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**Datasheet for the decision
of 11 April 2019**

Case Number: T 1477/16 - 3.3.03

Application Number: 08171000.6

Publication Number: 2071066

IPC: D04H1/64, C08F222/02,
D06M13/203, D06M15/263,
D06M13/192, C08K5/053,
C08K5/20, C08K5/17

Language of the proceedings: EN

Title of invention:
Binder composition

Patent Proprietor:
Rohm and Haas Company

Opponent:
BASF SE

Relevant legal provisions:
EPC Art. 54

Keyword:
Novelty - all requests (no)

Decisions cited:
G 0003/14



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1477/16 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 11 April 2019

Appellant: BASF SE
(Opponent) 67056 Ludwigshafen (DE)

Representative: BASF IP Association
BASF SE
G-FLP-C006
67056 Ludwigshafen (DE)

Respondent: Rohm and Haas Company
(Patent Proprietor) 100 Independence Mall West
Philadelphia, PA 19106-2399 (US)

Representative: Kent, Venetia Katherine
Patent Outsourcing Limited
1 King Street
Bakewell
Derbyshire DE45 1DZ (GB)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
18 April 2016 concerning maintenance of the
European Patent No. 2071066 in amended form.**

Composition of the Board:

Chairman D. Semino
Members: O. Dury
W. Ungler

Summary of Facts and Submissions

- I. The appeal by the opponent lies from the interlocutory decision of the opposition division concerning maintenance of European patent No. 2 071 066 in amended form according to the claims of the main request filed with letter of 8 January 2016.
- II. A notice of opposition to the patent was filed requesting revocation of the patent in its entirety.
- III. Claim 1 of the **main request** on which the contested decision is based read as follows:

"1. A binder composition comprising:

a. at least one polycarboxy emulsion copolymer particle comprising as copolymerized units from 10% to 25% by weight of a carboxy acid monomer,

wherein said copolymer has a measured Tg of from 40°C to 70°C, as measured by differential scanning calorimetry (DSC) using the ASTM 3418/82, midpoint temperature method and a total weight solids of no less than 40%; and

b. at least one polyol crosslinker having a molecular weight of less than 700,

wherein said polyol crosslinker comprises a primary hydroxy group and at least one additional hydroxy group, wherein the ratio of primary hydroxy group equivalents to carboxy group equivalents is from 0.25 to 2.0 and,

further wherein, the composition does not include any polymers having less than 6 wt.% of a carboxy acid monomer."

- IV. In that decision, the opposition division *inter alia* held that the subject-matter of claim 1 of the main request was novel over D1 (EP 2 033 992), which was a prior art pursuant to Article 54(3) EPC. In that respect, novelty over example 1 of D1 was acknowledged by virtue of the fact that the total weight of solids of the polycarboxy emulsion copolymer a. of claim 1 of the main request was no less than 40%, which was not directly and unambiguously derivable from D1 (section 5.2.3 of the decision). Also, in the analysis of example 1 of D1 (page 10 of the decision: last paragraph of section 5.1), it was specified that the weight average molecular weight for the latex of example 1 of D1 was given in D1 as being 10^5 - 10^6 (D1: paragraph 77) and that the opponent determined the weight average molecular weight (GPC) of the latex emulsion copolymer to be 177.000 g/mol (submission of 9 September 2014).
- V. The opponent (appellant) lodged an appeal against the above decision and requested that the decision of the opposition division be set aside and the patent be revoked.
- VI. In the rejoinder to the statement of grounds of appeal (letter of 21 December 2016) the patent proprietor (respondent) requested that the appeal be dismissed (main request) or, in the alternative, that the patent be maintained in amended form according to any of auxiliary requests 1 to 7 filed with the patent proprietor's letter of 8 January 2016 or to any of auxiliary requests 8 to 11 filed with said rejoinder.

Claim 1 of **auxiliary request 1** differed from claim 1 of the main request in that the polyol crosslinker b. was further defined as being "selected from the group consisting of triethanolamine, a hydroxyamide group-containing polyol, glycol, glycerol, pentaerythritol, trimethylol propane, sorbitol, sucrose, glucose, glycollated ureas, diethanolamine, [beta]-hydroxyalkylamides, and addition polymers containing at least two hydroxyl groups".

