

Internal distribution code:

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

D E C I S I O N
of 19 October 2001

Case Number: T 0924/98 - 3.2.6

Application Number: 92113220.5

Publication Number: 0528248

IPC: A61F 13/15

Language of the proceedings: EN

Title of invention:

Wet-formed composite and method of manufacturing same

Patentee:

KIMBERLY-CLARK WORLDWIDE, INC.

Opponent:

The Procter & Gamble Company

Headword:

-

Relevant legal provisions:

EPC Art. 83, 84, 54(2), 56

Keyword:

"Amendments - admissibility - yes"
"Clarity and support in the description - yes"
"Novelty - yes"
"Inventive step - yes"

Decisions cited:

T 0409/91, G 0004/92

Catchword:

-



Case Number: T 0924/98 - 3.2.6

D E C I S I O N
of the Technical Board of Appeal 3.2.6
of 19 October 2001

Appellant: KIMBERLY-CLARK WORLDWIDE, INC.
(Proprietor of the patent) 401 North Lake Street
Neenah
Wisconsin 54956 (US)

Representative: Diehl, Hermann O. Th., Dr.
Diehl, Glaeser, Hiltl & Partner
Patentanwälte
Postfach 34 01 15
D-80098 München (DE)

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

Representative: Boon, Graham Anthony
Elkington andn Fife
Prospect House
8 Pembroke Road
Sevenoaks
Kent TN13 1XR (GB)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 8 July 1998
revoking European patent No. 0 528 248 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: H. Meinders
Members: G. Pricolo
M. Tardo-Dino

Summary of Facts and Submissions

- I. The mention of the grant of European patent No. 0 528 248 in respect of European patent application No. 92113220.5 filed on 3 August 1992 was published on 23 October 1996.
- II. Notice of opposition was filed against the patent as a whole by the respondent (opponent) under Article 100(a) EPC on the grounds that the subject-matter of the claims lacked novelty and inventive step, and under Article 100(b) EPC on the grounds that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
- III. By decision posted on 8 July 1998 the Opposition Division revoked the patent. The Opposition Division held that, although the invention was sufficiently disclosed, the subject-matter of claim 1 lacked an inventive step in the light of the prior art as disclosed in document
- D2: US-A-4 551 142.
- In addition to D2, the following document also played a role in the opposition proceedings:
- D1: EP-A-0 278 601.
- IV. The appellant (patentee) lodged an appeal, received at the EPO on 11 September 1998, against this decision and paid the appeal fee simultaneously. The statement setting out the grounds of appeal was received at the EPO on 18 November 1998.

V. In an annex to the summons for oral proceedings pursuant to Article 11(2) Rules of Procedure of the Boards of Appeal the Board expressed its preliminary opinion that sufficiency of disclosure (Article 83 EPC) was not at stake, and that a number of the objections of the Respondent related to lack of clarity (Article 84 EPC), which was not a ground for opposition under Article 100 EPC. However, novelty and inventive step needed further discussion.

VI. Oral proceedings before the Board took place on 19 October 2001.

As previously announced by letter dated 14 September 2001 the respondent did not attend the oral proceedings. The proceedings continued without him (Rule 71(2) EPC). During the written proceedings the respondent requested that the appeal be dismissed.

The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the following documents:

Claims: 1 to 23, as filed during the oral proceedings;

Description: pages 2 and 7 to 9 as granted;
pages 3 to 6 as filed during the oral proceedings;

Drawings: Figures 1 to 12 as granted.

VII. Independent claims 1 and 15 according to the appellant's request read as follows:

"1. A wet-formed composite (10), said composite comprising cellulosic fibers (12) and absorbent material (14) said wet-formed composite being obtainable from a combination of absorbent material (14) and a slurry comprising said cellulosic fibers (12) dispersed in a dispersion medium in which said absorbent material is swellable, characterized in that: said absorbent material is combined with said slurry immediately prior to formation of said wet-formed composite such that said absorbent material absorbs less than 5 times its weight until the point of drying, the absorbent material being substantially contained within the wet-formed composite because the wet-formed composite of cellulosic fibers exhibits a relatively high degree of interfiber hydrogen bonding such that the cellulosic fibers are substantially bonded to one another, but is substantially free of bonding to said cellulosic fibers because the absorbent material has a high gel strength."

