

Internal distribution code:

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

**Datasheet for the decision
of 19 February 2008**

Case Number: T 1910/06 - 3.2.06

Application Number: 88117256.3

Publication Number: 0312118

IPC: A61F 13/15

Language of the proceedings: EN

Title of invention:
Absorbent article

Patentee:
KIMBERLY-CLARK WORLDWIDE, INC.

Opponent:
The Procter & Gamble Company

Headword:
-

Relevant legal provisions:
EPC Art. 83, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Sufficiency (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 1910/06 - 3.2.06

DECISION
of the Technical Board of Appeal 3.2.06
of 19 February 2008

Appellant:
(Opponent)

The Procter & Gamble Company
One Procter & Gamble Plaza
Cincinnati
Ohio 45202 (US)

Representative:

Samuels, Lucy Alice
Gill Jennings & Every LLP
Broadgate House
7 Eldon Street
London EC2M 7LH (GB)

Respondent:
(Patent Proprietor)

KIMBERLY-CLARK WORLDWIDE, INC.
401 North Lake Street
Neenah
Wisconsin 54956 (US)

Representative:

Davies, Christopher Robert
Frank B. Dehn & Co.
St Bride's House
10 Salisbury Square
London EC4Y 8JD (GB)

Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted
17 October 2006 concerning maintenance of
European patent No. 0312118 in amended form.

Composition of the Board:

Chairman: P. Alting Van Geusau
Members: G. de Crignis
K. Garnett

Summary of Facts and Submissions

- I. European Patent No. 0 312 118, granted on application Nr. 88 117 256.3, was maintained in amended form by decision of the opposition division posted on 17 October 2006.
- II. The opposition division held that the patent in suit disclosed the invention in a sufficiently clear and complete manner that a person skilled in the art would be able to carry it out. In particular it held that for thick layers, freezing and cutting them into thinner layers would be a conceivable method for averaging the pore size of the complete structure. The subject-matter of claim 1 in accordance with the patent proprietor's main request was also considered to be novel (Article 54 EPC) and to involve an inventive step (Article 56 EPC) with regard to the state of the art disclosed in

D1 US-A-4 360 022
D2 US-A-3 371 667
D3 EP-A-0 165 807
D4 US-A-4 480 000
D5 US-A-4 338 371
D6 US-A-3 987 792
D7 EP-A-0 212 618
D8 US-A-4 699 619
D9 US-A-4 397 644
D10 US-A-4 681 578.

in particular as no document disclosed or hinted at the claimed pore size gradient.

III. The appellant (opponent) filed a notice of appeal against this decision with its letter of 18 December 2006, received on 18 December, and paid the appeal fee on 15 December 2006. On 27 February 2007 the statement of grounds of appeal was filed and the objections with regard to Articles 100(b) and 56 EPC were reiterated.

IV. With its letter of 8 October 2007 the respondent (patent proprietor) submitted revised requests (new main and 1st to 4th auxiliary requests).

V. In a communication dated 29 October 2007 accompanying the summons to oral proceedings, the Board commented on the issue of sufficiency with regard to the determination of the effective average pore size of the layers.

The appellant withdrew the request for oral proceedings with its letter of 4 February 2008 and announced that it would not be represented at the oral proceedings, but maintained its requests for setting aside the decision under appeal and for revocation of the patent.

With its letter dated 8 February 2008, the respondent filed amended first to fifth auxiliary requests.

VI. Oral proceedings were held on 19 February 2008 without the attendance of the appellant. The respondent requested that the decision under appeal be set aside and that the European patent be maintained on the basis of the main request filed during the oral proceedings, this request being based on the third auxiliary request filed with its letter dated 8 February 2008.

Claim 1 according to the main request reads:

"An absorbent article (10, 40) comprising an absorbent body, (16) composed of substantially hydrophilic material which is capable of absorbing liquid; and a fibrous, liquid permeable topsheet layer (14) *having a thickness of 0.02 to 0.043 cm measured under a restraining pressure of 0.096 kPa (0.04 psi)* superposed in facing relation with said absorbent body; and a liquid permeable transport layer (18) which is located between said topsheet layer (14) and said absorbent body and composed of a fibrous material *wherein said transport layer (18) is of substantially uniform density and has a substantially uniform, nonlayered structure through the thickness thereof,* wherein said absorbent body (16) includes a hydrophilic tissue wrapsheet (30) which has a portion thereof located on a body-side of said absorbent body (16) adjacent said transport layer (18), said body-side wrapsheet (30) having an effective average pore size therein and being configured to provide a wicking layer for rapidly distributing liquid into the fibrous material of said absorbent body, and said topsheet layer (14) has a selected effective average pore size therein; characterized in that said liquid transport layer (18) is composed of a fibrous material which is less hydrophilic than said absorbent body (16); that fibrous material of said transport layer (18) is composed of fibers having a denier within the range of 1.5 - 6;

and that said transport layer (18) is constructed with an effective average pore size therein which is smaller than said topsheet layer (14) pore size and larger than said wrapsheet (30) pore size, *the effective average pore sizes being determined by the scanning electron microscope and image analysis technique described herein.*"

(The amendments with respect to claim 1 as granted are presented in italics.)

VII. During the written proceedings, essentially the following submissions were relied upon by the appellant:

There was no sufficient disclosure enabling the skilled person to obtain the claimed absorbent article (Article 83 EPC). In particular no method was given to determine the pore size in layers having a thickness greater than 0.051 cm, as for such layers the image analysis technique referred to in the patent in suit was not suitable. Hence, the skilled person would not be able to measure the effective average pore size for all claimed layers/articles.

The subject-matter of claim 1 lacked an inventive step. When taking D8 as closest prior art, the benefit of varying the pore size from one layer to the next in order to maximise capillary effects was disclosed (col. 2, l. 9 to 19). Such a concept should be considered as common general knowledge, something that was also supported by D9.

Although D8 did not disclose the topsheet having a pore size larger than that of the top underlying layer, this would, however, be obvious when combining its teaching

with the disclosure of D6, which disclosed perforated topsheets.

VIII. In support of its requests, the respondent essentially relied upon the following submissions:

The patent in suit was sufficiently disclosed. Claim 1 specified that the effective average pore sizes were to be determined using the scanning electron microscope and image analysis technique. The skilled person would recognize that layers of uniform density and uniform, non-layered structures such as the claimed transport layer, as well as layers of up to 1 mm such as the claimed tissue wrapsheet, could be analyzed via this technique by applying it to both surfaces of such a layer. This was the case even for uniform layers having a thickness greater than 1 mm. In particular, the skilled person would understand that for uniform layers the effective average pore size at the surface would be representative of the effective average pore size as a whole, irrespective of the thickness. Considering the tissue wrapsheet, the skilled person would know immediately that its basis weight was low and its thickness never more than 1 mm. The disclosed method for determination of the effective average pore size was clearly suitable for the wrapsheet due to its implied thickness of less than 1 mm.

Concerning inventive step, D8 represented conceptually the closest prior art, whereas D1 represented structurally the closest prior art. Starting from D8, the object could have been to improve the efficiency of liquid uptake. None of the cited documents referred to such a concept of pore size reduction in the

acquisition layers. Therefore, the solution to the problem was not obvious and the subject-matter of claim 1 involved an inventive step.

Reasons for the Decision

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

When compared to the granted claim 1, current claim 1 defines additionally a specific test method for determining the effective average pore size of the relevant layers. This test method is disclosed on page 17, line 29 to page 18, line 33 of the originally filed application.

Claim 1 defines further the thickness of the topsheet with values of 0.02 to 0.043 cm when measured under a restraining pressure of 0.096 kPa. Support for this feature in combination with the other features of claim 1 is to be found on page 6, lines 28 to 31 of the originally filed application.

Claim 1 defines additionally the transport layer as being of substantially uniform density and having a substantially uniform, non-layered structure throughout its thickness. This is derived from page 10, lines 16 to 19 of the originally filed application.

The requirements of Article 123(2) EPC are thus met.

