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**Datasheet for the decision  
of 7 September 2021**

**Case Number:** T 0134/21 - 3.2.01

**Application Number:** 13800796.8

**Publication Number:** 2856016

**IPC:** F21V7/22, B44F1/12, B44F1/02

**Language of the proceedings:** EN

**Title of invention:**  
OPTICAL REFLECTION FILMS

**Applicant:**  
Trinseo Europe GmbH

**Headword:**

**Relevant legal provisions:**

EPC Art. 123(2), 54, 56  
RPBA 2020 Art. 11

**Keyword:**

Amendments - allowable (yes) - extension beyond the content of  
the application as filed (no)  
Novelty - main request (yes)  
Inventive step - main request (yes) - non-obvious solution  
Remittal - (no)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**

**Boards of Appeal**

**Chambres de recours**

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Case Number: T 0134/21 - 3.2.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.01**  
**of 7 September 2021**

**Appellant:** Trinseo Europe GmbH  
(Applicant) Zugerstrasse 231  
8810 Horgen (CH)

**Representative:** SSM Sandmair  
Patentanwälte Rechtsanwalt  
Partnerschaft mbB  
Joseph-Wild-Straße 20  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 4 August 2020  
refusing European patent application No.  
13800796.8 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** G. Pricolo  
**Members:** A. Wagner  
O. Loizou

## **Summary of Facts and Submissions**

- I. The appeal was filed by the applicant against the decision of the examining division to refuse the European patent application No. 13800796.8.
- II. In the decision under appeal the examining division concluded that the main request as well as the auxiliary requests 1 to 8 contravened the requirements of Article 123(2) EPC.
- III. With the statement of grounds of appeal the appellant requested to set aside the decision of the examining division and to grant a patent based on the main request or, as an auxiliary measure, based on one of the auxiliary requests 1 and 5 to 8, the requests being identical to those of the examination proceedings.
- IV. With letter dated 27 May 2021 in response to a communication of the Board wherein it was indicated that the Board preliminary agreed with the findings of the examining division, the appellant filed a new main request, new first and second auxiliary requests and maintained the previous auxiliary requests 1 to 8 as auxiliary requests 3 to 10.
- V. Following a telephone conversation with the rapporteur of the Board, the appellant requested with letters of 5 August 2021 and 17 August 2021 respectively that the decision of the examining division be set aside and a patent be granted based on the following documents:  
Claims 1 to 20 according to the main request filed with letter of 17 August 2021;  
Description pages 1a and 4, filed with letter of 17 August 2021, pages 1, 2, 7 and 8, filed with letter

of 5 August 2021, pages 3, 5, 6 and 9 to 23 filed with entry into the EP-phase;  
or, in the alternative, to grant a patent based on one of the auxiliary requests 1 and 2, filed with letter of 27 May 2021 or one of the auxiliary requests 3 to 10 corresponding to the auxiliary requests 1 to 8 of the examination proceedings.

VI. The decision is based on the following documents:

D1: WO 2010/101811 A1  
D1\*: US 2011/0315189  
D2: US 5 991 080 A  
D3\*: US 2009/0194320  
D4: WO 2010/101810 A1  
D5: JP 2007 108242

VII. Claim 1 of the main request reads as follows (feature numbering M1 and M2 added by the Board):

A film suitable for use as an optical reflector in LED lighting and LED backlit units, the film comprising:

a) a substrate film layer comprised of a thermoplastic polymer or a metal sheet; and

b) an acrylic coating on at least one side of the substrate film layer, wherein the acrylic coating is comprised of an acrylic polymer and one or more white pigments,

**M1:** wherein the acrylic polymer has a Tg of at least 80°C and

**M2:** wherein the white pigment comprises from 55 to 85 weight% of the acrylic coating.

Claim 18 of the main request reads as follow:

A method of making a film or sheet suitable for use as an optical reflector in LED lighting and LED backlit units, comprising applying an acrylic coating composition to at least one side of a substrate film layer comprised of a thermoplastic polymer or metal sheet, wherein the acrylic coating composition comprises an acrylic polymer, a volatile liquid medium for the acrylic polymer, and a white pigment,  
**M1:** wherein the acrylic polymer has a Tg of at least 80°C and  
**M2:** wherein the white pigment comprises from 55 to 85 weight% of the acrylic coating and drying the acrylic coating composition on the substrate film or sheet layer.

## **Reasons for the Decision**

### **1. Article 123(2) EPC**

- 1.1 The requirements of Article 123(2) EPC are met. The new main request overcomes the objections that led to the refusal of the application.
- 1.2 The examining division held that the feature combination added to claim 1 in all requests of the first instance proceedings could not be derived directly and unambiguously from the disclosure of the original application. In particular the combined selection of specific values from several lists relating to different features (i.e. "Tg", "matting agent" and "white pigment content") was originally not disclosed and contravened Article 123(2) EPC.
- 1.3 In claim 1 of the main request filed on 17 August 2021, the mentioned feature combination has been deleted.

Independent claims 1 and 18 include the features of originally filed claims 1 and 20, respectively, complemented by features M1 and M2. Feature M1 is based on original claim 9. Feature M2 is based on original claim 6, wherein, based on page 7 of the A1-publication (WO2013/184536), line 22, the lower limit is raised from 35wt% to 55wt%.

Furthermore the independent claims 1 and 18 include the feature "*in LED lighting and LED backlit units*", which finds support in the description, page 9, lines 16-17.

- 1.4 The Board agrees with the appellant's argument that, even if claim 9 originally was not formulated as being dependent on claim 6, all examples of the originally filed application disclose the features of original claim 6 and 9 in combination, thus providing a basis for this amendment. Additionally all examples disclose an amount of white pigments of at least 55wt%. The limitation of the range does not add new technical information.
- 1.5 Dependent claims 2 to 17 and claims 19 and 20 find their basis in original claims 2 to 5, 7, 8, 10 to 19 and 21, 22, respectively. The description is adapted to the amended claims and reflects the relevant prior art.
- 1.6 All amendments thus find a basis in the originally filed application.