Claim 1 of **auxiliary request 2** differed from claim 1 of the main request in that the polyol crosslinker b. was further defined as being "selected from the group consisting of triethanolamine, glycerol, and [beta]-hydroxyalkylamides".

Claim 1 of **auxiliary request 3** differed from claim 1 of the main request in that the polyol crosslinker b. was further defined as being "triethanolamine or glycerol".

Claim 1 of **auxiliary requests 4 to 7** differed from claim 1 of the main request and of auxiliary requests 1 to 3, respectively, in that the following feature was added at the end of feature a. (directly after "40%"):

"and a weight average molecular weight of from 5,000 to 1,000,000;"

Claim 1 of **auxiliary requests 8 to 11** differed from claim 1 of the main request and of auxiliary requests 1 to 3, respectively, in that the wording "a total weight solids of no less than 40%" was replaced by "a total weight solids of from 45% to 60%".

- VII. In a communication by the Board sent in preparation of oral proceedings, issues to be discussed at the oral proceedings were specified in respect of the main request (Article 123(2) EPC; Article 100(b) EPC; Articles 54 and 56 EPC), whereby considerations regarding the reading of the wording of claim 1 were made (page 7 to middle of page 9). It was also mentioned that, in respect of the pending auxiliary requests 1 to 11, the respondent had merely put forward some explanations regarding the basis for the additional amendments made and that the appellant had not submitted any further arguments as compared to the main request (sections 9.1 and 9.2).
- VIII. With letter of 11 January 2019, the appellant withdrew its request for oral proceedings (see section 5) and submitted further arguments, in particular against each of the pending auxiliary requests 1 to 11.
- IX. With letter of 8 March 2019, the respondent indicated that he did not intend to attend the oral proceedings scheduled for 11 April 2019 and requested a decision on the basis of the written file. Also, further arguments were put forward and amended description pages were filed for each of the pending main request and auxiliary requests 1 to 11.
- X. With letter of 2 April 2019 the respondent withdrew its request for oral proceedings and requested to be given the opportunity to make appropriate corrections to the description in writing if any of the pending main request or auxiliary requests were acceptable.
- XI. Oral proceedings were held on 11 April 2019 in the absence of both parties.

XII. The appellant's arguments, as far as relevant to the present decision, were essentially as follows:

Main request - Novelty

- (a) The opposition division's decision was reached considering that the feature "total weight solids of no less than 40%" of operative claim 1 was not disclosed in D1. However, that feature was meaningless ("Scheinmerkmal") and did not characterise the subject-matter being claimed. In that respect, the examples of the patent in suit themselves showed binder compositions having a copolymer amount of about 24 wt.% which were prepared by adding a significant amount of water to an emulsion dispersion having a total weight solids above 40%. However, such binder compositions were not to be distinguished from a binder composition obtained by adding a smaller amount of water to an emulsion dispersion having a total weight solids below 40%.
- (b) In fact, the feature "total weight solids of no less than 40%" was *de facto* a product-by-process feature, indicating that the binder composition was obtained by mixing a copolymer emulsion a. with a polyol crosslinker b. as defined in operative claim 1. However, said feature characterised the process of preparation of the binder composition but not the binder composition itself.
- (c) The binder composition according to example 3 of D1 was prepared by mixing an emulsion copolymer prepared according to example 1 of D1 with a polyol crosslinker such as triethanolamine. In view of the considerations outlined in sections (a) and (b)

above, the subject-matter of operative claim 1 was not novel over the binder composition of said example 3 of D1.

Auxiliary requests 1 to 3 - Novelty

(d) Example 3 of D1 was carried out using triethanolamine as crosslinker, i.e. one of the crosslinker indicated in claim 1 of each of auxiliary requests 1 to 3. Therefore, auxiliary requests 1 to 3 were not novel over example 3 of D1 for the same reasons as outlined above for the main request.

Auxiliary requests 4 to 7 - Novelty

(e) It had been shown in the rework of example 1 of D1 submitted with letter of 9 September 2014 that the copolymer prepared in example 1 of D1 had a weight average molecular weight of 177.000 g/mol, which was comprised in the range of molecular weight now indicated in claim 1 of each of auxiliary requests 4 to 7. Therefore, these auxiliary requests were not novel for the same reasons as outlined above for the higher pending requests.

