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**D E C I S I O N**  
**of 3 December 1997**

**Case Number:** T 0895/93 - 3.2.2

**Application Number:** 87303994.5

**Publication Number:** 0245074

**IPC:** A61F 13/15

**Language of the proceedings:** EN

**Title of invention:**  
Absorbent article

**Patentee:**  
Kao Corporation

**Opponent:**  
Mölnlycke AB

**Headword:**  
-

**Relevant legal provisions:**  
EPC Art. 54, 56, 114(2)

**Keyword:**  
"Novelty (yes)"  
"Inventive step (no)"  
"Late submitted material - documents admitted (yes)"

**Decisions cited:**  
G 0010/91, T 0227/88, T 0511/92, T 0465/92, T 1002/92

**Catchword:**  
-



Case Number: T 0895/93 - 3.2.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.2  
of 3 December 1997

**Appellant:** Mölnlycke AB  
(Opponent) S-405 03 Göteborg (SE)

**Representative:** Hammond, Andrew  
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**Respondent:** Kao Corporation  
(Proprietor of the patent) 14-10, Nihonbashi Kayabacho 1-chome  
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**Representative:** Bannerman, David Gardner  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 11 August 1993  
rejecting the opposition filed against European  
patent No. 0 245 074 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** H. Seidenschwarz  
**Members:** M. Bidet  
C. Holtz

## Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal received on 19 October 1993 against the decision of the opposition division dispatched on 11 August 1993 rejecting the opposition against the patent No. 0 245 074. The appeal fee was paid on 19 October 1993 and the statement of grounds of appeal received on 13 December 1993.

The reason given for the decision was that the grounds for opposition mentioned in Article 100(a) EPC did not prejudice the maintenance of the patent unamended having regard inter alia to the following documents

D2: DE-A-3 217 837

D3: US-A-4 240 416

II. During the written procedure before the Board in response to a letter of the respondent (patentee), the appellant filed the following new documents of significance for the appeal:

D5: GB-A-2 085 358

D6: US-A-4 214 582

III. Oral proceedings were held on 3 December 1997 during which the respondent filed a new Claim 1 with the following wording:

"An absorbent article, having at least one surface formed by a non-woven fabric which comprises

- (1) a surface layer comprising 60 to 100% by weight of first fibers having a hydrophilic surface portion and a hydrophobic core portion and from 40 to zero % by weight of second fibers which are hydrophilic

at least on the surface thereof, wherein the hydrophilic property of the surface layer is reduced by the passage of water, and

- (2) at least one back layer comprising from zero to 50 % by weight of said first fibers and from 100 to 50% by weight of said second fibers, said second fibers having a greater surface hydrophilic property than said first fibers after having been wetted."
- (i) The appellant requested that the decision under appeal be set aside and the patent be revoked and that the appeal fee be reimbursed, alternatively in case the Board would contemplate maintaining the patent in any form, that the case be remitted to the first instance for further prosecution.
- (ii) The respondent requested that the appeal be dismissed and the patent be maintained on the basis of amended Claim 1 as submitted in the oral proceedings.

IV. The parties have argued essentially as follows:

(i) The appellant

- The subject-matter of Claim 1 was not novel with regard to the absorbent articles disclosed by each of document D5, document D6 or document D2 or at least did not involve an inventive step with regard to the teachings derivable of these documents. According to the disclosure of D5 in which the first fibers were preponderantly hydrophobic and the second fibres were hydrophilic in the surface layer and back layer of the absorbent article, the treatment of the surface layer with the surface active agent

resulted in surface of the first fibres rendered hydrophilic. Furthermore, it was well known to the skilled person that the hydrophilic property obtained by such treatment at the surface of fibres was not permanent during use of the absorbent article - as reported in the description (page 2, lines 27 to 34 - simply because the surface active agent was washed out of the material. Therefore the feature that the hydrophilic property of the surface layer was reduced by the passage of water was implicitly disclosed. A comparison of the figures of Tables 1 and 2 pages 5 and 6 and page 3, page 7, clearly supported these arguments, inter alia in view of Examples II or III which disclosed fibres in the surface and back layers having a hydrophobic core portion and a hydrophilic portion. The same reasoning applied to the teaching of the absorbent articles disclosed in documents D2 and D6.