## 2. **Article 11 RPBA**

The decision under appeal only deals with objections under Articles 123(2) EPC.

However novelty and inventive step were discussed extensively during examination proceedings. In the supplementary European search report D1, D2 and D5 were

cited under Article 54 EPC. The international search report additionally cited D1\* being a family member of D1 and providing the same disclosure. In a communication of the examining division dated 13 November 2018, also D4 was mentioned under Article 54 EPC. In view of original claims 6 and 9, now being incorporated into claim 1 of the main request, and in view of the reference to LED lighting and LED backlit units (reflected in original claims 21 and 22) the international search report further cited D3\* as being particular relevant.

The Board considers that no special reasons present themselves for a remittal to the first instance in accordance with Article 11 RPBA, in particular because these issues can be decided in favour of the appellant as explained herein below.

### **3. Article 54 EPC**

- 3.1 Claim 1 and claim 18 are new in view of the documents cited in the international search report and in the supplementary European search report.
- 3.2 D2 and D5 refer to films used for the same purpose as the claimed film but do not disclose feature M1. The acrylic polymer mentioned in D2 (example 3) is an acrylic polyol resin (trade name: ACRYDIC 49-394IM) having a Tg of 16°C (see WO 2013/141282, paragraph [0058], resin D). D5 discloses an acrylic polymer having a Tg ≤ 60°C.
- 3.3 The optical reflector films disclosed in D1, D1\* and D4 are used in photovoltaic applications and therefore not unambiguously suitable for the use in LED lighting and LED backlit units. Furthermore neither D1 nor D4 discloses feature M2. The maximal amount of white



pigment disclosed in D1 is 50wt%, in D4 the upper end-point is 40wt%.

- 3.4 D3\* discloses a white film for LED applications (see claim 1 and paragraphs [0007]) comprising a dried product of a resin composition impregnated on a sheet glass fiber substrate. A substrate layer comprised of a thermoplastic polymer or a metal sheet according to claim 1 is not disclosed.
- 3.5 The same argumentation applies mutatis mutandis to claim 18.
- 3.6 The disclosure of the documents additionally cited in the international search report and the supplementary European search report does not go beyond the disclosure of D1, D1\*, D2, D3\*, D4 or D5.

#### **4. Article 56 EPC**

- 4.1 Claim 1 and claim 18 are inventive over the cited prior art.
- 4.2 D5 is considered the closest prior art.

D5 (paragraphs [0001, 0002, 0005]) is directed to reflector plates for the use in the same technical field as mentioned in the application (e.g. LED in liquid crystal displays (LCD), see original claim 21 in the A1-publication of the application in suit). The disclosed value for Tg in D5 is closer to the claimed value as the one disclosed in D2.

D1, D1\* and D4 both relate to photovoltaic applications and thus refer to a different technical application.

- 4.3 Claim 1 differs from D5 in that the Tg of the acrylic polymer in the acrylic coating is of at least 80°C (M1) and in that the white pigment comprises from 55 to 85 weight% (M2) of the acrylic coating.
- 4.4 The problem to be solved can be considered as providing optical reflector films suitable for applications where a high thermal stability at elevated temperature and a high light brightness with high diffused light scattering are required (see page 1, lines 20 to 31 of the application as originally filed).
- 4.5 D1 and D4 both disclose a Tg > 80°C. However the skilled person would not consider D1 or D4 directed to a photovoltaic back sheet when trying to solve a problem related to reflector plates for liquid crystal displays (LCDs). Furthermore D1 and D4 are not combinable with D5 as the technical requirements are different. For photovoltaic applications properties such as electric insulation, UV protection and low water vapor transmission are important (see D1, page 1, lines 24 to 30, page 3, line 25) while for the back lights of D5 a high brightness in lightning panels is essential.
- Even if the skilled person were to combine D5 and D1, the teaching of D1 would lead away from the claimed white pigment content (feature M2), as D1 discloses a content of less than 50wt%, most preferably between 25 and 35 wt% (D1, page 8, lines 27-29). The same is valid for the combination of D5 with D4 wherein the white pigment amount does not exceed  $\leq$  40wt%.
- 4.6 The resin composition disclosed in D3\* comprises 10 to 75% by weight of white pigment (paragraph [0009]) and a cycloaliphatic epoxy resin providing cured products of

high glass transition temperature "to attain high heat resistance. It is preferred that cured products of the resin have a glass transition temperature in the range of 150 to 300° C, particularly in the range of 180 to 250° C" (paragraph [0024]). However the combination of the coated film structure of D5 with the impregnated glass fiber substrate of D3\* is not obvious. Even if the skilled person were to combine the teaching of D1 and D3\*, D3\* would lead away from coating a thermoplastic polymer or metal sheet.

- 4.7 The same argumentation applies mutatis mutandis to claim 18.
  
5. Dependent claims 2 to 17, claim 19 directed to a LED backlit unit and claim 20 directed to a lighting device include all the features of claim 1 and likewise meet the requirements of novelty and inventive step.

## **Order**

### **For these reasons it is decided that:**

1. The decision is set aside.
  
2. The case is remitted to the department of first instance with the order to grant a European patent on the basis of the main request filed with letter of 17 August 2021:

Claims 1-20;

Description

- pages 1a and 4, filed with letter dated 17 August 2021,

- pages 1, 2, 7 and 8 filed with letter dated 5 August 2021;
- pages 3, 5, 6 and 9 to 23 filed with entry into the EP-phase.

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated