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**Datasheet for the decision
of 14 October 2008**

Case Number: T 0515/07 - 3.2.06

Application Number: 00915464.2

Publication Number: 1173128

IPC: A61F 13/15

Language of the proceedings: EN

Title of invention:

Disposable diaper

Patentee:

KAO CORPORATION

Opponent:

KIMBERLY-CLARK WORLDWIDE, INC.

Headword:

-

Relevant legal provisions:

EPC Art. 83, 56, 123(2)

RPBA Art. 13(1), (3)

Relevant legal provisions (EPC 1973):

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Keyword:

"Sufficiency (yes)"

"Inventive step (yes - after amendments)"

"Extension beyond the content of the application as filed
(auxiliary request 1)"

"Late-filed request (admitted)"

Decisions cited:

-

Catchword:

-



Case Number: T 0515/07 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 14 October 2008

Appellant: KAO CORPORATION
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Respondent: KIMBERLY-CLARK WORLDWIDE, INC.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 15 February 2007
revoking European patent No. 1173128 pursuant
to Article 102(1) EPC.

Composition of the Board:

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

Summary of Facts and Submissions

- I. European patent No. 1 173 128, granted on application No. 00 915 464.2, was revoked by the opposition division by decision announced during the oral proceedings on 25 January 2007 and posted on 15 February 2007.
- II. The opposition division found that the patent was disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC) and that the subject-matter of claim 1, which was identical as regards the main and the auxiliary requests, was novel (Article 54 EPC) over the cited prior art. However, the opposition division found that the subject matter of claim 1 did not involve an inventive step (Article 56 EPC), in particular as all the claimed parameters were directly or indirectly deducible from D1

WO-A-98/06364.

- III. By letter dated 20 March 2007 the appellant (patent proprietor) filed an appeal against the decision of the opposition division and on the same day paid the appeal fee. By letter dated 22 June 2007 the statement of grounds of appeal was filed, together with a main request to maintain the patent as granted, alternatively to maintain it on the basis of the auxiliary request submitted with the grounds of appeal. By letter dated 7 August 2007, a second auxiliary request was submitted.

IV. In a communication in preparation for the oral proceedings pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal dated 18 April 2008, the Board indicated that the main request did not appear to be allowable as neither a clear definition nor a determination method for the content of the fluff pulp of the absorbent member was disclosed. As regards the subject-matter of the claims it was noted that the finding of the opposition division with regard to lack of inventive step appeared to be correct.

With letter dated 30 September 2008 the respondent (opponent) announced that it would not be represented at the oral proceedings. Its single request was that the patent be revoked in its entirety.

V. Oral proceedings were held before the Board on 14 October 2008, during which the appellant requested that the decision under appeal be set aside and the patent be maintained as granted alternatively on the basis of the first auxiliary request filed with the grounds of appeal alternatively on the basis of the second auxiliary request filed during the oral proceedings.

Claim 1 according to the main request reads:

"A disposable diaper comprising a liquid permeable topsheet, a liquid impermeable backsheets, and a liquid retentive absorbent member interposed between said topsheet and said backsheets, characterized in that said disposable diaper has a product basis weight of 50 to 220 g/m², and a portion of said disposable diaper where said absorbent member is disposed comprises a part

having a rate of body fluid absorption of 3.0 g/s or more and a part having a saturated body fluid absorption of 75 g/100 cm² or more, and wherein said absorbent member has a fluff pulp content of 0 to 30% by weight."

Claim 1 of the auxiliary request I differs in that the final feature is changed to:

"wherein said absorbent member has a fluff pulp content of 0% by weight"

and in that it was further added:

"and wherein said absorbent member comprises a superabsorbent polymer A having a rate of absorption of 8g/30s/0.3g or more measured by the DW method and a superabsorbent polymer B having a rate of absorption of 5g/30s/0.3g or less measured by the DW method at a polymer A/polymer B weight ratio of 90/10 to 10/90."

