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**Datasheet for the decision  
of 24 July 2020**

**Case Number:** T 1613/16 - 3.3.06

**Application Number:** 12171722.7

**Publication Number:** 2500169

**IPC:** B32B27/08, B32B27/32, B29C51/14

**Language of the proceedings:** EN

**Title of invention:**  
Multilayer structure

**Patent Proprietor:**  
A. Schulman, Inc.

**Opponent:**  
Treofan Germany GmbH & Co. KG

**Headword:**  
Multilayer structure/A. Schulman, Inc.

**Relevant legal provisions:**  
EPC Art. 123(2), 84

**Keyword:**  
Amendments - added subject-matter (yes) - all claim requests  
Claims - clarity (no) - auxiliary request I

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**

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Case Number: T 1613/16 - 3.3.06

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.06**  
**of 24 July 2020**

**Former appellant/now  
Respondent:**  
(Patent Proprietor)

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**Decision under appeal:**

**Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
2 May 2016 maintaining European Patent No.  
2500169 in amended form.**

**Composition of the Board:**

**Chairman**            J.-M. Schwaller  
**Members:**            G. Santavicca  
                              C. Brandt

## Summary of Facts and Submissions

I. The appeals of opponent and patent proprietor lie from the interlocutory decision of the Opposition Division to maintain European Patent No. 2 500 169 in amended form according to auxiliary request 1 then on file, claim of which has the following wording (amendments to claim 1 as granted made apparent by the board):

*"1. A multilayer structure comprising:  
a first thermoplastic layer having a polymeric component consisting essentially of virgin polyolefin;  
a second thermoplastic layer having a polymeric component consisting essentially of regrind polyolefin;  
and  
a third thermoplastic layer having a polymeric component consisting essentially of virgin polyolefin;  
the second thermoplastic layer being adjacent to the first thermoplastic layer and the third thermoplastic layer;  
wherein the regrind polyolefin of the second thermoplastic layer is from trim scrap or other sources that would otherwise be waste materials and has a lesser melt strength than the polymeric components of the first and third thermoplastic layers;  
wherein the first thermoplastic layer and the third thermoplastic layer further comprise an elastomer;  
wherein the first, second and/or third thermoplastic layers comprise a filler, **and**  
**wherein the layers are formed by coextrusion."***

II. With their respective grounds of appeal:

**Appellant I** (patent proprietor) refiled auxiliary requests I to XIII pending before the Opposition

Division, and enclosed further items of evidence, in particular D20 (Lau et al. "*Melt Strength of polypropylene: its relevance to thermoforming*", Polymer Engineering and Science, November 1998, Vol. 38, No. 11, pages 1915 to 1923), and requested to maintain the patent as granted (main request), or in the amended form according to any of auxiliary requests I to XIII.

Further it contested in particular the decision that the patent as granted lacked an inventive step (Article 56 EPC) and the decision to admit late filed document D15 into the opposition proceedings.

**Appellant II** (opponent) requested that the patent be revoked in its entirety, and *inter alia* it maintained that the patent extended beyond the content of both the application and the parent application as filed (Article 100(c) EPC in connection with Article 123(2) EPC) and further that the claims lacked clarity (Article 84 EPC).

- III. With letter of 12 February 2020, appellant I/patent proprietor withdrew its appeal (and so its request to maintain the patent as granted), and thus became the respondent in these proceedings.
- IV. By communication pursuant to Rule 84(1) EPC dated 30 April 2020, the parties were informed that the opposed European patent had been surrendered or had lapsed with effect for all the designated Contracting States, so that the appeal proceedings may be continued at the request of the opponent, provided that a request to this effect was filed within two months.
- V. In a communication the Board gave its preliminary opinion *inter alia* that the amendments to claim 1 of

auxiliary request I did not comply with the requirements of Articles 76(1), 123(2) and 84 EPC, and that this objection likewise applied against the amendments in claim 1 according to each of auxiliary requests II to XIII.