- At least Claim 1 lacked inventive step since on the basis of document D5 as the most relevant document, the skilled person finding that the properties of the absorbent articles were not satisfying with regard to the liquid flow at the surface and the liquid return to the surface layer would apply directly the teaching of document D6 dealing with this problem and which proposed to treat the surface of the hydrophobic first fibres with a surface active agent.
- The appellant had been denied the opportunity to comment on the submissions made by the patentee during the opposition procedure before the first instance. None of these submissions were sent to the appellant's representative. Although it was true that the name of the representative was not

noted in the notice of opposition, the number of the general power of attorney was given. Therefore, the responsible organ of the EPO was obliged to point out the deficiency and give the appellant the opportunity to supply the missing name. The failure to do so justified reimbursement of the appeal fee.

(ii) The respondent:

- It objected to novelty being discussed, since this ground had not been invoked in the notice of opposition.
- The argument that the absorbent article disclosed in document D5 was treated by a surfactant in order to modify the hydrophilic property of the first fibres was contested, since it was stated that the surfactant gave stability of the binder emulsion. The first fibres in document D5 did not comprise a hydrophilic surface portion and a hydrophobic core portion. Furthermore, there was no disclosure in the prior art that the hydrophilic property of the surface layer was reduced by the passage of water as claimed in the patent nor was it obvious to the skilled person.
- As to the surgical dressing disclosed in document D6, the fibres used in the layers were hydrophobic without making any difference between the core portion and the surface portion. The upper layer was less hydrophilic and the lower layer was more hydrophilic. The features relating to the treatment with a wetting agent and relating to the loss of hydrophilic property were not disclosed in this document.

- The case law required that a feature in a document should be clearly and unambiguously disclosed from this document in order for it to deprive an invention of novelty. This requirement was not fulfilled with regard to the feature of rendering the surface of hydrophobic first fibres hydrophilic and the fact that the surfactant unambiguously rendered these surfaces hydrophilic. With regard to document D2 the fact that it might be possible to make the fibre hydrophobic and to adjust a value (see column 2, lines 4 to 6) did not necessarily mean that the fibres were treated to be hydrophilic.
  
- Furthermore, it was not true that the subject-matter of Claim 1 lacked inventive step more particularly with regard to the combination of the teachings derivable from documents D5 and D6, taking due account of the numerous features of Claim 1 being new with regard to document D5 as mentioned above.

### **Reasons for the Decision**

1. The appeal is admissible.
  
2. *Amendment*

Claim 1 recites all the features of Claim 1 of the patent as granted in which the wording "wherein the hydrophilic property of the surface layer is reduced by the passage of water" has been added after the words "at least on the surface layer thereof," at the end of feature (1). This new feature finds its support in the patent application as originally filed at page 6, line 20 to page 7, line 2 and in the patent specification at page 3, lines 10 to 14. Since the

amendment is supported by the description as originally filed and also reduces the scope of the protection, there is no objection under Article 123(2) or (3) EPC to the amended Claim 1.

3. *Late-filed documents*

Documents D5 and D6 were submitted for the first time in the appeal procedure. In view of these documents the respondent filed an amended Claim 1 and did not object to the admissibility of these documents. Since they are prima facie highly relevant, and since there was no objection against these documents, they are admissible in accordance with decision T 1002/92 (OJ 1995, 605).

4. *The invention*

According to the description of the invention the most important performances required for the non-woven fabrics of absorbent article comprising a surface layer and an absorbing back layer are first the restriction of flow of liquid along the surface layer where the liquid is discharged, and secondly a lower rate of liquid returning from the absorbing back layer to the skin of the wearer, in other words to the surface layer. The known structures were considered not sufficiently efficient to satisfy both the reduction of liquid flow and the low liquid return (see patent specification, page 2, lines 9 to 12 and lines 44 to 47).



These requirements are satisfied according to the invention by the following features:

- (1) (a) the surface layer comprises predominant first fibers (from 60 to 100%) having a hydrophilic surface portion and a hydrophobic core portion, the remaining part being made of second fibers which are hydrophilic at least on their surface,
- (b) the hydrophilic property of the surface layer is reduced by the passage of water,
- (2) (a) the back layer comprises a mixture of the first and the second fibers, in which the second fibers - being hydrophilic at least at the surface - are predominant (from 50 to 100%),
- (b) and these second fibres have a greater surface hydrophilic property than the first fibres after having been wetted.

