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Case Number: T 0987/16 - 3.2.01

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Language of the proceedings: EN

Title of invention:
COMPOSITE LAMINATE FOR A THERMAL AND ACOUSTIC INSULATION BLANKET

Patent Proprietor:
E. I. du Pont de Nemours and Company

Opponents:
COGEBI Société Anonyme
JEHIER SAS

Headword:

Relevant legal provisions:
EPC Art. 56, 54, 83, 111(1)

Keyword:
Sufficiency of disclosure (yes)
Novelty (yes)
Inventive step (no)
Remittal to the department of first instance

Decisions cited:

Catchword:

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Beschwerdekammern

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Case Number: T 0987/16 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 20 February 2019

Appellant I: (Opponent 1)	COGEBI Société Anonyme Huysmanslaan 65 1651 Lot (BE)
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Respondent: (Patent Proprietor)	E. I. du Pont de Nemours and Company 1007 Market Street Wilmington, DE 19898 (US)
Representative:	Dannenberger, Oliver Andre Abitz & Partner Patentanwälte mbB Postfach 86 01 09 81628 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 22 February 2016 rejecting the opposition filed against European patent No. 2421750 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	G. Pricolo
Members:	C. Narcisi
	S. Fernández de Córdoba

Summary of Facts and Submissions

I. European patent No. 2 421 750 was maintained as granted by the decision of the Opposition Division posted on 22 February 2016. Against this decision an appeal was lodged by Opponents 1 and 2 in due form and in due time pursuant to Article 108 EPC.

II. Oral proceedings were held on 20 February 2019. The Appellants I and II (Opponents 1 and 2) requested that the impugned decision be set aside and that the patent be revoked. The Respondent (Patentee) requested that the appeals be dismissed (i.e. that the patent be maintained as granted (main request)) or, alternatively, that the decision under appeal be set aside and that the patent be maintained in amended form according to auxiliary requests 1 to 45 (filed on 18 November 2016), or to auxiliary requests 46 to 49 (filed on 23 January 2019).

III. Granted claim 1 reads as follows:

"A composite laminate comprising in order
(a) a polymeric moisture barrier having a thickness from 6.0 to 25.0 micrometers and UL94 flame classification of V-0,
(b) an inorganic platelet layer having a thickness from 7.0 to 76.0 micrometers and a UL94 flame classification of V-0 wherein the platelets comprising the platelet layer have an aspect ratio of from 100 to 20000, and
(c) a thermoplastic film layer having a thickness no greater than 25 micrometers, an average elongation to break no greater than 150% and a UL94 flame classification of V-0."

IV. The Appellants' arguments may be summarized as follows:

The subject-matter of claim 1 in conjunction with the patent specification (hereinafter designated as EP-B) does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by the skilled person.
First, the feature implying that the composite laminate comprises an inorganic platelet layer, wherein the platelets have an aspect ratio from 100 to 20000, is insufficiently disclosed, for it covers any inorganic platelet layers including metallic platelet layers, combustible layers such as layers of highly oriented pyrolytic graphite and the like. The claimed subject-matter is too broad and the disclosure of EP-B does not allow to perform the invention over the entire range claimed.

Further, essential features are missing in claim 1 and in the disclosure of EP-B, documents D7 (EP-A1-601 877) and D4 (US-A-4 655 842) indicating that particularly suitable delaminated vermiculite (available under the trademark MICROLITE) is obtained from stable suspensions including citrate anions, which features are missing in claim 1 and in EP-B.

Also, Opponent 2 provided (in its notice of opposition) evidence that it is impossible to have a mechanically stable layer with pure vermiculite even when using the experimental conditions in examples 1 and 2 of EP-B.

Finally, claim 7 and the description of EP-B include burnthrough tests for an inorganic or organic core (of a thermal insulation and acoustic blanket) according to BSS7230 Method F1, which is an unpublished internal standard of the Boeing Company. It not clear to which

extent this method is equivalent to ASTM F501 (D17), as alleged by the Respondent on the basis of document D16 (Aircraft Materials Fire Test Handbook). Consequently, the skilled person would not be able to perform the claimed subject-matter.

