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**Datasheet for the decision
of 30 September 2022**

Case Number: T 0307/19 - 3.3.06

Application Number: 14702273.5

Publication Number: 2951274

IPC: C10L1/00, C10L1/14, C08L23/04,
C08L23/06, C08L33/00,
C08L33/04, C08L33/10, C08L1/00,
C08L51/08

Language of the proceedings: EN

Title of invention:
COLD FLOW IMPROVER WITH BROAD APPLICABILITY IN MINERAL DIESEL,
BIODIESEL AND BLENDS THEREOF

Patent Proprietor:
Evonik Operations GmbH

Opponent:
Clariant Produkte (Deutschland) GmbH

Headword:
Evonik/Cold flow improver

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 56

Keyword:

Late-filed facts - admitted (yes)

Inventive step: main request - obvious alternative ; first
auxiliary request: non obvious alternative

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0307/19 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 30 September 2022

Appellant: Clariant Produkte (Deutschland) GmbH
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 8 January 2019
rejecting the opposition filed against European
patent No. 2951274 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman J.-M. Schwaller
Members: R. Elsässer
C. Heath

Summary of Facts and Submissions

- I. The appeal of the opponent lies against the decision of the opposition division to reject the opposition against European patent EP 2 951 274. According to the decision, the subject-matter of claim 1 was novel over **D1** (EP 1 808 450) and **D2** (EP 1 674 554) and involved an inventive step over D1 and **D5** (DE 3 613 247) as closest prior art.
- II. With its grounds of appeal the appellant filed **D18** (US 5 743 923) and the experimental report **annex I**, and argued that the subject-matter of granted claim 1 was neither novel over D1 and D2 nor inventive over D1, taken together with D18.
- III. With its reply the patent proprietor and respondent filed three auxiliary requests.
- IV. With a further submission the appellant argued that claim 1 of the first auxiliary request also lacked inventive step over D1.
- V. After having received the preliminary opinion of the board, the respondent filed a further submission and argued that D18 should not be admitted.
- VI. At the end of the oral proceedings, the appellant requested that the decision under appeal be set aside and the patent be revoked.

The respondent requested to reject the appeal (main request), or as an auxiliary measure, to remit the case if document D18 were to be admitted, or to maintain the patent based on one of the first, second or third

auxiliary requests, re-filed with letter dated 23 September 2019.

Reasons for the Decision

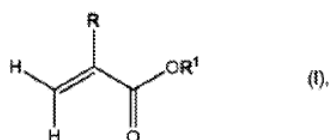
1. Main request

Granted claim 1 reads as follows:

1. Composition comprising:

(A) at least one polyalkyl(meth)acrylate polymer composition comprising

(A1) at least one polymer comprising one or more ethylenically unsaturated compounds of general formula (I)



wherein

R is H or CH₃ and

R¹ is a linear or branched, saturated or unsaturated alkyl group with 1 to 22 carbon atoms,

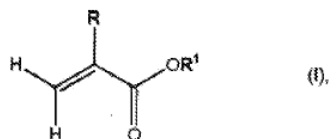
wherein the average carbon number of said alkyl group R¹ throughout the molecule is 11-16 and in at least 60% by weight, based on the total amount of compounds of general formula (I) used, of the compounds of general formula (I) the residue R¹ denotes an alkyl group with 12-18 carbon atoms, and

(A2) at least one diluent;

(B) at least one graft copolymer composition comprising

(B1) a copolymer based on ethylene as graft base, said graft base comprising 60 to 85% by weight of ethylene and 15 to 40% by weight of a compound selected from vinyl esters, acrylates, methacrylates and alpha-olefines, preferably vinyl acetate and vinyl propionate;

(B2) a polyalkyl(meth)acrylate polymer comprising one or more ethylenically unsaturated compounds of general formula (I)



wherein

R is H or CH₃ and

R¹ is a linear or branched, saturated or unsaturated alkyl group with 1 to 22 carbon atoms,

wherein the average carbon number of said alkyl group R¹ throughout the molecule is 11-16 and in at least 60% by weight, based on the total amount of compounds of general formula (I) used, of the compounds of general formula (I) the residue R¹ denotes an alkyl group with 12-18 carbon atoms, which polyalkyl(meth)acrylate polymer is grafted onto the graft base as mentioned under (B1); and

(B3) at least one diluent; and

(C) at least one ethylene-based copolymer composition comprising

(C1) 80 to 88 mol% of ethylene;

(C2) 12 to 20 mol% of one or more compound(s) selected from vinyl esters, acrylates, methacrylates and alpha-olefines, preferably vinyl acetate and acrylates, and

(C3) at least one diluent,

wherein the ethylene-based copolymer of composition (C) has a number average molecular weight M_n of 2000 to 10000 g/mol.

