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**Datasheet for the decision
of 9 September 2010**

Case Number: T 0081/09 - 3.2.06

Application Number: 01302012.8

Publication Number: 1133962

IPC: A61F 13/15

Language of the proceedings: EN

Title of invention:

Porous sheet, absorbent article using porous sheet and
manufacturing method thereof

Patentee:

UNI-CHARM CORPORATION

Opponent:

The Procter & Gamble Company

Headword:

-

Relevant legal provisions:

EPC Art. 54
RPBA Art. 13

Relevant legal provisions (EPC 1973):

-

Keyword:

"Main request: novelty (no)"
"Auxiliary requests 1-6 - not admitted"

Decisions cited:

-

Catchword:

-

Case Number: T 0081/09 - 3.2.06

DECISION
of the Technical Board of Appeal 3.2.06
of 9 September 2010

Appellant:
(Patent Proprietor)

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(Opponent)

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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 6 November 2008
revoking European patent No. 1133962 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- I. European patent No. 1 133 962, granted on application No. 01302012.8, was revoked by the opposition division by decision announced during the oral proceedings on 14 October 2008 and posted on 6 November 2008.

Claim 1 as granted has the following wording:

"A porous sheet (1) having an uneven surface and a plurality of through holes (5) formed therein, comprising a sheet including a higher density region (2) and a lower density region (3), one of which is interspersed in another, wherein the sheet (1) is elongated to form the uneven surface (4) simultaneously with the through holes (5) at the boundary portions between the higher density region (2) and the lower density region (3), wherein the sheet (1) is a non-woven fabric, in which a plurality of higher density regions (2) are formed to be interspersed in the rest or remaining portion of the lower density region (3), so that the through holes (5) are formed at the boundary portions between the higher density regions (2) and the rest or remaining portion of the lower density region and are interspersed corresponding to the higher density regions (3)."

- II. The decision of the opposition division was based on the finding that the subject-matter of claim 1 as granted (main request) did not involve an inventive step when taking into account the disclosure of
D1 US-A-5 628 097 and
D5 WO-A-97/02133.

With regard to the subject-matter of claim 1 of the first and second auxiliary requests the opposition division came to the same conclusion.

- III. On 14 January 2009 the patent proprietor filed an appeal against this decision and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received at the European Patent Office on 16 March 2009, together with a main request and first and second auxiliary requests, these being the same as the corresponding requests before the opposition division, and additionally a new third auxiliary request.
- IV. With a communication of 2 February 2010 annexed to the summons to oral proceedings, the Board questioned the disclosure of the subject-matter of claims 6 and 7 of the main request. With regard to the claimed method, it was indicated that the opposition division's affirmative finding on sufficiency would need further discussion. Additionally, the Board provisionally concurred with the findings of the opposition division with regard to lack of inventive step.
- V. Oral proceedings were held on 9 September 2010. The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted, alternatively on the basis of the first to fourth auxiliary requests filed with letter dated 26 March 2010, alternatively on the basis of the fifth or sixth auxiliary requests filed during the oral proceedings.

The respondent requested that the appeal be dismissed and none of the appellant's auxiliary requests be admitted into the proceedings.

Claim 1 of the first auxiliary request has the following wording:

"A method for manufacturing a porous sheet having an uneven surface and a plurality of through holes formed therein, comprising the steps of: providing a blank sheet having higher density regions and a lower density region, wherein the higher density regions are interspersed in the lower density region; and clamping the sheet between forming dies having uneven surfaces mutually meshing with each other to form the sheet with an uneven surface while being elongated along the uneven surfaces of the forming dies, whereupon the sheet is formed with a plurality of through holes at the boundary portions between the higher density regions and the lower density region due to the elongation at formation of the uneven surface, wherein the sheet is a non-woven fabric, in which a plurality of the higher density regions are formed to be interspersed in the rest or remaining portion of the lower density region, wherein the non-woven fabric includes thermoplastic resin fibers, and the thermoplastic resin fibers are thermally fused only in the higher density regions or more firmly in the higher density regions than in the rest portion, wherein the forming dies are designed for forming the non-woven fabric with a corrugated configuration, corrugations of which are repeated and arranged in a machine direction of the non-woven fabric, and wherein a breaking elongation of the non-woven fabric in the machine direction is set to be greater than or equal to 50% and smaller than or equal to 100% of an elongation percentage of the non-woven fabric

in the machine direction upon formation of the corrugations by the forming dies."

