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Datasheet for the decision of 12 September 2018

Case Number: T 0687/15 - 3.3.03

Application Number: 09171400.6

Publication Number: 2305753

IPC: C08L33/04, C08L23/08

Language of the proceedings: EN

Title of invention:
A composition to improve cold flow properties of fuel oils

Patent Proprietor:
Evonik Oil Additives GmbH

Opponents:
Clariant Produkte (Deutschland) GmbH
Total Marketing Services
BASF SE

Relevant legal provisions:
EPC Art. 56
RPBA Art. 12(2), 13(3)

Keyword:
Inventive step - (no) - main request
Auxiliary requests filed with statement of grounds of appeal but not motivated - admittance - no

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Beschwerdekammern

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Case Number: T 0687/15 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 12 September 2018

Appellant: (Patent Proprietor)	Evonik Oil Additives GmbH Kirschenallee 64293 Darmstadt (DE)
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Respondent: (Opponent 3)	BASF SE 67056 Ludwigshafen (DE)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted on 26 January 2015 revoking European patent No. 2305753 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman D. Semino
Members: M. C. Gordon
C. Brandt

Summary of Facts and Submissions

I. The appeal of the patent proprietor lies against the decision of the opposition division posted on 26 January 2015 revoking European patent number 2 305 753.

II. The patent was granted with a set of 20 claims whereby claim 1 read as follows:

"A composition comprising
at least one polyalkyl(meth)acrylate polymer having a number average molecular weight Mn of from 1000 to 10000 g/mol and a polydispersity Mw/Mn of from 1 to 8 and
at least one ethylene vinyl acetate copolymer comprising units being derived from at least one alkyl (meth)acrylate having 1 to 30 carbon atoms in the alkyl residue."

Claims 2-19 were directed to preferred embodiments of the composition and claim 20 to a method of using the compositions as flow improvers in fuel compositions.

III. Three notices of opposition against the patent were filed in which revocation of the patent in its entirety was requested.

The following documents, *inter alia*, were cited in opposition proceedings:

D3: EP-A-384 367
D19: WO-A-2001/048032
D30: WO-A-99/27037.

IV. The decision of the opposition division was based on the claims of the patent as granted as the main request and two amended sets of claims as first and second auxiliary requests, submitted with letter dated 7 October 2014 and two further sets of claims submitted as new second auxiliary request and fourth auxiliary request at the oral proceedings before the opposition division.

The first and the new second auxiliary requests had the same claim 1, which read as follows:

"A composition comprising at least one polyalkyl(meth)acrylate polymer having a number average molecular weight Mn of from 1000 to 10000 g/mol and a polydispersity Mw/Mn of from 1 to 8 and at least one ethylene vinyl acetate copolymer comprising units being derived from at least one alkyl (meth)acrylate having 1 to 30 carbon atoms in the alkyl residue, wherein the ethylene vinyl acetate copolymer is a graft copolymer having an ethylene vinyl acetate copolymer as graft base and an alkyl(meth)acrylate having 1 to 30 carbon atoms in the alkyl residue as graft layer, and wherein the weight ratio of the polyalkyl(meth)acrylate polymer to said ethylene vinyl acetate copolymer is in the range of from 15:1 to 1:1."

The requests differed in the formulation of sub-claims, the details of which are not relevant for the present decision.

V. According to the decision the main request – claims of the patent as granted – was held to lack novelty. The first auxiliary request was held not to meet the requirements of inventive step, documents D19 and D3 being invoked. The new second auxiliary request i.e.

that presented during the oral proceedings - was not admitted to the proceedings. The second auxiliary request was found not to meet the requirements of inventive step and the fourth auxiliary request, containing a limitation to biodiesel and submitted at the end of the second day of the oral proceedings was not admitted to the proceedings.

VI. The patent proprietor (appellant) filed an appeal against the decision.

Together with the statement of grounds of appeal 17 sets of claims were submitted whereby the main request corresponded to that defended before the opposition division, i.e. the claims of the patent as granted. The second auxiliary request corresponded to the first auxiliary request underlying the decision. The first and third to sixteenth auxiliary requests were newly filed.

A document summarising the experimental data taken from the patent and other submissions made during the prosecution of the case - D34b - was later submitted by the appellant with letter of 1 August 2018.

VII. The opponents (respondents I-III) all filed responses to the appeal.

VIII. The Board issued a summons to attend oral proceedings and a communication.

In the preliminary view of the Board the main request lacked novelty.