"15. A method for the manufacture of a wet-formed composite, said method comprising the following steps: forming a slurry of cellulosic fibers and a dispersion medium from which slurry a wet-formed composite can be made; combining an absorbent material, swellable in said dispersion medium, with said slurry of cellulosic fibers immediately prior to forming a wet-formed composite; forming a wet-formed composite containing a combination of cellulosic fiber and absorbent material; and drying said wet-formed composite, so that the absorbent material absorbs less than 5 times its weight before the point of drying, wherein the absorbent material being substantially contained within the wet-formed composite because the wet-formed composite of cellulosic fibers exhibits a relatively high degree

of interfiber hydrogen bonding such that the cellulosic fibers are substantially bonded to one another, but is substantially free of bonding to said cellulosic fibers because the absorbent material has a high gel strength."

VIII. In support of its requests the appellant relied essentially on the following submissions:

Claim 1 had to be construed as a claim to a product as such, which was obtainable by the method as referred to in claim 1 only and not by any other methods. By performing this method, the person skilled in the art would arrive directly at the claimed product and therefore the invention was sufficiently disclosed.

Starting from the closest prior art D2, which disclosed an absorbent material made by forming a slurry of water, cellulosic fibers and hydrocolloidal material, the object underlying the patent in suit consisted in the provision of an improved absorbent composite and a method for its manufacture.

The claimed invention achieved a more substantial containment of the absorbent material even at relatively high concentrations of the absorbent material relative to the concentration of fibers, because the fibers were pre-mixed in a dispersion medium to form a slurry and the absorbent material was then combined with the slurry immediately prior to formation of the composite. "Immediately prior" was defined as the time in which the absorbent material absorbed less than 5 times its weight until the point of drying.

D2 did not disclose a combination of the absorbent material with the slurry immediately prior to formation of the wet-formed composite, but only to combine water, fibers and absorbent material together at the same time to form a slurry.

Furthermore, the claims defined that the absorbent material was substantially contained within the fibers in the absence of bonding between the absorbent particles and the fibers. This feature, which provided an improved containment of absorbent material in a composite structure, could only be achieved if an absorbent material having high gel strength was used, and if the absorbent material was allowed to absorb only a limited quantity of dispersion medium during the wet-forming process because of the limited period of contact with the dispersion medium. Therefore, the subject-matter of the independent claims was not obvious in view of the cited prior art.

IX. The respondent's arguments in respect of the claims filed by the Appellant with the grounds of appeal (which, however, were amended in the oral proceedings) can be summarized as follows.

Claim 1 was to be construed as covering a composite per se, i.e. one which could be obtained by the method implied in claim 1 but which could alternatively be obtained by any other method which produced the same composite. Since part of what was claimed in claim 1 was the obtaining of composites by methods other than the method which was specifically disclosed, and no such other methods were disclosed, the patent did not enable the skilled person to perform the invention over the whole range claimed and thus, as explained in

T 409/91 (OJ 1994, 653), it did not satisfy the requirements of Article 83 EPC. Moreover, the disclosure of the patent gave no clear description as to how the person skilled in the art was to recognize whether a given composite fell within the scope of claim 1 and, accordingly, was insufficient in this respect also. Furthermore, the patent failed to disclose what was meant by the definition "immediately prior", and therefore the person skilled in the art was left without any clear teaching as to the range of times which could be allowed to elapse between combining the slurry and the absorbent material and forming the composite, and for this reason also the patent contravened Article 83 EPC.

The requirements of Article 84 EPC were also not met, because the term "immediately" was unclear. Accordingly, the definition "immediately prior" could not be relied on for distinguishing the invention over the prior art.

The subject-matter of claim 1 lacked novelty. Indeed, the passage of D2 describing that it might be convenient to premix any of the ingredients, namely fibers, water and absorbent, "in any other combination prior to forming the final slurry", was equivalent to a recitation of only three possibilities, one of these being to premix the fibers and water. In any case, the mentioned passage at least gave the skilled person the idea of modifying the process illustrated in D2 by premixing two of the three ingredients. Therefore the subject-matter of claim 1 at least lacked an inventive step. Furthermore, it was already known from document D1 to use short contact times between the absorbent material and the water. The feature that the absorbent

material absorbed less than about 5 times its weight in the dispersion medium prior to the formation of the composite firstly did not necessarily imply a very short contact time with the dispersion medium, as it might take a long time to absorb that quantity of water, and, secondly, was also known from D1.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments (Article 123 EPC)*
 - 2.1 Independent claim 1 includes all the features of original claims 1, 10, 14, 16, 21, 26 and independent claim 15 all the features of original claims 19, 21, 22, 26 and 10.

