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**Datasheet for the decision  
of 20 September 2007**

**Case Number:** T 1301/06 - 3.2.06

**Application Number:** 97925407.5

**Publication Number:** 0896646

**IPC:** D04H 1/54

**Language of the proceedings:** EN

**Title of invention:**

Mechanical and internal softening for nonwoven web

**Patentee:**

KIMBERLY-CLARK WORLDWIDE, INC.

**Opponent:**

The Procter & Gamble Company

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 54

**Keyword:**

"Main request - novelty (no)"

"First and second auxiliary request - novelty (no)"

"Third auxiliary request - inventive step (no)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1301/06 - 3.2.06

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.06  
of 20 September 2007

**Appellant:** The Procter & Gamble Company  
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**Decision under appeal:** Interlocutory decision of the Opposition  
Division of the European Patent Office posted  
9 June 2006 concerning maintenance of European  
patent No. 0896646 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. 0 896 646, granted on application No. 97 925 407.5, was maintained in amended form by decision of the opposition division posted on 9 June 2006.
- II. The opposition division held that 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 (Article 100(b) EPC) and that the amendments to claim 1 were admissible with regard to the requirements of Article 123 EPC. Furthermore, the subject-matter of claim 1 in accordance with the patent proprietor's main request was novel (Article 54 EPC) and involved an inventive step (Article 56 EPC) with regard to the state of the art disclosed in
- D1 US-A-5 413 811  
D2 US-A-4 920 168  
D3 US-A-4 070 218 and  
D4 US-A-4 443 513.
- III. The appellant (opponent) filed a notice of appeal against this decision on 16 August 2006, and paid the appeal fee simultaneously. On 9 October 2006 the statement of grounds of appeal was filed, accompanied by
- D5 Dow Corning 200@Fluid, 0.65 CST - material safety data sheet.

The appellant submitted that the subject-matter of claim 1 was not novel with regard to the web disclosed

in D2, column 47, lines 39 to 49 (Article 54 EPC) and did not involve an inventive step, either when starting from D2 and taking account of the mechanical softening taught by D1 or D4 or when starting from D3 and combining it with the teaching of D1 (Article 56 EPC). The patent should also be considered as insufficiently disclosed as no example of an internal softening agent with the formula claimed was specified (Article 100b EPC). Furthermore, there was no basis for an amendment to include anything other than staple fibres (Article 100(c) EPC).

IV. In a communication dated 4 May 2007 accompanying the summons to oral proceedings, the Board indicated that staple fibres were disclosed as examples without limiting the web material to such fibres. The Board further noted that the feature of an "internal softening agent" as described in the patent in suit and claim 1 was not specific with regard to its location within the fibre. Therefore, the siloxane additive disclosed in D2, which had a concentration profile in the fibre, could also be considered as an "internal softening agent".

V. In response to the communication of the Board the appellant submitted with its letter dated 20 August 2007 new first to fourth auxiliary requests.

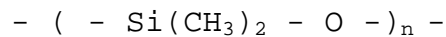
VI. Oral proceedings were held on 20 September 2007.

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

The respondent requested that the appeal be dismissed, alternatively that the patent be maintained on the basis of the first or second auxiliary requests filed on 20 August 2007, alternatively on the basis of the third auxiliary request filed during the oral proceedings.

Claim 1 according to the main request reads as follows:

"A nonwoven web comprising fibers or filaments which have been formed from a mixture of thermoplastic polymer and an internal siloxane softening agent in an amount of up to 3 weight percent, said siloxane softening agent having a formula as follows:



wherein n is from 3 to about 1000, and which web has been mechanically softened."

Claim 1 according to the first auxiliary request differs from claim 1 according to the main request in that the product itself is specified. The wording of the claim starts as follows:

"An article selected from the group consisting of a personal care product, an infection control product or a garment comprising a nonwoven web ...".

Claim 1 according to the second auxiliary request differs from claim 1 according to the main request in that the method by which the web has been mechanically softened is further specified. The additional wording at the end of the claim reads as follows:

"... by a method selected from the group consisting of micro-creping, cold embossing, beater bar treatment, neck stretching, un-necking and combinations thereof."

