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D E C I S I O N
of 11 August 2005

Case Number: T 1026/04 - 3.3.9

Application Number: 93303692.3

Publication Number: 0570215

IPC: B32B 7

Language of the proceedings: EN

Title of invention:

Use of improved liquid impermeable and liquid vapour permeable laminates as roofing underlay material

Patentee:

DON & LOW LIMITED

Opponent:

01 Hunt Technology Limited
02 Ewald Dörken AG
03 BBA Nonwovens Berlin GmbH

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 83, 88, 123(2), 123(3)

Keyword:

"Novelty (no) - Main request and auxiliary requests 1 and 8"

"Inventive step (no) - Auxiliary requests 2, 4, 6, 7, 9, 10, 11 and 12"

"Broadening of scope of protection (yes) - Auxiliary request 13"

"Auxiliary requests 5, 14 and 22: Not admissible - Late filing not justified"

"Withdrawal of opposition (yes) - Auxiliary request 23"

Decisions cited:-

Catchword:-



Case Number: T 1026/04 - 3.3.9

D E C I S I O N
of the Technical Board of Appeal 3.3.9
of 11 August 2005

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
22 June 2004 concerning maintenance of European
patent No. 0570215 in amended form.

Composition of the Board:

Chairman: P. Kitzmantel
Members: A.-T. Liu
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. European patent No. 570 215 in the name of Don & Low Limited was granted on the basis of a set of 16 claims, with the sole independent Claim 1 reading as follows:

"Use of a laminate (10) as a roofing underlay material wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12); and a substrate (14), the membrane and substrate being intermittently bonded (16) to preserve the liquid vapour transmission properties of the membrane."

II. Three notices of opposition were filed against this patent on the grounds of Article 100(a) and (b) EPC. These oppositions were supported, inter alia, by the following documents:

D1: EP-A-0 288 257 (published 26 October 1988)
D4: Statutory Declaration by L.J. Squires dated 1 November 2000, with Exhibits LJS1 to LJS11.
D5: Nonwovens Report International, February 1987: Index 87 Preview
D12: US-A-5 208 098 (published 4 May 1993)
D20: US-A-4 766 029 (published 23 August 1988)
Annex I: Response to Document D4 (submitted by the Opponent Hunt Technology) filed by the Patentee with its submission received 19 January 2002.

III. By its interlocutory decision announced at the oral proceedings on 4 May 2004 and issued in writing on 22 June 2004 the Opposition Division held that the

patent as amended according to the set of Claims 1 to 15 of the then tenth auxiliary request, filed at those oral proceedings, met the requirements of the EPC.

IV. Against this decision appeals were lodged by both the Patentee on 19 August 2004 and the Opponent Hunt Technology Limited (hereinafter referred to as the Opponent) on 20 August 2004. The further previous Opponents Ewald Dörken AG and BBA Nonwovens Berlin GmbH withdrew their oppositions by letters dated 24 March 2005 and 13 June 2005, respectively.

V. Of the additional documents and expert declarations submitted by the Parties at the appeal stage, reference will be made to the following in the present decision:

D33: "New Lightweight Film Creating Markets For Nonwoven Composites", Nonwovens Industry, June 1991

D34: English translation of the Japanese patent application with the publication number H4-90337 (published 24 March 1992)

D36: US-A-5 169 712 (published 8 December 1992).

VI. With the statement of the grounds of appeal dated 15 October 2004, the Patentee filed amended Claims 1 as a basis for new first to twelfth auxiliary requests. By letter of 10 June 2005, further amended Claims 1 were filed as a basis for further new thirteenth to twenty second auxiliary requests.

VII. In a communication dated 14 July 2005, the Board made preliminary observations, in particular with respect to the interpretation of the expressions "microporous

film", "microporous membrane" and "intermittently bonded".

VIII. At the oral proceedings which took place on 11 and 12 August 2005, the Patentee withdrew the third and fifth auxiliary requests and filed a newly amended Claim 1 as a basis for a new fifth auxiliary request and a new set of Claims 1 to 12 as a basis for the twenty-third auxiliary request.

The Opponent withdrew its opposition in respect of this twenty-third auxiliary request.

The Board exercised its discretion according to Article 10b(1) of RPBA and decided not to admit the new fifth auxiliary request or the fourteenth to twenty-second auxiliary requests into the proceedings.

IX. Claims 1 of the auxiliary requests considered admissible by the Board read as follows:

First auxiliary request:

"Use of a liquid impermeable and liquid vapour permeable laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and a liquid vapour permeable microporous membrane (12) and a substrate (14), the membrane and substrate being intermittently bonded (16) to preserve the liquid vapour transmission properties of the membrane."

Second auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a

liquid impermeable and liquid vapour permeable microporous film (12) and a substrate (14), the film and substrate being intermittently bonded (16) to preserve the liquid vapour transmission properties of the film."

Fourth auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and a substrate (14), the membrane and substrate being intermittently thermally bonded (16) using a combination of heat and pressure to preserve the liquid vapour transmission properties of the membrane."

