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**Datasheet for the decision  
of 1 October 2019**

**Case Number:** T 0450/15 - 3.3.02  
**Application Number:** 09725744.8  
**Publication Number:** 2261289  
**IPC:** C09D175/16, C08G18/67,  
C08J7/04, C09D4/06, C09D7/12  
**Language of the proceedings:** EN

**Title of invention:**

COMPOSITION FOR COATING A PLASTIC SUBSTRATE, COATING FILM  
FORMED THEREFROM, AND FORMED BODY

**Patent Proprietor:**

FUJIKURA KASEI CO., LTD.

**Opponents:**

BASF Coatings GmbH  
Momentive Performance Materials, Inc.

**Headword:**

**Relevant legal provisions:**

EPC Art. 56  
RPBA Art. 12(4)

**Keyword:**

Inventive step - (no)

**Decisions cited:**

**Catchword:**



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Case Number: T 0450/15 - 3.3.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.02**  
**of 1 October 2019**

**Appellant:** Momentive Performance Materials, Inc.  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
17 November 2014 concerning maintenance of the  
European Patent No. 2261289 in amended form**

**Composition of the Board:**

<b>Chairman</b>	M. O. Müller
<b>Members:</b>	P. O'Sullivan
	M. Blasi

## Summary of Facts and Submissions

- I. The appeal of opponent 2 (hereinafter: appellant) lies from the interlocutory decision of the opposition division according to which the patent as amended according to the fifteenth auxiliary request and the invention to which it relates were found to meet the requirements of the EPC.
- II. European patent 2 261 289 was opposed under Article 100(a) EPC on the grounds that its subject-matter lacked novelty and inventive step.
- III. During opposition proceedings, *inter alia* the following evidence was cited:
- D3 : EP 0 824 119 A
  - D11 : JP 2002-256220 & German language translation D11T
  - D12 : JP 2002-285083 & German language translation D12T
  - D19 : US 6,143,803
- IV. With the statement of grounds of appeal the appellant filed tests labelled "Experiments based on D3, Tab. 1, Example D" (hereinafter: appellant's tests), along with the following:
- D20 : EP 2 003 174 A

V. With the reply to the statement of grounds the proprietor (hereinafter: respondent) filed the sets of claims of the sixteenth to twenty-second auxiliary requests, and referred to the following, subsequently filing it with the letter of 1 June 2016:

D21 : "42594-17-2 (Tricyclo[5.2.1.02,6]  
decanedimethanol diacrylate) product  
description"

VI. A communication of the board pursuant to Article 15(1) RPBA was sent in preparation of oral proceedings, scheduled in accordance with the corresponding requests of the parties.

VII. Oral proceedings before the board were held on 1 October 2019. The procedural request that the persons accompanying the appellant make oral submissions was not relevant since said persons did not speak during oral proceedings. Additionally, during oral proceedings, in the context of inventive step having regard to D12, the respondent argued for the first time that the effect of the difference over D12 was evident in view of the comparative examples of the patent (infra). In the absence of an objection as to the admittance thereof, this aspect was taken into account by the board. For the further course of the oral proceedings, reference is made to the minutes.

VIII. The requests of the parties relevant for the decision were as follows:

The appellant requested that the decision of the opposition division be set aside and the patent be revoked in its entirety. The appellant furthermore requested that the sixteenth to twenty-second auxiliary

requests filed with the reply to the statement of grounds of appeal not be admitted into the proceedings.

The respondent requested that the appeal be dismissed, or alternatively, that the patent be maintained based on one of the sets of claims of the sixteenth to twenty-second auxiliary requests filed with the reply to the statement of grounds of appeal. The respondent furthermore requested that D20 and the appellant's tests, both filed with the statement of grounds of appeal, not be admitted into the proceedings.

- IX. The fifteenth auxiliary request found allowable by the opposition division represented the main request in appeal proceedings. For ease of reference the board continued to employ the designation used by the respondent in the appeal proceedings.

Independent claim 1 of the fifteenth auxiliary request reads as follows:

*"1. A composition for coating a plastic substrate, said composition comprising, as coating film-forming components;  
silica particles having (meth)acryloyl groups;  
a hexafunctional or higher aliphatic urethane (meth)acrylate; and  
an active energy beam-curable compound having an alicyclic structure; wherein  
an amount of said silica particles is within a range from 1.0 to 40 mass%, relative to 100 mass% of said coating film-forming components; and wherein  
said active energy beam-curable compound having an alicyclic structure is selected from the group consisting of cyclohexyl (meth)acrylate, t-butylcyclohexyl (meth)acrylate, dicyclohexylpentanyl*

*(meth)acrylate, tricyclodecanedimethanol (meth)acrylate, isobornyl (meth)acrylate, dimethyloltricyclodecane di(meth)acrylate, and dimethyloldicyclopentane di(meth)acrylate."*

Claim 1 of the sixteenth auxiliary request differs from claim 1 of the fifteenth auxiliary request in the deletion of cyclohexyl (meth)acrylate and isobornyl (meth)acrylate from the list of active energy beam-curable compounds.

