

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen
(D) [] No distribution

**Datasheet for the decision
of 14 July 2009**

Case Number: T 0518/07 - 3.3.10

Application Number: 00980099.6

Publication Number: 1225926

IPC: A61L 15/20

Language of the proceedings: EN

Title of invention:

Alkali-neutralising superabsorbent products

Patentee:

SCA Hygiene Products Zeist B.V.

Opponent:

Paul Hartmann AG

Headword:

Superabsorbent products/SCA

Relevant legal provisions:

EPC Art. 56

Keyword:

"Main and auxiliary requests 1 to 4: inventive step (no) -
improvement (yes) - obvious solution - no deterrent teaching
in the art"

Decisions cited:

-

Catchword:

-



Case Number: T 0518/07 - 3.3.10

D E C I S I O N
of the Technical Board of Appeal 3.3.10
of 14 July 2009

Appellant: Paul Hartmann AG
(Opponent) Paul-Hartmann-Strasse 12
D-89522 Heidenheim (DE)

Representative: Friz, Oliver
Dreiss Patentanwälte
Postfach 10 37 62
D-70032 Stuttgart (DE)

Respondent: SCA Hygiene Products Zeist B.V.
(Patent Proprietor) P.O. Box 360
NL-3700 AJ Zeist (NL)

Representative: Mannaerts, Jaap
Nederlandsch Octrooibureau
Postbus 29720
NL-2502 LS Den Haag (NL)

Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
2 February 2007 concerning maintenance of
European patent No. 1225926 in amended form.

Composition of the Board:

Chairman: R. Freimuth
Members: J. Mercey
D. S. Rogers

Summary of Facts and Submissions

I. The Appellant (Opponent) lodged an appeal on 28 March 2007 against the interlocutory decision of the Opposition Division posted on 2 February 2007 which found that European patent No. 1 225 926 in amended form met the requirements of the EPC.

II. Notice of Opposition had been filed by the Appellant requesting revocation of the patent as granted in its entirety on the grounds of lack of novelty and inventive step (Article 100(a) EPC). *Inter alia* the following documents were submitted in opposition proceedings:

(1) EP-B-316 518 and

(7) DE-A-43 33 056.

III. The Opposition Division held that the subject-matter of the then pending main request and first auxiliary request did not involve an inventive step over documents (1) and (7), whereas the subject-matter of the then pending second auxiliary request was inventive thereover, there being a prejudice in document (1) against using citric acid as an alkali-neutralising agent, document (1) teaching the use of only partially neutralised citric acid. Claim 1 of the second auxiliary request read as follows:

"A superabsorbent article having improved odour control and microbial control, comprising a liquid-impervious back layer, a liquid-absorbing intermediate layer containing a surface-crosslinked, partially neutralised, acidic hydrophilic polymer, in which the acidic polymer

has a degree of neutralisation of at least 50%, and a liquid-pervious, non-absorbing top layer, characterised in that an alkali-neutralising agent is evenly distributed in said absorbing intermediate layer, and said absorbing layer, after humidification with neutral water, has a pH of 5.6 or lower, wherein the alkali neutralising agent is an organic acid selected from maleic, fumaric, oxalic, malonic, succinic, citric, gluconic, ascorbic, glycolic, glyceric, lactic, malic, tartaric and salicylic acid or an anhydride, lactide or lactone."

IV. With letter dated 12 June 2009, the Respondent (Proprietor of the patent) filed auxiliary requests 1 to 4.

Claim 1 of the auxiliary request 1 differed from claim 1 of the main request exclusively in that the absorbing layer, after humidification with neutral water, had a pH of between 3.5 and 5.0.

Claim 1 of the auxiliary request 2 differed from claim 1 of the main request exclusively in that the acidic polymer had a degree of neutralisation of between 60 and 80%.

Claim 1 of the auxiliary request 3 differed from claim 1 of the main request exclusively in that the alkali neutralising agent was present in an amount of 0.2 to 1 weight part per weight part of hydrophilic polymer.

The auxiliary request 4 differed from the main request exclusively in that claim 10 had been deleted.