Sixth auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and a substrate (14), the membrane and substrate being intermittently thermally bonded (16) using a combination of heat and pressure and an intermittent bond pattern to preserve the liquid vapour transmission properties of the membrane."

Seventh auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and a substrate (14), the membrane and substrate being intermittently thermally bonded (16) using a combination of heat

and pressure and an intermittent bond pattern to preserve the liquid vapour transmission properties of the membrane, a bonded area of the laminate forming between 5% and 50% of a surface area of the laminated layers (12,14)."

Eighth auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and a substrate (14), wherein the substrate is a spunbonded polymeric non-woven material, the membrane and substrate being intermittently bonded (16) to preserve the liquid vapour transmission properties of the membrane."

Ninth auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and a substrate (14), wherein the substrate is a spunbonded polymeric non-woven material, the membrane and substrate being intermittently thermally bonded (16) using a combination of heat and pressure and an intermittent bond pattern to preserve the liquid vapour transmission properties of the membrane, a bonded area of the laminate forming between 5% and 50% of the surface area of the laminated layers (12,14)."

Tenth auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and supporting substrates (14,18) provided on both sides of the membrane, the membrane and substrates being intermittently bonded (16, 20) to preserve the liquid vapour transmission properties of the membrane."

Eleventh auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and a substrate (14), the membrane and substrate being intermittently autogenously thermally bonded (16) using a combination of heat and pressure and an intermittent bond pattern to preserve the liquid vapour transmission properties of the membrane and the flexibility of the laminate, a bonded area of the laminate forming between 5% and 50% of the surface area of the laminated layers (12,14), and wherein the substrate is a spunbonded polymeric non-woven material."

Twelfth auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and supporting substrates (14,18) provided on both sides of the membrane, the membrane and substrates being

intermittently bonded (16) using an intermittent bond pattern to preserve the liquid vapour transmission properties of the membrane and the flexibility of the laminate, a bonded area of the laminate forming between 5% and 50% of the surface area of the laminated layers (12,14), and wherein one or both of the substrates is a spunbonded polymeric non-woven material, and further the membrane and said one or both of the substrates are intermittently autogenously thermally bonded using a combination of heat and pressure."

Thirteenth auxiliary request:

"A method of forming a laminate (10) for use as a roofing underlay material, the method comprising: intermittently thermally bonding a liquid impermeable and liquid vapour permeable microporous film to a substrate, the intermittent bonding preserving the liquid vapour transmission properties of the film and the flexibility of the laminate."

Twenty-third auxiliary request:

"Use of a laminate (10) as a roofing underlay material, wherein said laminate comprises: a liquid impermeable and liquid vapour permeable microporous membrane (12) and supporting substrates (14, 18) provided on both sides of the membrane, the membrane and substrates being intermittently bonded (16, 20) to preserve the liquid vapour transmission properties of the membrane, wherein one of the substrates is a woven fabric layer, and one of the substrates is a spunbonded polymeric non-woven material (14)."

X. The arguments of the Patentee can be summarised as follows:

- The right to priority was validly claimed for all requests, in particular with respect to the subject-matter of Claim 1 of the fourth and the tenth auxiliary requests.
- Samples of Exxaire[®] films made from polypropylene were available at the priority date of the patent and could be thermally bonded to a polypropylene substrate. The Opponent's objection of insufficiency of (ie non-enabling) disclosure with respect to this specific feature in Claim 1 of the fourth auxiliary request was therefore not substantiated.
- D1 did not disclose intermittent bonding.
- The web used in D1 and known under the trade name Tyvek[®] was a microfibrinous membrane and not a microporous film.
- Tyvek[®] was strong enough to be used as roofing underlay material, without the need for any support. Starting from D1, the skilled person did not have any incentive to replace this material with a flimsy film such as Exxaire[®].
- D33 was not relevant because it was directed to the use of Exxaire[®] for disposable articles and not for durable articles. In particular, it neither disclosed nor suggested the use of Exxaire[®] as roofing underlay.
- "Thermal bonding" in the present claims was to be construed as "autogeneous bonding using heat and pressure". It had the advantage of improving the breathability of the laminate.

- D34 did not disclose thermal bonding. Moreover, it focussed on the use of laminates for gloves and did not concern their use as roofing material.
- The stipulated feature of an "intermittent bonding pattern" provided reproducibility and regularity. In contrast, the different values of vapour resistance given in D1 were evidence for a lack of reproducibility caused by an inadequate bond pattern.
- D5 was not relevant since it did not suggest pattern bonding for the fabrication of roofing material.

XI. The arguments of the Opponent can be summarised as follows:

- There was no justification for the late filed requests. In view of the complexity of the case and the advanced stage of the proceedings, these should not be admitted into the proceedings.
- Concerning a claim directed to the use as a roofing material of a laminate comprising thermally bonded layers the disclosure of the priority document was not enabling. The reason being that, at the priority date, Exxaire[®] was only available in the form of polyethylene films, which could not be thermally bonded to a polypropylene substrate. On the other hand, polyethylene films supported on a polyethylene substrate would not be suitable for use as roofing material.
- According to the priority document, the use of adhesive was absolutely essential for laminates comprising supporting substrates on both sides of the microporous membrane.