Claim 1 of the seventeenth auxiliary request comprises the amendment to claim 1 of the sixteenth auxiliary request, and the insertion of the text:

*"an amount of said aliphatic urethane (meth)acrylate is within a range from 10 to 60 mass%, relative to 100 mass% of said coating film-forming components"*

Claim 1 of the eighteenth auxiliary request comprises the amendments to the respective claim 1 of the sixteenth and seventeenth auxiliary requests.

Claim 1 of the nineteenth auxiliary request differs from claim 1 of the fifteenth auxiliary request in the the insertion of the text:

*"an amount of said active energy beam-curable compound is within a range from 5 to 60 mass%, relative to 100 mass% of said coating film-forming components"*

Claim 1 of the twentieth auxiliary request comprises the amendments to the respective claim 1 of the sixteenth and nineteenth auxiliary requests.



Claim 1 of the twenty-first auxiliary request comprises the amendments to the respective claim 1 of the seventeenth and nineteenth auxiliary requests.

Claim 1 of the twenty-second auxiliary request comprises the amendments to the respective claim 1 of the eighteenth and twentieth auxiliary requests.

- X. The appellant's arguments, insofar as relevant to the present decision, may be summarised as follows:

Fifteenth auxiliary request

Inventive step - Article 56 EPC

The disclosure in D12, which was a suitable closest prior art document, differed from the subject-matter of claim 1 in that it did not disclose a coating composition comprising silica particles having (meth)acryloyl groups. The effect of this difference was evident by comparing the composition of example 3 of the patent, which comprised 1% polymerisable silica particles, with that of comparative example 3 of the patent, which comprised 0.5% silica particles. In the former, an improvement in abrasion resistance and no change in weather resistance was observed. The technical problem was consequently the provision of a composition for coating plastics with improved abrasion resistance. The solution was obvious in view of D3 or D11, both of which taught that abrasion resistance in coating compositions could be improved by employing the silica particles recited in claim 1. Consequently, the subject-matter of claim 1 lacked inventive step.

Sixteenth to twenty-second auxiliary requests -  
Admittance

All auxiliary requests suffered from a lack of conformity with Article 123(3) EPC and in accordance with Article 12(4) RPBA, should not be admitted into appeal proceedings.

Sixteenth to twenty-second auxiliary requests -  
Inventive step - Article 56 EPC

The mass range features introduced in the respective claim 1 of the auxiliary requests did not lead to a change in the technical problem formulated with respect to claim 1 of the fifteenth auxiliary request. The mass ranges for the corresponding components in D12, for example, at least overlapped with those according to the auxiliary requests, and thus did not lead to further differences with respect to the disclosure in D12. The subject-matter of the respective claim 1 of each request consequently lacked inventive step.

XI. The respondent's arguments, insofar as relevant to the present decision, may be summarised as follows:

Fifteenth auxiliary request

Inventive step - Article 56 EPC

The subject-matter of claim 1 involved an inventive step in view of D12 in combination with D3 or D11. D12 did not disclose the presence in a coating composition of silica particles having (meth)acryloyl groups. The effect of the difference was evident from the patent: comparative examples 1 and 5 (table 2) demonstrated that reducing the amount of silica particles from 50

mass% to 0.5 mass% provided improved weather resistance. The skilled person would not have been motivated to incorporate the silica particles taught in D11 into the composition of D12 with an expectation of providing both improved abrasion and weather resistance. Furthermore, the compositions of D11 did not comprise any reference to hexafunctional or higher aliphatic urethane (meth)acrylates, such that the skilled person had no information on the potential effect of said silica particles thereon, and would therefore not have been motivated to make the combination. For the same reasons, the skilled person would not have combined D12 with D3.

Sixteenth to twenty-second auxiliary requests -  
Admittance

The sixteenth to twenty-second auxiliary requests were filed in response to points raised in the appellant's grounds of appeal and thus could not have been filed during opposition proceedings. They should consequently be admitted in accordance with Article 12(4) RPBA.

Sixteenth to twenty-second auxiliary requests -  
Inventive step - Article 56 EPC

For these requests the same arguments applied as for claim 1 of the fifteenth auxiliary request.

## **Reasons for the Decision**

### Fifteenth auxiliary request

This request corresponds to that found allowable by the opposition division, and represents the main request in appeal proceedings.