- VI. With letter dated 30 June 2020, the appellant/opponent requested a continuation of the opposition proceedings and agreed on the issuance of a decision according to the state of the file, if the respondent withdrew its request for oral proceedings.
- VII. By letter dated 2 July 2020, the respondent withdrew its request for oral proceedings.
- VIII. *Requests as apparent from the written proceedings*

The **appellant/opponent** requested that the decision under appeal be set aside and that the patent be revoked.

The **respondent/patent proprietor** requested that the appeal be dismissed or, alternatively, that the patent be maintained in amended form according to any of auxiliary requests II to XIII, all filed with its grounds of appeal. Further, it requested not to admit D15 but to admit D16 to D20 into the appeal proceedings.

### **Reasons for the Decision**

- 1. *Auxiliary request 1 - Amendments (Articles 76(1) and 123(2) EPC)*

1.1 Claim 1 according to this request has the following wording (amendments to claim 1 as granted - underlining - and amendments to claim 1 as originally filed, or to original claim 39 of the parent application - [EP 09711523.2, on the basis of which European patent 2 142 369 has been granted] - are made apparent by the Board):

*"1. A multilayer structure comprising:  
a first thermoplastic layer having a polymeric component consisting essentially of virgin polyolefin;  
a second thermoplastic layer ~~including~~ **having a polymeric component consisting essentially of** regrind polyolefin; and  
a~~[n-optional]~~ third thermoplastic layer having a polymeric component consisting essentially of virgin polyolefin;  
the second thermoplastic layer being adjacent to the first thermoplastic layer and the third thermoplastic layer;  
**wherein the regrind polyolefin of the second thermoplastic layer is from trim scrap or other sources that would otherwise be waste materials and has a lesser melt strength than the polymeric components of the first and third thermoplastic layers;**  
**wherein the first thermoplastic layer and the third thermoplastic layer further comprise an elastomer;**  
**wherein the first, second and/or third thermoplastic layers comprise a filler, and**  
**wherein the layers are formed by coextrusion."***

1.1.1 In particular, these amendments can be itemised as follows:

(1) "~~an-optional~~ third layer ... virgin polyolefin";



- (2) *"a second thermoplastic layer having a polymeric component consisting essentially of regrind polyolefin";*
- (3a) *"the regrind polyolefin of the second thermoplastic layer is from trim scrap or other sources that would otherwise be waste materials" and*
- (3b) *"has a lesser melt strength than the polymeric components of the first and third thermoplastic layers";*
- (4) *"wherein the first thermoplastic layer and the third thermoplastic layer further comprise an elastomer";*
- (5) *"wherein the first, second and/or third thermoplastic layers comprise a filler";*
- (6) *"wherein the layers are formed by coextrusion".*

1.1.2 For the board, amendments (1) - which is the mere concretisation of an option defined originally as such in claim 39 of the parent application, not however in claim 1 of the original divisional application - and (2) - which is identical to the additional features of original claims 42 (parent) and 3 (divisional), respectively depending on original claims 39 (parent) and 1 (divisional) - are not objectionable under Articles 76(1) or 123(2) EPC.

1.1.3 Amendment (3a) is based on page 26, lines 13-15 as well as on original claim 5, depending on original claim 1, of the divisional application. The amendment does not include all of the features of the original description or of original claim 5, as the additional feature *"products that do not meet quality control or specification"* has been omitted. However, it is immediately apparent that what was omitted is a mere repetition, in so far as products not meeting these

specifications are scraps or waste, both of which are still defined in amended feature (3a). Hence, also this amendment poses no problem under Articles 76(1) and/or 123(2) EPC.

- 1.1.4 Amendment (3b) is based on original claim 2, depending on original claim 1, of the divisional application, but does not include all the features of original claim 2, as the following original features (striked through by the board) have been omitted: "~~wherein the polymeric components of the first and third thermoplastic layer are of the same family of olefinic hydrocarbons, and wherein the regrind polyolefin of the second thermoplastic layer has a lesser melt strength than the polymeric components of the first and third thermoplastic layers~~".