Auxiliary requests 8 to 11 - Novelty

(f) The amendment made in claim 1 of auxiliary requests 8 to 11 did not exclude that additional water might be present in the binder composition, in addition to components a. and b. defined therein. It was also not shown that the feature "total weight solids of 45% to 60%" had an effect on the properties of the binder composition. Therefore, these auxiliary requests were not novel for the

same reasons as outlined above for the higher pending requests.

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

Main request - Novelty

- (a) The solids content reported in example 1 of D1 was 37.54%, which was lower than the minimum claimed in the main request.
- (b) In that respect, the total weight solids was not a "fake" feature but was a real feature of the emulsion polymer. In that respect, such high solids emulsion copolymers were not known prior to the invention and they therefore provided a feature which distinguished the claims from D1, i.e. the total weight of solids conferred novelty to the high solids emulsion copolymer defined in the claims and to binders prepared using these emulsions.
- (c) For these reasons, claim 1 of the main request was novel over D1.

Auxiliary requests 1 to 3 - Novelty

- (d) Auxiliary requests 1 to 3 were filed to provide possible fall-back positions in view of the objections pursuant Article 100(b) EPC but would not serve to further distinguish the invention from D1, should it be held that the main request lacked novelty over D1.

Auxiliary requests 4 to 7 - Novelty

(e) The feature that the emulsion copolymer had a weight average molecular weight of from 5,000 to 1,000,000 came from granted claim 4 and no reasoned objections were filed against the feature of claim 4 in the notice of opposition. Therefore, the opposition was inadmissible in relation to the features of claim 4.

Auxiliary requests 8 to 11 - Novelty

(f) As compared to the higher ranking requests, the restriction in terms of solids content moved further away from the solids content of example 1 of D1.

XIV. The appellant requested in writing that the decision under appeal be set aside and the patent be revoked.

The respondent requested in writing that the appeal be dismissed, or that the patent be maintained in amended form according to the claims of one of auxiliary requests 1 to 7 filed with letter of 8 January 2016 or of one of auxiliary requests 8 to 11 filed with letter of 21 December 2016 with amended description pages filed with letter of 8 March 2019. Furthermore, it requested that the opposition division's decision regarding the admission of the new ground of opposition pursuant to Article 100(c) EPC into the proceedings be overturned.

Reasons for the Decision

Main request

1. Novelty over D1
 - 1.1 The opposition division's conclusion according to which D1 was a valid prior art pursuant to Article 54(3) EPC (reasons: section 5.1, first paragraph) is not contested and the Board has no reason to deviate from that view.
 - 1.2 Both parties further agreed with the opposition division's finding according to which the sole feature possibly distinguishing claim 1 of the main request from D1 resided in the feature directed to the "total weight solids" indicated in feature a. of operative claim 1 (reasons of the decision: section 5.1 and first sentence of section 5.2).
 - 1.3 Reading of operative claim 1
 - 1.3.1 As argued by the appellant (statement of grounds of appeal: paragraph bridging pages 2 and 3), the wording of claim 1 of the main request is ambiguous, in particular because it is defined using expressions describing both a polymer *per se* (in respect of some of its monomer units or of its glass temperature T_g) and a dispersion of the copolymer (total weight solids). However, since the operative claims all correspond to granted claims 1 to 4 and 6 to 8, they cannot be objected to pursuant to Article 84 EPC (G 3/14, OJ EPO 2015, 102). Therefore, under such circumstances, the normal rule of claim construction is that the terms used in a claim should be given their broadest

technically sensible meaning in the context of the claim in which they appear.

1.3.2 In that respect, the "total weight solids of no less than 40%" feature is unambiguously part of feature a. of operative claim 1 and, according to the wording of the claim itself, the parameter "total weight solids" is directed to "said copolymer". However, said feature cannot apply to the copolymer *per se*, which is solid and therefore can only make 100 % solids: therefore, the literal reading of claim 1 in that respect does not make sense and would not be retained by the skilled person. Under these circumstances, the "total weight solids of no less than 40%" feature can only be related to the "emulsion copolymer". That conclusion is further reinforced by the fact that feature a. of operative claim 1 makes also reference to "at least one polycarboxy emulsion copolymer particle", i.e. an emulsion of a copolymer as defined in operative claim 1. It is further noted that, taking into account that the "total weight solids of no less than 40%" feature makes unambiguously part of feature a. of operative claim 1 and does not make reference to the whole binder composition, there is no reason to read that feature as being directed to the amount of any solids present in the binder composition, as argued by the appellant (statement of grounds of appeal: page 6, first paragraph of section 3).