#### 1. Inventive step - Article 56 EPC

##### 1.1 Admittance - D20 and the appellant's tests

D20 and the appellant's tests were filed by the appellant with the statement of grounds of appeal. D20 was used to argue a lack of inventive step of the claimed subject-matter in combination with D3 as closest prior art, while the appellant's tests were intended to demonstrate that starting from D3 as closest prior art, the alleged technical problem was not solved across the claimed scope of claim 1.

Since neither D20 nor the tests became relevant for deciding the case (*infra*), there was no need for the board to decide on whether to admit them.

##### 1.2 Closest prior art

D12 (it was common ground that the translation D12T accurately reflected the content of D12) was proposed by the appellant as a suitable closest prior art disclosure with respect to the subject-matter of claim 1. The suitability of D12 as a starting point for assessing inventive step was uncontested by the respondent, and the board sees no reason to differ.

1.3 Problem solved

1.3.1 D12 discloses a coating composition comprising a urethane (meth)acrylate resin [A], prepared by reaction of a trimer of a diisocyanate (a1) with a hydroxyl group-containing (meth)acrylate (a2), which leads to at least hexafunctional urethane acrylates, and an alicyclic methacrylate [B] (D12T, claim 2; paragraph [0015]).

1.3.2 The parties were in agreement that the subject-matter of claim 1 is distinguished from the compositions disclosed in the examples of D12 in that the latter did not comprise silica particles having (meth)acryloyl groups as defined in claim 1 at issue.

1.3.3 While a direct comparison of the compositions of D12 with those of the patent is not on file, example 3 (table 1) and comparative example 1 (table 2) of the patent provide useful data. These compositions effectively differ from each other only in the amount of "polymerizable silica particles" employed. In example 3, employing 1 mass% of said particles provided a composition having both good abrasion resistance and good weather resistance, while in comparative example 1, employing 0.5% of said particles led to a composition with no change in weather resistance characteristics, but with inferior abrasion resistance. Thus the effect of increasing the amount of said silica particles to within the claimed range is one of improved abrasion resistance.

1.3.4 The respondent argued that comparative examples 1 and 5 of the patent demonstrated that a further effect of the silica particles as required by claim 1 was improved weather resistance. More specifically, reducing the

amount of silica particles from 50 mass% (comparative example 5) to 0.5 mass% (comparative example 1) improved the weather resistance. This argument must fail. Firstly, since neither of said comparative examples fall within the scope of claim 1 at issue, no additional effect has been demonstrated which may be linked with the amount of silica particles recited in said claim. Secondly, even ignoring this, said comparative examples do not provide any indication of an improvement attributable to an increase in the amount of silica particles to values within the claimed range. Indeed for the composition of comparative example 1, which has the lowest amount of silica particles at 0.5 mass%, the weather resistance is already evaluated as good, which is identical to the evaluation provided for the compositions of table 1 falling within the scope of claim 1 at issue. The amount of silica particles required by claim 1 consequently does not lead to any improvement in weather resistance.

1.3.5 The objective technical problem underlying the subject-matter of claim 1 is consequently the provision of a composition for coating a plastic substrate having improved abrasion resistance.

1.4 Obviousness

1.4.1 D11 (it was common ground that the translation D11T accurately reflected the content of D11) discloses an acrylate-based curable coating composition comprising component [A], a polymeric compound comprising acryloyloxy groups (D11T, paragraphs [0016] and [0017]), component [B], silica particles having acryloyl groups (D11T, paragraph [0024]) and component [C], an alicyclic acrylate compound (D11T, paragraphs

[0051] and [0052])). It is stated in D11 that it is component [B] which lends the cured coating film scratch resistance ("Kratzfestigkeit"; D11T, paragraph [0025]), which, according to the patent (paragraph [0004]), is synonymous with abrasion resistance. It was not disputed by the respondent that component [B] of D11 corresponds to the silica particles of claim 1.

1.4.2 The skilled person wishing to solve the above-mentioned problem starting from D12 would consequently have considered the teaching of D11 according to which said silica particles, in amounts ranging from 10 to 20 mass % of the composition (D11T, "Tabelle 1", component B1) and thus within the claimed range, imparted the composition with abrasion resistance, thereby arriving at the subject-matter of claim 1 at issue without exercising inventive step.

1.4.3 The argument of the respondent that the skilled person, due to the absence in the compositions of D11 of a hexafunctional or higher aliphatic urethane, would not have considered the teaching thereof in respect of the effect of the addition of said silica particle, is not convincing. Were D11 to disclose a hexafunctional or higher aliphatic urethane, it would be relevant for novelty. In view of the similarity of the compositions in question and the intended use, there is no apparent reason why the skilled person would not have taken the relevant teaching of D11 into account.

