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D E C I S I O N
of 5 August 1999

Case Number: T 0091/96 - 3.2.2

Application Number: 88306466.9

Publication Number: 0302611

IPC: A61F 13/15

Language of the proceedings: EN

Title of invention:

Liquid permeable thermoplastic films

Patentee:

BP Chemicals PlasTec GmbH

Opponent:

Tredegar Industries, Inc.
Mölnlyncke AB
The Procter & Gamble Company

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56

Keyword:

"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0091/96 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 9 August 1999

Appellant:
(Opponent 03)

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Decision under appeal: Interlocutory decision of the Opposition Division of the European Patent Office posted 16 November 1995 concerning maintenance of European patent No. 0 302 611 in amended form.

Composition of the Board:

Chairman: W. D. Weiß
Members: M. Bidet
R. T. Menapace

Summary of Facts and Submissions

- I. The respondent is proprietor of European patent No 0 302 611.
- II. The patent was opposed by three Opponents on the grounds of Article 100(a), (b) and (c) EPC. Opponent (O3) relied only on the grounds of lack of novelty and inventive step (Article 100(a) EPC). The opposition division held that the grounds of opposition did not prejudice the maintenance of the patent as amended during the oral proceedings in view of thirteen cited documents.

Claim 1 relating to a product and Claim 5 relating to a method for the production of the product have the following wording:

"1. Liquid permeable film (3)

a) made from a thermoplastic material suitable for use as a covering film for absorbent material

b) having openings (13) therein shaped as projections (12) which terminate in a free edge (8) on one side only of the film (3),

c) the narrowest cross-section (11) of the opening (13) being on a different plane from that of the opposite smooth side of the film,

d) the cross-section (11) of the openings (13) increasing in size in an axial direction from the point of the narrowest cross-section (11) to the free edge

(8) of the projections (12)

characterised by the fact that

e) the narrowest cross-section(11) of the openings (13) is on a plane adjacent the surface of the film (3) and spaced from the free edge (8) of the projections (12),

f) said free edge(8) of the projections (12) having an irregularly lapped and/or folded shape,

g) the thickness of the film in the region of the free edge (8) of the projections (12) being several times less than the thickness of the undeformed film,

h) and said film (3) being obtained by sucking said thermoplastic material through a perforated plate

i) having a thickness less than one third of the smallest diameter of the perforations." (The bold reference a) to i) added by the Board for convenience)."

"5. A method for the production of a perforated thermoplastic film, according to one of the claims 1 to 4, in which the film, in its hot plastic state, lying on a perforated plate, is forced, by differential pressure, into the perforations in the plate, and allowed to burst inside, characterised by the fact that the thickness of the plate (1) and the deformation properties of the film (3) are such that, under the effect of the differential pressure before bursting behind the perforations (12) in the plate (1), bubbles (6) are formed, of a diameter exceeding the average

diameter of the perforations, said plate (1) having a thickness less than one third of the smallest diameter of the perforations (2)."

III. On 23 January 1996, the appellant Opponent 03 filed an appeal and paid the fee for appeal. The statement of grounds was filed on 22 March 1996; it referred to the following documents already cited during opposition proceedings:

D8: US-A-3 929 135

D9: US-A-4 609 518

D11: US-A-4 395 215 and

D13: US-A-4 637 819.

IV. Following a communication of the Board issued with the summons to oral proceedings, the appellant, with a letter of 21 June 1999, withdrew his request for oral proceedings. The respondent maintained his auxiliary request for oral proceedings.

V. Oral proceedings took place on 5 August 1999 in the presence of the respondent only. Since the appellant and the two non-appealing Opponents 01 and 02 which were parties to the appeal proceedings as of right (Article 107 EPC, second sentence) had been duly summoned, the oral proceedings was carried through.

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

The respondent requested that the appeal be dismissed.

VII. The appellant argued in his written submissions that the subject-matter of Claim 1 was not novel in view of document D13. This document disclosed a liquid permeable film with openings having the features (a), (b) (f) (g) and (h) so as to allow a rapid passage of large amounts of liquid through the openings. According to the drawings of D13 the ratio between the thickness of the plate - provided for sucking the film - and the diameter of its perforations was less than $1/3$, so that feature (i) was also anticipated.

A close relationship between the thickness of the plate, the diameter of the openings and the resulting shape of the projections was illustrated by drawings A to B filed with the grounds of appeal from which features (d) and (e) of Claim 1 were anticipated. The drawings demonstrated that a plate with a thickness which was thin when compared with the diameter of the openings produced flared projections (see drawing A). With a thickness corresponding to the diameter, the projections were also flared (B) and when the thickness was great compared to the diameter, the film remained inside the perforations (see C). Since the length of the walls of the projections obtained by sucking through perforations 831 of Figure 5 were at least half of the diameter (see Figure 3), the walls would be longer than the thickness of the plate and the projections would necessarily flare.

At least Claim 1 lacked an inventive step in view of document D13 only.

The objection of lack of inventive step of the subject-matter of Claim 1 was also supported by the teaching of documents D8 or D9 in combination with document D11. Starting from document D8 or D9, novelty of the subject-matter of Claim 1 only resided in the flaring shape of the projections (feature (d)) and in view of document D11 in the cross-section of the projections according to features (d) and (e) of Claim 1, which concern the flaring shape and the location of the narrowest cross-section of the openings, respectively. The skilled person, interested in improving or changing the cross-sectional shape of the projections would have considered D11 and the teaching with respect to modifications of the cross-section and applied it to the teaching of D9 (D11 being cited in the cover sheet of document D9) or of D8.

VIII. The respondent submitted the following arguments:

Feature (d), was not clearly and unambiguously derivable from Figure 5 of document D13, because performing a precise calculation on the basis of such a schematic Figure was contrary to the case law of the EPO. With reference to Figure 3, the side-walls portions of the elements of the plate extended perpendicularly to the base portion or could have been angled, which resulted in a capillary network 750 formed by each set of interconnected sidewalls portions of decreasing cross-section toward the absorbent element. Document D13 taught just the opposite of the claimed flared projections. Therefore, novelty of the subject-matter of Claim 1 had to be acknowledged.

Document D8 disclosed the formation of capillaries

which tapered with decreasing diameter in a direction toward the absorbent element, see column 2, lines 16 to 24. The macroscopic apertures and fine-scale apertures disclosed in document D9 were of constant diameter or decreasing diameter. The method for obtaining the specific structure with decreasing diameter mentioned in document D9 was that described in document D8 according to which the perforated projections of the film were obtained by sucking through an apertured plate (see column 17 of document D9, lines 52 to 56). The same method was used in document D11 and it was carried out to prevent the ruptured portions of the film from reaching the lowermost surface of the perforated plate.

There was, therefore, no document teaching or suggesting a structure of the film with projections of increased diameter towards the absorbing element (flaring) in order to increase the liquid transportation to the absorbent element and also to reduce a rewetting effect.

Reasons for the Decision

1. The appeal is admissible
2. *Novelty*
 - 2.1 Document D13 discloses a liquid permeable film of thermoplastic material for use as a covering film for absorbent material. The film has openings formed as projections which terminate in a free edge on one side only of the film. The macroscopic cross-section of the

capillary networks functions to rapidly transmit fluids towards the absorbent element.

Moreover, even knowing that the figures of this document were schematic, the appellant nevertheless compared dimensions of thickness of the plate and diameter of the openings on the basis of these figures in order to support the disclosure of feature (i). Since the dimensions of apertures, of the thickness of the film, those of the plate and the length of the projections in these figures do not show proportions or actual dimensions, the skilled person is not able to find a clear and unambiguous instruction concerning the relationship between the thickness of the plate and the smallest diameter of the perforations. Likewise, the relationship between features (d), (e) and (i) as submitted by the appellant is also not unambiguously shown.

According to constant case law, a finding of lack of novelty can only be based on a clear and unmistakable disclosure of the claimed subject-matter in the prior art document (see decision T 450/89 15 October 1991, reasons No. 3.11), so that the claimed subject-matter can be derived directly and unambiguously from that document (see e.g. T 56/87, OJ 1990, 188). As explained above, this is not the case here. For this reason, the relationship between the thickness and the smallest diameter of the perforations according to feature (i) of Claim 1 is not anticipated by document D13.

Moreover, document D13 does not disclose that the projections have an increasing cross-section in the direction to their free edges (feature d).

Consequently, the subject-matter of Claim 1 is novel in respect to document D13.

2.2 The other documents D8, D9 and D11 were not cited by the appellant against novelty and the Board is satisfied that they do not disclose a film with cross-section of projections increasing toward the absorbent element.

3. *Inventive step*

3.1 The subject-matter of Claim 1 differs from the closest prior art in relation to the structure of the film disclosed in D13 by the features (d), (e) and (i), see paragraph 2.1 above.

The principle task of a liquid permeable thermoplastic film for absorbent material is to transfer fluids unidirectionally from the wearer's body toward and into the absorbent material.

The problem to be solved by the present patent is to provide a perforated film having good permeability, even for liquids of higher viscosity than e.g. water and avoiding the fluid retained on the skin and impinging rewetting by reversed flow from the absorbent element to the skin.

3.2 Of all the documents cited, only document D13 deals with this problem and further relates to the transmission of rather viscous liquids as in the present European patent (see D13, column 7, line 55 to column 8, line 21). This document, however, proposes solutions in form of a film having at least two

different capillary networks with projections extending perpendicularly to the uppermost surface of the film. The function of the macroscopic capillary network (in fact at least two such networks 21 and 31) is to transmit rapidly deposited fluid on the upper surface of the film through larger openings; also viscous fluids are transmitted by these networks. The smaller capillary network 41, with small openings located in the upper surface, exhibits a high capillary suction and removes moisture remaining on the surface of the skin (see column 9, lines 11 to 62).

From the description and the figures of D13, the projections in the macroscopic network and in the small capillary network have only tapered or at most cylindrical cross-sections, see above section 2.1.

In contrast thereto, the solution in accordance with Claim 1 is based on the principle that the cross-section of the free edge of the flaring projection is larger than that at its root. This fact combined with the irregularities of the free edge results in an improved capillary effect of the opening. Moreover, in the region of the free edge of the projection the film is very thin. Consequently, with these structural features, the flared projections are capable of self-adjusting to the distance between the film and absorbent material. When under pressure they can squeeze together, in a concertina-fashion, without thereby reducing the cross-section of the openings and impairing the absorption capacity, (see application as published column 2, lines 24 to 47 and patent specification page 2, lines 47 to 57).

- 3.3 Since the solution proposed in Claim 1 is based on a basically different concept than the solutions suggested in the cited prior art, and in the absence of any teaching in the prior art, including not only D13 but also D8, D9 and D11, to the underlying principle and the specific solution claimed, the subject-matter of Claim 1 involves an inventive step within the meaning of Article 56 EPC.
- 3.4 Claim 5 relates to a method of producing the perforated film and includes specific features whereby under the effect of differential pressure bubbles are formed on one side of the plate which have a diameter exceeding the diameter of the perforations in the plate, the bubbles then being allowed to burst, so that projections with flared shape according to Claim 1 are obtained.
4. The independent Claims 1 and 5 and the Claims 2 to 4 dependent from Claim 1 are, therefore, allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

S. Fabiani

W. D. Weiß