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Datasheet for the decision of 26 June 2012

Case Number: T 0511/09 - 3.3.01

Application Number: 97925182.4

Publication Number: 907698

IPC: C10M 149/10, C10M 167/00

Language of the proceedings: EN

Title of invention:
The use of a functionalised viscosity improver in a lubricant for diesel engines

Applicant:
CASTROL LIMITED

Opponent:
Infineum International Ltd.

Headword:
Dispersant viscosity improver/CASTROL

Relevant legal provisions:
EPC Art. 100(a)
RPBA Art. 13(1)(3)

Keyword:
"Main request and first auxiliary request: novelty (no)"
"Second auxiliary request - not admitted into the proceedings"

Decisions cited:
G 0006/88, T 0059/87

Catchword:
-

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Case Number: T 0511/09 - 3.3.01

D E C I S I O N
of the Technical Board of Appeal 3.3.01
of 26 June 2012

Appellant: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 12 December 2008 rejecting the opposition filed against European patent No. 907698 pursuant to Article 101(2) EPC.

Composition of the Board:

Chairman: P. Ranguis
Members: C. M. Radke
L. Bühler

Summary of Facts and Submissions

I. European patent no. 0 907 698 relates to the use of a functionalised viscosity index improver in combination with a dispersant in a lubricant to disperse soot in a diesel engine.

II. The opponent appealed against the decision of the opposition division rejecting the opposition against this patent.

III. The opposition was directed against the patent in its entirety and was based on grounds under Article 100(a) EPC (lack of novelty and inventive step).

IV. The documents cited during the opposition procedure included the following:

(D3) WO-A-95/29 976.

V. The opposition division considered the subject-matter of the claims to be novel, as

- only in example 4 of document (D3) a dispersant viscosity improver was used, which, however, was no polyolefin copolymer, and
- the present claims required a multiple selection from the disclosure of document (D3).

Document (D3) was considered as the closest prior art. The problem to be solved with respect to this document was to control the viscosity of a lubricating oil in the presence of soot. Examples C1 and C2 of the patent in suit showed that this problem was solved. The skilled person did not find an indication in document

(D3) or in any other cited prior art document that the functionalised polymer used in the patent in suit provided a particularly effective control of viscosity increase caused by soot.

VI. The present decision is based on

- claims 1 to 9 as granted (main request),
- claims 1 to 8 of the first auxiliary request and
- claims 1 to 7 of the second auxiliary request,

where the claims of the auxiliary requests were submitted during the oral proceedings before the Board on 26 June 2012.

(a) Independent claims 1 and 9 of the main request read as follows:

"1. Use of a functionalised viscosity improver in a lubricant in a diesel engine to disperse soot produced by the diesel engine, the soot being dispersed without adversely affecting the viscosity of the lubricant; the lubricant additionally comprising a dispersant; the functionalised viscosity index improver comprising a highly functionalised graft copolymer reaction product of a nitrogen or an oxygen and nitrogen containing, ethylenically unsaturated, aliphatic or aromatic monomer having from 2 to 50 carbon atoms grafted on to a polyolefin copolymer."

"9. A method of controlling viscosity changes of a lubricant in a diesel engine that are caused by build-up of soot, the method comprising using a functionalised viscosity improver in a lubricant

as defined in any one of claims 1-8 as the lubricant in the diesel engine."

(b) The only independent claim of the first auxiliary request reads as follows (the amendments with respect to claim 1 of the main request are shown in bold):

"1. Use of a functionalised viscosity improver in a lubricant in a diesel engine to disperse soot produced by the diesel engine, the soot being dispersed without adversely affecting the viscosity of the lubricant **by increasing the viscosity of the lubricant to an unacceptable level as defined in the Mack T8 test**; the lubricant additionally comprising a dispersant; the functionalised viscosity index improver comprising a highly functionalised graft copolymer reaction product of a nitrogen or an oxygen and nitrogen containing, ethylenically unsaturated, aliphatic or aromatic monomer having from 2 to 50 carbon atoms grafted on to a polyolefin copolymer."

