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**Datasheet for the decision
of 11 March 2021**

Case Number: T 0402/18 - 3.3.09

Application Number: 05806234.0

Publication Number: 1811336

IPC: G03F7/00, G03F7/033

Language of the proceedings: EN

Title of invention:

PHOTOSENSITIVE RESIN COMPOSITION FOR FLEXOGRAPHIC PRINTING

Patent Proprietor:

Asahi Kasei Chemicals Corporation

Opponent:

Flint Group Germany GmbH

Headword:

Photosensitive resin composition/ASAHI KASEI

Relevant legal provisions:

EPC Art. 56

RPBA 2020 Art. 13(2), 12(2), 12(3)

Keyword:

Late-filed request - justification for late filing (yes)

Late-filed objection - admitted (no)

Inventive step - fourth auxiliary request (yes)

Decisions cited:

T 1156/15, T 0047/18

Catchword:



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Case Number: T 0402/18 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 11 March 2021

Appellant: Flint Group Germany GmbH
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
30 November 2017 concerning maintenance of the
European Patent No. 1811336 in amended form.**

Composition of the Board:

Chairman A. Haderlein
Members: M. Ansorge
F. Blumer

Summary of Facts and Submissions

- I. The appeal was filed by the opponent (appellant) against the opposition division's interlocutory decision to hold the fourth auxiliary request allowable.
- II. With its notice of opposition, the opponent had requested that the patent be revoked, in particular on the ground for opposition under Article 100(a) EPC (lack of inventive step).
- III. In the present decision, reference is made to the following documents:
- E1: EP 0 856 772 A1
 - E2: WO 2005/031459 A1
 - E5: US 6,326,127 B1
 - E6: US 4,970,037
 - E14: Comparative experiments
 - E15: EP 0 224 442 A1
 - E16: JP 2002-107916 A
 - E17: WO 00/00546 A1
 - E18: WO 98/13730 A1
 - E19: EP 0 778 297 B1
 - E20: US 5,679,485
 - E21: Römpp Chemie Lexikon, 9th edition, 1995, "Antioxidantien", page 220
 - E24: JP 1992-252243 A
 - E25: partial English translation of E24
 - E26: "Plastics Additives Handbook", 5th edition, edited by Dr. Hans Zweifel, Hanser Publishers, Munich, 2001, pages 64 to 71, 98, 104, 105 and 109
 - E27: EP 0 972 796 A1

IV. Claim 1 of the fourth auxiliary request (as announced at the end of the oral proceedings before the opposition division to be the claim request to be maintained in amended form; see Annex 3 of the minutes to the oral proceedings before the opposition division and points 25 to 27 of those minutes) reads as follows:

"A production method of a photosensitive resin composition for flexographic printing comprising a thermoplastic elastomer (a), a photopolymerizable unsaturated monomer (b), and a photopolymerization initiator (c) as essential ingredients, wherein the thermoplastic elastomer (a) is a block copolymer composition containing a block copolymer (i) having at least one polymer block comprised of a mono-alkenyl aromatic compound wherein the mono-alkenyl aromatic compound accounts for at least 90 wt% of the total weight of the polymer block and at least one polymer block in which butadiene accounts for at least 90 wt% of the total weight of the polymer block, and a branched block copolymer (ii) having at least two polymer blocks comprised of a mono-alkenyl aromatic compound wherein the mono-alkenyl aromatic compound accounts for at least 90 wt% of the total weight of the two polymer blocks and at least one polymer block in which butadiene accounts for at least 90 wt% of the total weight of the polymer block;

the amount of the mono-alkenyl aromatic compound unit in the thermoplastic elastomer (a) is 10-28 mass %; the amount of the block copolymer (i) in the thermoplastic elastomer (a) is 15-50 mass %; and the number average molecular weight (number average molecular weight in terms of polystyrene measured by GPC) of the branched block copolymer (ii) is 200,000-350,000;

wherein the thermoplastic elastomer (a) contains an antioxidant (except for BHT (2,6-tert-butyl-p-cresol))