With respect to inventive step of the second auxiliary request the Board observed that the emphasis placed on

biofuels by the appellant in its written submissions did not correspond to the general teaching in the description and was not reflected in the wording of the claims.

With regard to admittance of the third to sixteenth auxiliary requests the Board noted that no explanations were given as to which objections would be thereby overcome, meaning that the reasons for submitting these requests remained obscure.

IX. Oral proceedings were held before the Board on 12 September 2018.

At the commencement of the oral proceedings, the Appellant withdrew the main request and first auxiliary request. Thus the second auxiliary request became the main request.

X. The arguments of the appellant can be summarised as follows:

(a) Main request (i.e. set of claims forming the first auxiliary request before the opposition division and filed as second auxiliary request with the statement of grounds of appeal) - inventive step

Regarding the selection of the closest prior art, the patent was directed to the problem of providing additives to improve the low temperature properties of biodiesel. This emerged unambiguously from the discussion of the problem in the patent. References to mineral diesel compositions had to be understood in the context of these being supplemental to the presence of biodiesel. It was not correct to interpret the patent as being directed to

compositions for addition to fuel consisting exclusively or mainly of mineral diesel.

Document D19, identified in the decision under appeal as the closest prior art, was not an appropriate starting point since this contained no reference to biodiesel. Selection of said document and the specific cited example thereof could only be the result of hindsight.

D30 was the appropriate choice of closest state of the art since this dealt explicitly with biodiesel and identified, as did the patent in suit, in particular the problems which arose in the use thereof in terms of solidification at low temperature.

Indeed by consideration of the differing chemical nature of biodiesel and mineral diesel and therefore the differing chemical and physical processes underlying the problems at low temperature, the skilled person would not expect additives for one to be usable in the other and would not have taken D19 into consideration when seeking to provide additives for biodiesel.

The decision under appeal had identified specifically example 12 of D19 as the closest prior art. However, this selection could only have arisen on the basis of knowledge of the claimed subject-matter i.e. was the result of *ex post facto* considerations.

The foregoing notwithstanding, the effect of the distinguishing feature over D19, in particular example 12 thereof, namely the nature of the EVA

component which in D19 was not a graft copolymer according to operative claim 1 was, as demonstrated by the examples of the patent and in particular the summary of these data and further data submitted during the opposition proceedings as D34b, that the claimed compositions provided improved low temperature properties compared to the others shown.

Such an improvement could not have been predicted on the basis of D3, even if this document had been relied upon. Regarding the relevance of D3, this was an old document dating from a time when biodiesel either was not known or was not significant. The demands based on diesel fuels in terms of flow properties at the time of D3 were significantly less stringent than those existing at the priority date of the patent in suit, in particular because of the use of injection technology in modern engines. Furthermore with respect to the low temperature properties, D3 employed a different measurement - (pour point - PP) to the patent (cold filter plugging point - CFPP), which reflected different behaviour and properties of the diesel oils, meaning that D3 provided no indication of the effect sought in the patent in suit. Thus the skilled person seeking to provide improved additives for biodiesel would have had no grounds to consult said document.

On this basis the presence of an inventive step should be acknowledged.

(b) First to fourteenth auxiliary requests (i.e. third to sixteenth auxiliary requests as submitted with the statement of grounds of appeal) - admittance

It was disputed that no reasoning or arguments had been presented in the statement of grounds of appeal in respect of the auxiliary requests. On the contrary, it was clearly referred to the arguments advanced for the main request and explained that the auxiliary requests provided further limitations directed to overcoming the objections raised.

XI. The arguments of the respondents can be summarised as follows:

(a) Main request (i.e. second auxiliary request submitted with the statement of grounds of appeal) - inventive step

Contrary to the position of the appellant, the patent was in no manner limited to biodiesel compositions or additives therefor. This emerged from the description which referred explicitly to compositions which could consist entirely of mineral diesel. Similarly claim 16 of the patent was directed to compositions of a mineral oil. The appellant was applying an unjustified, selective interpretation of the description to the claims.

Consequently the selection of D19 as the closest prior art was appropriate, this being directed to providing additives to improve the low temperature properties of mineral diesel compositions.

The identification of example 12 of D19 as the closest prior art could not be regarded as the result of an inadmissible *ex post facto* approach, but arose in the course of applying the problem and

solution approach.