3. *Sufficiency*

3.1 In order to verify the claimed pore size gradient, the effective average pore size of the topsheet, the tissue wrapsheet and the transport layer have to be established. As disclosed in the patent in suit, a suitable technique for determining and measuring the effective average pore size of a thin layer of material employs a scanning electron microscope and image analysis. Thin layers are those having a thickness of not more than about 0.051 cm (page 7, l. 51 of the patent in suit).

3.2 Accordingly, the test method is suitable for determining the average pore size of the topsheet layer since its thickness is between 0.02 to 0.043 cm.

3.3 Concerning the tissue wrapsheet, the Board accepts the respondent's argument that such layers do not exceed a thickness of 1 mm and the basis weight of such tissue layers is low. The determination of the average pore size can thus also be done via the claimed test method because in a case where the layer exceeds the indicated upper limit of 0.051 cm, the method could be applied to both surfaces of the tissue. No evidence or arguments to the contrary were submitted by the appellant or are otherwise apparent.

3.4 Concerning the transport layer, no specific thickness is claimed. However, the respondent's argument is convincing and there is again no evidence that the test method is not suitable for such a layer of uniform density and uniform structure. The skilled person would immediately understand that the effective average pore

size could be measured at both surfaces and would be representative of the effective average pore size of the structure as a whole.

3.5 Therefore, the effective average pore size of all concerned layers can be determined according to the specified method. Hence, the absorbent article is defined in such a way that it can be obtained or verified by the skilled person without any undue difficulty. The requirements of Article 83 EPC are thus met.

4. *Prior art*

4.1 D1 refers to a sanitary napkin having a covering 6 (topsheet layer), a water-permeable layer 5 (transport layer) and an absorbent layer 4 (absorbent body). The covering (topsheet) consists of a nonwoven fabric or other highly water-permeable materials. The water-permeable layer 5 (transport layer) is made of hydrophobic fibres which may be joined together with a water-permeable binder. The absorbent pad consists of sheets comprising superabsorbent polymers and of sheets consisting of absorbent paper. According to one embodiment, tissue sheets (reference numbers 32 and 33 in Figure 4) can be present and hold a superabsorbent mixture between them. When taking into account the disclosed materials, the water-permeable layer (5) will have an average pore size which is larger than that of the tissue sheets. The pore size of the covering 6 (topsheet) is not disclosed.

4.2 D8 discloses disposable absorbent articles (claim 1, Figures) which comprise an absorbent body (fluff layers

5 and 6) and a body-side liner 2 (topsheet). The fluff layers of the absorbent body include a first layer 5 of softwood fluff (higher pore size) and a second layer 6 of hardwood fluff (lower pore size). A tissue layer can be placed between these two layers of the absorbent body. The body-side liner 2 (topsheet) is disclosed as a pattern-bonded spunbond web of synthetic fibres but no pore size is specified. Alternative embodiments comprising superabsorbent material are disclosed as well. The superabsorbent material can be sandwiched between two higher density fluff components which replace the higher density fluff layer 6 or below a single higher density fluff layer. Furthermore, there is a transfer layer (transport layer) comprised of synthetic fibres which is integrally bonded to the body-side liner at spaced-apart sites (col. 6, l. 49 to 51). With respect to the transfer layer, reference is made in col. 6, l. 52 to D9, which discloses a thickness of this layer of 0.1 to 1.0 cm.

5. *Inventive step*

5.1 The closest prior art is represented either by D1 (when seen from a structural approach) or by D8 (when relying on a conceptual approach).

5.2 The subject-matter of claim 1 differs from the disclosure in both documents, D1 and D8, in that:

- the thickness of the topsheet is specified;
- claim 1 specifically refers to a transport layer of substantially uniform density and substantially uniform, non-layered structure through the thickness thereof;

- there is a pore size gradient decreasing in the direction topsheet layer to transport layer to wrapsheet, which is determined via the defined method.

The subject-matter of claim 1 differs further from the disclosure in D8 in that a tissue wrapsheet is specified for the fibrous absorbent body which covers at least a portion of the body-side thereof.