[sic], wherein the antioxidant is at least one compound selected from the group consisting of 2,4-bis(n-octyl thiomethyl)-O-cresol, 2,4-bis(n-dodecyl thiomethyl)-O-cresol, 2,4-bis(phenyl thiomethyl)-3-methyl-6-tert-butylphenol, a sulfur-based compound, and a phosphorus-based compound,

which method comprises adding the antioxidant to the thermoplastic elastomer (a) and weighing the thermoplastic elastomer (a) and supplying it to the first zone of a screw extruder, supplying other components to two or more supply openings of the zone following the first zone, and mixing the thermoplastic elastomer (a) and the other components." (emphasis added by the board)

- V. During the oral proceedings before the opposition division two auxiliary requests called "FOURTH AUXILIARY REQUEST" were filed by the proprietor (respondent), one at around 15:30 (see Annex 2 of the minutes) and not including the expression "for flexographic printing" in claim 1 and one at around 17:19 (see Annex 3 of the minutes) including this expression in claim 1 (see point IV).

According to the cover page of the written decision, the opposition division decided that "Auxiliary Request 4 ... filed during oral proceedings" met the requirements of the EPC. In the minutes it is recorded (see points 25 to 27) that the opposition division announced the decision "to maintain the patent based on the new (amended) fourth auxiliary request", i.e. the one filed at around 17:19 according to Annex 3 of the minutes, while the written decision (see page 5, first paragraph) and the "Druckexemplar" refer to or contain the previous version (according to Annex 2 of the minutes) thereof.

- VI. In preparation for the oral proceedings, the board issued a communication giving a preliminary opinion. According to that opinion (see point 3), claim 1 of the fourth auxiliary request did not contain the aforementioned expression "for flexographic printing".
- VII. By letter of 13 November 2020 the respondent filed the fourth to seventh auxiliary requests. Claim 1 of the fourth auxiliary request is identical to claim 1 of the fourth auxiliary request in its version according to Annex 3 of the minutes, i.e. including the aforementioned expression. In claim 2 a clerical error is corrected.
- VIII. The respondent's only claim request that is relevant in the present decision is as follows:
- Claim 1 of the fourth auxiliary request as filed by letter of 13 November 2020 is identical to claim 1 of the fourth auxiliary request according to Annex 3 of the minutes before the opposition division (see point IV, above), i.e. including the aforementioned expression.
- Claims 2 to 5 of the fourth auxiliary request are dependent claims. Claim 2 differs from the fourth auxiliary request according to Annex 3 of the minutes on account of the correction of a clerical error.
- IX. The parties' relevant arguments are reflected in the reasons set out below.

X. Requests

The appellant requested that the decision be set aside and that the patent be revoked.

The respondent requested that the decision be set aside and that the patent be maintained on the basis of one of the fourth to seventh auxiliary requests, all filed by letter of 13 November 2020.

Reasons for the Decision

FOURTH AUXILIARY REQUEST (filed on 13 November 2020)

1. Admission of the fourth auxiliary request

1.1 The appellant objected to the admission of the fourth auxiliary request and particularly argued that this request was filed late and was not identical to the fourth auxiliary request as held allowable by the opposition division, since the feature "for flexographic printing" was not present in claim 1 mentioned in the decision (see Annex 2 of the minutes) and, in claim 1 of the "Druckexemplar", has now been re-introduced into claim 1.

1.2 As can be taken from points 26 and 27 of the minutes of the oral proceedings before the opposition division, there is no doubt that the opposition division intended to maintain the patent on the basis of the fourth auxiliary request according to Annex 3 of the minutes, but erroneously mentioned the previous version of the fourth auxiliary request in the decision and also erroneously included this previous version in the "Druckexemplar" (see claim 1 of Annex 2 of the minutes and claim 1 of the "Druckexemplar").

1.3 Since, at the end of the oral proceedings before the opposition division, the parties must have been aware that the set of claims according to Annex 3 of the minutes was the correct final claim request, the appellant cannot be taken by surprise by being confronted with this same request on appeal. The fourth auxiliary request merely removes the discrepancy between the minutes and the decision or the "Druckexemplar", respectively.