1.1 Novelty

For the board, the subject-matter of claim 1 is novel over D1 and D2 (Article 54(1)(2) EPC for the following reasons:

1.1.1 Example 9 of D1 (table 5) discloses a composition comprising "Fließverbesserer A1" (table 2) and the graft polymer of example 3 (table 3). However, as set out below, D1 does not directly and unambiguously disclose the claimed polymer compositions (A) and (C).

1.1.2 It is undisputed that example 9 does **not** explicitly disclose the presence of a polyalkyl(meth)acrylate homopolymer (i.e. polymer (A)). The respondent correctly pointed out in this respect that the polymer in example 9 in fact is a copolymer since it contains more than one monomer (see definition of tetradodecyl in table 3), but this finding has no bearing on the substance of the case.

The appellant argued that the homopolymer described in par. 0028 of D1 was inherently present in the composition of example 9 since it was obtained as an unavoidable by-product when making via a free-radical polymerisation process the graft polymer of example 3 (which was part of the composition of example 9), due to some polymerisation of the acrylate monomers with each other rather than with the graft base. And alike the graft polymer of example 3, the homopolymeric by-product was thus, according to par. 0028 of D1, also part of this mixture.

For the board this argument does not convince because par. 0028 merely teaches that the by-product, if formed, **can** remain in mixture. In other words, said

passage teaches an option, but not a necessity. Therefore this statement is not a direct and unambiguous disclosure that the homopolymer, i.e. polymer (A) of claim 1, had not been removed from the reaction mixture of example 9.

- 1.1.3 As regards polymer (C), it is undisputed that D1 (table 2) does not explicitly disclose a number average molecular weight M_n of 2000 to 10000 g/mol for copolymer A1. The appellant argued that the latter has the monomer composition, the viscosity (V140) and the number of methyl groups per 100 methylene groups as disclosed in table 2 of D1, so that it necessarily also has a molecular weight M_n in the claimed range, as evidenced by **D4** (GPC-Molekülmassenbestimmung (page 2)).

These arguments are not convincing the board either, because it cannot be deduced with certainty from D1 that polymer A1 has a molecular weight M_n within the claimed range. In particular, the appellant has not provided any evidence for the allegation that polymers having the properties disclosed in table 2 necessarily also have a molecular weight in the claimed range.

D4 is an experimental report comprising GPC-data of *inter alia* a sample "Vial 61", which according to the appellant, corresponds to copolymer A1 of D1. The board notes that while D4 shows that the analysed polymer had indeed a molecular weight in the claimed range, no details about said polymer are however given. According to par. 0082 of D1, A1 is a commercially available polymer but neither D1 nor D4 indicates either a trade name or how the polymer was produced or sourced. Therefore, the GPC-data of D4 can neither be checked, reproduced or verified and there is no evidence that the polymer analysed as "Vial 61" actually had the

viscosity and number of methyl groups indicated in table 2.

It follows that a polymer (C) with a molecular weight in the claimed range is not directly and unambiguously derivable from the disclosure of D1, even when taking into account D4.

- 1.1.4 Contrary to what has been argued by the respondent, the board is however convinced that the remaining features of claim 1 at issue are disclosed in D1 as follows.

Concerning the composition of polymer A1 of D1, the respondent has argued that table 2 did not explicitly disclose the content of ethylene required for polymer composition (C) as claimed but the board sees no ambiguity in this respect, because in the table the polymers are designated as "ethylene copolymers" and the corresponding one or more co-monomers are specifically indicated therein. There is thus no reason to assume that beyond those listed in table 2, further co-monomers are present in the polymers listed in table 2. It follows that the balance of polymer A1 is made up of 86.4 mol-% ethylene, so that A1 implicitly has an ethylene content within the claimed range.

Concerning composition (B), the appellant calculated that the base polymer of example 3 contained 60.7% by weight of ethylene, provided that the polymer contained only the monomers mentioned in the table. The respondent has not challenged this calculation but that further monomers not mentioned in table 3 might be present. However, for basically the same reasons as mentioned above, there is no valid reason to assume that the base polymer of example 3 contained any further monomers beyond those explicitly mentioned in

table 3. Therefore, polymer composition (B) is held to be implicitly disclosed in D1.