Claim 1 of auxiliary request 2 is identical to claim 1 of auxiliary request 1.

Claim 1 of the auxiliary request 3 reads:

"A method for manufacturing a porous sheet having an uneven surface and a plurality of through holes formed therein, comprising the steps of: providing a blank sheet having a higher density regions and a lower density region, wherein the higher density regions are interspersed in the lower density region; and clamping the sheet between forming dies having uneven surfaces mutually meshing with each other to form the sheet with an uneven surface while being elongated along the uneven surfaces of the forming dies, whereupon the sheet is formed with a plurality of through holes at the boundary portions between the higher density regions and the lower density region due to the elongation at formation of the uneven surface, wherein the sheet is a non-woven fabric, in which the plurality of the higher density regions are formed to be interspersed in the rest or remaining portion of the lower density region, wherein the non-woven fabric includes thermoplastic resin fibers, and the thermoplastic resin fibers are thermally fused only in the higher density regions or more firmly in the higher density regions than in the rest portion, wherein the forming dies are designed for forming the non-woven fabric with a corrugated configuration, corrugations of which are repeated and arranged in a cross direction of the non-woven fabric, and wherein a density ratio of the lower density region to the higher density region in the non-woven fabric is greater than or equal to 1% and

smaller than or equal to 55%, and a breaking elongation of the non-woven fabric in the cross direction is set to be greater than or equal to 15% and smaller than or equal to 100% of an elongation percentage of the non-woven fabric in the cross direction upon formation of the corrugations by the forming dies."

Claim 1 of auxiliary request 4 reads:

"A porous sheet (1) having an uneven surface and a plurality of through holes (5) formed therein, the sheet including higher density regions (2) and a lower density region (3), wherein the higher density regions are interspersed in the lower density region, wherein the sheet (1) is a non-woven fabric, in which the plurality of higher density regions (2) are formed to be interspersed in the rest or remaining portion of the lower density region (3), so that the through holes (5) are formed at the boundary portions between the higher density regions (2) and the rest or remaining portion of the lower density region and are interspersed corresponding to the higher density regions (2), wherein a density region of the lower density region to the higher density regions in the non-woven fabric is greater than or equal to 1% and smaller than or equal to 70%, wherein the non-woven fabric includes thermoplastic resin fibers, and the thermoplastic resin fibers are thermally fused only in the higher density regions (2) or more firmly in the higher density regions than in the rest portion (3), wherein the uneven surface is of a corrugated configuration, and the through holes (5) are elongated in a direction along which corrugations are repeated, wherein the higher density regions (2) are formed by locally applying pressure under heat, wherein an area ratio of the higher density regions (2) in the

entire surface of the sheet is preferably in a range of greater than or equal to 5% to smaller than or equal to 20%, wherein the porous sheet (1A) after formation, the through holes (5) are distributed corresponding to all of or most of the higher density regions(2), wherein a breaking elongation is within a range of at least 20% to at most 100% the elongation percentage, wherein the porous sheet is formed of hydrophobic fibers or fibers subjected to a hydrophobic treatment."