Moreover, the parties' attention was only drawn to this discrepancy due to a statement by the board made in the communication under Article 15(1) RPBA 2020.

In view of the above, there were exceptional circumstances justified by cogent reasons and the board decided to admit the fourth auxiliary request into the proceedings (Article 13(2) RPBA 2020).

2. Admission of the objection under Article 123(2) EPC

2.1 The appellant raised an objection under Article 123(2) EPC against the production method of claim 1 of the fourth auxiliary request only after the summons were notified and even after the board's communication was issued, and so the criteria stipulated in Article 13(2) RPBA 2020 are also applicable when assessing the admission of this late objection.

2.2 The party's appeal case shall, among others, be directed to objections on which the decision under appeal was based (Article 12(2) RPBA 2020). In addition, the statement of grounds of appeal shall contain a party's complete appeal case (Article 12(3) RPBA 2020).

Claim 1 of the fourth auxiliary request is identical to claim 1 of the claim request which was announced by the opposition division to be the basis for maintaining the patent at the end of the oral proceedings before the opposition division (see points 26 and 27 of the minutes; and Annex 3 of the minutes). In any case, the objection under Article 123(2) EPC is not related to the difference between the two versions of the fourth auxiliary request.

As conceded by the appellant, it had not objected to the subject-matter of claim 1 under Article 123(2) EPC before the opposition division or in the statement setting out the grounds of appeal.

Consequently, in its response to the grounds of appeal the respondent submitted that any future arguments with respect to Article 123(2) EPC, *inter alia*, should be disregarded.

Raising this objection under Article 123(2) EPC so late already violates the basic principles stipulated in Article 12(2) and (3) RPBA 2020.

- 2.3 In addition, the objection under Article 123(2) EPC clearly amounts to an amendment to the appellant's appeal case (see also T 47/18, point 1 of the Reasons). The board is unable to see that there might be exceptional circumstances which could justify admitting this attack into the proceedings at such a late stage. No exceptional circumstances were invoked by the appellant either. The change of representative clearly does not constitute such exceptional circumstances.

In view of the above, the board decided that this Article 123(2) EPC objection cannot be admitted into the proceedings (Article 13(2) RPBA 2020).

3. Interpretation of claim 1

3.1 Claim 1 relates to a production method of a photosensitive resin composition for flexographic printing, comprising a specific thermoplastic elastomer (a), a photopolymerizable unsaturated monomer (b), and a photopolymerization initiator (c), which comprises the following process steps:

- adding the antioxidant, i.e. at least one compound selected from the positive list of specific compounds mentioned in claim 1, to the thermoplastic elastomer (a) ("first process step"),
- weighing the thermoplastic elastomer (a) and
- supplying it to the first zone of a screw extruder,
- supplying other components to two or more supply openings of the zone following the first zone, and
- mixing the thermoplastic elastomer (a) and the other components.

3.2 Both parties agree that the feature "adding the antioxidant to the thermoplastic elastomer (a)" ("first process step") in claim 1 means that the antioxidant is added to the thermoplastic elastomer before the steps of weighing and supplying the thermoplastic elastomer (a) to the first zone of a screw extruder and supplying the other components. The board does not see any reason to disagree.

3.3 In this context, the respondent argued that in the first process step of claim 1 the antioxidant listed in claim 1, except for BHT, is added to the thermoplastic

elastomer (a); however, in its view, BHT may nevertheless be added at a later stage of the method together with the other components.

- 3.4 The appellant did not contest that in the first process step the antioxidant listed in claim 1 is added to the thermoplastic elastomer (a); however, in the appellant's opinion, the bracketed term "(except for BHT (2,6-tert-butyl-p-cresol))" introduces ambiguity and the skilled reader is left in doubt as to whether or not it is a limiting feature. Therefore, the appellant contests that this bracketed term limits the scope of claim 1 such that BHT may not only be added at a later stage of the process, as argued by the respondent, but even in the first process step of adding the antioxidant to the thermoplastic elastomer (a).

