

Publication in the Official Journal Yes / No

File Number: T 468/88 - 3.2.5

Application No.: 82 303 606.6

Publication No.: 0 070 164

Title of invention: Absorbent nonwoven fabric containing staple length
polyester/polyethylene conjugate fibers and absorbent
fibers

Classification: D04H 1/54 A61F 13/16

D E C I S I O N
of 1 July 1992

Applicant: CHICOPEE

Opponent: AKZO FASER AG

Headword:

EPC Article 56 EPC

Keyword: "Inventive step (yes)"

Headnote

Summary of Facts and Submissions

- I. European patent No. 0 070 164 was granted on 24 September 1986 in response to the European patent application No. 82 303 606.6.
- II. The independent claims of the patent as granted read as follows:
1. "An absorbent, thermal bonded non-woven fabric having a bulk density below about 0.15 gram per cubic centimeter, said fabric comprising pulp length absorbent fibers and staple length conjugate fibers, said conjugate fibers being composed of polyethylene and polyester, wherein a substantial proportion of the surfaces of said conjugate fibers comprises said polyethylene."
 11. "Process which comprises:
 - (a) producing a web comprising pulp length absorbent fibers and staple length conjugate fibers, said conjugate fibers being composed of polyethylene and polyester, wherein a substantial proportion of the surface of said conjugate fibers comprises said polyethylene;
 - (b) subjecting said web to temperature sufficient to fuse said polyethylene without fusing said polyester, while maintaining said web under minimal pressure; and
 - (c) cooling said web to re-solidify said polyethylene, to thereby produce a low density, highly absorbent, thermal bonded non-woven fabric."

14. "A catamenial device comprising the non-woven fabric of any one of Claims 1 to 10".

III. The patent was opposed by the Appellant, who requested the revocation of the patent on the grounds that its subject-matter did not involve an inventive step within the meaning of Article 56 EPC.

The Appellant cited the following documents:

(D1) US-A-2 774 128

(D2) US-A-3 768 118

(D3) GB-A-1 308 935

(D4) GB-A-1 149 270

(D5) Derwent Abstract No. 090 88 B/05 (JP-A-53 145 998)

(D6) US-A-3 511 747

IV. The Opposition Division rejected the opposition in a decision dispatched on 13 June 1988.

V. The Appellant filed an appeal against this decision on 4 July 1988 with the payment of the appropriate fee and submitted a Statement of Grounds on 17 September 1988. The Appellant maintained that the subject-matters of the claims was obvious in particular in view of the combined teaching of documents D3 and D4.

V. The Appellant requested the revocation of the patent, whereas the Respondent requested the dismissal of the appeal.

Reasons for the Decision

1. Novelty

None of the documents cited by the Appellant shows all the features of the non-woven fabric of Claim 1 or of the

process of producing such a fabric disclosed in Claim 11 or of the catamenial device of Claim 14 of the patent in suit. The subject-matters of the independent Claims 1, 11 and 14 are consequent novel within the meaning of Article 54 EPC. The novelty of these claims has also not been contested by the Appellant.

2. Inventive step

2.1 According to the patent in suit, the object of the invention is to provide a non-woven fabric having very high absorbent capacity and which can be made by using a minimum of energy.

To this end, the patent proposes, instead of using a combination of wood pulp and heat fusible fibres which latter are fused and destroyed during the manufacturing process, as does the prior art cited in the patent (cf. page 2, lines 11 to 17), to use pulp length (that is very short) absorbent fibres together with staple length (that is relatively long) conjugate fibres composed of polyethylene and polyester, a substantial proportion of the surface of said conjugate fibres comprising said polyethylene. The sheaths of polyethylene are fused during the manufacturing process of the fabric bonding the cores of polyester together and to the pulp length absorbent fibres.

