquid absorbent article defined in claim 1 of the auxiliary request 4. The process steps are based on claim 28 and on page 4, lines 17, 18 and 28 to 31 of the application as filed.

These amended claims which also restrict the scope of protection conferred by method claim 20 of the patent as granted fulfil, therefore, the requirements of Article 123(2) and (3) EPC. This was not contested by the Appellant.

10. *Inventive step*

Claim 1 of the auxiliary requests 5 and 6 concern a method for preparing the articles according to claim 1 of respectively the auxiliary requests 3 and 4, said articles *per se* being not inventive (see points 6 and 8 *supra*).

In addition, the claimed process steps as such , i.e. "providing" the components, "mixing" them, "arranging" the mixture between upper and lower sheets and "compressing" the mixture are all disclosed in the closest prior art document (6) for the preparation of absorbent articles ("providing" and "mixing" on page 3, lines 26 and 27; "arranging between sheets" and "compressing" on page 3, lines 6 to 10). This was not contested by the Respondent.

In summary, since claim 1 of the auxiliary requests 5 and 6 is directed to the preparation by conventional process steps of a non-inventive article, their subject-matter does not involve an inventive step either and, therefore, these requests must also be refused.

11. Thus, the Board arrives at the conclusion that none of the requests submitted by the Respondent is allowable.

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

R. Freimuth