- Since Tyvek[®] used according to D1 was a semi-permeable membrane, it was necessarily bonded to a substrate by a discontinuous layer of adhesive because otherwise the semi-permeability would be lost. Given that the resulting laminate was intended to serve as a lining for roofs, D1 was novelty-destroying to the subject-matter of granted Claim 1.
- There was no basis in the patent in suit for different meanings of the terms "film" and "membrane".
- In view of D33, it was obvious to replace the film-like membrane Tyvek[®] in a roofing material with a film such as Exxaire[®].
- The use of thermal bonding instead of adhesive bonding was obvious in view of D34, which mentioned both methods in connection with roofing materials.
- Thermal bonding with an intermittent bond pattern and 19% bonded area was a standard method, for example as described in D5.

XII. The Parties' requests were as follows:

- The Patentee requested that the decision under appeal be set aside and that the patent be maintained as granted or, alternatively, on the basis of Claim 1 of any of the first, second, fourth, sixth to twelfth auxiliary requests as submitted with the letter of 15 October 2004, or on the basis of Claim 1 of the fifth auxiliary request filed during the oral proceedings, or on the basis of Claim 1 of any of the thirteenth to twenty second auxiliary requests as filed with the letter of 10 June 2005, or on the basis of Claims 1 to 12 of the twenty-third auxiliary request as filed during the oral proceedings

- The Opponent requested that the decision under appeal be set aside and that the patent be revoked to the extent that the claims did not relate to the subject-matter of granted Claims 3 to 5, 11 and 12, which were no longer opposed. It consequently did not object to the subject-matter of the Patentee's twenty-third auxiliary request.

Reasons for the Decision

Admissibility of the Auxiliary requests

Article 10(a)(2) and Article 10(b)(1) RPBA.

- 1.1 Claim 1, forming the basis for the "new" fifth auxiliary request, was submitted at the oral proceedings on 12 August 2005. The Claims 1, forming the bases for the fourteenth to twenty second auxiliary requests, were submitted by the Patentee with the letter of 10 June 2005. These requests were therefore not timely filed as required by the Board of Appeal's new Rules of Procedure, especially Article 10(a)(2), entered into force on 1st May 2003.
- 1.2 Claim 1 of the "new" fifth auxiliary request is based on Claim 1 of the fifth auxiliary request presented before the Opposition Division, but with the term "membrane" being amended to "film". During the oral proceedings, the interpretation of these terms was discussed at length in connection with the second auxiliary request, with the conclusion that a change from "membrane" to "film" (and vice versa) was considered to be of no significance for the assessment of the patentability of the subject-matter at issue.

(see discussion with respect to Claim 1 of the second auxiliary request: paragraphs 5 and 6).

Moreover, the Board has to take into consideration (i) that the oral proceedings were already into its second day when this auxiliary request was presented to the Board and the Opponent; (ii) that accelerated proceedings were expressly requested by the Patentee (see letter dated 11 March 2005) and (iii) that litigation proceedings were taking place before the High Court of England and Wales (see Opponent's letter of 17 March 2005). Under these circumstances, the Board sees no justification for the late filing of the "new" fifth auxiliary request. Exercising its discretionary power according to Article 10(b)(1) RPBA, the Board therefore decides not to admit the fifth auxiliary request into the proceedings.

- 1.3 Concerning the fourteenth to twenty-second auxiliary requests, the Patentee did not provide any substantial argument for their support with the letter accompanying their filing. Neither did it give any cogent reasons to justify the lateness of the filing but only stated that these requests were filed in response to evidence and arguments presented by the Opponent. Furthermore, some of the requests were at best tentative and considered by the Patentee itself as mere proposals open to further modification, an attitude conspicuously expressed by the Patentee's comment on Claim 1 of the sixteenth auxiliary request: "If the Board of appeal would prefer the last clause of this Auxiliary Request to be replaced by the last clause of the Fifteenth Auxiliary Request, then the Proprietor would be pleased to do so (see letter dated 10 June 2005, page 12, last

paragraph). Modifications were also offered with respect to a number of features in other auxiliary requests (see all three paragraphs of page 19 of the same letter). As a result, the Board holds that, with respect to the requests here under consideration, the Opponent was unfairly put in a position where it could not prepare its case properly since it did not know the definitive wording of the claims on which the discussion was to be based and the arguments it had to counter.

Nor can the Patentee's argument that the subject-matter of these requests only amounted to combinations of features of the granted claims affect the above conclusion in the absence of a proper substantiation of the patentability each one of these requests, for which the offer of a host of random variations, leaving it to the Board to choose those combinations of features which might be the most favourable to the Patentee's case, is not a proper substitute. This practice is inconsistent with the target of all appeal proceedings and justifies the Board in its decision, exercising its discretionary power according to Article 10(b)(1) RPBA, not to admit these auxiliary requests into the proceedings.

Main request

2. *Novelty, Article 54 EPC*

Claim 1 as granted is directed to the use as a roofing underlay material of a laminate comprising a microporous membrane intermittently bonded to a substrate. The bonding is such as to preserve the

liquid vapour transmission properties of the membrane (see paragraph I).

