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D E C I S I O N
of 28 November 1996

Case Number: T 1065/92 - 3.2.2

Application Number: 85109092.8

Publication Number: 0172420

IPC: A61F 13/15

Language of the proceedings: EN

Title of invention:
Product for absorbing body fluids

Patentee:
McNEIL-PPC, INC.

Opponent:
PROCTER & GAMBLE E.T.C.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:

-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1065/92 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 28 November 1996

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 2 October 1992 revoking European patent No. 0 172 420 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: H. J. Seidenschwarz
Members: S. Crane
J. C. M. De Preter

Summary of Facts and Submissions

I. European patent No. 0 172 420 was granted on 27 March 1991 on the basis of European patent application No. 85 109 092.8.

Claim 1 of the granted patent reads as follows:

"A product for absorbing body fluids comprising an absorbent core with a body-facing side and a garment-facing side, the body-facing side have an overlying facing layer comprising a continuous sheet of a polyolefine selected from polyethylene, polypropylene or copolymers thereof with apertures therethrough allowing for the passage of body fluids and containing titanium dioxide as an opacifying agent,

characterized in that

- the titanium diode is present in an amount from 5 to 12 percent by weight of the sheet,

- the apertures comprise 1.3 to 35 percent of the total area of the overlying facing layer and

- the brightness of the apertured sheet is greater than 45."

Dependent claims 2 to 11 relate to preferred embodiments of the product defined in claim 1.

II. The patent was opposed by the present respondents on the basis that its subject-matter lacked inventive step with respect to the state of the art (Article 100(a) EPC) and that the claimed invention was insufficiently disclosed (Article 100(b) EPC).

The state of the art relied upon was represented by the following documents:

D1: US-A-4 342 314;
D2: US-A-4 135 021;
D3: GB-A-1 552 349;
D4: "The encyclopaedia of basic materials for plastics", Reinhold Publishing Corporation 1967, page 358 and 359;
D5: "Plastic material and processes", Van Nostrand Reinhold Company 1982, pages 816 to 821.

III. By its decision given at oral proceedings on 3 September 1992 and issued in written form on 2 October 1992 the Opposition Division revoked the patent for lack of inventive step.

IV. An appeal against this decision was filed on 2 December 1992 and the fee for appeal paid at the same time. The statement of grounds of appeal was filed on 12 February 1993.

The appellants (proprietors of the patent) requested that the contested decision be set aside and the patent maintained in unamended form.

V. Oral proceedings were held on 28 November 1996.

VI. The arguments brought forward by the appellants in support of their request can be summarised as follows:

The contested decision was based largely on the mistaken assumption that the requirement of claim 1 for the apertured facing sheet to have a particular brightness could be ignored since it was held that this brightness followed automatically from the other two requirements of the claim concerning the content of titanium dioxide and aperture percentage. This was not

true. The brightness of the sheet depended on a number of other factors, such as thickness, surface roughness and the type of titanium dioxide used. In fact, it was the requirement for a particular level of brightness which formed the core of the invention since the appellants had found that at this level the eye of the beholder was deceived into not being able to recognise the staining of the absorbent core behind the apertured facing sheet.

None of the cited prior art documents was concerned with the same technical problem to which the invention was directed, namely preventing the staining of the absorbent core being seen thought the apertured facing sheet. Only document D1 contained any indication of an analogous teaching but there it was suggested only to provide no apertures at all in the facing sheet except where those were necessary for fluid transmission. The question of how to mask the stains under the apertured areas of the facing sheet was not addressed. It was therefore apparent that the state of the art contained no clue for the person skilled in the art that satisfactory masking could be obtained by adjusting the brightness of the facing sheet to a particular level and no indication as to how this brightness level might be achieved. In this context it had to be emphasised that although titanium dioxide was well known as an opacifying agent for plastics materials the state of the art did not teach its use in the context of achieving particular brightness levels.

VII. The respondents requested that the appeal be dismissed. In support of this request they argued substantially as follows:

In the course of the opposition proceedings the appellants had, in response to the objection of insufficiency of disclosure, specifically conceded that

the claimed brightness level was the automatic consequence of the facing sheet having a content of titanium dioxide and an aperture percentage within the respective ranges stated in claim 1. It would be wrong to allow the appellants to resile from that concession at this late stage in the proceedings.

In any case, the suggestion of the appellants that masking of the stain was achieved in an unexpected manner by means of an optical illusion found no basis in the patent specification. What this in fact proposed was to keep the aperture percentage as low as possible commensurate with the need for fluid transmission and to increase the opacity of the sheet by adjusting its content of titanium dioxide. The latter was, as could be seen from document D4, the white pigment of choice. Furthermore, document D2 referred to a facing sheet contain up to 5% of titanium dioxide. The two separate proposals, ie decreasing aperture percentage and increasing opacity, were both plainly obvious measures and did not combine to produce any unexpected results.