1.3.3 In addition, in view of the open formulation of the claim "a binder composition comprising...", reading operative claim 1 in its broadest sense, as explained in section 1.3.1 above, means that the binder composition so defined may comprise any additional components, including the solvent used to prepare the copolymer emulsion a.. Under these circumstances, the

feature "total weight solids of no less than 40%" may be seen as a product-by-process feature, which characterises the emulsion copolymer used to prepare the binder composition defined in operative claim 1, as argued by the appellant. However, for such a reading of operative claim 1, the "total weight solids of no less than 40%" feature does not mandatorily characterise the whole binder composition, in particular when further water/solvent is used to prepare the binder composition in addition to components a. and b. as defined in operative claim 1, which, as explained above, is not excluded in view of the open formulation of operative claim 1. In that respect, it is noted that reading the "total weight solids of no less than 40%" feature of claim 1 as a product-by-process feature is in particular in line with the examples of the patent in suit, in which an emulsion copolymer with a solids content of 46.0% is prepared (example 1 and paragraph 56), and then admixed with a polyol crosslinker and a significant amount of water (examples 4-10; Table B) and further additives (sodium hypophosphite SHP) to make a binder composition with a total solids content which is then necessarily below 40%. Therefore, such a reading is supported by the patent in suit itself and it makes no doubt that it would also be considered as the proper sensible reading of the claim by the skilled person reading the patent as a whole.

1.4 Examples 1 and 3 of D1

1.4.1 As indicated in the contested decision (section 5.1), example 3 (Table 1) of D1 discloses various binder compositions prepared by mixing a copolymer emulsion prepared according to example 1 of D1 (having, according to paragraph 77 of D1, a weight average molecular weight of 10^5 to 10^6) and polyol crosslinking

agents such as triethanolamine (see e.g. runs 3 and 4 of Table 1 and footnote 5 of Table 1 of D1) or β -hydroxylamide (e.g. runs 1 and 2 of Table 1 and footnote 4 of Table 1 of D1).

1.4.2 The copolymer emulsion prepared in example 1 of D1 is indicated therein as having a solids content of 37.54 wt.% (D1: page 9, line 21). Although said solids content is outside the range mentioned in feature a. of operative claim 1, said feature, when read as a product-by-process feature, is as explained in section 1.3 above, a characterising feature of the emulsion copolymer used to prepare the binder composition being claimed but it is not mandatorily limiting for the binder composition *per se*. In that respect, it was never argued by the respondent that the by-process feature of operative claim 1 could be recognised on the binder composition *per se* i.e. there is no evidence on file showing that the binder compositions prepared according to example 3 of D1 may be distinguished from a binder composition according to operative claim 1 comprising additional water/solvent in addition to components a. and b. defined therein, which is not excluded from the wording of the claims (open formulation "comprising"). For that reason, there is no evidence on file that the binder compositions defined according to operative claim 1, whereby the "total weight solids of no less than 40%" feature is read as a product-by-process feature, may be distinguished from the compositions of example 3 of D1, in particular from any of the binder compositions prepared using triethanolamine or β -hydroxylamide as crosslinker (such as runs 1 to 4 of Table 1 of D1).

1.4.3 The respondent argued that emulsion copolymers having such a high solids content as specified in operative

claim 1 were not known prior to the invention. However, when reading the "total weight solids of no less than 40%" feature as a product-by-process feature, said feature does not mandatorily characterise the binder composition so prepared (in particular when further water is present, in addition to components a. and b. defined therein). Further considering that the subject-matter of operative claim 1 is the binder composition *per se*, independently of its preparation process since there is no evidence on file that said preparation process has any effect on the composition itself, the respondent's argument is rejected.

- 1.4.4 In view of the above, the subject-matter of operative claim 1 is not novel over example 3 of D1.

Auxiliary requests 1 to 3

2. In claim 1 of auxiliary requests 1 and 3, the polyol crosslinker b. was limited by specifying that it should be selected among various components. However, the components mentioned in each of auxiliary requests 1 to 3 comprises triethanolamine, which is the crosslinker used in runs 3 and 4 of example 3 of D1. Also, the components "[beta]-hydroxyalkylamides" mentioned in each of auxiliary requests 1 and 2 encompasses the crosslinker used in runs 1 and 2 of example 3 of D1. Therefore, the amendments made in auxiliary requests 1 to 3 cannot overcome the novelty objection based on example 3 of D1 retained against the main request, as indeed acknowledged by the respondent itself. Under these circumstances, the subject-matter of claim 1 of each of auxiliary requests 1 to 3 is not novel over example 3 of D1.