(c) The only independent claim of the second auxiliary request reads as follows (the amendments with respect to claim 1 of the main request are shown in bold):

"1. Use of a functionalised viscosity improver in a lubricant in a diesel engine to disperse soot produced by the diesel engine, the soot being dispersed without adversely affecting the viscosity of the lubricant **by increasing the**

viscosity of the lubricant to an unacceptable level as defined in the Mack T8 test; the lubricant additionally comprising a dispersant; the functionalised viscosity index improver comprising a highly functionalised graft copolymer reaction product of a nitrogen or an oxygen and nitrogen containing, ethylenically unsaturated, aliphatic or aromatic monomer having from 2 to 50 carbon atoms grafted on to a polyolefin copolymer, **wherein the graft copolymer comprises at least 13 mole percent (based on a polymer having a molecular weight of 100,000) of the monomer grafted on to the polyolefin copolymer**."

VII. The arguments of the appellant, as far as relevant for this decision, may be summarised as follows:

The subject-matter of the claims was not novel in view of document (D3), especially if the information given in footnote 1, below the table on page 25 is combined with the examples given for the nitrogen containing dispersant viscosity modifier on pages 14 and 15.

The claims of the auxiliary requests were late filed. They introduced subject-matter into the claims which was either taken from the description or never discussed during the appeal proceedings. Therefore, the appellant was not prepared to deal with such claims during the oral proceedings. Hence, the claims should not be admitted.

VIII. The respondent argued that the subject-matter of the claims was novel in accordance with decisions G 6/88 and T 59/87 due to the new use. It required multiple

selections within document (D3) to arrive at the subject-matter of the present claims, namely

- to incorporate a nitrogen containing dispersant viscosity modifier (which is not mandatory according to claim 1);
- to select from the examples of such dispersant viscosity modifiers given in document (D3) one having a polyolefin backbone;
- to graft the dispersant viscosity modifier with a nitrogen containing ethylenically unsaturated monomer having from 2 to 50 carbon atoms;
- to select such a dispersant viscosity modifier which is highly functionalised:
- to add an additional dispersant; and
- to use the lubricant in a diesel engine.

Example 4 of document (D3) was the only example where both a nitrogen functionalised dispersant viscosity modifier and an additional dispersant were used. However, in this example no viscosity modifier having a polyolefin backbone was used.

The auxiliary requests should be admitted into the proceedings as the additional feature of both requests, namely the requirement to pass the Mack T-8 test, was discussed in the decision under appeal and throughout the appeal proceedings. The claims of the second auxiliary request were additionally limited by the feature set out in claim 2 as granted. Hence, the appellant should have been prepared for these limitations.

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

Furthermore, it requested that the first and second auxiliary requests were not admitted into the proceedings.

The respondent requested that the appeal be dismissed, or that the patent be maintained on the basis of the first or second auxiliary request.

X. The chairman announced the decision of the Board at the end of the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. Main Request / Novelty

2.1 Present claim 1 requires the use of two components, namely

- a highly functionalised copolymer which is prepared by grafting onto a polyolefin a nitrogen containing, ethylenically unsaturated monomer having from 2 to 50 carbon atoms, and
- an additional dispersant in a lubricant in a diesel engine for the purpose of
- dispersing soot while
- not "adversely affecting the viscosity of the lubricant".

2.2 Document (D3) relates to "universal lubricants which are effective to minimize soot related viscosity increase and thermal oxidation induced viscosity increase" (see page 1, lines 5-8). The document defines

universal lubricants as those meeting the certification requirements "for both gasoline fueled and heavy duty diesel fueled engines" (see page 2, lines 13-17).

According to claim 1 of document (D3), the following components may form part of the lubricant:
ashless nitrogen containing **dispersants** and/or ashless nitrogen containing **dispersant** viscosity modifiers (emphasis added by the Board).

It is evident that soot is dispersed by means of these dispersants.

Therefore, document (D3) discloses the use of at least one of these dispersants in a lubricant in a diesel engine for the purpose of dispersing soot while minimising any soot or oxidation related viscosity increase of the lubricant. This means that document (D3) discloses the use of these compounds for the purpose indicated in claim 1 of the patent in suit.

2.3 It was, however, disputed whether or not document (D3) disclosed the use of the highly functionalised copolymer as defined in present claim 1 in combination with an additional dispersant for this purpose.

Whereas the respondent considered that a multiple selection within the disclosure of document (D3) was necessary in order to end up with the combination of these two components, the appellant denied this with reference to footnote 1 below the table on page 25 of this document (see points VII and VIII above).