Claim 1 of auxiliary request 5 reads:

" A method for manufacturing a porous sheet having a corrugated surface and a plurality of through holes formed therein, wherein the sheet is a non-woven fabric, in which a plurality of the higher density regions are formed to be interspersed in the rest or remaining portion of the lower density region, comprising the steps in the following order: providing a blank sheet before processing already having higher density regions and a lower density region, wherein the higher density regions are interspersed in the lower density region; and clamping the sheet between forming dies having corrugated surfaces mutually meshing with each other to form the sheet with a corrugated surface while being elongated along the corrugated surfaces of the forming dies, whereupon the sheet is formed with a plurality of through holes at the boundary portions between the higher density regions and the lower density region due to the elongation at formation of the corrugated surface, wherein the forming dies are designed for forming the non-woven fabric with the corrugated configuration, corrugations of which are repeated and arranged in a

machine direction of the non-woven fabric, and wherein a breaking elongation of the non-woven fabric in the machine direction is set to be 97%, the density ratio of the lower density region to the higher density region in the non-woven fabric is set to be 64% and the ratio of the breaking elongation to the elongation percentage of the forming dies is set to be 80.4% upon formation of the corrugations by the forming dies."

Claim 1 of auxiliary request 6 reads:

" A method for manufacturing a porous sheet having an uneven surface and a plurality of through holes formed therein, wherein the sheet is a non-woven fabric, in which a plurality of the higher density regions are formed to be interspersed in the rest or remaining portion of the lower density region, comprising the steps of:

providing a blank sheet having a higher density region and a lower density region, one of which is interspersed in another; and clamping the sheet between forming dies having uneven surfaces mutually meshing with each other to form the sheet with an uneven surface while being elongated along the uneven surfaces of the forming dies, whereupon the sheet is formed with a plurality of through holes at the boundary portions between the higher density region and the lower density region due to the elongation at formation of the uneven surface, wherein the forming dies are designed for forming the non-woven fabric with a corrugated configuration, corrugations of which are repeated and arranged in a machine direction of the non-woven fabric, and wherein a breaking elongation of the non-woven fabric in the machine direction is set to be greater than or equal to 50% and smaller than or equal to 100%

of an elongation percentage of the non-woven fabric in the machine direction upon formation of the corrugations by the forming dies."

VI. The arguments of the appellant as far as relevant for the decision may be summarised as follows:

The subject-matter of claim 1 of the main request was novel. As correctly set out in the decision of the opposition division, D1 disclosed neither an uneven sheet nor that the through holes were formed at the boundary portions between the higher density regions and the rest or remaining portion of the lower density region nor that the through holes were interspersed corresponding to the higher density region. Moreover, D1 did not provide for holes being formed at the boundary portions simultaneously with the forming of corrugations but referred to a two-step process.

The subject-matter of claim 1 of auxiliary requests 1 to 3 was directed to a method for manufacturing the porous sheet, which was specific in that it comprised the corrugations in the machine direction (auxiliary requests 1 and 2) or in the cross machine direction (auxiliary request 3). The subject-matter was a combination of the subject-matter of granted claims 8, 9 and 10 (auxiliary requests 1 and 2) or granted claims 8, 9 and 11 (auxiliary request 3) with some further amendments to clarify that the blank sheet used in the method comprised higher density regions which were interspersed in the lower density region.

The subject-matter of claim 1 of auxiliary request 4 was directed to a porous sheet comprising all the

structurally and functionally interrelated features which were disclosed for this sheet by combining the subject-matter of granted claims 1 to 4 as well as further limitations disclosed in the description.

Claim 1 of auxiliary request 5 was based on the subject-matter of original claim 1 but included the reference to a corrugated surface. Moreover, the subject-matter of claim 1 was limited to the data disclosed for example 1 concerning the breaking elongation and the ratio of the breaking elongation to the elongation percentage.

Claim 1 of auxiliary request 6 included the subject-matter of granted claims 8 and 10, corresponding to the subject-matter of originally filed claims 12, 13 and 15. Accordingly, the requirements of Articles 84 and 123(2) EPC were met.

VII. The arguments of the respondent may be summarised as follows:

The subject-matter of claim 1 of the main request lacked novelty. D1 disclosed all its features, in particular when considering its claim 1 and Figure 9.

All the auxiliary requests were late-filed, not clearly allowable and therefore should not be admitted in the proceedings.

The subject-matter of claim 1 of auxiliary requests 1 to 4 consisted of combinations of features, which combinations were not disclosed in the application as filed.