The single claim of the auxiliary request II differs in that the test methods for the parameters have been introduced and further features with respect to the structure of the article and the amount of superabsorbent polymers are added and reads (additional features with respect to the main request in italics):

"A disposable diaper comprising a liquid permeable topsheet, a liquid impermeable backsheet, and a liquid retentive absorbent member interposed between said topsheet and said backsheet, characterized in that said disposable diaper has a product basis weight of 50 to 220 g/m² *being measured with the method as described in paragraph [0021]*, and a portion of said disposable diaper where said absorbent member is disposed comprises a part having a rate of body fluid absorption

of 3.0 g/s or more being measured with the method as described in paragraph [0022], and a part having a saturated body fluid absorption of 75 g/100 cm² or more being measured with the method as described in paragraph [0023], wherein said absorbent member has a fluff pulp content of 0% by weight, wherein said absorbent member has a urination point portion which corresponds to the urination point of a wearer, and said part having a rate of body fluid absorption of 3.0 g/sec or more and said part having a saturated body fluid absorption of 75 g/100 cm² or more are located in said urination point portion, and wherein said absorbent member comprises a superabsorbent polymer A having a rate of absorption of 8g/30s/0.3g or more measured by the DW method and a superabsorbent polymer B having a rate of absorption of 5g/30s/0.3g or less measured by the DW method at a polymer A/polymer B weight ratio of 90/10 to 10/90, the DW method being as described in paragraph [0032], the superabsorbent polymers A and B being present in a mutually mixed stated, wherein the total content of the superabsorbent polymer A and the superabsorbent polymer B in said absorbent member is 50% by weight or more, and wherein the absorbent member is composed of a non-woven fabric holding said superabsorbent polymers A and B in the interstices among its constituent fibers and a supporting paper wrapping the non-woven fabric."

VI. In support of its requests the appellant essentially relied upon the following submissions:

The patent in suit disclosed the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. In particular, it

was not necessary to specify a method for the determination of the fluff content. The skilled person knew how much fluff was added to the structure and thus could calculate the amount. A further possibility was that the cellulosic fibres be dyed and thus the fluff content be determined visually. With regard to the product basis weight, the rate of body fluid absorption and the saturated body fluid absorption, the description referred to the methods to be applied.

The subject-matter of claim 1 of the main request involved an inventive step. The decision of the opposition division referred to the parameters as being routinely and obviously derivable from D1. However, neither the problem that the diaper should be thin and compact but at the same time have a defined high absorbent capacity nor the claimed solution could be derived from the disclosure of D1.

With regard to the set of claims of the first auxiliary request, the application as originally filed referred to four inventions. The fourth invention included absorbent members which were also used in the first to third embodiments. Therefore, no extension beyond the application as originally filed could have occurred when combining the subject-matter of originally filed independent claim 9 with the subject-matter of the previous claims.

There was no reason not to admit auxiliary request II. The subject-matter of its claim 1 combined the subject-matter of granted claims 1 to 4 and additionally comprised subject-matter of the claim 1 which was filed during the written proceedings as a previous auxiliary

request 2. All the subject-matter was already present in the written proceedings and the opponent had had the opportunity to raise objections. No substantive objections had been raised and thus even in the absence of the opponent at the oral proceedings, a decision could be taken on such claimed subject-matter.

D1 was related to different absorbent articles. In particular it provided a macroscopic sheet made of two kinds of precursor particles having different shapes. No motivation could be deduced from D1 for mixing the polymer particles and scattering them on the nonwoven fabric such that they would be held in the interstices of the fibres. Therefore, the subject-matter of claim 1 involved an inventive step over the disclosure of D1.

VII. The respondent essentially argued in the written proceedings as follows:

The subject-matter of claim 1 referred to an absorbent member having a fluff pulp content of 0 to 30% by weight. There was disclosed neither which part of the absorbent member had to meet the desired body fluid absorption and saturated body fluid absorption nor details about how to determine the fluff pulp content of the liquid retentive absorbent member. Since such liquid retentive absorbent member was not specified with regard to its structural constituents, it was not clear which layers had to be taken into account for such a determination and which not. In particular with regard to the prior art and absorbent structures having various layers (i.e. acquisition layers and tissue layers), this question needed to be answered. However, without any corresponding disclosure this was not

possible: the skilled person did not know how to test and determine the fluff pulp content.