2.4 This table lists the broad and the preferred ranges for the various components of the lubricants. The first two sentences of footnote 1 read as follows:

"In multi-graded oils that have dispersant viscosity modifiers, the nitrogen containing ashless dispersant can be used at a much lower treat rate. In this case the dispersant viscosity modifier serves as an additional nitrogenous TBN source."

Hence, this footnote discloses the **combination** of an ashless nitrogen containing dispersant viscosity modifier mentioned in claim 1 of document (D3) with another dispersant.

2.5 Pages 14 and 15 of document (D3) describe which compounds are to be considered as ashless nitrogen containing dispersant viscosity modifiers. The only concrete example of such a **nitrogen** containing compound is indicated on page 14, lines 11-12, and again on page 15, lines 3-4, namely

"(... inter polymers of ethylene-propylene post grafted with an active monomer such as maleic anhydride) and then derivatized with an ... amine".

Interpolymers of ethylene-propylene are **polyolefins**. A polyolefin **grafted** with maleic anhydride and then derivatised with an amine does not differ in structure from such a polyolefin grafted with maleic anhydride after it has been derivatised with an amine, i.e. with a **nitrogen containing ethylenically unsaturated aliphatic monomer.**

2.6 The respondent emphasised that claim 1 of the patent in suit additionally required that the graft copolymer was **highly** functionalised and that the monomer to be grafted onto said copolymer had "**from 2 to 50 carbon atoms**".

2.6.1 The words "highly functionalised" do not have a precise meaning in the context of claim 1. The respondent held that these words were to be interpreted in the light of paragraph [0022] of the description of the patent in suit.

Said paragraph reads as follows:

"[0022] By 'highly functionalised graft copolymer reaction product', we **preferably** mean a graft copolymer reaction product that has at least 13 mole percent (based on a polymer having a molecular weight of 100,000) of monomer grafted on to the polyolefin copolymer. **More preferably**, about 20 to 30 mole percent or greater of monomer is grafted on to the polyolefin copolymer" (emphasis added by the Board).

Hence, this paragraph only gives **preferred** definitions of the words "highly functionalised". Therefore, even if the Board were of the opinion that claims might be interpreted in the light of the description when assessing novelty, paragraph [0022] could not serve as a basis for such an interpretation as it does not provide a **general** definition.

2.6.2 As far as the number of the carbon atoms in the monomer is concerned, the appellant held that the skilled person could not think of grafting agents having less than 2 or more than 50 carbon atoms.

As maleic anhydride has four carbon atoms, this requirement is fulfilled if the amine used to derivatise the anhydride had no more than 46 carbon atoms.

A prior art document should be interpreted with the eyes of the person skilled in the art. When reading a technical term, this person will exclude meanings which are exotic, unless the prior art document indicates that such exotic meanings should be included. To use an amine having more than 46 carbon atoms to derivatise the anhydride is exotic; there is no indication in document (D3) that such exotic amines were meant to be included. Hence, the person skilled in the art will not read the technical term "amine" in the framework of pages 14 and 15 of document (D3) as to encompass amines having more than 46 carbon atoms.

2.7 For these reasons, the subject-matter of claim 1 of the main request lacks novelty. As the Board can only decide on a request as a whole, the main request was refused.

3. First Auxiliary Request

3.1 Admission into the proceedings

3.1.1 The appellant's request not to admit this request into the proceedings was based on the fact that it was filed

late and that the respective claims were amended by introducing a feature from the description.

3.1.2 According to Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA)

"Any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy" (see the Supplement to OJ EPO 1/2012, 39).

3.1.3 The claims of this request differ from the claims as granted in that the words "by increasing the viscosity of the lubricant to an unacceptable level as defined in the Mack T8 test" were inserted in claim 1 and that claim 9 was deleted (see point VI(b) above).

The passing of the Mack T-8 test was discussed as a criterion for meeting the requirement "without adversely affecting the viscosity of the lubricant" under point 3.2.1 of the reasons of the decision under appeal, and was referred to in the letter setting out the grounds for appeal (see the second paragraph on page 4, the fourth paragraph on page 11, the first paragraph on page 12, and the sentence bridging pages 13 and 14 and the bottom paragraph on page 14).

3.1.4 Hence, the appellant was in fact prepared to discuss these amendments. For this reason, the Board decided to admit the claims of this request into the proceedings.