- 2.1 D1 relates to flexible membranes useful as a lining for roofs or walls. The membranes comprise a web of a material (10) which is impermeable to liquid water but permeable to air and water vapour, and a layer of fabric. The web and the fabric are bonded together by an adhesive layer which is discontinuous (column 1, lines 1 to 13).

According to D1, the commercial material sold under the trade name Tyvek 1050 B is found to be particularly suitable for the intended purpose (column 1, lines 49 to 51). As submitted by the Opponent and not refuted by the Patentee, the Tyvek[®] material is a microfibrous membrane having pores within the range of 1 to 10 μm for micropores (see also letter of 25 May 2005, page 10, last two paragraphs). In D1, the adhesive used for bonding the web to the nonwoven substrate (12) may comprise a water-containing mineral which produces bubbles of water vapour in the polymer melt, causing interruptions in the adhesive film. When the adhesive film is pressed between the web and the substrate, the bonding will thus be discontinuous due to the presence of the holes in the bonding layer (see column 2, lines 7 to 22 and Claim 1). As a consequence, the Board holds that the membrane disclosed in D1 presents all the features of the laminate stipulated in Claim 1.

- 2.2 The Patentee asserted at the oral proceedings that, in view of the vapour resistance indicated in the description of D1 and its own data, as indicated in the letter dated 24 March 2005 (page 28, Table 1), the

membrane of D1 would not be useful as a roofing material.

The Board first wishes to point out that Table 1 in question indicates moisture vapour transmission and resistance data (MVTR and MVR, respectively) of a laminate according to the patent in suit. For the membrane according to D1, the upper limit of MVR is taken from D1, column 2, lines 26 to 30. However, although a MVTR value is also indicated in Table 1 for the same membrane, the latter does not mention how this value, not disclosed in D1, was actually obtained. Moreover, from the data in Table 1 the Patentee concludes that the three-layered product Delta PVE, a commercial product also investigated in the same context, was not suitable for use as a roofing underlay (page 29, penultimate paragraph of the letter) whereas no information is given as to the suitability of the membrane according to D1 for use as a roofing underlay. Furthermore, the data in Annex I (page 4), also provided by the Patentee, indicate that Tyvek[®], the preferred material of D1, is undoubtedly a breather membrane. Under these circumstances, the Board is not convinced that, contrary to its recommended use as a lining for roofs (column 1, first paragraph), D1 does not disclose a membrane useful as a roofing material.

- 2.3 The Patentee has alleged that in contrast to the patent in suit, the bonding operation is carried out in D1 in a continuous process (column 2, lines 7 to 10). The bonding therefore would not be equivalent to the "intermittent bonding" which, in the sense of the patent in suit, should be construed as "intermittent thermal bonding" or "point adhesive bonding". As an

illustration, the term "intermittent bonding" could be imagined as referring to "discrete islands of bond areas surrounded by a continuous "sea" which is not bonded" (see letter dated 15 October 2004, page 10, last paragraph to page 11, paragraph 2).

The Board, however, holds that there is no basis for these conclusions of the Patentee. First, Claim 1 does not specify whether the "intermittent bonding" is obtained by thermal bonding or with the use of an adhesive. In addition, as a matter of ordinary language, "intermittent" is simply a synonym for "discontinuous". This is also consistent with the terminology used in the art, for example in D4 (page 3, item 11: "discontinuous (intermittent) adhesive bonding").

- 2.4 Lastly, contrary to the Patentee's argument that for the use as a roofing underlay the flexibility of the membranes was inadequate, D1 explicitly states with respect to the laminate that "its slight stiffness means that it can readily be stored in roll form" (column 2, lines 33 to 34). Clearly, the material must be flexible to be stored this way.
- 2.5 As a consequence of the above, the subject-matter of Claim 1 of the main request lacks novelty with regard to D1 (Article 54 EPC).

First Auxiliary request

3. Claim 1 of this request corresponds to Claim 1 of the main request, the only difference being that it is directed to the "use of a liquid impermeable and liquid vapour permeable laminate", instead of "use of a

laminate". However, the web used in D1 is also of a material which is impermeable to liquid water but permeable to air and water vapour (see point 1.1 above). The conclusion of lack of novelty for the subject-matter of Claim 1 of the main request therefore applies *mutatis mutandis* to that of present Claim 1.

Second Auxiliary request

4. *Amendments, Article 123(2) and (3) EPC*

Claim 1 of this request is based on Claim 1 of the main request but amended to recite "film" instead of "membrane". The Opponent did not raise any objection to this amendment under Articles 123(2) and (3) EPC. In fact, the expressions "microporous film" and "microporous membrane" are used indifferently in the patent specification.

5. *Novelty, Article 54 EPC*

The novelty of the claimed subject-matter depends on whether or not the expressions "microporous film" and "microporous membrane" have the same or a different meaning. Should they have different meanings, the question is then whether the change from "membrane" to "film" enables a distinction to be made between the materials used according to the claimed invention and the web material of D1 or, more specifically, the material marketed under the tradename Tyvek®, which is described in D1 as a particularly suitable web material (D1, column 1, lines 49 to 50).