2.2 The Appellant has essentially argued that the use of conjugate fibres together with pulp length absorbent fibres would be obvious for the man skilled in the art when considering the combined teaching of documents D3 and D4. According to the Appellant, the document D3 teaches the use in a diaper of a porous facing layer in the form of a water

wettable bonded web of mixed long and short (that is pulp length) fibres (see page 1, lines 67 to 74). The Appellant admits that according to this document, the long and short fibres are bonded together with a bonding agent (see page 3, lines 52 to 55). However, since the disadvantages of using adhesives for binding the fibres together were already known from document D6. (see Column 1, lines 34 to 58) which teaches that the use of composite fibres has advantages in terms of drape and handle (see Column 6, lines 51 to 59) and since document D4 teaches the use of conjugate fibres of polyester/polyethylene (PET/PE) as bonding fibres in non-woven materials of low bulk density (see page 2, lines 29 to 37) and page 1, lines 43 to 56), the therefore obvious substitution of these conjugate fibres to the long fibres of D3 would result in a non-woven fabric having all the characterising features of Claim 1 of the patent in suit.

2.3 The Board cannot agree with this reasoning.

Document D3 which relates to a diaper cannot be considered as the state of prior art being the nearest to the present invention. In fact, as submitted by the Respondent, the "facing layer" of this diaper is not a suitable point of departure for a highly absorbent non-woven fabric since the features which it possesses (porous and wettable but not absorbent to a significant degree) to play its role in the diaper are contradictory with the aims of the present invention. Therefore, the man skilled in the art searching to solve the problems of the present invention at the date of priority of the patent in suit would not have taken this document into consideration and it is only by a retrospective analysis that it is possible to see in it a connection with the invention.

Although the documents D4 and D6 both describe the use of composite fibres having a core of polyester and a sheath of a thermofusible component (polyethylene in the case of document D4), they do not refer to the production of non-woven absorbent fabrics. The document D4 is concerned with the production of a material for stuffing and padding applications having a low bulk density and using only staple length fibres whereas the document D6 is concerned with the production of non-woven materials for various applications as an industrial fabric in the filtration of gases and liquids, as apparel fabrics in the fabrication of articles of clothing etc... (see Column 8, lines 67 to Column 9, lines 2). Furthermore, it is mentioned in D6 that short fibres (i.e. pulp length fibres) may be used but, in this case, a wet laying technique is used (see Column 6, lines 20 to 23). This shows that document D6 does not contemplate the production of low bulk density absorbent non-woven fabrics.

Consequently, D4 and D6 either taken alone or in combination cannot be considered as rendering obvious the subject-matter of Claim 1 of the patent in suit. Therefore, the subject-matter of Claim 1 involves an inventive step within the meaning of Article 56 EPC.

Claim 1 being allowable, the dependent Claims 2 to 10 which relate to various embodiments of the fabric of Claim 1 are also allowable. It is true, as the Appellant rightly observes, that Claim 8 contains an apparent contradiction with Claim 1 in that it indicates that "the absorbent fibers are rayon staple fibres" (emphasis by the Board). This apparent contradiction is however removed when reference is made to the corresponding passage of the description of the patent in suit (see page 3, lines 15 to 18) which shows that absorbent rayon staple fibres may be used in addition to the pulp fibres. Therefore, Claim 8 has to be interpreted, in application of Article 69(1) EPC, as

meaning that in addition to the absorbent pulp fibers the fabric comprises absorbent rayon staple fibres.

- 2.4 The independent process Claim 11 contains all the features of Claim 1 except that it does not give a maximal value for the bulk density of the low density highly absorbent product obtained. However, as results from the above considerations, the specific value of the density has no influence in the reasoning for novelty and inventive step of the product of Claim 1. Therefore, since a method (even already known per se) for making a product which is in itself novel and inventive is also novel and inventive (see decision T 119/82; OJ 1984, 217), the subject-matter of Claim 11 is also novel and inventive within the meaning of Articles 54 and 56 EPC.

Claim 11 being patentable, the dependent process Claims 12 and 13 are also patentable.

- 2.5 As Claim 14 belongs to the same category as Claim 1 to which it refers, then, according to Rule 29(4), it contains all the features of Claim 1 and is therefore also patentable, even if some or all of its other features are already known from documents US-A-4 023 570 and US-A-4 023 571 cited in the patent in suit. The same applies to the dependent Claim 15 which relates to an embodiment of the catamenial device of Claim 14.

- 2.6 Therefore, Claims 14 and 15 are also patentable within the meaning of Articles 54 and 56 EPC.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

A. Townend

C. Payraudeau