The data provided in the patent and further data of the appellant did not allow any technical effect to be ascribed to the distinguishing feature, i.e. the nature of the EVA polymer being a specific graft polymer, meaning that the problem to be solved could only be formulated as the provision of further additives for diesel fuels.

D3 provided the necessary teaching, disclosing that graft EVA acrylate copolymers served as cold flow improving additives for diesel fuel. The arguments of the appellant regarding the age of D3 and differing requirements on fuels as a result of developments in engine technology were not relevant since the claims contained no corresponding features.

(b) First to fourteenth (formerly third to sixteenth) auxiliary requests - admittance

The appellant had not provided any motivation or explanation for the submission of these requests. In particular it was not explained in what manner the amendments represented by these requests were directed to overcoming the objections raised. Consequently pursuant to Article 12(2) RPBA these should not be admitted to the procedure.

XII. The appellant requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the new main request (former second auxiliary request), or, alternatively, that the patent be maintained on the basis of one of the sets of claims according to the first to fourteenth auxiliary

requests (former third to sixteenth auxiliary requests), all requests having been filed with the statement of grounds of appeal.

XIII. The respondents I to III requested that the appeal be dismissed and that the first to fourteenth auxiliary requests (former third to sixteenth auxiliary requests) not be admitted into the proceedings.

Reasons for the Decision

1. Main request (set of claims filed as second auxiliary request with the statement of grounds of appeal)

The only matter with respect to the main request which needs to be addressed for the purposes of this decision is that of inventive step.

Although objections of lack of sufficiency of disclosure had been raised by the respondents, in view of the conclusions reached in respect of inventive step it is not necessary for the purposes of this decision to deal with these.

1.1 Identification of the closest prior art

1.1.1 The patent in suit, the technical problem

As noted above, the appellant was of the view that the patent was restricted to additives specifically for diesel of a biological origin, meaning that the closest prior art had to be a document which was similarly limited, an appropriate document according to the appellant being D30. However, the decision under appeal and the respondents considered that D19, relating to

additives for diesel of a mineral origin was an appropriate document to represent the closest prior art.

The patent in suit is directed to cold-flow improving additives for fuel oils (paragraph [0001]). The patent places great emphasis on problems particular to biofuels, in particular the high variability of the composition thereof and a higher solidification temperature compared to fuels of a mineral origin (paragraphs [0002]-[0007], [0012] and [0013]).

However, despite this emphasis, the patent is by no means limited to biofuel compositions. Thus paragraph [0019] refers to "very different fuel oils". Similarly paragraph [0068] states that "usually fuel oil compositions comprise at least 70% by weight[...]most preferably at least 98% by weight fuel oil. Useful fuel oils include diesel fuel of mineral origin and biodiesel fuel. These fuels can be used individually or as mixture".

Paragraph [0069] states that the composition may comprise diesel fuel of mineral origin, and paragraphs [0070] and [0071] discuss further details of preferred diesel fuels of mineral origin. Paragraph [0072] states "The fuel compositions[...]may comprise[...]most preferably at least 80% by weight of diesel fuels of mineral origin" and paragraph [0073] states that the "present fuel composition" may comprise at least one biodiesel fuel component. The following paragraph discusses the properties of the biodiesel fuels. Paragraph [0080] states that the fuel compositions of the invention may comprise at least 0.5% by weight[...]most preferably at least 15% by weight of biodiesel fuel, and that according to a further aspect

of the invention the composition may comprise up to 95% by weight of biodiesel fuel.

The claims also do not give any cause to conclude that the patent is restricted to additives for biodiesel. Thus claim 15 is directed to compositions containing a fuel oil of undefined provenance, whilst claims 16 and 17 are directed to compositions in which the fuel oil comprises mineral oil and biodiesel respectively.

Accordingly - contrary to the position of the appellant - the patent is not restricted to compositions for improving the properties of biodiesel, but is directed to compositions intended for use in either biodiesel or mineral diesel.

A further submission of the appellant was that the chemical natures of biodiesel and mineral diesel were different, meaning that the chemical and physical process resulting in solidification/crystal formation at low temperatures and the nature of the resulting solid products would be divergent to the extent that the skilled person would not expect additives for one class of fuels to be applicable to the other.

As will be explained in the following the cited documents do not provide any support for this proposition, but on the contrary show that it is invalid.