The Board concurs with the Patentee in that the prior art never refers to Tyvek® as a film. The Board also finds it plausible that, for the experts in the field of roofing underlay, the term "membrane" is broader, encompassing the term "film" but not restricted thereto. This is also consistent with the opinion of the Opponent, who, in its letter of 25 May 2005, concedes that "a "membrane" is not restricted to a "film" and can include Tyvek®, which is not a film" (see page 2, item 2(a) of the letter).

The Board therefore holds that the present use is distinguished from that of D1, which does not disclose the use of a laminate comprising a film.

6. *Inventive step, Article 56 EPC*

6.1 The Board accepts the Patentee's submission that, with respect to D1 as closest prior art teaching, the technical problem to be solved is the use of a further roofing material, as an alternative to the one disclosed in D1. The solution proposed is thus the use of a laminate comprising a microporous film in lieu of a membrane, more particularly, instead of Tyvek®.

6.2 As pointed out by the Opponent and not refuted by the Patentee, Tyvek® is known as a film-like breather membrane. On the other hand, it is undisputed that Exxaire®, usually designated as a film due to its light weight, is also a breather membrane. For example, D33 says about it that: "Called "Exxaire" breathable film, it is lightweight and moisture vapor transmittable". Moreover, it is known that "Exxaire films have been evaluated for a number of applications in health care,

protective apparel, footwear and construction" (D33, left hand column, second paragraph). Thus, when seeking an alternative for the film-like breather membrane Tyvek® in the use according to D1, it would be obvious for the skilled person to implement the teaching of D33 and employ Exxaire®, which is being offered for evaluation as a breather membrane in applications such as the construction industry. By applying this teaching to the roofing material of D1, the skilled person would have directly arrived at the use according to Claim 1 of the present request.

- 6.3 The Patentee asserted that D33 is only directed to "disposable composites", which are articles with a short term existence, as opposed to a roofing material, which must be durable (see left hand column, first full paragraph). In consequence, the skilled person would not have consulted D33 when seeking an alternative to the use of D1 for solving the present technical problem, which involves the search for a material suitable for use in a roofing underlay material, as an alternative to that used in D1. However, as already pointed out above, the application of Exxaire® in the field of construction is also envisaged in D33 (see paragraph 6.2 above). In addition, D1 clearly envisages that applications in buildings, in other words in the construction industry, encompass applications as linings for roofs or walls (column 1, lines 1 to 5). Thus, the skilled person would have taken the indication in D33 of possible uses in the construction industry as an invitation also to evaluate the Exxaire® film for use as roofing underlay, without this specific construction application being necessarily recited.

6.4 The Patentee also argued that the skilled person had no motivation to use Exxaire[®], a low tear, flimsy film, to replace Tyvek[®], which is a much stronger material. The Board, however, is of the view that this argument is not convincing in view of the above reference in D33 to the use of Exxaire[®] for construction purposes.

6.5 In conclusion, the subject-matter of Claim 1 of the second auxiliary request lacks an inventive step with respect to the teaching of D1, in combination with that of D33.

Fourth Auxiliary request

7. *Modification, Article 123(2) and (3) EPC*

Claim 1 is essentially based on Claim 1 as granted and contains the additional stipulation that the membrane and substrate are intermittently "thermally bonded using a combination of heat and pressure". It is undisputed that this amendment is fairly based on the application documents as filed.

8. *Priority right, Article 88 EPC*

The patent claims priority from the GB application 9210229 filed on 13 May 1992, consisting of an introduction, a description and a drawing, but without claims. On page 1, last paragraph, of this priority document, it is stated that "there is provided a laminate comprising a liquid impermeable and liquid vapour permeable film and a substrate, the film and substrate being intermittently bonded to preserve the liquid vapour transmission properties of the film".

Furthermore, it is mostly preferred that "the component sheets of the laminate are thermally bonded." (page 3, last paragraph). Also according to the priority document: "With thermal bonding, the achievement of an adequate and permanent bonding between the different layers requires that the materials are compatible, that is, the materials should have broadly similar softening temperatures and be sufficiently chemically compatible such that autogenous bonding occurs under conditions of appropriate heat and pressure" (page 4, second paragraph). This passage is also recited expressis verbis in the patent in suit (paragraph bridging columns 2 and 3). Thus, the Board has no doubt that the expression "thermal bonding" has an identical meaning in both the priority document and the patent in suit and is to be construed as being the same as autogeneous bonding, obviously under application of heat and pressure. In consequence, the Board accepts that the priority right claimed by the Patentee is valid for present Claim 1, in particular with respect to the feature "thermally bonded using a combination of heat and pressure".

9. *Sufficiency of disclosure, Article 83 EPC.*

According to the Opponent, a two layer laminate of Exxaire[®] film and spun bond polyethylene could not be used as roofing material because the substrate of spun bond polyethylene would not provide sufficient strength and stability to the film. Whilst spun bond polypropylene is much more robust than spun bond polyethylene and therefore would provide sufficient strength and stability, there was not at the priority date of the patent in suit any commercial material with

similar properties to Exxaire[®] made from polypropylene which could be thermally bonded to a polypropylene substrate (D4, paragraph bridging pages 6 and 7).