V. The Appellant submitted that the subject-matter of claim 1 of the patent as maintained and of auxiliary request 4 was not inventive over document (1) in combination with document (7), and argued that either of these documents could be considered to represent the closest prior art. Document (1) disclosed a cellulose sanitary article containing a superabsorbent acidic polymer with both good antimicrobial and good absorption and retention capacity properties from which the article of claim 1 differed only in that the superabsorbent acidic polymer was surface-crosslinked and had a degree of neutralisation of at least 50%. However, document (7) already disclosed partially neutralised superabsorbent polymers for use in sanitary articles having improved swelling properties, wherein the polymer had a crosslinked surface and a degree of neutralisation of preferably 50 to 80%. It was thus obvious for the skilled person to replace the superabsorbent polymer of document (1), wherein the degree of neutralisation was not taught as being restricted to 45%, by a second generation superabsorbent according to document (7).

Essentially the same arguments applied to the subject-matter of claim 1 of auxiliary requests 1 to 3, the pH value of 5.0 of auxiliary request 1 being taught by document (1), the degree of neutralisation of 60 to 80% of auxiliary request 2 being taught by document (7), and document (1) teaching to add sufficient organic acid monomer to maintain the pH of the absorbent cellulose body between 5.0 and 6.0, such that the amount of acidic monomer specified in auxiliary request 3 was also obvious.

The argumentation in the decision under appeal that a prejudice existed in document (1) against using a monomeric organic polyacid such as citric acid as an alkali-neutralising agent was incorrect. The prejudice referred to in said document arose from the prior art cited therein, and document (1) itself overcame this prejudice by using swelling agents comprising partially neutralised acidic polymers such that a pH of between 5.0 and 6.0 ensued in the absorbent cellulose body when the latter was wetted with water, satisfactory absorption and retention capacity properties being thereby obtained. Furthermore, the statement in the decision under appeal that in document (1) only partially neutralised acids, such as partially neutralised citric acid, were disclosed as pH stabilising agents, was also incorrect, since these partially neutralised acids contained free acid, when, in the formula in claim 4, the degree of neutralisation was 0.8.

- VI. The Respondent submitted that the claimed subject-matter was inventive and started from document (1). In view of this prior art, the problem to be solved by the subject-matter of the invention was the provision of a superabsorbent article with improved absorption and liquid retention under load. It argued that document (1) did not overcome the prejudice of using citric acid for lowering the pH of the absorbing material to a desired value, but merely taught that the use of partially neutralised acid monomers as buffering agents was possible for maintaining the pH at the desired level in a product containing as the absorbing material a non-surface-crosslinked acidic polymer which had been

neutralised only to a limited extent, namely to 45%. Only under these conditions had the prejudice been shown to be misplaced, such that the skilled person would not have replaced the superabsorbent polymer of document (1) with a superabsorbent polymer according to document (7).

With regard to auxiliary request 2, the Respondent argued that since the degree of neutralisation of the acidic polymer of 60 to 80% in claim 1 thereof was further removed from the degree of neutralisation disclosed in document (1), the deterrent teaching of document (1) was even stronger than for the preceding requests. With regard to auxiliary request 3, the amount of monomeric organic polyacid specified in claim 1 thereof was higher than the amount disclosed in document (1) and was therefore not obvious.

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

The Respondent requested that the appeal be dismissed or, subsidiarily, the decision under appeal be set aside and the patent be maintained on the basis of any of auxiliary requests 1 to 4, all requests submitted on 12 June 2009.

VIII. Oral proceedings were held on 14 July 2009. At the end of the oral proceedings, the decision of the Board was announced.

Reasons for the Decision

1. The appeal is admissible.

Main request and auxiliary request 4

Claim 1 of each of these requests is identical and thus these two requests shall be dealt with together with regard to patentability of the subject-matter of claim 1 thereof.

2. *Amendments (Article 123(2) EPC)*

- 2.1 The subject-matter of claim 1 of each of these requests is based on granted claim 1 together with original claims 2, 3 and 7. The amendments thus made to claim 1 during the opposition proceedings do not extend beyond the content of the application as filed, such that the requirements of Article 123(2) EPC are satisfied.

- 2.2 These amendments bring about a restriction of the scope of claim 1 as granted, and therefore of the protection conferred thereby, which is in keeping with the requirements of Article 123(3) EPC.

3. *Inventive step*

- 3.1 According to the established jurisprudence of the Boards of Appeal it is necessary, in order to assess inventive step, to establish the closest state of the art, to determine in the light thereof the technical problem which the invention addresses and successfully solves, and to examine the obviousness of the claimed solution to this problem in view of the state of the

art. This "problem-solution approach" ensures assessing inventive step on an objective basis and avoids an *ex post facto* analysis.