These independent claims further define that the wet-formed composite of cellulosic fibers exhibits a relatively high degree of interfiber hydrogen bonding such that the cellulosic fibers are substantially bonded to one another. This feature is found *expressis verbis* in the original disclosure (see page 14, lines 25 to 28, of the originally filed patent application).

The additional feature of the independent claims 1 and 15 that the absorbent material has a high gel strength is based on the original disclosure which refers to the absorbent material having a "relatively high gel strength" (page 14, line 21 of the originally filed patent application), and specifies the use of a high gel strength absorbent material, namely IM-5000P

available from Hoechst-Celanese, in all the examples given therein.

Therefore, the independent claims 1 and 15 do not contain subject-matter which extends beyond the content of the application as filed.

- 2.2 Dependent claims 2 to 14 and 16 to 23 are based upon original claims 2 to 9, 12, 13, 15, 17, 18, 20, 23, 24, 27 to 31.
- 2.3 The description of the patent in suit was adapted to be consistent with the claims as amended.
- 2.4 Since the independent claims 1 and 15 define further limiting features with respect to granted claims 1 and 19, the amendments do not result in an extension of the protection conferred.
- 2.5 It follows that none of the amendments give rise to objections under Article 123(2) and (3) EPC.

3. *Sufficiency of disclosure (Article 83 EPC)*

- 3.1 The Board has already treated this question in its annex to the summons to oral proceedings. The Respondent has not supplied further arguments concerning this point.

The Board considers that the patent sufficiently discloses the invention for it to be carried out by a skilled person. The description provides four examples of making the product of claim 1 and of performing the process of claim 15. Furthermore, the period in which the absorbent material is in contact with the

dispersion medium is now sufficiently specific. It is the time between combining the absorbent material with the slurry and the start of drying the composite, in which the high gel strength absorbent material absorbs less than 5 times its weight and at the same time is substantially free of bonding to the cellulosic fibers in the final wet-formed composite.

- 3.2 Decision T 409/91 (*supra*), cited by respondent, deals with the requirement of Article 83 EPC that an application as filed must contain sufficient information to allow a person skilled in the art, using his general knowledge, to carry out the invention within the whole area that is claimed.

However, in the present case there is no evidence that some of the embodiments that fall within the claimed area cannot be carried out. Moreover, the description of the patent in suit provides four examples of making the product of claim 1 and of performing the process of claim 15, thereby specifically disclosing different embodiments within the claimed area. Consequently, the Board comes to the conclusion that the patent contains sufficient information to allow a person skilled in the art, using his general knowledge, to carry out the invention as claimed.

4. *Clarity and support in the description (Article 84 EPC)*

- 4.1 The respondent questioned clarity of the claims essentially on the basis of the presence of the expression "combining immediately prior to formation" in the independent claims. However, as explained above (point 3.1 of this decision), the meaning of this expression is now clear.

4.2 With the amendments claims 1 and 15 are now sufficiently supported by the description in that the fibers containing the absorbent material by interfiber hydrogen bonding are now limited to cellulosic fibers, in that the absorbent material is a high gel strength material and it absorbs less than 5 times its weight in the dispersion medium between combining it with the slurry and the point of drying of the composite.

5. *State of the art - Novelty (Article 54 EPC)*

5.1 Document D1 discloses a wet-formed composite, said composite comprising cellulosic fibers and absorbent material (see page 2, lines 45 to 52). D1 specifically teaches to mix the fibers with the absorbent material (water absorbent polymer) which is in a swelled state (page 3, lines 45 to 47), and aims at obtaining a sufficient bonding between the fibers and the absorbent material (page 4, lines 33 to 35). Therefore, this document does not disclose the feature of claim 1 that the absorbent material is substantially free of bonding to the cellulosic fibers.

According to the process disclosed in D1, the absorbent material has been in contact with the dispersion medium to bring it into a swelled state before being mixed with water, fibers and inorganic material or is added together with the fibers to a slurry comprising water and inorganic material (see page 3, lines 45 to 58). Thus D1 already does not disclose forming a slurry of fibers and dispersion medium and only subsequently combining an absorbent material with said slurry as claimed in claim 15. It further provides no indication of the amount of dispersion medium absorbed by the absorbent material as claimed, resulting in the feature

that this material is substantially free of bonding to the cellulosic fibers as claimed in claim 1.