The board notes that neither an embodiment identical to claim 2 of the original divisional application as such, nor another general embodiment wherein the regrind polyolefin has a lesser melt strength than any polymeric components (not necessarily polyolefins of the same family of olefinic hydrocarbons) of first and third layers can be directly and unambiguously gathered from the original parent application. In this respect, attention is drawn to the specific construction of figure 8 in the parent application (page 25, line 6 to page 27, line 5) (*idem* in the divisional application, starting from page 35, line 6 to page 37, line 5), which specific construction is made of 100% virgin homo- or co-polymers of propylene only (see also the reference to the material of backing layer 7 of figure 1, on page 25, last paragraph (*idem* on the last paragraph of page 35 of the divisional application)).

Hence, amendment (3b) has technical consequences, as now the polymeric components of first and third layers need not to be the same, nor the same as that of the second layer, but the melt strength of the regrind polyolefin of the second thermoplastic layer must still be less than that of each of the polymeric polyolefins/ components of first and third layers.

Thus, amendment 3b constitutes an intermediate generalisation (at least between the generic embodiment of original claim 1 and the specific embodiment of original claim 2 of the divisional application) (or over the description of the specific embodiment shown in figure 8 of the parent application).

It has thus to be established whether this amendment is allowable, e.g. whether it is disclosed as a general embodiment of the invention or as generally applicable to all of the embodiments in the original (parent and divisional) applications.

The patent proprietor, in its reply to the statement of grounds of appellant, argued that

- (page 3, Point III, first sentence) "it is known that regrind has lower melt-strength than virgin polymer of the same type" (underlining by the Board);

- (page 4, last sentence of point III) "it is apparent to the person skilled in the art that the regrind layer of the examples has a lower melt strength than the virgin polymer";

and so it confirmed that the defined requirement on melt strength in claim 1 at issue has a plausible technical sense, and was originally disclosed as such, only if the chemistry of the (virgin/regrind) polymers/ polyolefins is the same, and if the polyolefins of each layer belong to the same family.

This argument thus runs against the deletion of the additional features of claim 2 of the original divisional application, and of the description in the parent application.

The basis in the original parent application referred to by the patent proprietor to justify amendment (3b), namely: page 2, lines 1-2; page 24, lines 22-23; page 25, lines 3-5; page 26, lines 13-15, directly and unambiguously disclose that a regrind polyolefin is from trim scrap or waste material, that its incorporation into the structure lowers the melt strength and that it is necessary to change the structure of the (known) sheet to compensate for this loss of melt strength. There is however no disclosure that the introduction of the regrind polyolefin has lesser melt strength than any virgin polyolefin, let alone lesser than any other different virgin polymer.

Therefore, for the Board, amendment (3b) is not directly and unambiguously disclosed in the original applications, with the consequence that the intermediate generalisation (arising e.g. from the deletion of features of original claim 2 of the divisional or from the generalisation of the specific embodiment of figure 8) produced thereby is not allowable, neither under Article 123(2) EPC over the original divisional application, nor under Article 76(1) EPC over the initial parent application.

- 1.1.5 Amendments (4), (5) and (6) were not disclosed as such in any of the originally filed claims. Hence, if any, they have been taken from the description, so that it is necessary to assess whether these amendments as such, and in combination with other features of claim 1, were originally disclosed.

In this respect the board notes that

- amendment (4), i.e. the mandatory presence of an elastomer in only first and third thermoplastic layers, is disclosed as such in tables 3 and 4 of examples 1A-8A, i.e. in a very specific context only, not as generally applicable. Indeed, the original application discloses on page 23, second paragraph, first sentence, that the second layer may contain an elastomer, and illustrates embodiments (examples 1-6) wherein only the backing layer, i.e. the second layer of claim 1 at issue, includes both elastomer and fillers, in particular their concentrations and proportions:

- in fact, as regards the presence of fillers in each layer, amendment (5) appears to be disclosed as such in a general way (page 30, line 33; page 31, line 11) but with the further condition (page 31, lines 13 and 14) that it is present "**up to 50%**". The latter condition has not been included in claim 1 at issue, with the consequence that also amendment (5) is not based on the original application;

- instead, amendment (6) was originally disclosed as being generally applicable to all embodiments, as clearly apparent from last paragraph at page 4; paragraph bridging pages 11 and 12; page 16, line 20; page 17, lines 3-4 and 18-19; page 19, line 20; page 32, line 14; page 37, line 24; "coextrusion setup" mentioned in the process of examples 2 to 6; Examples 1A-8A, page 50, lines 21-22; page 52, lines 11-12.