- 3.2 The patent in suit is directed to a superabsorbent article having improved odour control and microbial control whilst retaining effective absorption, comprising a liquid-impervious back layer, a liquid pervious top layer and a liquid-absorbing intermediate layer, said absorbing layer, after humidification with neutral water, having a pH of 5.6 or lower, wherein the alkali-neutralising agent is a monomeric organic polyacid selected from *inter alia* citric acid. A similar article already belongs to the state of the art in that document (1) describes a cellulose sanitary article with both good absorption and retention capacity properties (cf. page 2, line 58 to page 3, line 2). This article (cf. claim 1) comprises a lower liquid-proof layer, an upper liquid-permeable cover and swelling agents which are polymeric organic acids, which are crosslinked (cf. claim 2). In the example of document (1) (cf. page 3, line 54 to page 4, line 12), the degree of neutralisation of the acidic polymer is 45%, as submitted by the Appellant and not disputed by the Respondent. The absorbent body may also contain monomeric organic polyacids such as citric acid, which are partially neutralised such that a pH between 5.0 and 6.0 ensues in the absorbent body when the latter is wetted with water; the amount of said partially neutralised monomeric organic polyacid to be added may be, for example, from 1 to 5 wt.% based on the absorbent body (cf. claims 3 and 4 and page 4, lines 20 to 44). When in the formula in claim 4 of document (1) the specified 0.8 equivalents of the ion

"Me" are present, then the partially neutralised citric acid necessarily contains free citric acid, which finding was no longer contested by the Respondent at the oral proceedings before the Board.

- 3.2.1 The Appellant argued at the oral proceedings before the Board that document (7) might also be considered to represent the closest state of the art. However, the Appellant did not provide any reasons as to why the disclosure of document (7) is of greater technical relevance to the claimed invention than that of document (1). Neither are such reasons apparent to the Board, particularly since document (7) does not disclose the pH range of the absorbent layer after humidification thereof with neutral water, nor any monomeric organic polyacids, nor are the top and bottom layers of the superabsorbent article explicitly disclosed therein.

Thus the Board considers that the sanitary article of document (1) represents the closest state of the art and, hence, takes it as the starting point when assessing inventive step.

- 3.3 In view of this state of the art, the problem underlying the patent in suit, as formulated by the Respondent at the oral proceedings, consists in the provision of a superabsorbent article with improved absorption and retention under load.

- 3.4 As a solution to this problem, the patent in suit proposes the superabsorbent article as defined in claim 1, wherein the acidic polymer is surface-

crosslinked and has a degree of neutralisation of at least 50%.

3.5 Since these two features are characteristics of so-called second generation superabsorbent polymers which are well-known to have these improved properties, it is credible that the problem underlying the patent in suit has been successfully solved. This finding was not contested by the Appellant.

3.6 Finally, it remains to be decided whether or not the proposed solution to the problem underlying the disputed patent is obvious in view of the cited prior art.

3.6.1 Second generation superabsorbent polymers, namely superabsorbent polymers which have a crosslinked surface and are highly neutralised are well-known for use in sanitary articles, for example, from document (7) (cf. page 6, lines 6 to 8). Said document teaches a superabsorbent which is neutralised to the extent of 50 to 80% and is surface-crosslinked (cf. claims 1 and 5), and that said surface-crosslinking led to improved absorptivity and absorption rate under a simultaneously acting compression load (cf. page 6, lines 13 to 14). The person skilled in the art, seeking to provide an absorbent article having improved absorption and retention under load, would as a matter of course turn his attention to such second generation superabsorbent polymers as described, for example, in document (7).

3.6.2 The Board concludes from the above that document (7) gives a clear incentive on how to solve the problem underlying the patent in suit of providing a

superabsorbent article having improved absorption and retention under load (cf. point 3.3 *supra*), namely by employing a surface-crosslinked polymer having a degree of neutralisation of at least 50%. Thus by combining the teachings of documents (1) and (7), the person skilled in the art would arrive at the solution proposed by the patent in suit without exercising any inventive ingenuity.