Reasons for the Decision

1. The appeal is admissible.

2. *Technological background; state of the art*

2.1 As explained in the introductory description of the patent specification the use of a perforated hydrophobic sheet material, in particular of a polyolefin, as the body contacting facing layer of a product for absorbing body fluids, for example a sanitary napkin, has become commonplace.

The apertures in the sheet material allow the passage of the body fluids to the absorbent core of the product while the sheet material itself remains relatively dry and comfortable in use. Furthermore, by not wetting, the sheet material remains free of staining on its exterior surface.

2.2 Document D1 relates to the formation of an apertured plastics sheet for use in particular as the facing layer of a product for absorbing body fluids and is especially concerned with giving such a sheet a "fibre-like" appearance which is more acceptable to the user than the slick or glossy appearance associated with prior art materials of this type. One such prior art material is discussed with reference to Figures 4, 5 and 12 of document D1, see column 8, line 43 to column 9, line 14 and column 13, lines 14 to 24. The sheet material is made of polyethylene and has approximately 625 evenly spaced apertures of diameter 0.016 inches per square inch. In column 16, lines 47 to 62, there is discussion of the possibility of having non-apertured areas of the facing layer, in order to mask the staining of the absorbent core.

2.3 Document D2 relates to a facing layer for absorbent structures such as sanitary towels, disposable napkins or incontinence pads. As with document D1, the aim is to produce such a material having an appearance which resembles a textile. In column 2, lines 38 to 43, there is reference to the material containing up to 5% of an inert delustering filler such as titanium dioxide.

2.4 Document D3 is concerned in general with the cultivation of grass from seed for lawns, and in particular, with the use of an apertured, substantially

opaque plastics sheet for covering the seeds to assist in their germination and initial growth. As an example of a suitable sheet material is discussed which comprises 7.8% titanium dioxide.

2.5 Documents D4 and D5 are extracts from reference works concerned with plastics materials and their processing. In the left-hand column of page 359 of document D4 it is stated that "titanium dioxide pigments are the most important prime white pigments in use today". Amongst the qualities ascribed to these pigments are brightness and high hiding power. In document D5 on page 820 the opacifying quality of titanium dioxide is emphasised.

3. *The claimed invention*

According to page 2, lines 22 to 29, of the patent specification the prior art facing layer materials were associated with the problem that although they did not become stained the user perceived them as being so as the result of the stained absorbent core being visible through the facing layer. Thus the facing layer was no longer perceived as clean and dry which led to the mental discomfort of the user. It is this technical problem which the claimed invention sets out to solve.

At the oral proceedings before the Board the appellants argued that the solution to this problem lay in the degree of brightness that granted claim 1 required for the facing layer. (The brightness test to be used is described in detail in the patent specification. The value given for "brightness" is a measure of the degree of reflectance in comparison with an ideal mat white reference surface.) The appellants contended that by having a brightness of greater than 45, as claimed, an optical effect was produced which deceived the eye of the beholder into not being able to recognise the staining of the absorbent core behind the facing layer.

The essential function of the titanium dioxide in the sheet material was not to provide opacity but to achieve the required level of brightness.

Although they had indeed conceded during the course of the opposition proceedings that the brightness value of greater than 45 followed as a consequence of the aperture percentage and content of titanium dioxide required, they argued that this was in the circumstances clearly a mistaken technical appreciation of the facts and that it would therefore be unfair and improper to hold them to it. The Board can agree with that contention of the appellants as a matter of general principle. However, for the reasons given in detail below, the Board is convinced that the concession made by the appellants was in fact wholly consistent with the technical facts and with the way the claimed invention has been presented in the patent specification.

There the visibility of the stained areas of the absorbent core is explained, see page 2, lines 37 to 43, in terms of visibility through the apertures in the facing layer and of visibility through the closed areas of the facing layer, since the latter are sufficiently transparent to expose the underlying stained area. At page 2, lines 52 to 55, it is stated that the inventive product has incorporated therein "a sufficient quantity of opacifying agent to have the sheet exhibit a brightness (as hereinafter defined) of at least 45%". At page 4, lines 26 to 28, it is stated that to meet the objectives of the invention the sheet material must "be heavily loaded with titanium dioxide (or with a material having the equivalent opacifying properties)" and at page 4, lines 47 to 50 it is stated that "low open area facing materials, **per se**, while capable of meeting liquid transmission rates required for body

fluid absorbent products, would still not meet the objectives of the invention, ie masking of the underlying stain, without also meeting the herein prescribed limitations with respect to opacity e.g. a high loading of titanium dioxide".