Furthermore, no disclosure concerning the DW method specified in claim 3 was present. There were numerous different forms of demand wettability test apparatus available which provided completely different results as regards the rate of liquid uptake. Accordingly, without the description of a test procedure the values claimed in claim 3 were meaningless. Hence, the patent in suit and in particular the subject-matter of claim 1 of auxiliary request 1 did not meet the requirements of Article 83 EPC.

With regard to claim 1 of the (then on file) auxiliary request 2, the requirement of "holding an absorbent polymer in the interstices" was unclear to an extent that it led to invalidity under Article 83 EPC. No test procedure was described to determine whether or not the polymer particles were suitably held.

Reasons for the Decision

1. The appeal is admissible.
2. *Main request*
- 2.1 Sufficiency

Irrespective of the arguments provided by the respondent on sufficiency (Article 83 EPC), no inventive step is present in the subject-matter of claim 1, mainly for the reason relied upon by the

opposition division. Thus it is not necessary to evaluate the arguments in respect of sufficiency.

2.2 Inventive step

2.2.1 D1 was consistently considered as the document disclosing the closest prior art. D1 discloses thinness as a highly desirable characteristic for absorbent products (page 1, line 22/23). The issue of how to avoid leakage when using hydrogel-forming absorbent polymers is discussed broadly on pages 2 to 5. These are the same objectives as disclosed in the patent in suit (paragraph [0010]).

2.2.2 The appellant argued that the solution suggested in D1 went in a different direction and that the assessment of inventive step carried out by the opposition division was not justified.

2.2.3 Although it is correct that D1 suggests another layered structure for the absorbent member (the disclosure refers to the mixing of a first hydrogel-forming polymer and a second hydrogel-forming polymer to provide a porous absorbent macrostructure which is attached to a supporting substrate layer when used in an absorbent article) there is however nothing in claim 1 of the patent in suit from which it can be derived that such a layered structure is excluded.

2.2.4 Furthermore, the appellant argued that the parameters specified in claim 1 of the patent in suit provided a balanced ensemble of features (basis weight, absorption rate, saturated absorption and fluff pulp content)

which could not be considered as straightforward measures. The appellant pointed to:

- i) a reduction of basis weight, which could not be considered as a straightforward measure when starting from D1 as the closest prior art;
- ii) the body fluid absorption and saturated body fluid absorption specified in claim 1 were not comparable to the measurement results presented in D1; and
- iii) a fluff pulp content of 0% by weight was also not suggested in D1.

Regarding item (i), the product basis weight, the opposition division held that D1 referred to absorbent core sizes which could be varied to accommodate wearers ranging from infants to adults and no inventive merit could be seen in selecting a low basis weight.

Regarding item (ii), the opposition division explained in detail why it could be reasonably assumed that the absorptive capacity of the absorbent member in D1 will exceed the values claimed. No comparative values have been provided which prove the contrary.

Regarding item (iii) also, the subject-matter claimed does not refer to 0% only but refers to a fluff pulp content of 0 to 30% by weight and thus the calculation of the opposition division arriving at an absorbent member in D1 having less than 30% by weight of fluff pulp remains valid.

In summary, no arguments or evidence has been put forward that any inventive significance is to be attached to these parameters or their combination. Hence, the subject-matter of claim 1 of the main

request does not involve an inventive step (Article 56 EPC).

It should be noted that additionally the ensemble of parametrical features specified in claim 1 neither includes methods for determining the specified features nor indicates structural features which would allow such values to be obtained in the final article.

3. *Auxiliary request I*

3.1 Amendments

Claim 1 of the auxiliary request I differs from claim 1 of the main request in that the absorbent member does not include fluff pulp and in that the subject-matter of granted claim 3 (originally filed independent claim 6) is included.

Furthermore, granted claim 4, dependent on granted claim 3 (originally filed claim 7, dependent on claim 6), has been rendered dependent on claim 1 and renumbered as claim number 3.

In line therewith, granted claim 5 (originally filed independent claim 9), which was granted as being dependent on claim 1 only, was renumbered as claim 4 thus being dependent on amended claim 1 (which is a combination of granted claims 1 and 3).

3.2 Article 123(2) EPC

3.2.1 Neither the granted claims nor the claims as originally filed provide a basis for the now-claimed combination

of the subject-matter of granted claims 5 and 3. No example of such a combined subject-matter is disclosed in the description.

- 3.2.2 The appellant argued that such a combination was implied by the description referring to the absorbent structure of the first to third invention (granted claims 1 and 3) being applicable in the fourth invention (granted claim 5).
- 3.2.3 However, the subject-matter of the first and third inventions (aiming to provide a diaper including superabsorbent particles but avoiding gel-blocking - see point 4 below) is nowhere disclosed as including the features of the fourth invention (which aims to provide a compact article in a packaged state which restores its thickness after unpacking) relating to a thickness ratio. Hence, there is no disclosure that would allow the subject-matter of claim 4 to be made dependent on the subject-matter of claim 1. Accordingly, auxiliary request I does not meet the requirements of Article 123(2) EPC.

4. *Auxiliary request II*

4.1 Amendments

With respect to claim 1 as originally filed, the single claim of auxiliary request II additionally includes references to the determination methods and includes the subject-matter of originally filed claims 2, 3, 6 and 7. The determination methods are disclosed on pages 4 to 6 (product basis weight, rate of body fluid absorption, saturated body fluid absorption) and on

page 9 (rate of absorption by the DW method) of the originally filed WO-publication. Furthermore, two features are added from the description:

"the superabsorbent polymers A and B being present in a mutually mixed state"

which is based upon page 11, lines 1/2 of the originally filed WO-publication and

"and wherein the absorbent member is composed of a non-woven fabric holding said superabsorbent polymers A and B in the interstices among its constituent fibers and a supporting paper wrapping the non-woven fabric"

which is based upon the disclosure on page 4, lines 12 - 14 of the originally filed WO-publication.

Furthermore, example 1 discloses a disposable diaper with all features of the single claim. Therefore, the requirements of Article 123(2) EPC are met.

4.2 Admissibility

The auxiliary request II was late-filed during the oral proceedings after the discussion of the main and first auxiliary requests had taken place. The subject-matter of its single claim is based upon the subject-matter of claim 1 of the auxiliary request 2 filed in the written procedure.

The amendments which were not already filed during the written procedure concern:

- the addition of the test methods for the determination of the claimed parameters; and
- the reference to the superabsorbent polymers A and B being present in a mutually mixed state.

In accordance with Article 13(1) and (3) RPBA (OJ, EPO, 536, 2007) any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. However, amendments sought to be made after oral proceedings have been arranged shall not be admitted if they raise issues which the Board or the other party cannot reasonably be expected to deal with without adjournment of the oral proceedings.

With regard to the latter argument set out in Art. 13(3) RPBA, the amendments are such as can reasonably be expected to be dealt with during the oral proceedings. The amendments overcome *prima facie* the objections raised with regard to claim 1 of the requests discussed above. The insertion of the relevant test methods allows the parametrical values to be determined and clarifies their meaning. Moreover, the insertion of the superabsorbent polymers A and B being present in a mutually mixed state delimits the claim clearly from the polymeric macrostructure disclosed in D1. Accordingly, the scope of the claim is restricted such that it now corresponds to and represents the essential features of the invention. These amendments could be dealt with immediately as they address the respondent's and the Board's comments. Accordingly, the wording inserted in claim 1 does not raise new issues and the Board exercised its discretion to admit the request into the proceedings in accordance with Article 13(1) and (3) RPBA.