While it is true that features in brackets may lead to ambiguity and may require interpretation, the board is of the opinion that in these circumstances the term "(except for BHT (2,6-tert-butyl-p-cresol))" is to be interpreted as limiting the scope of claim 1. This interpretation is in line with paragraph [0020] of the adapted description as filed during the oral proceedings before the opposition division, wherein "2,6-di-tert-butyl-4-methyl phenol" (being simply another name for BHT) is deleted from the list of possible antioxidants. In addition, Example 4 of the patent is in line with this interpretation.

Therefore, the board interprets the bracketed term "(except for BHT (2,6-tert-butyl-p-cresol))" as limiting the claimed method, i.e. the first process step of claim 1. Accordingly, the method of claim 1 does not cover processes in which BHT is added in the first step

of adding the antioxidant to the thermoplastic elastomer (a).

- 3.5 Both parties agreed that BHT may be added at a later stage of the production method, e.g. in the step of supplying other components to two or more supply openings of zones following the first zone (as in Example 4 of the patent and Examples 4a to 4e of E14).

In view of this congruent understanding with respect to the stage at which the antioxidant mentioned in claim 1 is to be added, the board sees no reason to disagree. The appellant's contention put forward in the grounds of appeal that Example 4 of the patent and Examples 4a to 4e according to E14 do not fall within the scope of claim 1 (as mentioned on page 3, lines 1 to 8, of the statement setting out the grounds of appeal) is therefore rejected.

- 3.6 In view of the above interpretation of claim 1, Example 4 of the patent and Examples 4a to 4e of E14 (in which BHT is added at a later stage) fall within the scope of claim 1.

4. Inventive step

- 4.1 The appellant raised inventive-step objections against the claimed production method in view of E1 and E2 as the closest prior art.

- 4.2 While both parties agree that E1 qualifies as an appropriate closest prior-art document in the present case, the respondent requested that the attack starting from E2 as the closest prior art not be admitted into the proceedings.

- 4.2.1 The inventive-step attack using E2 as the potential closest prior art was only filed after the summons to oral proceedings were notified and even after the board's communication was issued pursuant to Article 15(1) RPBA 2020. Therefore, its admission is subject to Article 13(2) RPBA 2020.
- 4.2.2 This objection is certainly an amendment to the appellant's appeal case (see, for instance, T 1156/15, point 8.2 of the Reasons). Importantly, it should be noted that the subject-matter of claim 1 of the fourth auxiliary request is identical to the claimed production method as already discussed before the opposition division (see points VIII and 1 above). The appellant did not submit this objection before the opposition division or with the statement setting out the grounds of appeal. Moreover, in order to be in a position to use the intermediate document E2 as prior art at all, the validity of the priority claim of the patent needs to be assessed; however, the appellant's objections concerning the validity of the priority claim were also raised for the first time on appeal and again after the summons were notified and after the board's communication was issued. Therefore, the discussion of completely new issues would be necessary. In the board's view, this clearly goes against the primary object of the appeal proceedings to review the decision under appeal in a judicial manner.
- 4.2.3 In addition, the appellant did not invoke cogent reasons that there might be exceptional circumstances justifying the admission of the new inventive-step objection starting from E2 as the closest prior art. For this reason alone, the criteria of Article 13(2) RPBA 2020 are not met.

4.2.4 In view of the above, the board did not admit the inventive-step objection starting from E2 into the proceedings, and so the question of inventive step is to be assessed in view of E1 as the closest prior art only.

4.3 E1 relates to a photopolymerizable mixture comprising:
a) at least one elastomeric binder,
b) at least one photopolymerizable ethylenically unsaturated compound, and
c) at least one photoinitiator or photoinitiator system,
which contains at least one radial (polystyrene-polybutadiene)_nX block copolymer, with X = Sn or Si and n = 2 or 4, having an average molecular weight (Mw) of 80,000 to 300,000 and a molecular weight distribution (Mw/Mn) of 1.00 to 1.40, less than 15 % by weight of di-block copolymers, and which is extended with up to 50 % by weight of a paraffinic oil.