Claim 1 according to the third auxiliary request differs from claim 1 according to the main and the first auxiliary request in that the product is further specified. The wording of the claim starts as follows:

"An article selected from the group consisting of a personal care product selected from diapers, training pants, absorbent underpants, an infection control product selected from surgical gowns, face masks, head coverings, surgical caps and hoods, shoe coverings, boot covers, slippers, lab coats, aprons, jackets or a garment selected from coveralls, undergarments, pants, shirts, jackets, gloves, socks comprising a nonwoven web ...".

VII. With respect to these requests the appellant argued essentially as follows:

The only feature in dispute when comparing the subject-matter of claim 1 of the main request with that of D2 was whether the "nonwoven web had been mechanically softened". In this respect, D2 disclosed in column 47, lines 29 to 57 three examples in the area of household and industrial wipes, such wipes consisting of nonwoven webs. A washing (or laundering) step was disclosed for wipes (2) and (3). The subject-matter of claim 1 was directed to a product and the wipes (2) and (3) inherently comprised all the features of claim 1.

With respect to the subject-matter of claim 1 of the first auxiliary request, the reasons set out for the subject-matter of claim 1 of the main request applied as well. In the cited paragraph in column 47, D2 referred particularly to wipes and paragraph [0035] of the patent in suit referred to "wipers" as examples of "infection control products" as claimed by this request.

For the same reasons the subject-matter of claim 1 of the second auxiliary request was not novel. The additional specification as to how to mechanically soften the web did not enable the product itself to be distinguished from a differently mechanically softened web. No evidence for any such difference in the final product was provided in the patent in suit.

The third auxiliary request should not be admitted into the proceedings. The subject-matter of its claim 1 did not include all the articles which were listed in the relevant passage of the description of the patent in suit. The deliberate omission of certain articles from such a list represented a disclaimer (Article 123(2) EPC). Furthermore, the infection control products were no longer linked to medically oriented items as was the case in the passage in the description upon which the list was based, and this amounted to an inconsistency between the description and the claim (Article 84 EPC) as well as an unallowable omission (Article 123(2) EPC).

With respect to the subject-matter of claim 1 of the third auxiliary request, either of the documents D1 or D2 could be considered as representing the closest state of the art. D2 shared the greater identity of technical features with claim 1 and D1 represented more

or less a copy of the patent in suit and was related to the surface application of the additional agents.

When starting from D1 the distinguishing feature with respect to the subject-matter of claim 1 was the internal application of a siloxane softening agent. The objective technical problem to be solved could be seen in the provision of an alternative to the surface application of a softening agent. Confronted with such a problem, the skilled person knew perfectly well about the possibility of internally adding siloxane agents to the fibre polymers before manufacturing and mechanically treating the web. D2 disclosed the manufacture of fibres comprising such agents and the formation of nonwoven webs for use in personal care products thereof. Hence, no inventive step was present.

VIII. In support of its requests the respondent argued essentially as follows:

Concerning the subject-matter of claim 1 of the main request, D2 did not refer to a nonwoven web but to a wipe. A wipe represented a finished product whereas the nonwoven web referred to in claim 1 represented an interim product. Furthermore, the washing in D2 was carried out with the objective of adding heat to the wipe in order to enable the siloxane agent to impart hydrophilicity to the surface of the fibre/web, whereas according to the patent in suit the siloxane agent was applied in order to provide softness to the web.

Concerning the subject-matter of claim 1 of the first auxiliary request, the wiper disclosed in the patent in suit did not correspond to a wipe as disclosed in D2.



Concerning the subject-matter of claim 1 of the second auxiliary request, the claimed specific softening methods could be ascertained from the nonwoven web and thus it was possible to distinguish such a web from differently softened webs.

Concerning the subject-matter of claim 1 of the third auxiliary request, it specified defined articles. The omission of some of the specific articles cited in the description did not represent a disclaimer but only the limitation to the specific articles now claimed. Support was to be found in the application as originally filed, page 10. Hence, the requirements of Article 123(2) EPC were met. No lack of clarity (Article 84 EPC) was present since all these products were well-known in themselves. Hence, this request was admissible.