1.1.6 Hence, since amendments (3b), (4) and (5), are undisclosed and non-allowable intermediate generalisations, upheld claim 1 at issue contravenes the requirements of Articles 76(1) and 123(2) EPC.

1.1.7 Already for this reason the main request is not allowable.

- 1.2 Auxiliary request 1 - Clarity
  - 1.2.1 Compared to claim 1 as granted, upheld claim 1 comprises the additional feature "*and wherein the layers are formed by coextrusion*".
  - 1.2.2 This additional feature is a process feature (defining how the multilayer was formed), and as such it is clear and comprehensible, i.e. not objectionable.
  - 1.2.3 However, such a clear process feature has been inserted in upheld claim 1 in order to further define a product, i.e. a multilayer structure, so that upheld claim 1 is now drawn up as a product-by-process claim.
  - 1.2.4 According to the case law of the Boards of Appeal, 9<sup>th</sup> edition, II.A.7.1, e.g. T 150/82, OJ 1984, 309, claims for products defined in terms of a "product-by-process" claims are admissible only if the product itself fulfils the requirements for patentability and there is no other information available in the application which could have enabled the applicant to define the product satisfactorily by reference to its structure or some other testable parameter.
  - 1.2.5 Hence, the question may arise (e.g. if the process feature were the only distinguishing feature) whether the claimed structure is clearly defined in the sense of being clearly, i.e. structurally, further delimited over a structure which has not been coextruded, such as when the layers are extruded separately and then adhered to each other. Thus, the question which arises is more particularly whether said process feature leaves a finger-print on the structure which is reliably detectable and measurable.

1.2.6 In this respect, the patent proprietor has argued that the skilled person understands that the layers are adhered to each other by coextrusion, and that this leads to a specific bonding of the layers, which is detectable, e.g. if the layers are peeled away easily; or if a microscope shows adhesive tie layer between them (i.e. by making a section of the structure for its observation under the microscope and analysis).

1.2.7 However, claim 1 does not exclude the presence of an adhesive between the layers, i.e. is not restricted to the embodiment mentioned on page 17, first paragraph, of the divisional, and the presence of an adhesive is even a preferred embodiment of the invention, as apparent from e.g. page 24, line 24; page 25, line 23.

1.2.8 Thus, at least when an adhesive is present in the composition of a layer, it is not seen how the tests invoked by the patent proprietor might permit to distinguish between the claimed coextruded and a non-coextruded multilayer structure.

1.2.9 Therefore, upheld claim 1 is also objectionable under clarity (Article 84 EPC), as it turns out that the process feature inserted in claim 1 does not produce any distinctive product feature over a similar structure which is not coextruded, but e.g. extruded or moulded.

## 2. *Auxiliary requests II to XIII*

### 2.1 Amendments

2.1.1 The objections against amendments (3b), (4) and (5) in upheld claim 1 (main request) apply *mutatis mutandis* against the same amendments present in claim 1

according to each of auxiliary requests II to XIII, which auxiliary requests are therefore not allowable either under Article 123(2) EPC.

2.1.2 Consequently, none of the pending auxiliary requests is allowable.

3. In view of the above there is no need to decide on the proprietor's request to admit or not into the appeal proceeding documents D15 to D20 (dealt with in the preliminary opinion of the Board), as they are not decisive for the conclusions taken above.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The opposed patent is revoked.

The Registrar:

The Chairman:



A. Pinna

J.-M. Schwaller

Decision electronically authenticated