1.1.2 D19

D19 is directed to compositions for improving the low temperature properties of diesel fuels of mineral original. This is apparent from claim 9 and the statement at page 1, lines 3-5 that diesel fuels are

middle distillates and the reference to paraffinic hydrocarbons as being a component of said fuels. The document discusses the problem of solidification at low temperature due to higher molecular weight paraffins coming out of solution to form waxy crystals (page 1, lines 6-8) and states at page 1, lines 15 and 16 that a polymer has been developed which when added to middle distillate oils reduces the tendency to form said wax deposits.

1.1.3 D30

This is the appellant's proposed closest state of the art and is entitled "Additive for Biodiesel and Biofuel Oils".

The document starts by discussing the search for alternative fuels. At page 1, line 6 of the second paragraph it is stated that similarly to "conventional" diesel fuels, biodiesel suffers from the problem of crystal formation at lower temperature, leading to problems with filtration and flow. In the following passage it is stated that the term "biodiesel" denotes mixtures of fuel oils of mineral and biological origin, whereby the proportions are variable.

It is stated at page 2, second section, that additives known for use in conventional diesel fuels show only limited, or insufficient, activity in biodiesel. Thus the problem addressed by D30 was, according to page 5, first and second paragraphs, to provide additives for the improvement of low temperature properties of diesel of a biological origin.

D30 is however not restricted to the application of the additives in biodiesl. Thus according to claim 7, the

copolymers can be employed with diesel of exclusively a mineral origin, and according to claim 9 can be employed in mixtures having as little as 5 wt% of biodiesel, the balance being diesel of a mineral origin.

1.1.4 The following conclusions can be drawn from the above analyses of the patent in suit and the two documents under consideration as closest prior art:

- The patent in suit is not restricted to fuels of a biological origin, contrary to the position of the appellant
- D30, the patent proprietor's preferred prior art, is also not restricted to additives for fuels of a biological origin but explicitly relates to fuels exclusively or preponderantly of mineral origin
- The argument of the appellant that due to the different chemical natures of the two types of fuel the skilled person would not expect additives for one to be appliable to the other is shown to be incorrect by the discussion in D30, page 2, second paragraph and the claims of the document showing that one and the same additive is applicable to diesel of either origin, albeit with differing effectiveness.

Accordingly in identifying the document representing the closest prior art there is no reason exclude documents relating to additives specifically for mineral diesel.

1.1.5 The disclosure within D19 to be taken into consideration

According to the decision under appeal (section 45) the

most relevant disclosure in D19 was the polymer of example 7 which was employed in the additive composition of example 12.

The appellant objected to the identification of this specific example as being the result of a hindsight approach.

However the approach taken by the opposition division was fully compliant with the problem and solution approach (see Case Law of the Boards of Appeal of the European Patent Office, 8th Edition, 2016, section I.D. 2). According to *ibid.* I.D.3.1, 3rd paragraph the determination of the closest prior art is an objective exercise on the basis of the skilled person's objective comparison of the subject-matter, objectives and features of the various items of prior art. In this connection reference can be made to *ibid.* I.D.3.4.2 according to which the objectively selected closest prior art is the "most promising springboard" towards the claimed invention.

Accordingly the Board is unable to find fault - procedurally or substantively - with the identification of D19, example 12 as the closest prior art.

1.1.6 In conclusion the Board is satisfied that either of D19 or D30 can serve as the closest prior art and in particular that there are no reasons to exclude D19 from consideration.

The Board is also unable to find fault with the conclusion of the opposition division that within D19 the disclosure of Example 7 and the associated example 12 represent the closest prior art.

1.1.7 Potentially multiple documents serving as the prior art

For the sake of completeness the Board observes that in the case that a plurality of documents could be considered as - equally validly - representing the closest prior art, it is necessary that an inventive step be shown to exist over each of these. Thus if it is concluded that starting from one of said documents an inventive step cannot be recognised, then it would be immaterial if, starting from an alternative, equally pertinent, document, a different conclusion would be reached.

1.2 The distinguishing feature

Example 7 of D19 relates to the preparation of a poly(methyl acrylate) polymer modified with 1-dodecanol, which according to all parties is a polymer falling within the terms of the first polymer defined in claim 1.

In example 12 this is combined with a polymer of ethylene and vinyl acetate, i.e. EVA in proportions of 2:1, which is within the range specified in operative claim 1.

It was submitted by the appellant (statement of grounds of appeal, page 14, second paragraph, lines 6-8) and again at the oral proceedings before the Board that the distinguishing feature was the replacement of the EVA of example 12 of D19 by the grafted EVA as defined in operative claim 1.

This position was not disputed by the respondents and the Board sees no reason to diverge from it.