In summary, the Opponent argued that the laminate as defined in Claim 1 was either not suitable for use as roofing material or required a material which was not available.

The Board concurs with the Opponent insofar as a two-layer laminate of a polyethylene film thermally bonded to a polyethylene substrate would not be suitable as a roofing material. However, the Board notes that there is no scientific basis suggesting that Exxaire[®]-type materials are limited to the use of polyethylene as constituent polymer. This is particularly so in view of the reference in EP-A-0 283 200 (agreed by all parties to represent the Exxaire[®] material and technology) to the use of "any polyolefin", including polypropylene (page 2, lines 44 to 49). In line with this disclosure, the present priority document also refers to the Exxaire[®] material as "a polyolefinic membrane" and does not suggest that the film and/or substrate be limited to polyethylene. Furthermore, the Patentee has made out a plausible case that, even if the Exxaire[®] film made from polypropylene was not commercially available at that time, it did exist in development quantities. Under these circumstances, the Board holds that the original disclosure of the patent in suit is not confined to Exxaire[®] films made on the basis of polyethylene but encompasses also those made from other polyolefinic materials including polypropylene. The Board therefore holds that the Opponent's objection of

insufficiency of the disclosure is at variance with the facts.

10. *Novelty*

10.1 State of the art, Article 54(2) EPC.

Pursuant to Article 89 EPC, the filing date of the patent in suit is thus 13 May 1992. Consequently, the US patent specifications D12 and D36, published on 4 May 1993 and 8 December 1992, respectively, are not part of the state of the art within the meaning of Article 54(2) EPC.

10.2 As indicated above, the Board also holds that the feature "thermally bonded using a combination of heat and pressure" has, in the context of the patent in suit, the meaning of autogeneous bonding. Hence, the subject-matter of Claim 1 is distinguished from that of D1, which involves the use of a membrane and substrate being bonded by an adhesive.

11. *Inventive step, Article 56 EPC*

11.1 The Board concurs with the Patentee in that D1, which is also directed to the use of a breather membrane in a roofing material, should be considered to comprise the closest state of the art.

11.2 It is also accepted that the technical problem to be solved consists in improving the breathability of the roofing material disclosed in D1.

- 11.3 It is undisputed that the solution to the technical problem posed is to use a laminate wherein the microporous membrane is thermally bonded to the substrate.
- 11.4 The Board is not convinced that, as a matter of principle, the thermal bonding of the layers always results in a higher breathability of the laminate as compared to adhesive bonding. Such a difference cannot be deduced from the patent in suit, which refers to both these bonding techniques indifferently (see column 3, lines 25 to 27). Nor has the Patentee submitted any data to prove that the breathability of the laminate depends on the method of bonding. In the patent in suit, the reduction of moisture vapour permeability is only discussed in relation with the bonded area (column 3, lines 31 to 33). Since this characteristic is not stipulated in the claim, it cannot be considered as part of the solution proposed. The Board therefore holds that the technical problem advanced by the Patentee is not credibly solved by the use according to Claim 1.

The Board, however, can see the technical problem can alternatively be regarded as the use of a further roofing material, as an alternative to the use disclosed in D1. It can also accept that this technical problem is effectively solved by the use according to Claim 1.

- 11.5 The Board, however, holds that the use of a laminate wherein the layers are thermally bonded, instead of being bonded by an adhesive as in D1, is obvious in view of the state of the art.

Contrary to the Patentee's assertion, D34 expressly indicates that, in addition to use for gloves, the laminates can be used as roofing materials (page 8, third paragraph). Furthermore, it expressly states that "depending upon the intended [use], means such as an adhesive or heat fusion can be adopted" (page 5, fourth paragraph). Thus, D34 is not only directed to the expert in the field of roofing materials, it also teaches that the layers of the laminates can be bonded either by adhesive bonding or by thermal bonding, depending on the situation. On the other hand, the skilled person also knows the conditions which permit either kind of bonding. According to the expert declaration D4, it was common knowledge by 1992 that thermal bonding was used to laminate nonwoven spun bond fabrics to porous films, when these materials are compatible, and adhesive bonding, for non-compatible materials (page 6, item 22). This is consistent with the description with respect to the manner in which the layers of the laminate may be bonded according to the patent in suit (column 2, lines 37 to 39 and column 2, line 56 to column 3, lines 4). Consequently, when the compatibility of the materials permits, it is obvious that the skilled person would choose thermal bonding as an alternative to adhesive bonding. The solution as proposed in Claim 1 of the fourth auxiliary request therefore lacks an inventive step as regards D1 in combination with D34 and general common knowledge.

Sixth Auxiliary request

12. *Amendment*

Claim 1 of this request is based on Claim 1 of the fourth auxiliary request, with the only difference that it recites an "intermittent bonding pattern".

