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**D E C I S I O N**  
**of 24 September 2002**

**Case Number:** T 0057/00 - 3.2.6

**Application Number:** 91904310.9

**Publication Number:** 0462272

**IPC:** D04H 1/54

**Language of the proceedings:** EN

**Title of invention:**

Method of producing a nonwoven fibrous textured panel and panel produced thereby

**Patentee:**

GATES FORMED-FIBRE PRODUCTS INC.

**Opponent:**

- (I) Fleissner GmbH & Co. Maschinenfabrik  
(II) ASOTA Gesellschaft m.b.H.  
(III) Milliken Research Corporation

**Headword:**

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**Relevant legal provisions:**

EPC Art. 123(2), 86, 83, 54(2), 56, R. 67

**Keyword:**

- "Late filed amendments - admissibility (yes)"  
"Reformatio in peius (no)"  
"Sufficiency of disclosure (yes)"  
"Clarity of the amendments (yes)"  
"Novelty (yes)"  
"Inventive step (yes)"  
"Substantial procedural violation (yes)"

**Decisions cited:**

G 0001/99, T 0633/97, T 0704/96, T 0705/90

**Catchword:**

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Case Number: T 0057/00 - 3.2.6

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.6**  
**of 24 September 2002**

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**Decision under appeal:** Interlocutory decision of the Opposition Division  
of the European Patent Office posted 26 November  
2002 concerning maintenance of European patent  
No. 0 462 272 in amended form.

**Composition of the Board:**

**Chairman:** P. Alting van Geusau  
**Members:** G. Pricolo  
M. B. Tardo-Dino

## Summary of Facts and Submissions

I. The appeals are from the interlocutory decision of the Opposition Division posted on 26 November 1999 concerning the maintenance in amended form of European patent No. 0 462 272, granted in respect of European patent application No. 91 904 310.9.

In the decision under appeal the Opposition Division considered that the grounds for opposition under Article 100(a) to (c) did not prejudice maintenance of the patent in the form according to the main request filed at oral proceedings held on 17 June 1999.

II. The appellants I, II and III (opponents I, II and III) each lodged an appeal against this decision, received at the EPO on 21, 17 and 24 January 2000, respectively. The payment of all three appeal fees was recorded on 24 January 2000. The statements setting out the grounds of appeal were received at the EPO on 16, 22 and 24 March 2000, respectively. Appellant III requested refund of the appeal fee because of a substantial procedural violation allegedly committed by the Opposition Division.

III. The following documents which featured in the opposition procedure were considered as relevant in the appeal proceedings:

D1: US-A-3 616 031;

D3: US-A-3 928 920;

D4: DE-A-2 207 896 (priority document for D3);

D5: "Sonderdruck aus textil praxis international -  
1987, Heft 11", pages 1344 to 1346, 1351 to 1354:  
"Anlagen zur Herstellung von Vliesstoffen für die  
Automobilindustrie";

D10: "Vliesstoff-Technik", Arbeitgeberkreis  
Gesamttextil - Frankfurt am Main, 1987,  
pages 4.16, 4.17, 4.78, 4.79

D14: US-A-3 619 322;

D20: Extract from "Nonwovens", Yearbook 1988: "How to  
make upholstery fabrics on a needleloom", by J.P.  
Dilo;

D23: Special Information Bulletin, Grilon SA, "Bonding  
Non-wovens by Means of Copolyamide Melt-bonding  
Fibres SWISS POLYAMID GRILON Types K 115  
and K 140", 7/77;

D24: JP-A-59-137554, with abstract and translation.

Moreover, the following evidence filed by the patentee  
during opposition proceedings played a role in the  
appeal proceedings:

Warner declaration: declaration of Dr. S. Warner dated  
21 March 1997;

Warner report: front page and pages 9 of a report of  
Dr. S. Warner;

Miller report: front page and pages 10 and 20 of a  
report of Dr. Miller;

Dilo declaration: declaration of J.P. Dilo dated 9 November 1994.

IV. 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 the decision under appeal did not appear to be affected by a substantial procedural violation. Moreover, as regards an alleged lack of sufficiency of disclosure, the Board considered that, since the migration of the second thermoplastic fibers referred to in claim 1 under consideration was apparently caused by the hot fluid passing through the web, the invention appeared to be sufficiently disclosed. It also considered the objections raised in respect of added subject-matter, novelty, and inventive step as needing further discussion during the oral proceedings.

V. Oral proceedings took place on 24 September 2002.

The appellants requested that the decision under appeal be set aside and that the patent be revoked. Appellant III maintained its request for reimbursement of the appeal fee.

The respondent (patentee) requested that the appeal be dismissed and the patent be maintained in amended form on the basis of the claims and description filed during oral proceedings and drawings as granted.