In the only example according to the invention of E1, i.e. Example 1 in E1, a method for processing a photopolymerizable mixture comprising BHT as the antioxidant and applying a laboratory kneader is described which produces photopolymerizable printing plates. In addition, extrusion and subsequent calendering is mentioned in E1 as the preferred process for producing photopolymerizable printing plates.

4.4 There was agreement among the parties that the production method of claim 1 differs from E1 in that:

- E1 does not mention the specific antioxidants listed in claim 1; and
- E1 does not disclose the specific multi-stage procedure comprising supplying the thermoplastic

elastomer (a) to a first zone of a screw extruder and supplying other components to two or more supply openings of the zone following the first zone and mixing the thermoplastic elastomer and the other components.

For the reasons outlined under point 3 above, E1 (see Example 1) also fails to disclose that no BHT may be added to the thermoplastic elastomer (a) in the first process step, i.e. before supplying it to the first zone of a screw extruder.

4.5 There was dissent among the parties as to whether or not there is an effect resulting from the above differences. While the respondent argued that the effect resulting from the differences in view of E1 is an improved gelation time, the appellant submitted that a surprising technical effect has not been demonstrated over the whole claimed range.

4.5.1 The board is of the opinion that Example 4 of the patent and Examples 4a to 4e of E14 show that adding the specific antioxidant mentioned in the first process step of claim 1, i.e. at the stage before weighing and supplying the thermoplastic elastomer (a) to the first zone of a screw extruder, but not adding BHT in the first process step, leads to an increase in the time until gel is generated ("improved gelation time").

While it is true that, in Example 4 of the patent, the thermoplastic elastomer is prepared in the same way as in Example 1 of the patent (referring to manufacture examples 1 to 3) by adding the antioxidant to the thermoplastic elastomer solution, it is noted that no counter-experiment was submitted by the appellant that demonstrated that other manners of adding the

antioxidant to this elastomer (also covered by claim 1) might not lead to an improved gelation time. In the absence of any proof to the contrary, the board is of the opinion that the effect of improved gelation time was credibly demonstrated by the respondent.

4.5.2 In this context, the appellant essentially raised the following objections. For the following reasons, the board does not share these objections.

(a) Relation between BHT and the technical effect

The appellant argued that the negative feature "... except for BHT ..." in claim 1 is not related to a technical effect of improving gelation time.

However, claim 1 not only requires BHT not to be included in the first process step of adding antioxidant to the thermoplastic elastomer (a), but additionally requires one of the antioxidants listed in claim 1 to be added. As outlined above, the board is of the opinion that using the antioxidant listed in the claimed method, while at the same time not adding BHT in the first process step, leads to the effect of improved gelation time as argued by the respondent.

(b) Sulfur-based and phosphorus-based compounds

The appellant argued that it is not credible that any sulfur-based compound or any phosphorus-based compound is suitable for achieving an effect over the whole claimed range.

However, claim 1 does not require that a sulfur-based or phosphorus-based compound as such may be added. From the wording of claim 1, it is evident that these

compounds are antioxidants, thereby significantly limiting the number of possible compounds. This was also conceded by the appellant at the oral proceedings. It is true that there is only one experiment each, relating to a sulfur-based antioxidant (except for the specific sulfur-containing compounds listed in claim 1) or a phosphorus-based antioxidant (see Examples 4d and 4e of E14) showing an improved gelation time; however, while the burden of proof is on the appellant's side, no counter-experiment was provided that showed that there are sulfur-based or phosphorus-based antioxidants which, when used as prescribed in claim 1, do not lead to an improved gelation time. In the absence of any proof to the contrary, there is no reason to believe that other sulfur-based or phosphorus-based antioxidants would not lead to an improved gelation time as well.

- 4.6 In view of the above, the effect resulting from the distinguishing features in view of E1 is an improved gelation time. Therefore, the objective technical problem to be solved is to provide a production method of a photosensitive resin composition having an improved gelation time.
- 4.7 In the following, it is to be assessed whether the solution to this problem, i.e. the production method according to claim 1, is obvious in view of the prior-art documents cited by the appellant.
- 4.7.1 The appellant raised inventive-step objections in view of E1 as the closest prior art in combination with each of documents E5, E15, E16, E17, E18, E21, E24/E25, E26 or E27 for the composition mentioned in claim 1, additionally using E6, E19 or E20 for the process

conditions mentioned in claim 1.