Finally, the board has noted that claim 1 does not require the three diluents A2, B3 and C3 to be different, see also par. 0025 of the patent, so that also this feature is disclosed in example 9 of D1 (par. 0082).

1.1.5 The same arguments apply to the novelty attacks based on examples 13, 19 and 30 and comparative examples 7, 11, 15, 17, 21 and 28 of D1, and so for none of the respective compositions, D1 discloses directly and unambiguously the presence of polymers (A) and (C).

1.1.6 The same arguments apply to the novelty attacks based on D2 because, as also stated by the appellant, the points in dispute are the same as for D1.

1.1.7 At least for the same reasons, the subject-matter of the remaining claims is also novel.

1.2 Inventive Step

For the board, the subject-matter of claim 1 lacks an inventive step for the following reasons:

1.2.1 The invention concerns additives for improving the low temperature properties of fuels, in particular diesel fuels (par. 0001).

1.2.2 There is agreement between the parties that example 9 of D1 represents the closest prior art and so is a suitable starting point for the assessment of inventive step.

- 1.2.3 The problem underlying the contested patent is to provide compositions for use as fuel additives that are more effective in improving the low-temperature properties of fuels, in particular in lowering their pour point (PP) and the cold filter plugging point (CFPP) (par. 0011, 0012). Here there is agreement between the parties that there are no experimental data which prove the presence of a technical effect, so that the problem is to be reformulated in a less ambitious way, namely as to the provision of an alternative additive composition for efficient low-temperature properties of fuels. This has also been accepted by the respondent during the oral proceedings.
- 1.2.4 As a solution to this problem, the contested patent proposes the composition of claim 1 characterised inter alia by polymer (A) and ethylene-based copolymer (C). As there is no synergy or technical relationship between these two distinguishing features, nor has such a relationship been alleged, these features can be treated separately in the assessment of obviousness.
- 1.2.5 The board has come to the conclusion that it was obvious for the skilled person to arrive at a composition comprising polymer (A) in addition to the other components of example 9 because in a grafting reaction of the type disclosed in par. 0027 of D1, at least a portion of the monomer used for grafting will react with itself, thus forming a homopolymer. This is confirmed by **D3** (Römpp Online "Pfropfpolymerisation") which discloses that by grafting a base polymer using free-radical polymerisation, the homopolymer is always formed as a by-product, unless specific conditions are chosen; these however are not taught in D1. Moreover, D3 teaches that even if such specific measures are taken, the formation of the homopolymer can only be

substantially avoided ("kann einzig dann **weitgehend** ausgeschlossen werden..."). In addition, annex 1 provides experimental evidence for the formation of the homopolymer. Therefore, the board has no doubt that at least some homopolymeric by-product is formed when the grafting reaction is carried out according to the teaching of par. 0027 of D1. As par. 0028 of D1 moreover encourages the skilled person to use the graft polymer "tel quel", i.e. together with the homopolymeric by-product, it thus will arrive in an obvious way at a composition comprising graft polymer composition (B) and at least some polyalkylacrylate polymer (A).

- 1.2.6 In order to prove that the second distinguishing feature, namely a polymer composition (C) having a molecular weight M_n within the claimed range, was also obvious the appellant filed D18.
- 1.2.7 The respondent argued that D18 should not be admitted because it should have been filed earlier, since the molecular weight of component (C) was a feature of granted claim 1, with its particular relevance being highlighted in par. 0028 of the patent. Therefore, the relevance of the feature was clear from the outset of the opposition proceedings so that any evidence for the alleged obviousness of the feature should have been filed already in the first instance proceedings. The filing of D18 furthermore introduced a completely new attack, which represented a "totally new case" that had never been discussed in the first instance proceedings. Therefore the amendment of the appeal case caused by the filing of D18 was a substantial one which justified the remittal of the case to the opposition division, if D18 was admitted.

1.2.8 The board decided to exercise its discretion to admit D18 under Article 12(4) RPBA 2007, because it came to the conclusion that, given the circumstances, it was not apparent to the opponent that further evidence was required before the first instance oral proceedings, because the opposition division had not indicated in its preliminary opinion the molecular weight of polymer A1 of D1 as a distinguishing feature of claim 1 over D1, so that the opponent could conclude that the arguments and the evidence (namely D4) filed with the grounds for opposition had convinced the division, so that there was no need to file additional evidence at this stage of the proceedings.