VI. Independent claims 1 and 11 read as follows:

"1. A method for producing a nonwoven fibrous, flexible panel having a textured outer surface (54), comprising the steps of: providing a needled web (52) having a

back surface, said needled web (52) being comprised of interengaged first fibers and second, thermoplastic fibers; needlepunching said web to produce the textured outer surface (54) comprising at least a portion of said first fibers and said second thermoplastic fibers, said back surface being located opposite the textured outer surface (54); and passing a fluid, at a temperature sufficient to melt at least a portion of said second thermoplastic fibers, through said web (52) in a direction from the textured outer surface (54) toward said back surface so as to cause migration of said melted second thermoplastic fibers towards said back surface and to produce a plurality of weld joints of said melted second thermoplastic fibers which bind together at least a portion of said first fibers towards said back surface, the textured outer surface (54) thereafter being substantially free of said second, thermoplastic fibers".

"11. A nonwoven fibrous, flexible panel comprising a needled web (52) having a textured front outer surface (54) and a back surface disposed opposite thereof and including interengaged first fibers and second thermoplastic fibers which have been at least partially melted, said outer textured surface (54) being substantially free of said second thermoplastic fibers and said web having a plurality of weld joints formed by said melted second thermoplastic fibers and which bind together at least a portion of said first fibers proximate said back surface, and wherein no backing layer is required at the back surface of the web to secure the fibres in place, said panel being producible by the following method: providing a needled web having a back surface, said needled web comprised of interengaged first fibers and second thermoplastic

fibers; needlepunching said web to produce the textured outer surface comprising at least a portion of said first fibers and said second thermoplastic fibers, said back surface located opposite the textured outer surface; and passing a fluid, at a temperature sufficient to melt at least a portion of said second thermoplastic fibers, through said web in a direction from the textured outer surface toward said back surface, whereby said second thermoplastic fibres migrate toward said back surface, to produce a plurality of weld joints of said melted second thermoplastic fibers between at least a portion of said first fibers, the textured outer surface thereafter being substantially free of said second thermoplastic fibers".

VII. The arguments of appellant I can be summarized as follows:

The amendments filed by the respondent during oral proceedings were not admissible because of their late filing. A request of similar scope was already filed by the respondent, and there was no reason to admit further amendments at such a late stage of the proceedings.

By stating: "whereby said second thermoplastic fibres migrate..." the text of claim 11 differed from that of claim 1 reciting: "so as to cause migration...", because the term "whereby" had different implications than "so as". Hence, the amendment of claim 11 introduced both new subject-matter and a lack of clarity.

The expression "substantially free" in claims 1 and 11

was vague and indefinite and resulted in a lack of clarity of these claims.

As regards novelty, the subject-matter of claim 1 was known from D1 and D3. These documents did not explicitly disclose that the starting material for the method was a needled web, nor that a migration of fibers took place. However, the migration of the melted fibers was the direct result of the fluid passing through the web. Moreover, it was clear for a skilled person that a preneedled web was used in D1 and D3, since such a preneedled web was normally taken in the prior art as a starting material, as shown in D18 and D20.

In any case, the subject-matter of claims 1 and 11 was obvious in view of the teachings of D24 and D3 or D1. D24 already disclosed shrinking and melting of the second thermoplastic fibers so as to provide a textured outer surface substantially free of said second fibers. As there was no disclosure in D24 of how the web was heated, the skilled person would look in the prior art for a suitable heating process. Since D3 and D1 were concerned with the obtention of a textured outer surface, the skilled person would apply the heating process described in D3 or D1, consisting in passing a hot fluid through the web, to the method known from D24 thereby arriving directly at the subject-matter of claim 1. Indeed, a migration of the melted second thermoplastic fibers was the direct result of the passage of fluid, independent from the duration of such fluid passage and from whether the heating was effected shocklike or not. Moreover, the term "shocklike" used in D1 and D3 merely referred to the rapid heating of the web through its thickness, but did not imply that



the web was heated only for a very short time.

- VIII. Appellant II concurred with the argumentation of appellant I, and additionally submitted that with the amendment of claim 5 the protection conferred by the patent was extended over that conferred by the patent as maintained by the Opposition Division. Maintenance of the patent with such claim 5 would result for the appellants in a reformatio in peius of the decision of the first instance.

Furthermore, the subject-matter of claim 1 was disclosed by document D10. In particular, D10 disclosed that the starting material was a pre-strengthened ("vorverfestigte") web, and this clearly implied, for the skilled person, a pre-needled web. The disclosure of documents D20 and D23 was also prejudicial to the novelty of the subject-matter of claim 1.

Also as regards inventive step the combination of D24 and D10, disclosing the heating of the web by means of a fluid passing therethrough, would directly lead to the claimed subject-matter, as equally would the combination of D24 with either D4, D5 or D23.

- IX. The arguments of appellant III can be summarized as follows.