13. *Inventive step*

The Patentee asserted that this bonding pattern provided a reproducibility and regularity which was not to be found in D1. However, the Board observes that the advantages offered by pattern bonding are already described in D5 (see for example page 36, right hand column, last sentence of second paragraph). The Board therefore holds that, when the compatibility of the laminate layers allows for thermal bonding, the skilled person would also choose pattern bonding in such a situation, with the expected advantages.

The Patentee also maintained that D5 did not suggest calendering for fabricating roofing material. Therefore, the skilled person, looking for an alternative roofing material to that of D1, would not have consulted D5. This argument, however, is not consistent with the fact that D5 expressly mentions roof-linings as one of the applications for pattern bonding (page 36, middle column, first paragraph). Consequently, the Board finds that the use according to Claim 1 is not inventive in view of D1 in combination with D5 and general common knowledge.

Seventh Auxiliary request

14. Claim 1 of this request, essentially based on Claim 1 of the sixth auxiliary request, contains in addition the stipulation of "a bonded area of the laminate forming between 5% and 50% of a surface of the laminate layers". As conceded by the Patentee, the preferred bonding pattern according to D5 is the diamond pattern, which is the same as in the patent in suit (compare D5, page 36, right hand column, first paragraph and patent in suit, column 4, lines 18 to 19). It is therefore also undisputed that the bonded area according to the method of D5 will yield the same bonded area as defined in Claim 1.

The finding of lack of inventive step for the subject-matter of Claim 1 of the sixth auxiliary request thus applies *mutatis mutandis* to that of Claim 1 of the present request.

Eighth Auxiliary request

15. Claim 1 of this request, based on Claim 1 as granted, additionally stipulates that "the substrate is a spunbonded polymeric non-woven material". It is, however, irrefutable that Typar[®], the preferred substrate according to D1, corresponds to this definition. The finding of lack of novelty for the subject-matter of Claim 1 of the main request therefore applies *mutatis mutandis* to that of Claim 1 of the present request.

Ninth Auxiliary request

16. Claim 1 of this request is based on Claim 1 of the seventh auxiliary request and additionally stipulates that "the substrate is a spunbonded polymeric non-woven material". As indicated for Claim 1 of the previous request, this latter feature is already known from D1. The finding of lack of inventive step for the subject-matter of Claim 1 of the seventh auxiliary request therefore applies *mutatis mutandis* to that of Claim 1 of the present request.

Tenth Auxiliary request

17. Claim 1 of this request is based on Claim 1 as granted, with the difference that the substrate is provided on both sides of the microporous membrane. Although there was no dispute as to the compliance of this amendment with the requirements of Articles 123(2) and (3) EPC, the Opponent raised the objection that this embodiment was not part of the priority document. The question is therefore whether Claim 1 is entitled to the priority right.

18. *Priority right*

The Opponent asserted that, at the priority date, the use of adhesive was absolutely essential for the three-layer laminates (see priority document, paragraph bridging pages 5 and 6 and page 7, first full paragraph). Since Claim 1 did not specify the use of adhesive for the three-layer laminate, it encompassed embodiments which were not disclosed in the priority document. This objection was, however, refuted by the

Patentee, pointing out that the embodiments specifically described in the priority document were only the best modes known at the priority date and that the disclosure was not restricted thereto, as was apparent from the statements: "the layers of the laminate may be bonded together by means of an adhesive" and "most preferably, the component sheets of the laminate are thermally bonded" (page 3, last two paragraphs). The Board thus accepts that the priority application document also covers three-layer laminates wherein these layers are thermally bonded.

The priority right is thus validly claimed for Claim 1 of this request. As a consequence, the US patent specifications D12 and D36 are not part of the state of the art within the meaning of Article 54(2) EPC (see also point 10.1 above).

19. *Inventive step*

19.1 The use according to present Claim 1 is distinguished from the closest prior art D1 in that it involves a three-layer laminate.

19.2 The Board concurs with the Opponent in that, with respect to D1, the technical problem to be solved can be seen in the need for better protection of the microporous film. It is common ground that the addition of a second substrate layer gives the desired protection. It is thus undisputed that the stated problem is solved by the use according to Claim 1. The solution, however, does not involve an inventive step.

- 19.3 As indicated earlier, D1 expressly relates to laminates which are useful as a lining for roofs or walls, so that there is no doubt that this document is directed to experts in both the fields of roofing materials and house wraps (column 1, lines 1 to 5). Therefore, if the skilled person seeks to improve on the laminate of D1 for use as roofing material, he will also turn to documents in the field of house wraps, for example to D20.
- 19.4 In D20, the house wrap laminates are described as being semi-permeable and to have sufficient strength to withstand handling encountered during construction. They are formed of three layers and calendered, such as to optimise the moisture vapour permeability (column 1, lines 27 to 34; column 3, lines 41 to 63 and column 4, lines 28 to 29). Thus, with the aim of improving the strength of the laminate, the skilled person would have tried and provided an additional substrate layer to the laminate of D1. By doing this, he would arrive at the subject-matter of Claim 1.
- 19.5 The Board can concur with the Patentee insofar as, when the microporous membrane of D1 is Tyvek[®], there is probably less need for additional support by a third layer. The teaching of D1, however, is not exclusively directed to the use of Tyvek[®] as a breather membrane but only reveals that this material is particularly suitable. Thus, should a weaker material be used which still corresponds to the general description of a breather membrane as outlined in D1 (column 1, lines 31 to 46), it is obvious that, in the light of D20, the skilled person would have been motivated to try and incorporate a third layer for further reinforcement. As

a consequence, the use according to Claim 1 lacks an inventive step in view of the teaching of D1 in combination with that of D20.