4.3 Sufficiency of disclosure (Article 83 EPC)

4.3.1 Tables 1 and 2 of the patent in suit disclose data for the diaper of example 1. Further information about the structure and materials of the diaper are present on page 15, lines 23 to page 16, line 11. Thus at least one example is disclosed with details which allow the skilled person to understand on what basis the claimed values can be obtained.

4.3.2 The absorbent member does not contain any fluff pulp and although no test method is disclosed for its determination, the appellant's arguments according to which the skilled person is able to distinguish between fluff pulp and other components on the basis of readily available physical test methods is considered convincing.

4.3.3 The test method for determining the rate of absorption of the superabsorbent polymers by the DW method is disclosed in paragraph [0050]. The respondent's view that:

(i) there were numerous different forms of demand wettability apparatus which provide completely different results; and that

(ii) there could be applied load to the sample during the test or different hydrostatic heads could be used;

were considered by the opposition division and rejected as not convincing. No arguments overcoming the arguments of the opposition division have been presented by the respondent. Since the Board sees no reason not to agree with the opposition division on this point, the corresponding conclusions still apply. Accordingly, the DW method disclosed in paragraph [0050]

represents one specific determination method and neither represents a method including the application of load nor a method including a certain hydrostatic head. Furthermore, example 1 demonstrates that the skilled person could use certain materials having defined rates of absorption and thus the correct application of the DW method could be confirmed by tests.

4.3.4 No test procedure is necessary to determine whether or not the polymer particles are held in the interstices of the nonwoven fabric. Nonwoven fabrics usually provide pores which are capable of encasing the superabsorbent particles at least partially. It is correct that, on removing the paper wrapping, this manipulation of the absorbent core would generally cause some superabsorbent particles at least having a small diameter to be released. However, such manipulation of the absorbent core is irrelevant as the skilled person could test the article (ie via computer tomography) without destroying it. Accordingly the invention as now claimed is sufficiently disclosed (Article 83 EPC).

4.4 Inventive step

D1 discloses a prior art disposable diaper from which the disposable diaper according to claim 1 is distinguished by the characterizing part.

The patent in suit discloses as technical problems the provision of a light and compact diaper as well as an improvement in leakproofness. These problems are commonly under attack in the art and also already

solved according to D1. Therefore, a more specific problem to be solved must be considered.

Starting from D1, the problem to be solved is to provide an alternative diaper with superabsorbent polymers which avoids gel-blocking.

The disclosure of D1 already indicates that in order to avoid gel-blocking advantageously a mixture of superabsorbent polymers can be used. D1 provides an absorbent macrostructure based upon the mixture of superabsorbent polymers which is provided in the form of a sheet. This sheet is attached or bonded to a substrate (cellulosic layer, nonwoven web, foam). Figures 1 and 2 in D1 show scanning electron microscope photographs of such macrostructures. Figure 4 in D1 shows the macrostructure 52 as being encased in a nonwoven envelope web 50. Consistently therewith, Figure 5 in D1 shows the macrostructure 62 as a separate absorbent body below the absorbent member 60. As an alternative, the use of a plurality of macrostructural strips 262 is shown in Figure 6. D1 does not disclose or suggest the use of any other application of the superabsorbent polymers than as included in a macrostructure.

Contrary thereto, according to the single claim of the patent in suit, the superabsorbent polymers are held in the interstices of the nonwoven fabric among its constituent fibres. Figures 2 to 4 of the patent in suit consistently depict such an absorbent member. Tables 1 and 2 show that in the example 1, due to such a distribution of the superabsorbent polymers, gel blocking is avoided as a maximal absorption comparable

with the examples having a high fluff pulp content can be obtained.

Thus, the problem as mentioned above is effectively solved in an alternative way not hinted at in the prior art. Accordingly, the subject-matter of the claim involves an inventive step with respect to the cited prior art (Article 56 EPC) and the patent can be maintained on this basis.

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:
 - (a) The single claim according to the second auxiliary request filed during the oral proceedings;
 - (b) The amended description pages numbered 2 to 12, filed during the oral proceedings;
 - (c) Figures 1 to 6 as granted.

The Registrar

The Chairman

M. Patin

P. Alting van Geusau