The application as filed disclosed that the second thermoplastic fibers were pulled away from the textured outer surface, but did not explicitly mention the migration of said fibers towards the back surface. If the fibers were pulled away primarily because of their shrinkage, as apparent from the Warner declaration submitted by the patentee, then a migration of the

fibers themselves was clearly not disclosed, even implicitly.

Since claim 11 specified that no backing layer was required at the back surface of the web to secure the fibres in place, its subject-matter included a panel both without and with a backing layer. In contrast thereto, claim 11 in the form as maintained by the Opposition Division defined that no backing layer was provided, thereby excluding the presence of a backing layer. As a consequence, the amendment of claim 11 resulted in an extension of the protection conferred by the patent over that conferred by the patent as maintained by the Opposition Division. Maintenance of the patent with such claim 11 would result for the appellants in a *reformatio in peius* of the decision of the first instance.

In claim 11 it was not clear whether the term "whereby" in the expression "whereby said second thermoplastic fibres migrate toward said back surface" referred to the direction of the fluid flow or to something else. Furthermore, the redundancy of features in claim 11 also resulted in a lack of clarity.

Also as regards novelty, in addition to the submissions of appellants I and II, the disclosure of document D24 was relevant, namely in respect of the subject-matter of claim 11. Indeed, also in the product of D24 the fibers having lower melting point were absent from the outer surface, and a uniform distribution of weld joints was obtained which was identical to that obtainable by passing a fluid through the web. Furthermore, an intermediate product having no backing layer was explicitly shown in D24.

In respect of inventive step, appellant III concurred with the argumentation of appellants I and II and further observed that the migration referred to in the claims was directly obtained when fibers were melted and fluid was passed through the web. Such migration, however, did not have any particular technical effect, since a soft outer textured surface was already present in D24, and in D1, D3, D10 as well. Therefore, the problem underlying the patent in suit could only be seen in the provision of an alternative fibrous panel. Furthermore, D1 disclosed that the pressure caused by the fluid passing through the web was advantageous in that it provided more uniform bonding. Hence, the provision in the method of D24 of a heating method in which fluid passed through the web was obvious. Such provision was obvious also in view of the teaching of D14.

Appellant III requested refund of the appeal fee on the grounds of substantial procedural violations committed by the Opposition Division. The decision under appeal was inadequate in its reasoning in relation to novelty and inventive step because it gave no reason why the Division ignored the teaching of D24 which described how the melted low-melting point fibres bound together the high melting point fibres proximate the back surface, and because the decision merely stated that the subject-matter of claim 11 was considered to involve an inventive step for the same reasons given for claim 1. Moreover, appellant III was not given sufficient time to consider the main and auxiliary requests filed by the patentee at the oral proceedings during opposition proceedings, and there was no mention in the minutes of appellant III's protests to the filing of the late amendments.

- X. In support of its request the respondent relied essentially on the following submissions:

According to the patent in suit, the nonwoven fibrous panel was obtained by passing hot fluid through a needled web comprising first fibers, and second thermoplastic fibers having a lower melting point than the first fibers. By doing this, an outer surface substantially free of second thermoplastic fibers was obtained, because the second thermoplastic fibers had collapsed by melting and shrinking, as described in the Warner report. The distribution of second thermoplastic fibers throughout the web had consequently changed, whereby the second thermoplastic fibers had migrated towards the back surface since they were no longer present on the outer surface. The direction of fluid flow was irrelevant for the obtention of this result, as confirmed by the Warner and Miller reports, and indeed a nonwoven panel in accordance with the patent in suit did not have a gradient of distribution of the second thermoplastic fibers. Anyway, the feature that second thermoplastic fibers were pulled away from the outer surface of the web was clearly disclosed in the application as filed, and this clearly constituted a disclosure of the migration of said second thermoplastic fibers, independently from whether the migration was caused by a melting and shrinking of the fibers only or by the passage of fluid through the web. The amendment of claim 11 consisting in replacing "provided" by "required" was made in response to the objection under Article 123(2) EPC raised by appellant III, that the application as filed only disclosed that some specific backing layers could be dispensed with, not that a backing layer was generally absent. Also the introduction of all the features of

original claim 1 in claim 11 was made to overcome the objection raised by the appellants under Article 123(2) EPC that claim 11 did not include a reference to the method of claim 1. It was true that, by doing so, a certain redundancy was generated; however this was the only manner for the respondent to overcome the objection and at the same time avoid further objections under Article 123(2) without unduly restricting the claim. Furthermore, the meaning of the expression "whereby said second thermoplastic fibres migrate toward said back surface" corresponded to the meaning of the expression "so as to cause migration of said second thermoplastic fibers" and the text of claim 1 did not leave any doubt that the migration was linked to the direction of fluid passage.