D2 did not qualify as closest state of the art. It was concerned with the hydrophilicity of the surface of the fibres and softness was not an issue.

D1 disclosed the closest state of the art. The problem when starting from D1 was related to the provision of a soft article. Although the skilled person would have been aware of D2, according to D2 the siloxane agents did not represent softening agents but only imparted hydrophilicity to the surface. Hence, the skilled person would not use the siloxane agents for any other reason. The recognition of the fact that by an internal siloxane agent softness and hydrophilic characteristics could be imparted in one step to a nonwoven web was not obvious. D1 combined with D2 thus did not lead the

skilled person in an obvious manner to the article claimed and, therefore, the subject-matter of claim 1 involved an inventive step.

## **Reasons for the Decision**

### 1. *Main request*

#### 1.1 Amendments

Claim 1 according to the main request combines the features of originally filed claims 1 and 6 and additionally includes the feature that the nonwoven web comprises fibres or filaments which have been formed from a mixture of thermoplastic polymer. This latter feature is described in the application as filed on page 1, lines 8 to 12 and page 13, lines 17/18 as well as in claims 8 to 11.

Accordingly, the amendments do not give rise to objections under Article 123(2) EPC.

#### 1.2 Article 54 EPC - novelty

1.2.1 Using the wording of claim 1, D2 discloses a nonwoven web (webs obtained in examples 164 to 225, column 42, line 61, column 47, lines 39 to 42) comprising fibres or filaments which have been formed from a mixture of thermoplastic polymer (Table 19, Table 11) and an internal siloxane softening agent in an amount of up to 3 weight percent (examples 164 to 225: Table 19 and column 46, lines 39-41), said siloxane softening agent having a formula as follows:



wherein n is from 3 to about 1000 (examples 164 to 225, Table 19, Table 1), and which web has been mechanically softened (column 47, lines 25-58).

- 1.2.2 The patent proprietor argued that the wipe referred to in D1 did not represent a nonwoven web as claimed. However, wipes (1) and (2) of D1 are defined as wipes "consisting of a single polyolefin nonwoven web prepared in accordance with the present invention, in which additive is present in ... the fibers" and wipe (3) is defined as a wipe consisting of two nonwoven layers, one of them consisting of a web as described for wipe (1) or (2). A wipe consisting of one or two such nonwoven webs is thus based on these webs. The argument that a web is an interim material and not a finished product such as a wipe is not reflected in the claim. The claim does not refer to an interim material but to a nonwoven web in the sense of a structure.
- 1.2.3 The further argument that the wipe in D2 is washed with the objective of adding heat to the structure and not with the objective of providing softness is irrelevant. What is claimed is the product and not the method by which it is made. There is nothing in the patent in suit explaining how a web which has been mechanically softened via washing/laundering could be distinguished from a web which has been mechanically softened via other methods. Since no method for differentiating such products is provided, it can only be concluded that the final product is the same. Thus the nonwoven web in the form of a wipe in D2 corresponds to the nonwoven web defined in claim 1. Hence, the subject-matter of

claim 1 is not novel. The main request is consequently not allowable.

2. *First auxiliary request*

2.1 Amendments

Claim 1 of the first auxiliary request differs from claim 1 of the main request in that certain articles are now specified. The wording of the claim starts as follows:

"An article selected from the group consisting of a personal care product, an infection control product or a garment comprising a nonwoven web ....".

These articles were the subject-matter of originally filed claims 15, 16 and 17. The requirements of Article 123(2) and 84 EPC are met.

2.2 Article 54 EPC

With respect to novelty, it is necessary to note that the description of the patent in suit (paragraph [0035]) refers to "wipers" when defining the term infection control product.

As set out for the main request, above, D2 discloses in column 47, lines 25 to 58 nonwoven webs used as wipes with all features of its claim 1. These wipes are consistent with the "wipers" which are within the scope of claim 1.

The patent proprietor argued that the wipes referred to in D2 had not been mechanically softened prior to use. Although according to D2 a washing step is performed, this step related to a dirty wipe, after its having been soiled with oil, and thus related to a wipe in an "after use" condition.