- 5.2 Document D2 discloses a wet-formed composite, said composite comprising cellulosic fibers and absorbent material, said wet-formed composite being obtainable from a combination of absorbent material and a slurry comprising said cellulosic fibers dispersed in a dispersion medium in which said absorbent material is swellable, see column 3, lines 46 to 48.

As a direct result of the wet-forming process and of the use of cellulosic fibers, the known wet-formed composite exhibits a relatively high degree of interfiber hydrogen bonding such that the cellulosic fibers are substantially bonded to one another. D2 further discloses (column 4, lines 47 to 55) cross-linked polymers suitable for use in the composite according to the patent in suit (cf. the last paragraph on page 3 of the patent in suit), and therefore, it also discloses the use of an absorbent material having a high gel strength.

D2 discloses that the absorbent materials used are capable of absorbing water in an amount which is at least ten times their weight (column 3, lines 62 to 67), but is silent about the quantity of dispersion medium absorbed by the absorbent material until the point of drying during the wet-forming process. As explained in the patent in suit (page 6, lines 3 to 12) the quantity of dispersion medium absorbed, i.e. the degree of swelling of the high gel strength absorbent material, determines whether bonding between the absorbent material and the fibers occurs or not. D2 fails to disclose that the absorbent material absorbs a

limited quantity of dispersion medium, namely less than 5 times its weight, during its time of contact with the dispersion medium and, therefore, it also fails to disclose that in the resulting wet-formed composite the absorbent material is substantially free of bonding to the cellulosic fibers.

Consequently, document D2 does not disclose the features of the characterizing portion of claims 1 and 15, that said absorbent material is combined with said slurry immediately prior to formation of said wet-formed composite such that said absorbent material absorbs less than 5 times its weight until the point of drying, the absorbent material being substantially contained within the wet-formed composite because the wet-formed composite of cellulosic fibers exhibits a relatively high degree of interfiber hydrogen bonding such that the cellulosic fibers are substantially bonded to one another, but is substantially free of bonding to said cellulosic fibers because the absorbent material has a high gel strength.

- 5.3 The other available prior art documents neither disclose the feature of claim 1 that the absorbent material is substantially free of bonding to the cellulosic fibers and of claim 15 that the composite is formed in such a way that the absorbent material absorbs less than 5 times its weight until the point of drying.

It follows that the subject-matter of claim 1 is novel.

6. *Inventive step (Article 56 EPC)*

- 6.1 There is agreement among the parties, and this was also

the position of the Opposition Division, that document D2 represents the closest prior art. The Board shares this view as D2 comes closest to disclosing the combination of the absorbent material with a slurry comprising fibers and dispersion medium, by the mention of alternative ways of combining the components in column 5, lines 6 to 9.

The subject-matter of claims 1 and 15 is distinguished from this prior art by the features of the absorbent material having absorbed less than 5 times its weight between combining it with the slurry and the point of drying of the composite, by which there is substantially no bonding of the absorbent material to the fibers, it being contained within the cellulosic fiber material because of the high degree of interfiber hydrogen bonding.

These features have the effect that the wet-formed composite has an improved performance (see page 2, lines 58 to 59).

- 6.2 The available prior art neither discloses nor gives any indications to limit the quantity of dispersion medium absorbed by the absorbent material during its contact time therewith such that bonding between the absorbent material and the cellulosic fibers during the wet-forming process is substantially avoided. For instance, document D1 actually teaches away from such measures, since it discloses the necessity of such bonding (page 4, lines 32 to 35).

Hence, the Board comes to the conclusion that the subject-matter of claims 1 and 15 cannot be derived in an obvious manner from the prior art and accordingly

involves an inventive step.

7. Dependent claims 2 to 14 and 16 to 23 define preferred embodiments of the wet formed composite of claim 1 and of the process of claim 15. Thus their subject-matter also is novel and involves an inventive step.
8. Finally, the Board finds that considering and deciding on the maintenance of the patent on the basis of the claims as amended during oral proceedings in the absence of the respondent does not conflict with decision G 4/92 (OJ 1994, 149). The restrictions to the claims as applied by the appellant remove objections made by the respondent and thus could have been expected. This is particularly so as the Board, in the annex to the summons to oral proceedings, had addressed these questions as well.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

Claims: 1 to 23, as filed during the oral proceedings;

Description: pages 2 and 7 to 9 as granted;
pages 3 to 6 as filed during the oral

proceedings;

Drawings: Figures 1 to 12 as granted.

The Registrar:

The Chairman:

C. Eickhoff

H. Meinders