The subject-matter of claim 1 of auxiliary request 5 included data from example 1 isolated from further features of this example. No disclosure for such data other than that related to further features of this example were disclosed in the application as filed. Accordingly, the requirements of Article 123(2) EPC were not met.

The subject-matter of claim 1 of auxiliary request 6 consisted of a combination of claims 12, 13 and 15. However, the wording relating to the plurality of higher density regions was located in a different position. Such re-arrangement of the features of the claim led to a further lack of clarity and to the extension of the scope of the claim. At such a late stage in the proceedings, a request not being clearly allowable should not be admitted into the proceedings.

Reasons for the Decision

1. The appeal is admissible.
2. *Main request - novelty*
 - 2.1 D1 discloses a method for selectively aperturing a nonwoven web. It shows in its Figures 9 an enlarged plan-view photograph of a non-woven web after tension has been applied to rupture the web at weakened locations to create the apertures. The apertures are coincident with the weakened, melt-stabilized locations of the nonwoven web and a portion of the circumferential edges of the apertures includes

remnants of the melt-stabilized locations (col. 9, l. 24 - 32). The bonded portions of the nonwoven web do not rupture during tensioning, thereby maintaining the nonwoven web in a coherent condition (col. 8, l. 1 - 3 and col. 9, l. 13 - 23).

2.2 In D1 the use of forming dies leads necessarily to an uneven surface of the sheet when the tensioning force is applied to create the apertures. The nonwoven fabric having a fibrous structure (col. 7, l. 18 - 25) and being processed via patterned calendar roller and anvil rollers which are heated and adjusted to a specific temperature (col. 8, l. 5 - 12) will consequently have regions of different density.

2.3 The opposition division accepted in its decision the argument of the appellant that D1 did not disclose:

- (i) an uneven surface of the sheet;
- (ii) that the through holes were formed at the boundary portions between the higher density regions and the (rest or remaining portion of the) lower density region;
- (iii) that the through holes were interspersed corresponding to the higher density region.

2.4 With regard to feature (i), the patent in suit does not define the term "uneven". Moreover, claim 1 is not limited with regard to any specific density differences of the regions or the amount or a degree of "unevenness". The subject-matter of claim 4 refers to the uneven surface being of a corrugated configuration and in the description (paragraph 0017) it is specified that it is "possible" that the uneven surface is of a corrugated configuration - which opens up the

possibility of other configurations as well.

Accordingly, the reference to an uneven surface in claim 1 has to be interpreted in a broader sense than as being limited only to corrugations. Accordingly, any amount of unevenness in the surface qualifies for the claimed feature and fibrous non-woven sheets have to be considered as being uneven when they have melted/fused fibrous regions of higher density and remaining regions of lower density. Accordingly, this feature cannot be considered as distinguishing the claimed subject-matter from the porous sheet disclosed in D1.

2.5 With regard to features (ii) and (iii), D1 discloses a non-woven web having point-calendared bonds, which consequently represent higher density regions with regard to the basic fibrous structure. D1 also discloses weakened melt-stabilized locations, which also represent higher density regions with regard to the basic fibrous structure, which represents a lower density region. Due to formation of the holes by applying a tensioning force to the web, a plurality of apertures in the web coincident with the weakened, melt-stabilized locations is thereby created. The tensioning force which creates the apertures is adjusted such that the bonds do not rupture during tensioning and a portion of the edges of the apertures include remnants of the melt-stabilized locations. Accordingly, the apertures are formed at the boundary portions between the melt-stabilized locations and the remaining portion of the web, so that also the features (ii) and (iii), in particular given a broad interpretation of "lower density region", cannot be considered as distinguishing features.