D2 discloses in the relevant paragraph in column 47, lines 39 to 58 that "*on washing the wipe is converted to a hydrophilic wipe because the heat of the washing or drying environment causes additive to migrate from the fiber subsurface to either or both of the fiber effective surface and interfacial surface*". Such disclosure does not (necessarily) relate to a previously used wipe. In the same way, the statement that such a "*conversion aids in the removal of oily residues from the wipe*" does not necessarily mean that the conversion takes place only after the nonwoven wipe has been used.

Furthermore, irrespective of whether the wipe is "soiled" or not, when applying the washing step to a nonwoven web, all the claimed characteristics are disclosed in D2. Hence, the subject-matter of claim 1 is not novel. The first auxiliary request is consequently not allowable.

### 3. *Second auxiliary request*

#### 3.1 Amendments

Claim 1 of the second auxiliary request differs from claim 1 of the main request in that the method by which the web has been mechanically softened is further

specified. The additional wording at the end of the claim reads as follows:

"... by a method selected from the group consisting of micro-creping, cold embossing, beater bar treatment, neck stretching, un-necking and combinations thereof."

The additional wording finds support in the description on page 13, lines 1 to 5 and claim 2 of the originally filed PCT application. Thus, the requirements of Article 123(2) EPC are met.

### 3.2 Article 54 EPC

Claim 1 refers to a nonwoven web. The additional feature refers to an additional process step carried out on the web. However, nowhere in the patent in suit is it said how to distinguish a nonwoven web having been treated by the additionally claimed process steps from a nonwoven web which has been mechanically softened by washing/laundrying alone. Accordingly, whether the additionally specified process steps have been carried out cannot be determined by examination of the nonwoven web. This is demonstrated by the example (Table and example 8) which assesses nonwoven webs treated with the additional method steps as being "comparable in softness to a washed fabric" (paragraph [0085]). Thus, the claimed nonwoven web remains undistinguishable from a nonwoven web mechanically softened by washing/laundrying alone.

Hence, the additional wording does not add any additional distinguishable feature to the claimed article and, accordingly, the finding with respect to novelty must be the same as for claim 1 of the main

request. Hence, the subject-matter of claim 1 of the second auxiliary request is not novel over the nonwoven web disclosed in D2 as set out under point 1.2 above. The second auxiliary request is consequently not allowable.

#### 4. *Third auxiliary request*

##### 4.1 Amendments

Claim 1 of the third auxiliary request differs from claim 1 of the main and first auxiliary requests in that the product is further specified. The wording of the claim starts as follows:

" An article selected from the group consisting of a personal care product selected from diapers, training pants, absorbent underpants, an infection control product selected from surgical gowns, face masks, head coverings, surgical caps and hoods, shoe coverings, boot covers, slippers, lab coats, aprons, jackets or a garment selected from coveralls, undergarments, pants, shirts, jackets, gloves, socks comprising a nonwoven web ....".

Literal support for the additional wording is to be found in the PCT application as filed, page 10, lines 5 to 14 (corresponding to paragraphs [0034] to [0036] of the patent in suit), albeit that several products are omitted.

#### 4.2 Admissibility

This request was filed during the oral proceedings and is thus late-filed. Having regard to the fact that this request was clearly designed to meet the novelty objections raised in respect of the previous requests, the Board decided to admit this request into the proceedings without coming to any decision as to whether or not it met the requirements of Article 123(2) and 84 EPC.

#### 4.3 Article 100 a) EPC - inventive step

Novelty of the subject-matter of claim 1 was not in dispute. The Board is in fact satisfied that the available prior art does not disclose any of the claimed articles having all the features of claim 1. However, the subject-matter of claim 1 lacks an inventive step (Article 56 EPC), for the following reasons.

Both parties considered that the closest prior art is represented by D1. The Board agrees with the parties in this respect.

D1 discloses a chemical and mechanical softening process for nonwoven webs. As regards the application of the chemical softening agents, it refers to topical (ie surface) application, and suitable silicone-containing compounds are disclosed. As regards the methods of mechanically softening, these are identical to the ones disclosed in the specification of the patent in suit.