Auxiliary requests 4 to 7

3. Auxiliary request 4

3.1 Claim 1 of auxiliary request 4 corresponds to claim 1 of the main request, whereby the weight average molecular weight of the copolymer according to feature a. was specified as being from 5,000 to 1,000,000.

3.2 The respondent argued that the subject-matter of claim 1 of auxiliary request 4 corresponded to granted claim 4 and that, since no novelty objection had been raised and substantiated against granted claim 4 in the notice of opposition, the opposition was "inadmissible in relation to the features of claim 4" (letter of 8 March 2019: page 6, end of paragraph related to auxiliary request 4).

However, the admissibility of an opposition and the extent to which the patent is opposed are regulated by Article 99 EPC and Rules 76 and 77 EPC, whereby Rule 76(2)(c) EPC establishes the legal and factual framework of the opposition. In that respect, it was never contested that the opposition was filed against the patent in its entirety, i.e. including granted claim 4, and the Board has no reason to deviate from that view (see notice of opposition: page 1, second sentence). Under these circumstances, the respondent's objection that the opposition was "inadmissible in relation to the features of claim 4" is rejected.

3.3 Regarding novelty of claim 1 of auxiliary request 4, it is mentioned in D1, as indicated in the contested decision (page 10, last sentence of section 5.1), that the emulsion copolymer prepared in example 1 thereof had a weight average molecular weight of 10^5 to 10^6

(D1: paragraph 77). It is further derivable from the first sentence of section 5.2 of the decision that said information of D1 was not in dispute between the parties during the first instance proceedings. Nor was any argument in that sense put forward during the appeal proceedings, in particular not in the rejoinder to the statement of grounds of appeal, in which the respondent should have indicated the reasons why he considered that the contested decision should be amended, if it had considered it to be wrong in any aspect.

Also, although the quality of the rework of example 1 of D1 submitted by the appellant with letter of 9 September 2014 was put in question by the opposition division (section 5.2.3 of the decision), the appellant's argument derived therefrom and according to which the weight average molecular weight of the latex emulsion copolymer prepared in example 1 of D1 was within the range now specified in claim 1 of auxiliary request 4 was never contested by the respondent.

Therefore, the amendments made in claim 1 of auxiliary request 4 (as compared to claim 1 of the main request) are not suitable to overcome the objection of lack of novelty based on example 3 of D1 outlined above for the main request, with the consequence that the subject-matter of claim 1 of auxiliary request 4 is not novel over example 3 of D1.

4. Auxiliary requests 5 to 7

Claim 1 of auxiliary requests 5 to 7 correspond to claim 1 of auxiliary requests 1 to 3, respectively, whereby the weight average molecular weight of the copolymer according to feature a. was specified as

being from 5,000 to 1,000,000. Considering that that amendment is identical to the amendment distinguishing claim 1 of auxiliary request 4 from claim 1 of the main request, auxiliary requests 5 to 7 are also not novel for the same reasons as outlined for auxiliary request 4.

Auxiliary requests 8 to 11

5. Claim 1 of auxiliary requests 8 to 11 correspond to claim 1 of the main request and auxiliary requests 1 to 3, respectively, whereby the total weight solids range (not less than 40%) was limited to "45 to 60%".

However, for the same reason as outlined above for the main request, it was not shown that said feature may distinguish the subject-matter being claimed from the binder compositions according to example 3 of D1 (in particular runs 1 to 4 of Table 1). Therefore, the amendments made cannot overcome the novelty objection based on example 3 of D1 retained against either the main request or any of auxiliary requests 1 to 3, with the consequence that the subject-matter of claim 1 of each of auxiliary requests 8 to 11 is not novel over example 3 of D1.

6. Considering that none of the respondent's main request and auxiliary requests 1 to 11 is allowable pursuant to Article 54 EPC, the patent is to be revoked. Also, in view of that decision, there is no reason for the Board to deal with any other issue.

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:



B. ter Heijden

D. Semino

Decision electronically authenticated