It is therefore clear from the above quoted passages that the function of the titanium dioxide is to decrease the inherent transparency of the facing layer sheet material and thus prevent the underlying stained areas of the absorbent core from being seen through it. It is an inevitable consequence of having a high content of a white opacifying agent with a high inherent brightness, see document D4, that the brightness of the sheet material will also be increased. There is no suggestion whatsoever in the patent specification that masking of the stain is achieved by an optical effect due to the brightness of the facing layer. It is furthermore clear from the experimental results given in Tables 1 and 2 of the patent specification that with a percentage open area of the facing layer sheet material of 35% or less then any level of titanium dioxide content above 5% will give the required level of brightness of "greater than 45". There is no suggestion that it is necessary to correlate the titanium dioxide content to the open area percentage to achieve this result. As specifically stated at page 7, lines 33 to 35, "satisfactory brightness is realized when the open area is less than about 35% and preferably less than about 30% when coupled with titanium dioxide concentration of more than about 5% and preferably more than about 7%." It was this statement that the appellants particular relied on in the opposition proceedings, see point 5 of their letter dated 13 May 1992, as evidence of the fact that brightness was solely a function of titanium dioxide content and the open area.

The appellants now dispute that the latter statement quoted from the patent specification and the conclusion they have previously drawn from it are correct. They contend that the brightness will evidently be dependent on a number of other factors, in particular thickness and surface roughness of the sheet material and the type of titanium dioxide used, and that the brightness value specified in granted claim 1 is therefore an independent feature of the claimed invention which has to be considered separately from the requirements concerning aperture percentage and titanium dioxide content. In this context the Board observes that the appellants have only advanced it as a theoretical possibility that the stated aperture percentage and titanium dioxide content would not give the required brightness and have not produced any evidence in this respect. Furthermore, it must be remembered that the properties of the facing layer required by granted claim 1 are subject to other restraints which are inherent to its intended field of use. Thus, although for example it might be possible to envisage a sheet material which was so thin that even though it contained at least 5% titanium dioxide it was nevertheless insufficiently opaque and did not have the required brightness, this material would be unlikely to have sufficient strength to be used as a facing layer for an absorbent product as claimed.

Having regard to the above the Board is therefore of the opinion that for the evaluation of inventive step it is sufficient to examine the question whether it was obvious for the person skilled in the art to provide, on the body-facing side of a product for absorbing body fluids, a facing layer comprising an apertured sheet of a polyolefin in which titanium oxide is present in an amount from 5 to 12% by weight of the sheet and the apertures comprise 1.3 to 35% of the total area of the facing layer.

Although they did not rely on this argument at the oral proceeding before the Board, the appellants initially put forward the view that there was a prejudice in the art against using an aperture percentage of less than 35%. (This was based on the requirement stated in US-A-4 324 246, which is cited in the present patent specification, that the open area be at least 35%.) In view of the teachings of document D1, particular with respect to the prior art material mentioned therein, see point 2.2 above, it is clear that no such prejudice existed. The aperture percentage of this polyolefin material can be calculated to be approximately 13% and it is stated there at the top of the column 9 that the material functions effectively as a facing layer for disposable absorbent bandages. It is evident to the person skilled in the art that the aperture percentage required for any particular type of product will be dependent on the body liquid flow rates to be expected, see page 4, lines 44 to 47 of the patent specification. A disposable absorbent bandage is a typical example of a product where the flow rate to be met is low.

It is evident from column 16, lines 47 to 62, of document D1 that the problem of masking the staining of the absorbent core of the product had already received attention in the state of the art. In the opinion of the Board it lies within the normal powers of observation of the person skilled in the art to recognise that if satisfactory masking of the stain is not being achieved even at an aperture percentage as low as for example 13% then this must be due to the residual transparency of the closed areas of the sheet material. To overcome this problem by increasing the content of opacifying agent in the sheet material cannot be seen as a measure which goes beyond the routine considerations of the person skilled in the art. Document D2, see point 2.3 above, already proposes incorporating up to 5% of titanium dioxide in the

polyolefin facing layer sheet material of a corresponding absorbent product. As made clear in the present patent specification at page 4, lines 29 to 31, there is a technical limit to the amount of titanium dioxide which can be incorporated at around 12%. Thus nothing of inventive significance can be recognised in the range of 5 to 12% for titanium dioxide content specified in granted claim 1.

The Board therefore comes to the conclusion that the subject-matter of granted claim 1 lacks inventive step (Articles 56 EPC).

Order

for these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Fabiani H. Seidenschwarz