In order to assess inventive step of the subject-matter of claim 1, the objective problem has to be assessed. The respondent argued that this was the same problem as is referred to in D1, relating to the issue of "softness", and an alternative solution was provided by the present invention. The appellant submitted that the objective problem was the finding of an alternative to the external application of the chemical agent.

The object of the invention described in D1 is stated to be the provision of a nonwoven web by a technique "which is softer than either chemical or mechanical softening alone and which can be performed in a continuous industrial production operation" (column 1, lines 47 to 51). D1 suggests the measurement of softness via the "cup crush test". An absolute cup crush load value of about 70g or less is considered as "desirably soft", and fabrics processed according to the invention of D1 are claimed to have a final cup crush load value which is at least 50 percent less than the starting cup crush load value (column 8, lines 10 to 16). However, even D1 discloses in Table 1 that these values are already obtainable by mechanical softening alone with washing in a conventional home-type washing machine. The values obtained by a combination of chemical (surface application) and mechanical softening (Tables 6 and 7 of D1) yield values in the range of the values obtained by mechanical softening (washing) alone. Thus the objective referred to in D1 of providing a softer web than provided by either chemical or mechanical softening alone is not met.

Likewise, such an objective is not met by the patent in suit either. The sole inventive example given in support of the invention (example 8, Table 8, paragraphs [0083 - 0085]) shows cup crush test results for nonwoven webs comparable to but not exceeding those obtained using mechanical treatment alone.

Thus, both D1 and the patent in suit provide evidence that by the use of a chemical treatment - whether it be applied to the surface or internally - softness can only be obtained in the same range as with mechanical treatment alone.

Hence, the objective must be a different one. The subject-matter of claim 1 differs from the subject-matter disclosed in D1 only in that an internal siloxane agent of a defined formula is claimed for nonwoven webs for use in the manufacture of specific articles. Therefore, when starting from D1, the objective technical problem underlying the subject-matter of claim 1 can only be to provide an alternative to the surface application of the siloxane agent in a nonwoven web.

This surface application of softening agents as exemplified in D1 is referred to in the patent in suit with the assessment that it is a "messy process" (patent in suit, page 11, lines 22). D2 provides a clear alternative thereto.

D2 discloses the internal application of siloxane agents of the specifically claimed type (Type A additives, column 22, line 25 to column 23, line 15) in the claimed amount (column 46, line 39) to

thermoplastic fibres (examples 165 to 225). It also discloses such fibres as being particularly useful in the formation of nonwoven webs which are used in the construction of disposable absorbent products such as diapers, feminine care products, incontinence products, and the like (abstract, column 2, lines 22 to 26 and column 12, lines 61 to 68). The skilled person thus has a clear alternative to the nonwoven webs manufactured by means of surface application of these agents.

The respondent submitted that the siloxane agents in D2 were not applied as "softening agents" but only with the intention of providing hydrophilicity to the surface of the fibres. This argument is not convincing, since, as set out above, the objective problem is not related to the purpose for which the agent is applied but to the manner of its application. Therefore, it is irrelevant whether the chemical agent is specified as "softening" agent or as imposing "hydrophilicity" or "wettability" to the fibres. Furthermore, the skilled person inevitably has to be an expert in siloxane agents as he has to choose a particular siloxane agent and thus has to be aware of the different characteristics they could impart to a product to which they are applied. These characteristics are influenced to a large extent by the group which is chosen for the end positions of the chain in the formula in claim 1 of the patent in suit. Hence, the skilled person can choose a more or less hydrophilic and thus a more or less "softening" agent according to the desired needs. Both documents, D1 and D2, also address the hydrophilicity (D1: column 1, lines 18 to 20, D2: column 2, lines 1 to 29). Thus, the skilled person would necessarily select the specific siloxane agent

according to the desired wettability/hydrophilicity of the nonwoven web. The selection of the actual type of siloxane agent and the degree of softness and hydrophilicity imparted by it to the web is not the subject of the present invention and its claim 1, and thus is not in issue in this decision.

The subject-matter of claim 1 of the third auxiliary request thus lacks an inventive step, contrary to the requirements of Article 56 EPC. This request is consequently not allowable. It is thus not necessary to decide whether the requirements of Articles 123(2) and 84 EPC are met.

## **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

M. Patin

P. Alting van Geusau