1.3 The technical effect

The data in the patent in suit show compositions containing grafted EVA alone (comparative examples 1 and 2), the polyalkyl(meth)acrylate polymer as defined in the first part of the claim alone (comparative examples 3-5), compositions of unmodified EVA with various additives not according to the claims (comparative examples 6,7) or compositions corresponding to the claims (Example 1-6).

There are however no examples which provide comparisons with respect to the compositions of D19, i.e. between compositions containing the first named polymer and the ungrafted EVA.

Additional data were submitted during the course of the proceedings, summarised in document D34b. However again none of these data provide the required comparison with the compositions of D19.

Accordingly there is no evidence for a technical effect associated with the distinguishing feature with respect to the closest prior art. In particular, the submissions of the appellant, made in the oral proceedings before the Board, that the claimed compositions result in a greater improvement in cold temperature properties than do those of D19 find no support in the data provided.

1.4 The objective technical problem

Under these circumstances, the only objective technical problem that can be formulated is the provision of further flow improving compositions for

diesel fuel oils.

1.5 Obviousness

From D3 it is known that graft polymers of EVA and esters of unsaturated acids, such as (meth)acrylic acid serve as additives for diesel oil in order to depress the solidification temperatures (D3, page 2, lines 4-21; page 3, lines 8-43). The compositions are provided in the form of concentrated solutions in organic solvents to be added to the fuel (page 3, lines 48-50, examples, claim 8).

It is correct, as observed by the appellant at the oral proceedings before the Board, that D3 dates from 1989, and does not mention biodiesel. However as explained above, this is not significant, since the patent in suit and the claims are likewise not limited to such compositions.

Similarly the arguments in respect of differing demands placed on diesel fuels at the time of D3 and the priority date of the patent in suit, arising as a consequence of developments in engine technology, specifically fuel injectors, placing more stringent demands on low temperature flow properties of fuels is not relevant because the claims contain no corresponding restriction, or features relating to such, nor has this any relevance to the objective technical problem.

It is also correct that D3 employs as an indication of the low temperature properties the determination of the pour point (PP) rather than the cold filter plugging point (CFPP) as employed in the examples of patent in suit and those of D19. However both of these

measurements are indicative of the same property of the fuel oils, i.e. the temperature below which flow becomes difficult or impossible. Furthermore the patent in suit at paragraph [0088] and D19 at page 7, line 22-32 and page 9, lines 28 and 29 refer to both of these measurements as alternatives characterising the modified fuel oils. This demonstrates that the difference between the significance of these two measurements, as adduced by the appellant, does not find support or correspondence in the cited documents. The absence of any reference to CFPP in D3 is therefore no reason to disregard this document.

In view of the aforementioned objective problem of providing further flow improving additives for diesel fuel oils, with no requirement for any particular improvement in any properties, an obvious solution would be to replace the EVA copolymers of D19 by those known from D3.

1.6 The main request - i.e. the set of claims submitted as the second auxiliary request with the statement of grounds of appeal - thus does not meet the requirements of Article 56 EPC.

2. First to fourteenth auxiliary requests (corresponding to the third to sixteenth auxiliary requests as filed with the statement of grounds of appeal)

2.1 Admittance

In the statement of grounds of appeal the appellant indicated the modifications that had been made in these requests. However no explanation was given of how the amendments undertaken were intended to address objections raised by the decision under appeal. In a

further letter, dated 4 March 2016, in response to the rejoinders of the respondents, the appellant merely stated with respect to the third to sixteenth auxiliary requests (present first to fourteenth auxiliary requests) that these represented "fall back" positions and that depending on issues discussed one or more of these would be appropriate to overcome all possible objections.

These statements did not serve to place the Board and the other parties in a position to understand the rationale behind these requests. On the contrary the onus was placed in the Board and the respondents to assemble, or derive the case being made themselves and develop appropriate responses.

This is contrary to the requirements of Article 12(2) RPBA which stipulates that parties to appeal proceedings should present their complete case[...]and should specify expressly all arguments.

Furthermore the consequence of admitting these requests would have been that new arguments would have been presented for the first time at the oral proceedings - i.e. an amendment of the case previously presented. This would have had the risk that neither the other parties of the Board could have dealt with these without adjournment of the oral proceedings (Article 13(3) RPBA).

For both these reasons, the Board decided that the auxiliary requests were not to be admitted to the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

B. ter Heijden D. Semino

Decision electronically authenticated