1.4.4 A similar analysis applies to the combination of D12 as closest prior art with D3. D3, in a second aspect, discloses a UV-curable coating composition comprising a silicon compound (page 5, lines 6-11). The silicon compound is "often" at least partially a silica acrylate (page 5, lines 22-40), and may comprise about

5-40% by weight of the composition (page 6, line 58). Said coating composition comprises a "Reagent A", which according to the examples is a "hexafunctional polyurethane acrylate (PU, Ebecryl 1290)", corresponding to those recited in claim 1 at issue. According to D3, the silicon compound used in the coating compositions thereof, in an amount of from 5-40% by weight, and including silyl acrylate modified silica provides abrasion resistance (page 6, lines 43-45 and 58). Again, there is no apparent reason why the skilled person would not have applied this teaching to the compositions of D12 with a view to solving the objective technical problem set out above, thereby arriving at the subject-matter of claim 1 at issue without exercising inventive step.

- 1.5 The subject-matter of claim 1 of the fifteenth auxiliary request consequently lacks inventive step pursuant to Article 56 EPC in view of D12 in combination with D11 or D3.

#### Sixteenth to twenty-second auxiliary requests

2. Admittance - Article 12(4) RPBA
  - 2.1 Pursuant to Article 12(4) RPBA, the board has discretion to hold inadmissible requests which could have been presented or were not admitted in the first instance proceedings.
  - 2.2 The sets of claims of the sixteenth to twenty-second auxiliary requests had been filed by the respondent together with the reply to the appeal. By so doing the respondent addressed the objections raised by the appellant in the statement of grounds of appeal in relation to the fifteenth auxiliary request, which was



the version of the patent considered allowable by the opposition division.

2.3 The sole aspect relied upon by the appellant in relation to the sixteenth to twenty-second auxiliary requests was a purported lack of conformity of these requests with Article 123(3) EPC. However, no submission was made in relation to its request for non-admittance and no explanation was provided as to why, in the appellant's view, the requirements of Article 12(4) RPBA were not met, and why in consequence the board should hold these requests inadmissible. The board also saw no reason why admittance should be denied under Article 12(4) RPBA.

2.4 Accordingly, the board decided to admit the sixteenth to twenty-second auxiliary requests into the proceedings in accordance with Article 12(4) RPBA.

3. Inventive step - Article 56 EPC

3.1 The respective claim 1 of each of the auxiliary requests comprises one or more of the following amendments compared to claim 1 of the fifteenth auxiliary request:

- (a) the deletion of cyclohexyl (meth)acrylate and isobornyl (meth)acrylate from the list of active energy beam-curable compounds; (sixteenth, eighteenth, twentieth and twenty-second auxiliary requests)
- (b) the addition of a mass% range for the aliphatic urethane (meth)acrylate of from 10 to 60%, relative to 100 mass % of said coating film forming components (seventeenth, eighteenth, twenty-first and twenty-second auxiliary requests), and

(c) the addition of a mass% range for the active energy beam-curable compound of from 5 to 60%, relative to 100 mass% of said coating film-forming components (nineteenth, twentieth, twenty-first and twenty-second auxiliary requests)

3.2 Feature (a) is a deletion of two members from the list of active energy beam-curable compounds, and was introduced by the respondent in order to overcome a novelty objection in view of D3 (reply to the grounds of appeal, 11.1). This does not further differentiate the subject-matter of claim 1 from D12 since the latter discloses other members of said list for use as component [B] (supra, paragraph [0015] of D12T).

3.3 With respect to features (b) and (c), the appellant submitted that the introduction of weight ranges for the respective components of the composition did not lead to further differences with respect to document D12. The comparison of example 3 (table 1) and comparative example 1 (table 2) of the patent (supra) was still valid for the ranges of features (b) and (c), and the objective problem of providing a composition for coating a plastic substrate having improved abrasion resistance remained the same as for claim 1 of the fifteenth auxiliary request. The solution starting from the disclosure of D12 as closest prior art remained obvious in view of the disclosures in D11 or D3.

3.4 These arguments were uncontested by the respondent.

3.5 In view of the evidence on file, the board sees no reason not to accept the arguments put forward by the appellant. In view of this, the subject-matter of the respective claim 1 of each of the sixteenth to twenty-

second auxiliary request does not involve an inventive step pursuant to Article 56 EPC.

3.6 It follows that none of the sets of claims on file are allowable.

## Order

### For these reasons it is decided that:

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

The Registrar:

The Chairman:



A. Pinna

M. O. Müller

Decision electronically authenticated