The subject-matter of claim 1 is not new over D1. In particular, D1 discloses a composite material (see e.g. D1, claim 1) comprising a first layer according to feature (a) of claim 1 (see D1, page 8, lines 7-8, 14 and 30), a second layer according to feature (b) of claim 1 (see D1, page 10, line 26; page 20, lines 11-12, 14-15, 21-22; page 21, lines 22-25; the inorganic platelets can be e.g. Microlite 963) and a third layer according to feature (c) (see D1, page 16). More specifically, the claimed features concerning the elongation to break of layer (c) are inherently known from D1, given a majority of polymers mentioned in EP-B (see [0013]) as fulfilling this requirement being the same as the polymers listed in D1 (page 8, lines 19-25).

No novelty objections are brought forward in view of D2.

The subject-matter of claim 1 lacks an inventive step over D2 in view of the skilled person's common general knowledge or in view of D1. The only difference distinguishing the claimed subject-matter from the disclosure of D2 resides in that the third layer (see D2, [0022], [0023]) is not defined as according to feature (c) of claim 1.

Nonetheless, the skilled person would evidently choose as third layer (constituting likewise a "support" for the mica paper included in layer (b)) a fire resistant

polymer, to further reduce flammability of the fire protective barrier as mentioned in D2. Hence the skilled person would recognize that it would be most appropriate and simple to use for the third layer (designated as "second support" in D2) the same polymer film as for the first layer in D2.

Thus, as disclosed in example 2 of D2, the skilled person would select a polyvinyl fluoride (PVF) (such as e.g. Tedlar TFM05AL2 from Dupont de Nemours) for both the first and the third layer. PVF also inherently fulfils the requirements according to features (a) and (c) (specifically said elongation to break) of claim 1, since PVF films are considered to be suitable first and third layers in accordance with the patent specification (EP-B).

Anyway, the claimed feature relating to the elongation to break of the third layer (see feature (c)) does not involve any technical effect, since such a technical effect is not disclosed in EP-B and is not apparent or derivable from the technical context as discussed in EP-B. Therefore no inventive contribution is given by this feature, which should be ignored.

Alternatively, the skilled person would obviously derive from D1 (see page 16) the suggestion to use the same polymer film for said first and third layer.

V. The Respondent's arguments may be summarized as follows:

The subject-matter of claim 1 in conjunction with the description of the patent specification (EP-B) disclose the invention in a manner sufficiently clear and

complete for it to be put into effect by the skilled person.
In effect, EP-B contains sufficient information and guidance on the inorganic platelets (EP-B, [0009] to [0012]) and the examples are reproducible, if only the appropriate set of pressure values at the given temperature of 180° is used.
The experiments of Opponent 2 are valueless, for the moisture barrier (first layer) comprised a PEEK film instead of PEKK, as required by examples 1 and 2 in EP-B.
Furthermore, the test method BSS7230 F1 is an internal Boeing standard, which according to the official document D16 (published by the Federal Aviation Administration FAA) is entirely equivalent to the official test method ASTM F 501. Therefore the skilled person would face no difficulties when performing the claimed invention, particularly since the ASTM F 501 test method can be equivalently applied.

The subject-matter of claim 1 is new over D1, for D1 does not disclose all the claimed features in combination, said combination of features rather resulting solely from a specific selection of parameters and polymers which is not explicitly or implicitly derivable from D1.

The subject-matter of claim 1 is inventive over D2, as the claimed subject-matter differs from D2 by several non-obvious features.
In effect, example 2 of D2 does not include a third layer, and it would not be obvious or evident for the skilled person to provide a third layer (designated as “second support” in D2), let alone a third layer comprising the same thermoplastic material as is used for the first layer.

Moreover, the skilled person would have no incentives to select an aspect ratio of the inorganic platelets from 100 to 20000 as claimed (see feature (b)), and there is no explicit disclosure of this feature in D2.

Finally, the specific choice of the elongation at break according to feature (c) of claim 1 is not obvious and entails a technical effect, contrary to the Opponents' view. Specifically, said choice facilitates inserting and positioning a core (see EP-B, e.g. claim 7) into a sheath consisting of said composite laminate, assisting the core gliding into the sheath.
In addition, not all PVF polymers (e.g. as included in the first layer of example 2 of D2) have an elongation at break as indicated in claim 1 (see feature (c)).

Reasons for the Decision

1. The appeal is admissible.

2. The subject-matter of granted claim 1 (main request) in conjunction with the description of EP-B disclose the invention in a manner sufficiently clear and complete for the skilled person to be able to carry it out (Article 83 EPC).

First, the Opponents' view relating to claim 1 being unduly and excessively broad in scope is not shared by the Board. Indeed, the nature of the inorganic platelets implied by claim 1 is clearly disclosed in

EP-B (see e.g. paragraphs [0009] to [0012]), these platelets including for instance "clay, such as montmorillonite, vermiculite, mica, talc and combinations thereof". In addition, feature (b) of claim 1 requires that the inorganic platelet layer have a UL 94 flame classification of V-0, therefore clear restrictions and limitations are imposed on the nature of the inorganic platelets, contrary to the Opponents' view.

Further, the Opponents' contentions relating to essential features allegedly missing in claim 1 and in the disclosure of EP-B are unfounded in the Board's view. Indeed, since suitable vermiculite is disclosed in EP-B (see paragraph [0012]) as being available under the registered trademark Microlite 963 (see e.g. documents D7 (EP-A1-601 877) and D4 (US-A-4 655 842)), there is no necessity and no requirement that the patent specification (EP-B) or claim 1 include further details about its manufacturing.

The evidence provided by Opponent 2 (with its notice of opposition) relating to the alleged non-reproducibility of examples 1 and 2 in EP-B is not sufficient to prove the Opponents' allegations. Specifically, as noted in the appealed decision, the experiments provided by Opponent 2 employ PEEK as polymeric film, instead of PEKK as required by examples 1 and 2 in EP-B. Moreover, also no indication was given in these experiments about the pressure used in the press at said temperature of 180° C to produce the composite laminate. Even if, admittedly, EP-B does not disclose a specific pressure value, the Board nonetheless follows the conclusions of the Opposition Division in the appealed decision, in that the selection and optimization of the pressure

parameter is considered to lie within the skilled person's common capabilities and general knowledge.

Finally, it is true that claim 7 and the description of EP-B include burnthrough tests for an inorganic or organic core (of a thermal insulation and acoustic blanket) according to the internal standard BSS7230 Method F1 of the Boeing Company, whose public availability cannot be confirmed or denied since no conclusive evidence was provided, the Patentee likewise not making any definitive statement to this effect. Nevertheless, the Board does not see that for this reason the skilled person would not be able to put the invention into effect, given that the Patentee explicitly declared (during oral proceedings) and accepted that said internal test be considered entirely equivalent to ASTM F501 (see D17), as likewise indicated by D16.
Therefore, the question concerning the extent to which this method is equivalent to ASTM F501 (D7) is only a question of clarity (Article 84 EPC), which the Board is not empowered to examine, since these features were already included in the granted claims (see G 3/14). Consequently, for all practical purposes, particularly in case of doubt or missing information, said features should be constructed broadly, e.g. by adopting the standard test method according to ASTM F501.

3. The subject-matter of claim 1 is new over D1 (Article 54 EPC), as the combination of the claimed features is not disclosed in D1. Specifically, the Appellants' arguments and citations of D1 are based on distinct and different parts and passages of D1, such that no direct explicit or implicit link between specific features in these parts can be shown to exist. For instance, there is no explicit disclosure in D1 for the second layer

having a thickness of 75 micrometers and a third layer, which is actually only optional (see D1, page 16), being also present and moreover being selected as consisting of the same polymeric material as the first layer and having the same thickness.

4. The subject-matter of claim 1 is not inventive over D2, particularly in view of the skilled person's common capabilities and knowledge or in view of D1.

First, it is noted that a composite laminate having a first layer according to feature (a) of claim 1 is undisputedly known from e.g. example 2 of D2.

Further, contrary to the Patentee's view, feature (b) of claim 1 is evidently disclosed in example 2 of D2, which indicates that mica paper is used as second layer, including mica platelets (or "flakes", see paragraph [0028])) having an aspect ratio ("form factor") greater than 1000, said layer having a thickness of 14 (or 16) micrometers (see D22, paragraphs [0045], [0076] to [0078]). Therefore, as these are the same mica platelets as disclosed in EP-B (see paragraph [0012], lines 23-25), they inherently have a UL 94 flame classification of V-0, as required by feature (b) of claim 1. Moreover, given that D2 discloses a composite laminate for application as a fire protective barrier in an aircraft cockpit (i.e. the same technical field as EP-B), and therefore mentions specific safety standards and corresponding test methods (see D2, paragraphs [0007] to [0010]), the skilled person would necessarily and inevitably use a mica paper complying with existing official standards and regulations. Thus, this requirement could not possibly contribute to inventive step.

As to feature (c), this is the sole feature missing in example 2 of D2. However, the possible presence of a third layer is clearly disclosed in D2 (see e.g. paragraphs [0022], [0023], [0037], claim 5), indicating that a "second support" can be provided for the mica paper, this "second support" clearly constituting a third layer such as a film to which the mica paper is laminated (see [0023], [0037]).

Therefore, starting from example 2 of D2, the skilled person would as an obvious alternative (disclosed in D2) provide a third layer as a support for the mica paper.

The skilled person would likewise select in an obvious manner the same polymeric film as used for the first layer (a PVF polymeric film, such as e.g. registered trademark Tedlar TFM05AL2; see D2, [0004], example 2), and this for several reasons: said PVF polymeric film is known from D2 to comply with known regulations and to act as a fire resistant sheet (see also e.g. D1, page 3, first paragraph; page 8, lines 14-21), a symmetrical structure would reduce difficulties resulting from different expansion coefficients and temperature changes and only one item in stock would be needed.

Additionally, selecting for the third layer the same polymeric film as for the first layer is explicitly indicated and suggested in D1 (see page 16, first paragraph), where the first layer is e.g. chosen as generally including a polyvinyl fluoride (PVF) polymeric material (D1, page 8, lines 18-21; see also page 9, second paragraph), acting as a fire barrier (D1, page 3 first paragraph; page 8, lines 14-21).

In conclusion, as discussed hereinabove, the skilled person would arrive in an obvious manner at feature (c) of claim 1, given that the further requirement or specific feature entailing "an average elongation to break no greater than 150%" has no technical effect and thus cannot contribute to inventive step (Article 56 EPC). Indeed no such technical effect is explicitly or implicitly disclosed in or is derivable from EP-B and no valid and convincing arguments were provided by the Patentee. Specifically, it is not clear how said requirement should facilitate inserting and positioning a core (see EP-B, e.g. claim 7) into a sheath consisting of said composite laminate (thereby assisting the core gliding into the sheath), taking into account that the ease or difficulties in performing said insertion is primarily determined by the friction coefficients (as noted by the Opponents during oral proceedings), which depend exclusively on material surface, bearing evidently no relation to said "elongation to break".

Anyway and more importantly, even if said parameter range were taken into account for the assessment of inventive step, the same conclusions would be arrived at. In effect, the skilled person starting from D2 (see above) would obviously select as "second support" (D2, [0022], [0023], [0037]) for the mica paper a polymeric polyvinyl fluoride appropriately acting as a support and having sufficient stiffness or rigidity. Thus, the skilled person would look for a polyvinyl fluoride material having optimal and adequate stiffness or rigidity. Such an optimization does not involve an inventive step and would necessarily and inevitably lead to suitable PVF polymers, as is also confirmed by the patent specification (see EP-B, paragraph [0013]). Evidently, the features relating to fire resistance

remain substantially unaffected thereby, since these depend on chemical composition and not on mechanical properties of the polymeric material.

5. The considerably high number of auxiliary requests (49 in total) filed by the Patentee (most of these were already filed during opposition proceedings) is not compatible with general legal principles of the appeal proceedings. Appeal proceedings are by their very nature a judicial procedure, which is less investigative than opposition proceedings before the department of first instance (see decision of the Enlarged Board of Appeal G 9/91). In the present case the high number of auxiliary requests is tantamount to seeking protection for a subject-matter which is to be defined by tentatively selecting a multitude of combinations of different features to be introduced into claim 1, without a convergence criterion or a common concept being apparently recognizable. Discussing each of these requests and deciding on it would therefore amount to a renewed examination of the application by the first instance department. However, this is not the intended purpose of the appeal proceedings. Consequently, the Board decided to remit the case to the department of first instance (Article 111(1) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance for further prosecution.

The Registrar: The Chairman:

A. Vottner G. Pricolo

Decision electronically authenticated