3.6.3 The Respondent submitted that there was a teaching in document (1) which would have deterred the skilled person from combining its teaching with that of document (7). More particularly, document (1) taught against using citric acid as an alkali-neutralising agent, since its addition to known absorbent materials led to a reduction in the liquid absorption capability thereof (cf. page 2, lines 31 to 34), document (1) teaching that citric acid may only be added to "certain" synthetic absorbents under specific conditions (cf. page 2, line 56 to page 3, line 1). The skilled person would thus not have treated the superabsorbents of document (7) with citric acid.

However, firstly, the "conditions" referred to in document (1) are that the absorbing layer, after wetting with water, should have a pH of 5.0 to 6.0, i.e. they overlap with those defined in claim 1 of the patent in suit, wherein the pH should be 5.6 or lower, such that at least in the range of overlap the conditions are the same, thus providing no deterrent to the skilled person from working in this area. Secondly, the "certain" absorbents of document (1) are in fact very similar to those of document (7) and thus also of claim 1 of the patent in suit, since the respective

superabsorbent polymers are synthesised from the same monomers (cf. document (7), page 5, lines 26 to 36 and document (1), page 3, lines 10 to 16 and 55), the same crosslinking agents (cf. document (7), page 5, lines 37 to 41 and document (1), page 3, lines 7 to 8 and 58), for example, from acrylic acid as monomer and trimethylolpropane triacrylate as crosslinking agent, the only difference being that the superabsorbent polymers of document (1) are not surface-crosslinked. Furthermore, the specific superabsorbent polymers described in document (1) are referred to therein merely as those which have been found to be especially useful (cf. page 3, line 3); the teaching of document (1) is not, however, restricted to these polymers. Nor is the degree of neutralisation of the acidic polymer in document (1) restricted to 45% as in the single example therein, but embraces any partially neutralised polymeric acids, so long that upon wetting with water a pH of 5.0 to 6.0 is achieved.

In addition, the deterrent against using citric acid apparently taught by document (1) existed before the filing of said patent application and was indeed already overcome by document (1) itself, which teaches (cf. page 2, line 54 to page 3, line 1) that in "numerous" cases, namely when the superabsorbent polymer is partially neutralised such that upon wetting with water a pH of 5.0 to 6.0 is achieved, the existing "prejudice" had been shown to be misplaced.

The Board thus comes to the conclusion that there is no deterrent in document (1) from using a superabsorbent polymer of the type taught by document (7).

3.7 Therefore, in the Board's judgement, the subject-matter of claim 1 of the main request and of auxiliary request 4 represents an obvious solution to the problem underlying the patent in suit and does not involve an inventive step.

4. As a result, the Respondent's main request and auxiliary request 4 are not allowable as the subject-matter of claim 1 thereof lacks inventive step pursuant to Article 56 EPC.

Auxiliary request 1

5. *Amendments (Article 123 EPC)*

5.1 Claim 1 of auxiliary request 1 has been amended *vis-à-vis* claim 1 of the main request by restriction of the pH of the absorbing layer after humidification with neutral water to between 3.5 and 5.0. Basis for this range is original claim 9.

5.2 Therefore, the amendment made to claim 1 of auxiliary request 1 does not generate subject-matter extending beyond the content of the application as filed or beyond the scope of the granted claims, such that the requirements of Article 123(2) and (3) EPC are satisfied.

6. *Inventive step*

6.1 Claim 1 according to auxiliary request 1 differs from claim 1 of the main request exclusively in that the pH range is restricted to 3.5 to 5.0.

6.2 However, the closest prior art document (1) already discloses (cf. point 3.2 *supra*) that the pH of the absorbing layer after wetting with water is between 5.0 and 6.0. Since this range includes, for the skilled person, the pH value of 5.0, the additional feature indicated in claim 1 of auxiliary request 1 is already described in the closest state of the art, and thus cannot contribute to inventiveness *vis-à-vis* the subject-matter of claim 1 of the main request. Therefore, the considerations having regard to the assessment of inventive step given in points 3.2 to 3.6 *supra* and the conclusion drawn in point 3.7 *supra* with respect to claim 1 of the main request and auxiliary request 4 apply also to claim 1 of auxiliary request 1. Thus auxiliary request 1 is not allowable for lack of inventive step pursuant to Article 56 EPC.