D1 was concerned with a panel in which bonds were formed also onto the textured outer surface, not only proximate the back surface. Similarly, in D3 and D4, the thermoplastic fibers having lower melting temperature were present on the outer surface of the panel because they were not melted there during the manufacturing process. According to the teaching of document D18, the total fiber mass was bound together, ie also the fibers onto the textured outer surface, as confirmed by the Dilo declaration. The same applied for the method and panel disclosed by D20. Document D23 was concerned with obtaining a uniform bonding across the sheet, ie with bonds also on the outer surface. In document D24 there was no mention of melting the fibers by convection heating, and a melting of the thermoplastic fibers having a lower melting point in the region of the web proximate the back surface was not disclosed. Therefore, the claimed subject-matter was novel.

It also involved an inventive step. Indeed, the skilled person would not consider to heat the web of D24 by passing hot air therethrough, as this would result in melted fibres reaching the bottom of the web, and this would be in contrast with the specific objective of document D24 to avoid a backing resin layer, ie a layer of melted fibres, on the bottom of the web. Furthermore, D24 did not disclose a migration of melted fibers, but merely a migration before melting due to the shrinking of the fibers. D1, D3 and D14 all referred to a shocklike heat treatment and did not disclose a migration of melted fibers.

### **Reasons for the Decision**

1. The appeal is admissible.
2. *Amendments*
  - 2.1 Formal admissibility of the amendments

Since claim 11 of the respondent's request was filed during the oral proceedings the question of admissibility of the request arises because of its late filing.

In the present case, claim 11 differs from claim 11 of the previous main request on file (ie claim 11 of the patent in the form considered allowable by the Opposition Division; see the letter of the respondent dated 5 December 2000) by way of the following amendments:

(i) the introduction of a reference to the method of producing a nonwoven panel according to original

claim 1 by reciting all the steps thereof;

(ii) the substitution of the term "provided" with "required"; and

(iii) the insertion of the text "whereby said second thermoplastic fibers migrate towards said back surface".

Amendment (i) introduces a reference to the method of original claim 1 and, together with amendment (iii), to the method of claim 1 of the present request.

Amendment (ii) cannot be regarded per se as late filed, since it was made for overcoming an objection pursuant to Article 123(2) EPC raised by appellant III for the first time in the letter of 10 July 2002, ie about two months before the date of oral proceedings.

In the Board's opinion, the amendments do not give rise to any complex technical or legal issues. Hence, if the new request is admitted, it would not substantially lengthen the proceedings. In particular, it would not render an adjournment of the oral proceedings necessary (see T 633/97, point 2). For these reasons, the Board admits the new request filed during oral proceedings.

## 2.2 Article 123 EPC

2.2.1 Claim 1 corresponds to claim 1 as granted. Since the patent was opposed also on the grounds of Article 100(c) EPC, it must be investigated whether the subject-matter of claim 1 extends beyond the content of the application as filed (Article 123(2) EPC).

Claim 1 differs from claim 1 of the application as

filed in substance only in that it additionally defines that the fluid is passed "so as to cause migration of said melted second thermoplastic fibers towards said back surface".

In the application as filed, the term "migration" is not mentioned, but it is disclosed (see page 9, lines 13-19) that "by pulling such fluid (heated to a temperature that will melt at least a portion of the second thermoplastic type fibers to produce weld joints, not shown, thereof) in a direction from recirculation chamber 40 into drum chamber 60, liquefied second thermoplastic type fibers will be pulled away from the textured outer surface 54". Hence, the application clearly and unambiguously discloses that melted (ie liquefied) fibers are pulled away from the textured outer surface, and that according to the patent in suit this effect is caused by the fluid pulled in the direction from the textured outer surface towards the back surface. In the Board's judgement, since the pulling away of the liquefied fibers by the fluid corresponds in effect to the definition of claim 1 that the fluid passes through the web so as to cause migration of said second thermoplastic fibers towards said back surface, the subject-matter of claim 1 does not extend beyond the application as filed.

Considering the disclosure of the patent in suit, the Board cannot follow the argument of the respondent that the direction of fluid flow was irrelevant for the migration to take place. As regards shrinking of the fibers, the Board does not contest the evidence filed, namely the Warner declaration and report, and the Miller report, according to which an equally acceptable



resulting carpet product (see eg the Warner declaration, page 2, first paragraph), ie one having a textured outer surface substantially free of low-melting point second thermoplastic fibers, is obtained as a result of the partial melting and shrinking of the fibers which is independent from the method of heating.

However, this evidence does not apply in the present case, for the following reasons. As submitted by the respondent in the opposition proceedings (see letter dated 16 April 1998), this evidence was produced during litigation proceedings before the United States District Court, district of Massachusetts, involving two US patents similar to the patent in suit. However, the claims of these US patents do not refer to a migration of the fibers. In the present case the situation is quite different, because claim 1 explicitly refers to a migration of the melted fibers and this feature, which was presented as providing a significant technical effect during the examination proceedings (see the letter of the applicant dated 1 February 1994), is a further limiting feature in that it requires the melted fibres themselves to move towards the back surface under the action of the passing fluid as is explicitly stated in the patent in suit.