With the hydrophilic surface portion of the preponderant hydrophobic first fibres of the surface layer, the liquid penetrates rapidly through the surface layer without being absorbed in the core portion. The liquid has therefore a low tendency to flow around on the surface. Once transferred to the back layer the liquid is retained by the high capacity of absorption of the second fibres and liquid return from the back layer to the surface layer is reduced by the first fibers having a weakened hydrophilic property at the surface portion in association to an hydrophobic property in the core portion.

According to a preferred embodiment, the surface layer consists of 100% of first fibers and the back layer consists of 100% of the second fibers. The first fibers are formed from inherently hydrophobic fibers which

have been treated by a surface active agent in order to render the surface hydrophilic and the second fibres are hydrophilic fibres or have been formed by rendering the surfaces of inherently hydrophobic fibres hydrophilic (see patent specification, page 2, lines 54 to 57 and page 3, lines 46 to 49).

5. *Novelty*

5.1 Contrary to the respondent's submissions, any patentability criteria may be examined at any stage of the proceedings before the EPO, as far as amended claims are concerned, which is the case in the present appeal (see for example T 227/88 OJ EPO 1990, 292 and G 10/91, OJ EPO 1993, 420). Novelty is therefore at issue here.

According to the consistent case law of the Boards of Appeal a prior art document anticipates the novelty of any claimed subject-matter derivable directly and unambiguously from that document including any features implicit to a person skilled - in the art in what is expressly mentioned in the document - where the importance of the words "derivable directly and unambiguously" was stressed (see decision T 0511/92 unpublished or T 0465/92, OJ 1996, 32).

5.2 Applying this principle when deciding the question of novelty of the subject-matter of Claim 1, the consideration of the disclosure of the documents D5, D6 and D2 gives the following results:

5.2.1 Document D5 (see page 1, lines 41 to 47; page 2, lines 16 to 27 and lines 32 to 37; Claim 1) discloses an absorbent article having at least one surface formed by a non-woven fabric which comprises a surface layer made preponderantly - from 80% to 100% by weight - of hydrophobic first fibres and a back layer comprising a

mixture of the first and second fibers, in which the second fibers - being hydrophilic - are preponderant (from 40 to 80% by weight). Moreover, the layers contain adhesive bonding materials containing a surface active agent. Nevertheless, this surface active agent has the function of giving stability of the binder emulsion.

From this, the skilled person cannot unambiguously deduce that the function of the agent is also to render the hydrophobic first fibers of the surface layer hydrophilic at their surfaces.

As far as the examples I, II and III in document D5 are concerned the values are taken from tables 1, 2 and 3 and used for comparison with the subject-matter of Claim 1 in suit, which values - in the Board's opinion - are obtained from **parameters** (for example denier, length, weight, binder quantity) and **conditions** which are different from those described in the patent in suit (see patent specification, for example page 6). Therefore, it cannot be considered that the conclusions based on such "comparison" are unambiguously and clearly disclosed from document D5, even taking due account of the implicit information for the skilled reader.

- 5.2.2 The non-woven fabric for absorbent article according to document D6 (see column 2, line 66 to page 3, line 20; column 4, lines 1 to 6; Claim 1) comprises also a surface layer and a back layer. The surface layer is made of 100% of hydrophobic (polyester) first fibres the surface of which being treated with a wetting agent to render them more hydrophilic. The back layer comprises a blend of hydrophobic first fibres and predominant hydrophilic second fibres (rayon fibres up to 99%).

The surface layer is treated to be more hydrophilic with the view to improving the fluid transfer rate and adsorbent capacity of the non-woven fabric. Due to the difference in the absorbent properties of the two fibers which results in a absorbent article, it is inferred that the second fibres have a greater surface hydrophilic property than the first fibers after having been wetted.

Nevertheless, there is no disclosure concerning the distinguishing feature between the core portion and the surface portion of the second fibres and the feature that the hydrophilic property of the surface layer is reduced by the passage of water.