2.6 Hence, D1 discloses the features in claim 1. Accordingly, the subject-matter of claim 1 is not novel over D1.

3. *Auxiliary requests 1 to 3*

3.1 Claim 1 of auxiliary request 1 consists of a combination of originally filed claims 12 and 13 (granted independent method claim 8) and includes further the subject-matter of originally filed claims 14 and 15 (granted dependent claims 9 and 10) together with some additional amendments with regard to clarity objections raised by the appellant. In the originally filed application no disclosure for the combination of the features in claims 14 and 15 has been identified: i.e. both these claims were each dependent upon originally filed claim 13. This means that the subject-matter of claim 1 of auxiliary request 1 does not meet the requirement of Article 123(2) EPC and was therefore not clearly allowable and for this reason, in accordance with the case law of the Boards of Appeal, this late filed request was not admitted into the appeal proceedings.

3.2 The same amendment is present in claim 1 of auxiliary requests 2 and 3 and hence, the same objection applies. These requests were late-filed requests and in view of such *prima-facie* non-compliance with the requirements of the EPC, they were not admitted into the proceedings.

4. *Auxiliary request 4*

Claim 1 of auxiliary request 4 consists of a combination of the subject-matter of originally filed

claims 1, 2, 3, 4 and 8, together with five features taken from paragraphs [0033], [0034], [0035], [0047], [0053] and [0060] of the description as originally filed. Additionally, the reference to the sheet including "a higher density region" and a lower density region, one of which is interspersed in another, is amended to specify that the sheet includes "higher density regions".

There is no basis indicated in the original disclosure for such a specific combination of features. Also this request was late-filed and in view of such *prima-facie* non-compliance with the requirements of the EPC, it was not admitted into the proceedings (Art. 13 RPBA).

5. *Auxiliary request 5*

5.1 The subject-matter of claim 1 relates to a method. It includes data taken from example 1, Table 1 of the description, in particular its breaking elongation and its ratio of the breaking elongation/elongation percentage. However, example 1 represents a specific embodiment based upon a spun-bonded non-woven fabric of core-sheath type composite synthetic fibres (long fibres) of polyethylene/polypropylene with a specific basis weight.

5.2 Accordingly, the claimed breaking elongation and its ratio of the breaking elongation/elongation percentage is disclosed only for the sheet based upon such a non-woven fabric. It cannot be derived directly and unambiguously from the application as filed that other materials of a non-woven fabric sheet exhibit the same values for these parameters. Hence, the amendments to

claim 1 lead to subject-matter which is not disclosed in the application as filed, contrary to the requirement of Article 123(2) EPC.

5.3 At least for these reasons claim 1 of the fifth auxiliary request was not clearly allowable. Therefore it was not admitted into the proceedings.

6. *Auxiliary request 6*

6.1 Auxiliary request 6 was filed during the oral proceedings, after the conclusions of the Board on all the previous requests had been indicated, hence at the latest stage possible in the proceedings.

6.2 Claim 1 consists of a combination of the subject-matter of originally filed claims 12, 13 and 15, corresponding to granted claims 8 and 10.

6.3 However, although this claim is based on granted subject-matter, the subject-matter of originally filed claim 13 has been moved to the introductory features of the claim whereas in granted claim 8 it was placed as the final feature. This feature concerns the characteristic of the non-woven sheet that "a plurality of higher density regions are formed ... ". By changing its position to the introductory wording of the claim, the subject-matter of the method claim becomes ambiguous because the feature appears to introduce a further method step (forming a plurality of higher density regions) whereas according to granted claim 8, consistently with the description, the feature could be interpreted such that the non-woven sheet is provided in the form of having one kind of higher density region

in a lower density region when starting with the claimed manufacturing method. Accordingly, the amendment introduces a lack of clarity which makes the claim, irrespective that its subject-matter is at first sight based on a combination of subject-matter of granted claims, attackable under Article 84 EPC.

6.4 Moreover, no reason was indicated why the amendment could not have been filed earlier. The objections with regard to this issue were set out in the annex to summons to the oral proceedings and could have been considered and dealt with before the oral proceedings.

6.5 For these reasons also claim 1 of the sixth auxiliary request was not clearly allowable and this request was not admitted into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

M. Patin

P. Alting van Geusau