Moreover, the respondent has not disputed the fact that the passing fluid causes a movement (ie migration) of the melted fibres.

2.2.2 Claim 11 results from claim 10 of the application as filed, which begins with "A nonwoven fibrous panel produced by the method of claim 1". Claim 11 accordingly refers to the method of original claim 1 by

stating "said panel being producible by the following method" and by reciting thereafter all the features thereof, with the addition of the expression "whereby said second thermoplastic fibres migrate towards said back surface" which does not give rise to objections under Article 123(2) EPC for the reasons given above (see point 2.2.1). In this respect, the Board notes that although this expression differs in wording from the corresponding expression of claim 1: "so as to cause migration of said melted second thermoplastic fibers towards said back surface", in particular because the term "whereby" is present instead of "so as" as pointed out by appellant I, these expressions are identical in their substance since both refer to the effect, ie the migration, caused by the passage of fluid.

The product features referred to in claim 11 (from "comprising a needled web..." to "...said panel being producible") are the clear and direct consequence of a manufacturing method carried out in accordance with claim 1 of the application as filed.

Finally, claim 11 defines: "and wherein no backing layer is required at the back surface of the web to secure the fibres in place". In the Board's view, since the application as filed describes that the fibres are secured in place by means of the weld joints formed by the low-melting point second thermoplastic fibres (see eg page 9, lines 13 to 19 of the application as filed), it also clearly and unambiguously discloses that a backing layer is not required for that purpose.

Therefore, the Board comes to the conclusion that the amendments of claim 11 do not give rise to objections

under Article 123(2) EPC.

2.2.3 The subject-matter of the dependent claims is directly and unambiguously derivable from the divisional application as filed, and the description of the patent in suit is adapted to be consistent with the claims as amended.

2.2.4 Hence, the amendments do not introduce subject-matter which extends beyond the content of the application as filed (Article 123(2) EPC).

2.2.5 As stated above, claim 1 corresponds to granted claim 1 and claim 11 has been restricted, with respect to granted claim 11 which does not contain any reference to the manufacturing method, to a panel obtainable by a specific manufacturing method.

Therefore, the amendments do not result in an extension of the protection conferred (Article 123(3) EPC).

2.2.6 It follows that none of the amendments give rise to objections under Article 123(2) and (3) EPC.

2.3 *Objections raised in respect of "reformatio in peius"*

2.3.1 Appellant III objected to the amendment of claim 11 on the basis that the maintenance of the patent with such a claim would result in a reformatio in peius of the decision under appeal. Replacing the term "provided" by "required" implied an extension of the scope of the claim.

It is true that claim 11 as amended includes also nonwoven panels having a backing layer, although the

presence of such a backing layer is clearly excluded from the scope of claim 11 as maintained by the Opposition Division. However, the amendment of claim 11 was made by the respondent in order to meet an objection put forward by the appellant during the appeal proceedings, in circumstances where the patent as maintained in amended form would otherwise have to be revoked as a direct consequence of an inadmissible amendment held allowable by the Opposition Division in its interlocutory decision. In such circumstances, in order to overcome the deficiency, according to G 1/99 (OJ 2001, 381) the patent proprietor/respondent may be allowed to file requests, as follows:

- in the first place, for an amendment introducing one or more originally disclosed features which limit the scope of the patent as maintained;
- if such a limitation is not possible, for an amendment introducing one or more originally disclosed features which extend the scope of the patent as maintained, but within the limits of Article 123(3) EPC;
- finally, if such amendments are not possible, for deletion of the inadmissible amendment, but within the limits of Article 123(3) EPC.

Since in the Board's view an amendment introducing one or more originally disclosed features which limit the scope of the patent as maintained is not possible in the present case, nor has such an amendment been put forward by any of the parties, and the amendment of "provided" to "required" in claim 11 introduces an originally disclosed feature (see above point 2.2.2)

which extends the scope of the patent as maintained, but within the limits of Article 123(3) EPC (see above point 2.2.5), it must be concluded that the amendment of claim 11 satisfies the conditions of G 1/99 and is as a consequence allowable.

- 2.3.2 Appellant II also objected to the amendment of dependent claim 5 under the principle of the prohibition of *reformatio in peius*.

Claim 5 is amended so as to correspond to claim 5 as granted. In the form as maintained by the Opposition Division claim 5 was amended by deletion of the particular embodiment that the second thermoplastic fibers comprise bicomponent thermoplastic fibers. However, the amendment of claim 5 consisting in the reintroduction of this particular embodiment, cannot extend the protection because claim 5 is properly dependent on claim 1 which defines the broadest scope of protection. Therefore, the maintenance of the patent with claim 5 as amended cannot be said to put the appellants in a worse position than if they had not filed an appeal.