5.2.3 In the state of the art disclosed in document D2, reference is made to different known teachings (see column 1, line 67 to column 2, line 29). According to a first one, the constituent fibres are rendered as hydrophobic as possible and the wet characteristics of the surface of the fibres are adjusted by using a surface active agent in order to prevent the fluid held in the absorbing layer from returning to the skin of the wearer. In the second teaching convexities and concavities are formed on a non-woven fabric to reduce the area falling in contact with the skin whereby the wet-back phenomenon is controlled. In the next mentioned known method a layer made of rayon fibres - having a certain compressive elasticity - is formed between the non-woven fabric surface material and the absorbing layer and was proposed to improve the control of the above wet-back phenomenon. By the last cited method other fibres such PP or PET fibres have been proposed instead of rayon fibres. None of these known methods results in an article which has the features as specified in Claim 1 of the patent in suit.

5.3 From the above it results that the disclosure of these prior art documents are too unspecific to amount to an unambiguous disclosure of the subject-matter according to Claim 1.

The subject-matter of Claim 1 is therefore considered to be new within the meaning of Article 54(2) EPC.

6. *Inventive step*

On the question whether or not the cited prior art would suggest an absorbent article, having at least one surface formed by a non-woven fabric which may comprise - according to Claim 1 of the patent in suit -

- (1) a surface layer comprising 100% by weight of first fibres having a hydrophilic surface portion and a hydrophobic core portion, wherein the hydrophilic property of the surface layer is reduced by the passage of water, and
- (2) one back layer comprising 20% by weight of the first fibres and 80% by weight of the second fibres, which have a greater surface hydrophilic property than the first fibres after having been wetted,

the following should be observed:

6.1 According to the description of the patent in suit (see patent specification, page 3, lines 8 to 14, 46 to 49), it is necessary that the surface of the fibres constituting the non-woven fabric is sufficiently hydrophilic to satisfy the requirement of high rate absorption. The method of applying the surface hydrophilic treatment to the hydrophobic fibres includes the use of a surface active agent. However, since the liquid once absorbed in the absorbing layer

is liable to return to the outside through the non-woven fabric if the hydrophilic property of the surfaces of the fibres is excessively high, it is necessary that at least the surface layer of the non-woven fabric to be in contact with the skin has a surface hydrophilic property that is somewhat reduced by the passage of water.

6.2 From point 5.2 above follows that document D5 represents the prior art coming closest to the subject-matter of Claim 1, since it discloses an absorbent article, having at least one surface formed by a non-woven fabric which may comprise - according to Claim 1

(1) a surface layer comprising 100% by weight of hydrophobic first fibres, and

(2) one back layer comprising 20% by weight of hydrophobic first fibres and 80% by weight of hydrophilic first fibres.

6.3 Document D6 (see column 2, line 66 to column 3, line 5) discloses the general idea of treating the surface of hydrophobic fibres with a wetting agent to render them more hydrophilic, thus improving the fluid transfer rate and absorbent capacity of a non-woven fabric. Therefore, if desired to improve the liquid transfer rate of the surface layer of the absorbent article as known from document D5, it is obvious to the skilled person to apply the known teaching with corresponding effect to the fibres of the surface layer of the non-woven fabric being the surface of an absorbent article.

6.4 Having regard to the item in Claim 1 that the surface hydrophilic property of the surface layer is reduced by the passage of water after the first fibres having been wetted, it has to be regarded as an evident direct

consequence of the treatment of the hydrophobic fibres with a surface active agent, since the durability to water of this agent is insufficient, thus reducing the hydrophilic property of the surface portion - as already mentioned in the description of the patent in suit (see page 2, lines 28 to 34).

6.5 Consequently, the subject-matter of Claim 1 is directly derivable from a combination of the teachings of documents D5 and D6, ie. the subject-matter of Claim 1 does not involve an inventive step as required by Article 56 EPC.

7. The Board notes that the notice of opposition does not contain any data regarding the appointment of a representative other than a number, 5859, nor does the opposition file contain any subsequent further information. The authorisation number given in the notice of opposition refers only to employee(s) of the opponent. Accordingly, the EPO had to send any communication to the appellant itself. The Board can therefore not agree that any procedure violation occurred. There is consequently no ground for reimbursement of the appeal fee.

**Order**

**For these reasons it is decided that:**

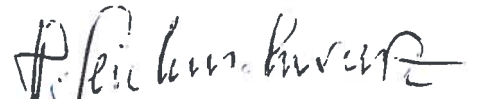
1. The decision under appeal is set aside.
2. The patent is revoked.
3. The request for reimbursement of the appeal fee is refused.

The Registrar:



S. Fabiani

The Chairman:



H. Seidenschwarz