Eleventh Auxiliary request

20. Claim 1 of this request essentially corresponds to Claim 1 of the ninth auxiliary request. In addition, it contains the refinement that the bonding is "autogeneous" and refers to the "flexibility" of the laminate. However, as discussed earlier in the context of the fourth auxiliary request, the Board accepts that the feature "thermal bonding" is the same as "autogeneous bonding" (see paragraph 8 above). Moreover, the laminate of D1 is also flexible (see paragraph 2.4 above). As a consequence, the use according to Claim 1 of this request also lacks an inventive step for the same reasons as that relating to Claim 1 of ninth auxiliary request.

Twelve Auxiliary request

21. *Amendments*

Claim 1 of the present auxiliary request essentially combines the features of Claims 1 of the tenth and eleventh auxiliary requests.

22. *Inventive step*

The Patentee submitted that, with regard to the closest prior art D1, the technical problem to be solved is the use of a laminate with improved breathability. The Patentee, however, has not submitted any argument, let

alone evidence, so as to persuade the Board that the laminate with the characteristics as defined in Claim 1 will always have an improved breathability as compared to the laminate of D1. Since this parameter is not specified in Claim 1 itself, the Board cannot accept that the technical problem as stated by the Patentee is effectively solved by the use as proposed in Claim 1.

The technical problem is therefore seen in the use of an alternative roofing material to that of D1.

22.1 The alternative proposed in Claim 1 involves :

- (a) a laminate comprising a microporous membrane and supporting substrates on both sides of the membrane, with one or both of the substrates of a spunbonded polymeric non-woven material,
- (b) the layers being thermally bonded using an intermittent bond pattern, and
- (c) the bonded area being between 5% and 50% of the surface area of the laminated layers.

As indicated in the context of the tenth auxiliary request, a laminate comprising a substrate on each side of the microporous membrane is known from D20 (see point 19.4 above). Furthermore, both of these supporting substrates are of a spunbonded material (column 3, lines 41 to 42). The incorporation of the additional features b) and c) into the claim is already discussed in the context of sixth and seventh auxiliary requests, respectively. Thus, none of these additional features is found to be significant by way of contributing to the inventiveness of the claimed subject-matter. In addition, there is no convincing

argument, let alone evidence, on file to show that these technical features interact either with each other or with the other features of the claim to produce an unexpected effect. The Board therefore concludes that the subject-matter of Claim 1 is not a combination of mutually interacting features but a mere aggregation, with no technical effect going beyond expectation. The use of claim 1 therefore lacks an inventive step for the reasons already given in the context of the auxiliary requests concerning each of these additional features.

Thirteenth Auxiliary request

23. *Amendments, Article 123 (2) and (3) EPC*

23.1 Although Claim 1 of this request was only submitted with the letter of 10 June 2005, the Board decides to admit this request into the proceedings since the text of the claim was only amended to correct an obvious error in the previous, timely filed thirteenth auxiliary request.

23.2 Claim 1 of this request is directed to a method of forming a laminate (10) for use as a roofing underlay material. According to Article 64(2) EPC, if the subject-matter of the European patent is a process, the protection conferred by the patent shall extend to the products directly obtained by such process. In the present case, the subject-matter of Claim 1 ("Method for forming a laminate") will confer protection on the laminate obtained from this method of production, irrespective of the intended use.

In contrast, Claim 1 as granted is directed to the use of the laminate as a roofing underlay material. Claim 1 as granted thus only confers protection in respect of the stated purpose (here "as a roofing underlay material"). A change of category from the granted Claim 1 to a claim directed to a "Method for forming a laminate" thus clearly extends the protection conferred. The subject-matter of the thirteenth auxiliary request is therefore not allowable since it contravenes the requirements of Article 123(3) EPC.

Twenty-third Auxiliary request

24. *Amendments*

Claim 1 of this request is fairly based on Claims 1 to 3 and 5 to 6, as originally filed and as granted. The dependent Claims 2 to 12 are essentially based on Claims 4 and 7 to 16, as filed and as granted. The compliance of Claims 1 to 12 with the requirements of Article 123(2) and (3) EPC was expressly accepted by the Opponent who then withdrew its opposition to this request. As a consequence, the Board does not have any legal basis for further examination of the claims on its own motion.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside
2. The fifth and fourteenth to twenty-second auxiliary requests are not admitted into the proceedings
3. 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 12 of the 23rd auxiliary request as filed during the oral proceedings,
 - the drawing as granted, and
 - the description, after any necessary consequential amendment.

The Registrar

The Chairman

G. Röhn

P. Kitzmantel