Auxiliary request 2

7. *Amendments (Article 123 EPC)*

7.1 Claim 1 of auxiliary request 2 has been amended *vis-à-vis* claim 1 of the main request by restriction of the degree of neutralisation of the acidic polymer to between 60 and 80%. Basis for this range is original claim 7.

7.2 Therefore, the amendment made to claim 1 of auxiliary request 2 does not generate subject-matter extending beyond the content of the application as filed or beyond the scope of the granted claims, such that the requirements of Article 123(2) and (3) EPC are satisfied.

8. *Inventive step*

8.1 Claim 1 according to auxiliary request 2 differs from claim 1 of the main request exclusively in that the degree of neutralisation of the acidic polymer is restricted to between 60 and 80%.

8.2 However, since document (7) teaches that a degree of neutralisation of the acidic polymer of 50 to 80% is especially preferred (cf. page 5, lines 30 to 32 and claim 5), this degree of neutralisation cannot contribute to inventiveness *vis-à-vis* the subject-matter of claim 1 of the main request. Therefore, the considerations having regard to the assessment of inventive step given in points 3.2 to 3.6 *supra* and the conclusion drawn in point 3.7 *supra* with respect to claim 1 of the main request apply also to claim 1 of auxiliary request 2, i.e. the subject-matter thereof is obvious and does not involve an inventive step.

8.3 The Respondent argued that since the degree of neutralisation of the acidic polymer of 60 to 80% specified in claim 1 was even further removed, *vis-à-vis* the main request, from the degree of neutralisation of 45% specifically disclosed in document (1), the deterrent teaching of document (1), namely to use only certain superabsorbent polymers under specific conditions, was even stronger than for the subject-matter of the preceding requests.

However, the Board has already established (cf. point 3.6.3 *supra*) that no such deterrent existed and that the skilled person, seeking to provide a

superabsorbent article having improved absorption and retention under load, would have combined the teaching of document (1) with that of document (7).

- 8.4 Thus, auxiliary request 2 is also not allowable for lack of inventive step pursuant to Article 56 EPC.

Auxiliary request 3

9. *Amendments (Article 123 EPC)*

- 9.1 Claim 1 of auxiliary request 3 has been amended *vis-à-vis* claim 1 of the main request in that the alkali neutralising agent is present in an amount of 0.2 to 1 weight part per weight part of hydrophilic polymer. Basis for this amendment is original claim 4.

- 9.2 Therefore, the amendment made to claim 1 of auxiliary request 3 does not generate subject-matter extending beyond the content of the application as filed or beyond the scope of the granted claims, such that the requirements of Article 123(2) and (3) EPC are satisfied.

10. *Inventive step*

- 10.1 Claim 1 according to auxiliary request 3 differs from claim 1 of the main request exclusively in that the alkali neutralising agent, namely the monomeric organic polyacid, is specified as being present in an amount of 0.2 to 1 weight part per weight part of hydrophilic polymer.

10.2 However, document (1) teaches (cf. page 4, lines 21 to 24) that the monomeric organic polyacid should be partially neutralised in such a manner that when the superabsorbent polymer is wetted with water, a pH of 5.0 to 6.0 is achieved. The skilled person, when combining the teachings of documents (1) and (7), would thus add as much monomeric organic polyacid to the superabsorbent polymer as is necessary in order to achieve the desired pH, no unexpected effect having been shown to be associated with the absolute weight range of the acid defined in claim 1 of auxiliary request 3.

10.3 The Respondent argued that in view of the fact that the amount of monomeric organic polyacid specified in claim 1 was higher than the absolute amount disclosed in document (1) (cf. page 4, line 44), a superabsorbent polymer containing such higher amounts was not suggested by document (1).

However, the absolute amount of monomeric organic polyacid disclosed on page 4 of document (1) is merely illustrative and not restrictive. In the same paragraph, a functional definition of the amount of free acid to be added is given (cf. point 10.2 *supra*) from which the skilled person would derive routinely the absolute amount of acid needed to be added in order to achieve the desired pH value, without exercising inventive ingenuity. Thus it would have been obvious to the skilled person that if the superabsorbent polymer in the article of document (1) were to be replaced with a more highly neutralised superabsorbent polymer, such as that according to document (7), the addition of more

free monomeric organic polyacid in order to achieve a pH of between 5.0 and 6.0 would be necessary.

10.4 Thus, auxiliary request 3 is also not allowable for lack of inventive step pursuant to Article 56 EPC.

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