5.3 The problem to be solved by the claimed combination of features is to improve the efficiency of uptake of liquid. The problem is solved by the decrease in pore size in the absorbent article in the direction topsheet layer - transport layer - wrapsheet, in combination with the structural design of the absorbent article according to which there is:

- (a) a pore size gradient, having regard to the fact that each respective layer is essentially homogeneous and only one pore size is present in each layer;
- (b) a very thin top sheet of a defined thickness; and
- (c) a tissue wrapsheet for a fibrous absorbent body which contributes further to the efficiency of uptake of liquid.

5.4 Combination D1 with D8

It is not disputed that D1 does not disclose the pore size concept with respect to the acquisition layers. On the other hand D8 discloses the concept of differing pore sizes in the absorbent pad (hardwood/higher

density/small pore size and softwood/lower density/higher pore size). However, when starting from the absorbent article of D1 (absorbent sheets of highly absorbent material and of paper) and applying the disclosure of D8 this would still not lead to the claimed absorbent article having a pore size gradient in the acquisition layers but rather to an absorbent article having an absorbent body with a pore size gradient.

Furthermore, neither D1 nor D8 discloses the thickness or the pore size of the topsheet. Additionally, the claimed wrapping of a fibrous absorbent body in order to provide a further wicking layer for distributing liquid into the fibrous material of the absorbent body is not suggested either. The reference in D1 to a tissue wrapsheet concerns the enveloping of superabsorbent material and not the wrapping of fibrous layers.

Thus, the skilled person starting from D1 would not arrive without hindsight at the claimed absorbent article.

5.5 Combination D8 with D1

Nor would the skilled person arrive in an obvious manner at the absorbent article falling within the scope of claim 1 when starting from the disclosure of D8.

D8 discloses a gradually reduced pore size with respect to the layers of the absorbent body comprising a first layer of cellulosic fibres (lower density, softwood,

higher pore size) and a second layer of cellulosic fibres (higher density, hardwood, small pore size). D9, which is incorporated into D8, is evidence of the common general knowledge of the effect of a pore size gradient (D9, col. 1, l. 28 - 58) in terms of a capillary gradient within the absorbent layers and thus its teaching is consistent with the teaching of D8.

When combining the disclosure of D8/D9 with the disclosure of D1, again the average pore size of the absorbent core layers would be the issue. No suggestion as to the pore size distribution of the acquisition layer(s) is present. Therefore, the claimed combination of features is also not obvious from the combination of the features disclosed in D8 and D1.

5.6 Combination D8 with D6

D6 particularly aims to avoid rewet of the skin and to improve surface dryness. Accordingly, the disposable diaper disclosed therein is provided with a topsheet having a large number of small perforations together with an underlying spongy, resilient hydrophobic fibrous layer which when compressed is substantially impervious to fluids. Combining this concept (improved surface dryness) with the subject-matter of D8, the resilient hydrophobic layer and its contribution to surface dryness would be the issue. No suggestion as to changing the pore size distribution in accordance with D8 is present when considering the combination of these documents.

5.7 The submission of the appellant that the effect of a pore size gradient was well-known and formed part of the common general knowledge of the skilled person is not contradicted. However, this applies for the pore size gradient of the layers of the absorbent core. The suitability of this concept for the acquisition layers and its impact by way of improving efficient uptake of liquid is not derivable from the cited prior art. The contribution of the further defined features (thickness of the topsheet, uniform density and structure of the transport layer and tissue wrapsheet on the body-side of a fibrous absorbent body) to the conceptual idea of the patent in suit is also not suggested or disclosed in any cited document. Thus, the specific selection of the features of claim 1 to meet the desired object of the invention is not obvious and involves an inventive step (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 opposition division with the order to maintain the patent on the basis of the main request filed during the oral proceedings consisting of
 - (a) claims Nos. 1 - 18, as filed during the oral proceedings

 - (b) description, pages 2 - 11, as filed during the oral proceedings

 - (c) Figures, Nos. 1 - 4 as granted

The Registrar

The Chairman

M. Patin

P. Alting van Geusau