The argument that the admission of D18 would lead to a totally new case is also rejected by the board, because already with the grounds of opposition, a novelty attack based on D1 was presented, and after having received the opposition division's preliminary opinion, according to which the subject-matter of claim 1 was novel over D1, the opponent presented an inventive step attack starting from D1, which was also discussed during said oral proceedings. This attack thus forms the basis of these appeal proceedings, with D18 being filed as additional evidence for the obviousness of a further distinguishing feature. While D18 is undisputedly a new item of evidence, it underpins an argument that had been in the proceedings from its outset, namely that the molecular weight of component (C) could not distinguish the claimed subject-matter from D1. Therefore, the filing of D18 does not create a new case and said document is thus admitted into the proceedings.

1.2.9 For reasons of procedural economy, the board also exercised its discretion not to remit the case to the

opposition division, despite the respondent's request to have this new attack being examined by two instances, because according to established case law, there is no absolute right to have every issue decided by two instances.

- 1.2.10 The respondent argued that starting from example 9 of D1, the skilled person would not have considered D18 because the fuel used in that example was mineral oil ("Testöl 1", par. 0087), whereas D18 concerned blends of biofuel and mineral oil (abstract). As D18 itself stated that these two oil types had different properties, the skilled person would not have combined the teaching of the two documents. Rather the skilled person would have turned to D5 directed to additives for mineral oil having molecular weights outside of the claimed range.
- 1.2.11 These arguments are not convincing the board, because even if example 9 of D1 concerns mineral oil, D1 explicitly teaches that the additive compositions disclosed therein are effective in mineral oil and plant-based oil types alike (par. 0068 - par. 0078, claim 16). On the other hand D18, which concerns additives for improving the cold temperature properties of blends of mineral oil and plant-based oil, also teaches that the additive compositions are effective in mineral oil alone (col. 2, l. 31-34, example 1). Therefore, the skilled person had no reason to assume that the teaching of D18 would be incompatible with the disclosure of D1. Rather, it would turn for instance to example 1 of D18 where a mixture of two EVA-polymers is disclosed as improving the low temperature properties of biofuel, mixtures of biofuel and mineral fuel, but also of mineral fuel alone (reduction of CFPP, table 1, fuel 2). Said mixture contains EVA-1 and EVA-2, whereby

EVA-1 contains 36 % by weight (i.e. 15.4 mol-%) of vinyl acetate, and so 84.6 mol-% of ethylene, i.e. a value within the claimed range. This calculated value as such has not been contested by the respondent. Thus, by following this teaching of D18 and by merely applying it to the composition of example 9 of D1, the skilled person arrives in an obvious manner at the subject-matter of claim 1 without exercising any inventive skills.

In this context, it is irrelevant that there would be other solutions to the problem of providing an alternative additive composition that do not lead to the subject-matter of claim 1, such as the application of the teaching of D5 to D1. It follows that claim 1 of the main request does not involve an inventive step within the meaning of Article 56 EPC.

2. First auxiliary request

2.1 Claim 1 of this request has been amended by the incorporation of the features of claim 2 as filed, which limits the molecular weight M_n of the base polymer B1 to a value between 10000 to 80000 g/mol. The requirement of Article 123(2) EPC is thus met.

2.2 The board holds that the subject-matter of claim 1 involves an inventive step because neither D1 nor any other of the cited documents discloses the newly added feature.

Moreover, there is no evidence supporting the appellant's allegation that a melt viscosity of up to 2000 mPas, as disclosed in D1 for the graft base, would correspond to a molecular weight M_n of several tens of thousands g/mol.

Finally, the board notes that D1 teaches that the **final graft polymer** has preferably a molecular weight M_n of **less than 10000 g/mol** (par. 0014), which clearly teaches away from using **base polymers** having a molecular weight M_n of **more than 10000 g/mol** for grafting.

Therefore, the board concludes that the subject-matter of claim 1 is not obvious from the known state of the art and so involves an inventive step within the meaning of Article 56 EPC. The same conclusion applies to the dependent and other independent claims related to claim 1 at issue.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the claims of Auxiliary Request 1 filed with letter dated 23 September 2019, and a description to be adapted thereto.

The Registrar:

The Chairman:



D. Hampe

J.-M. Schwaller

Decision electronically authenticated