4.7.2 E5, E16, E17, E18 or E21

None of documents E5, E16, E17, E18 and E21 teaches that an improved gelation time is achieved when replacing BHT with one of the antioxidants required in claim 1. Moreover, none of these documents teaches the specific multi-stage procedure required in claim 1. Therefore, these documents do not motivate a skilled person to contemplate the distinguishing features while expecting that the objective technical problem can be solved.

4.7.3 E15, E24/E25, E26 or E27

The appellant argued that the prior art (E15, E24/E25, E26) demonstrated that replacing BHT with an antioxidant listed in claim 1 might benefit the gelation time and, with respect to E27, the appellant argued that the selection of 2,4-bis(n-octylthiomethyl)-6-methyl phenol or tris(2,4-di-tert-butylphenyl) phosphite (both falling within the list of antioxidants in claim 1) was obvious as well.

While E15 teaches that an improved gelation time can be achieved when a specific antioxidant is used in combination with BHT, it does not motivate a skilled person to omit BHT as a pre-stabilising antioxidant; however, the addition of BHT in the first process step of adding the antioxidant to the thermoplastic elastomer (a) is excluded in the production method of claim 1. For this reason alone, E15 does not hint at contemplating the distinguishing features while expecting that the objective technical problem can still be solved. Moreover, E15 does not provide any

information with respect to the specific multi-stage procedure required in claim 1.

Documents E24/E25, E26 and E27 were filed at a very late stage of the appeal proceedings, i.e. more than six months after the board's communication pursuant to Article 15(1) RPBA 2020 and only one month before the oral proceedings; however, even when taking them into account, the board arrives at the conclusion that the requirement of inventive step is met in view of E1 taken in combination with one of these documents.

Of these documents, only E27 was referred to rather briefly by the appellant at the oral proceedings before the board. The appellant has not demonstrated, either in its written submissions or at the oral proceedings, that, when trying to solve the problem posed, even when replacing BHT with one or more compounds required by claim 1, the skilled person would also have adopted the specific multi-step procedure required in claim 1, a feature that incontestably also distinguishes the claimed production method from E1 and is also not suggested by E6, E19 and E20 (see below). The same applies to E24/E25 and E26.

In this context, the appellant also argued that E24/E25 and E26 teach that improved gelation time is achieved when a specific antioxidant is used in combination with BHT. For similar reasons as given for E15, E24/E25 and E26 do not teach omitting BHT in the first process step of adding the antioxidant to the thermoplastic elastomer (a), i.e. before the steps of weighing and supplying the thermoplastic elastomer (a) to the first zone of a screw extruder.

4.7.4 E6, E19 or E20

The appellant argued that E6 teaches that in a melt extrusion process of photosensitive compositions polymeric binders typically contain stabilisers. E6, however, does not teach the specific multi-stage procedure required in claim 1.

The appellant also argued that the sequence of adding the components required in claim 1 is allegedly taught in Example 1 of E19 and Example 1a of E20; however, the processes in E19 and E20 apply a kneader and not a screw extruder as required in claim 1 and relate to the addition of BHT to the elastomer. Therefore, these documents do not hint at contemplating the specific multi-stage procedure required in claim 1 either.

4.8 In view of the above, the subject-matter of claim 1 of the fourth auxiliary request involves an inventive step in view of E1 as the closest prior art. The same applies to dependent claims 2 to 5.

5. Since the fourth auxiliary request is allowable, it is not necessary to deal with the fifth to seventh auxiliary requests.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent on the basis of the following documents:

Claims:

No. 1 to 5, filed as the fourth auxiliary request by letter dated 13 November 2020;

Description:

Pages 1 to 25, filed during the oral proceedings before the opposition division;

Drawings:

Figure 1 of the patent specification.

The Registrar:

The Chairman:



A. Nielsen-Hannerup

A. Haderlein

Decision electronically authenticated