- 2.4 Clarity (Article 84 EPC)

In the Board's judgment, taking into consideration the amendments made by the respondent to the claims, the patent meets the requirements of Article 84 EPC.

Appellant I objected that the expression "substantially free" in claims 1 and 11 was not clear. However, this expression was already present in the claims as granted and moreover, in the Board's opinion, it is an acceptable definition in this field of technology for

the reasons already set out in the decision under appeal (page 5, "Further observations") in response to this objection being raised by opponent III during the opposition proceedings.

The appellants also objected to the term "whereby" in claim 11. In the Board's view, the expression "whereby said second thermoplastic fibers migrate" clearly refers to the effect that the fluid has on the melted fibres, and thus corresponds to the definition of claim 1 "so as to cause migration of said melted second thermoplastic fibers". The appellants argued that the term "whereby" did not correspond to the term "so as", and that it was not clear whether the term "whereby" referred to the direction of fluid flow. However, the Board does not see any other possible interpretation of the wording of claim 1. Nor has such an alternative interpretation been put forward by the appellants.

Appellant III furthermore submitted that the redundancy of features in claim 11 resulted in a lack of clarity. Although the Board accepts that the product features explicitly defined in claim 11 are the direct result of the method steps referred to in claim 11, and therefore that a certain redundancy is indeed present in claim 11, it takes the view that, since the redundancy does not lead to any inconsistencies or contradictions, it does not throw doubt on the matter for which protection is sought. On the contrary, the explicit reference to the product features allows immediate identification of the features of the claimed nonwoven panel, which must be obtainable by the method referred to in claim 11.

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

- 3.1 The Board is satisfied that, having regard in particular to Figures 1 to 4 and column 7, line 38 to column 8, line 32 of the patent, the patent contains sufficient information enabling a skilled person to reproduce the claimed method and the claimed nonwoven panel, and therefore, that the requirements of Article 83 EPC are met.

In this respect, the Board observes that it is credible that melted thermoplastic material is moved under the action of the passing fluid since the pressure generated by the latter onto the melted thermoplastic globules results in forces directed in the direction of fluid movement. This is confirmed by the Dilo declaration (see page 3, first paragraph), which does not put in doubt that a migration takes place. Moreover, no evidence in support of the contrary has been produced.

- 3.2 The objections of appellant II and III in this respect (see letter of appellant II dated 18 March 2000, page 10; see letter of appellant III dated 10 July 2002, page 6) applied in case the Board would conclude that the migration of the fibres was not caused by the fluid passing through the web. Since the Board does not come to this conclusion, as explained above (see point 2.2.1), the objections fail. Moreover, the Board already treated this question in its annex to the summons to oral proceedings, and appellants II and III did not supply further arguments concerning this point.

4. *State of the art - novelty*

- 4.1 Document D1 discloses a method for producing a felt-like material having a textile-like outer surface

(col. 4, lines 74, 75), comprising the steps of: providing a needled web (11; see column 1, line 9) being comprised of interengaged first fibers and second, thermoplastic fibers (col. 2, lines 72 to 75); and passing a hot fluid through said web (see column 6, lines 57 to 62). Furthermore, D1 describes that the second thermoplastic fibers as being **sticking** or **melting** fibers (see column 5, lines 73 to column 6, line 1).

In the Board's judgment, D1 does not disclose that the process parameters during the heating step are such as to cause a migration of the melted second thermoplastic fibers. Indeed, for such a migration to effectively take place, the heating (in particular, the temperature of the fluid and the duration of the heating) must be such that the fibers melt to a sufficient extent such that they can be transported, in melted state, by the passing fluid. The fluid must moreover possess a sufficient velocity to initiate the transport of the melted fibres. D1 merely discloses that **melting** fibers are provided and that the fluid temperature is above the melting point thereof (see example III on col. 5), yet it is silent about the extent to which the fibers are melted.

The reference to a "shocklike" heat-treatment in D1 (see claim 1) suggests a rapid and diffused heating throughout the thickness of the web due to the fluid passing through the web, as opposed to those heat-treatments where only the melting fibers at the surface of the felt melt (see col. 1, lines 57 to 61). In the Board's view, however, there is no basis in the disclosure of D1 to conclude that the melting of the fibers is so immediate and to such an extent that the



melted fibers migrate under the action of the passing fluid during the time spent within the heating chamber; rather the invention disclosed in D1 only concerns bringing the fibres in an adhesive state (see column 2, lines 36 to 55) to effect bonding.

Moreover, D1 does not disclose the step of needle punching the (already) needled web before the heat-treatment.

- 4.2 D1, D3, D4 and D14 are all from the same inventor and their disclosure is very similar.

D3 substantially adds to the disclosure of D1 the teachings of providing pressure rollers at the outlet of the heating device, which can be pressed against each other under a variable pressure, and of providing an adjustable fresh air intake opening (see claim 1). D3 additionally discloses the provision of a needling machine (2; see column 4, lines 42 to 44). Moreover, it describes that the material is heated below its bonding temperature by the passing fluid (see column 3, lines 36 to 40), whereby a migration of the melted fibres cannot take place.

The teachings of D4, which is the German patent publication corresponding to the US patent D1, and of D14, do not go beyond that of D1.

- 4.3 D10 discloses a method for producing a nonwoven panel having a textured front outer surface in which a web comprising melting fibers is heat-treated on a sieve drum subject to a suction draft with hot air (see Fig. 4.50, third drawing from the top of the page; see page 4.79). It does not give any details of the process

parameters applied during the heat-treatment.

- 4.4 Document D20 discloses a method for producing a nonwoven panel having a textured outer surface, wherein a fluid is passed through a fibrous web comprising low-melt fibers to soften them and bind the total fibre mass together (page 24, "Finishing Di-Lour velours").

Since the fluid has a temperature only sufficient to soften the low-melt fibers, a migration of melted thermoplastic fibers cannot take place.

- 4.5 Using the wording of claim 1 of the patent in suit, document D23 discloses a method for producing a nonwoven fibrous, flexible panel having a textured outer surface, comprising the steps of: providing a needled web (page 6, left-hand column, 8 and 9th par.) having a back surface, said needled web being comprised of interengaged first fibers and second, thermoplastic fibers (page 4, right-hand column, first paragraph); said back surface being located opposite the textured outer surface; and passing a fluid, at a temperature sufficient to melt at least a portion of said second thermoplastic fibers, through said web in a direction from the textured outer surface toward said back surface (page 6, "Bonding", reference to screen drum dryers) so as to produce a plurality of weld joints of said melted second thermoplastic fibers which bind together at least a portion of said first fibers towards said back surface, the textured outer surface thereafter being substantially free of said second, thermoplastic fibers (page 3, right-hand column).

D23 discloses (page 6, "Processing time and temperature") that it is important that heat is applied

to each fibre and that, when the thermal bonding fibres are sufficiently melted, their shape disintegrates to form bonding beads. However, D23 does not disclose that the process parameters of the fluid passage are such as to cause a migration of the melted second thermoplastic fibers (see point 4.1 above).

- 4.6 D24 discloses a method of manufacturing a needle-punched loop pile felt comprising mixing high melting point and low melting point fibres and then fusing the low melting point fibres to bind the primary fibers to each other (see page 4, first paragraph). D24 does not disclose how the heating step for fusing the low melting point fibres is carried out.
- 4.7 Since none of the above-mentioned documents D1, D3, D4, D10, D14, D20, D23 and D24, nor any of the other available pieces of prior art, discloses that in the step of passing a fluid through the web the process parameters are such as to cause a migration of the melted thermoplastic fibers, the subject-matter of claim 1 must be considered to be novel.
- 4.8 The nonwoven fibrous panel of claim 11 is producible by a method in which the second thermoplastic fibers migrate toward the back surface. The migration of said second thermoplastic fibers directly results in a distribution of second thermoplastic material which is different from that obtained if no migration takes place, the concentration of second thermoplastic material towards the back surface being in the first case higher than in the second case.

Since the prior art does not disclose that a migration takes place, the distribution of second thermoplastic

material resulting from the migration is not disclosed by the prior art. As a consequence, and considering that the mentioned distribution is a product feature required by the definition of claim 11 of the patent in suit, its subject-matter is found to be novel.

5. *Inventive step*

5.1 The technical problem underlying the patent in suit consists in producing a nonwoven fibrous, flexible panel retaining a "velour-like" textured outer surface, which is capable of withstanding frequent and harsh use without necessarily needing a backing layer of sintered thermoplastic, latex, latex compound, urethane, or the like (see column 2, line 56 to column 3, line 4 of the patent in suit).

5.2 Document D23 represents the closest prior art because it discloses a method which aims at the same objective (see D23, page 3) as and has the most technical features in common with the claimed invention.

5.3 The above mentioned technical problem is solved, in accordance with the definition of claim 1, by the provision of the following features:

- needlepunching the (needlepunched) web to produce the textured outer surface;

-passing the hot fluid so as to cause migration of said melted second thermoplastic fibers towards said back surface.

5.4 As explained above (point 4 of the decision), the prior art does not disclose that the step of passing a fluid

through the web is carried out in such a manner so as to cause a migration of melted second thermoplastic fibers towards the back surface. Neither is such a migration and the advantages thereof suggested by the available prior art. Therefore, the subject-matter of claim 1 is found to involve an inventive step.

- 5.5 The appellants argued that the subject-matter of claim 1 was obvious when starting from the prior art known from D24 in view of the teaching of any of documents D1, D3, D4, D5, D10, D14 and D23. However, even if the skilled person would provide a heating process in accordance with these documents, consisting in passing a hot fluid through the web, to the method of D24, he would still not be taught to carry out the heating process so that a migration of melted fibres takes place.

Appellant III further submitted that the migration did not have any particular technical effect and that the problem underlying the patent in suit could only be seen in the provision of an alternative fibrous panel. However, the Board takes the view that the migration of the second thermoplastic fibers directly results, as compared to the case in which no migration takes place, in a concentration of second thermoplastic material being higher towards the back surface and lower at the outer textured surface (see above point 4.8).

Therefore, the migration effectively contributes to the solution of the problem of providing a nonwoven panel having a "velour-like" textured outer surface which does not necessarily need a backing layer. Moreover, the fact that the migration is a beneficial result is confirmed by the Dilo declaration (see page 3), and no contrary evidence has been produced by the appellants.

5.6 Independent claim 11 requires that the nonwoven fibrous panel has a distribution of second thermoplastic material obtainable by a method in which the second thermoplastic fibers migrate toward the back surface, such method corresponding to the method of claim 1 (see point 4.8 of this decision). Since no such migration, as explained above, nor any other methods of obtaining the mentioned distribution, are rendered obvious by the prior art, the subject-matter of claim 11 is also found to involve an inventive step.

6. Therefore, independent claims 1 and 11, together with the dependent claims and the description as amended during the oral proceedings of 24 September 2002, and the figures as granted, form a suitable basis for maintenance of the patent in amended form.

7. *The alleged substantial procedural violation*

7.1 Pursuant to Rule 67 EPC, allowability of the appeal constitutes a prerequisite for reimbursement of the appeal fee. This may be the case if the appeal is only partly allowed, as in the present case (see eg T 704/96, point 6.1). Therefore, it must be considered whether an alleged substantial procedural violation was committed by the Opposition Division. The Board has already treated this question in the annex to the summons to oral proceedings, and appellant III did not supply further arguments concerning this point. Thus, the Board comes to the conclusion that no substantial procedural violation was committed by the Opposition Division, for the following reasons.

7.2 The decision is sufficiently reasoned within the meaning of Rule 68(2) EPC. Indeed, there are no

difficulties to see how the Division arrived at the conclusion that the subject-matter of claim 11 is novel (see in particular page 9 of the decision under appeal and the last lines of point 4 of the minutes of oral proceedings). Moreover, it is clear that when the Division, in its decision, acknowledges inventiveness of claim 11 for the same reasons as for claim 1, it bases its conclusion on the absence, in the prior art, of a migration which results in the thermoplastic fibers binding together at least a portion of the first fibers proximate the back surface.

- 7.3 Since the amendment made to claim 11 during the oral proceedings before the Opposition Division consists merely in the addition of an expression negating the presence of a feature (backing layer) in the claimed panel, and the absence of this feature from the subject-matter of claim 1 is extensively discussed by the patentee in respect of the disclosure of document D24 (see letter dated 16 April 1998, pages 2 and 3), the parties could have been expected to be able to react immediately to the new request during the oral proceedings. Furthermore, appellant III objected to the admissibility of the new request only on the grounds of its late filing (Rule 71(a) EPC). Considering that Rule 71(a) EPC does not exclude their consideration ("need not be considered"), the mere "late filing" does not per se justify the rejection of a new request filed during oral proceedings (see per analogy the reasoning developed in T 705/90, point 9 of the reasons). In the Board's view, the Division correctly exercised its discretion in allowing the new request.

In this respect it is noted that the alleged procedural violation, based on the fact that the minutes of the

oral proceedings did not reflect the appellant's objection in respect of the "late filing " of the new request, at the most, constitutes a minor formal procedural violation and cannot amount to a substantial one for the following reasons: considering that the Board is satisfied that the right to be heard of the opponent was not infringed for the reasons above-mentioned and that the late amendments were rightly admitted into the procedure and did not negatively affect the appellant's rights in this respect, the alleged omission of the mention of the opponent's protests in the minutes of the proceedings in itself cannot be considered a violation of the right to be heard, and therefore can only constitute a non compliance with the provisions of Rule 76(1) EPC. Thus, because the alleged procedural violation has no consequence at all for the appellant's rights, it remains a purely formal objection the remedy for which would have been correction of the minutes if so requested by the appellant and accepted by the Opposition Division.



## Order

### For these reasons it is decided:

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 18 filed during oral proceedings;

**description:** pages 2 to 6 filed during oral proceedings;

**drawings:** Figures 1 to 6 as granted.

The Registrar:

The Chairman:

M. Patin

P. Alting van Geusau