3.2 Novelty

The Board considered the subject-matter claim 1 of the main request not to be novel (see point 2 above). Claim 1 of the first auxiliary request differs from the former only in that the feature "by increasing the viscosity of the lubricant to an unacceptable level as defined in the Mack T8 test" has been inserted. Consequently, the assessment of novelty of claim 1 of the first auxiliary request boils down to the question of whether or not this additional feature could render the subject-matter claimed novel.

3.2.1 On the one hand, document (D3) states that the lubricants disclosed therein are to pass the Mack T-8 test (see page 2, line 32, to page 3, lines 17; and page 5, line 34, to page 6, line 12). The respondent argued that the lubricant used in example 4 did not pass the Mack T-8 test. This argument implies that example 4 was to illustrate lubricants according to the invention claimed in document (D3). However, the first sentence of this example starts with the following words: "Nitrogen functionalized high molecular weight viscosity index improvers are also able to reduce the soot induced viscosity increases as shown by the following tests run ...". This is to be understood that example 4 is to illustrate the effect of the viscosity index improver on soot induced viscosity increases, rather than to disclose a lubricant according to the invention claimed in this document. Hence, the results of the Mack T-8 test in example 4 cannot put into doubt that the lubricants disclosed in document (D3) are to pass the Mack T-8 test.

3.2.2 On the other hand, the respondent argued that the claims of this request were novel due to the new use, as was decided in G 6/88 and T 59/87. In the decision G 6/88, the Enlarged Board answered the question referred to it as follows:

"A claim to the use of a known compound for a particular purpose, which is based on a technical effect which is described in the patent, should be interpreted as including that technical effect as a functional technical feature, and is accordingly not open to objection under Article 54(1) EPC provided that such technical feature has not previously been made available to the public." (see OJ EPO 1990, 114).

That means that the subject-matter of a claim directed to the use of a known compound or composition for a particular purpose may be novel due to a new "technical effect". In the decision T 59/87, the new technical effect of the compound was friction reduction while the prior art only disclosed its anticorrosive properties (see points 2, 2.1 and 2.2 of the reasons, OJ EPO 1991, 561).

In the present case, the "technical effect which is described in the patent" is that the composition helps to control "viscosity changes of a lubricant in a diesel engine that are caused by build-up of soot" (see paragraph [0007] of the patent in suit). This technical effect is disclosed in document (D3)(see under point 2.2 above). The requirement to pass the Mack T-8 test does not involve a new technical effect; it rather defines **to which extent** the effect disclosed in document (D3) is to be achieved, namely that the

viscosity increase is to be limited to a certain degree in the presence of a certain amount of soot (see document (D3), page 3, lines 6-16).

3.2.3 Therefore, the requirement to pass the Mack T-8 test cannot confer novelty on the subject-matter of claim 1 of the first auxiliary request. Hence, this subject-matter lacks novelty, so that this request also had to be refused.

4. Second Auxiliary Request

4.1 This request was submitted during the oral proceedings on 26 June 2012 after the Board had indicated that it considered that the subject-matter of claim 1 of the first auxiliary request was not novel. The claims of this request differ from the ones of the first auxiliary request in that the following words were inserted at the end of claim 1: "wherein the graft copolymer comprises at least 13 mole percent (based on a polymer having a molecular weight of 100,000) of the monomer grafted on to the polyolefin copolymer" (see under point VIc) above).

This amendment further limits claim 1 of the first auxiliary request by the features of claim 2 as granted.

4.2 The respondent argued that the appellant should have been prepared for this amendment. The appellant, however, requested not to admit these claims into the proceedings as it did not have sufficient time to study the amended claims during the oral proceedings.

4.3 The additional features of the claims of this request were neither mentioned in the decision under appeal nor discussed in the written appeal proceedings. Moreover, the discussions on novelty and inventive step during the appeal proceedings were almost exclusively based on document (D3) which does not disclose these additional features. Admitting the claims of the second auxiliary request into the proceedings would have made it necessary to give the appellant the chance to consider additional evidence, and, consequently, to adjourn the oral proceedings or to remit the case to the first instance for further prosecution. That would neither have been compatible with the "need for procedural economy" under Article 13(1) RPBA, nor with the requirement under Article 13(3) RPBA not to admit such late amendments "if they raise issues which the Board or the other party ... cannot be reasonably be expected to deal with without adjournment of the oral proceedings."

For these reasons, the Board did not admit the claims of the second auxiliary request into the proceedings.

5. Hence, the main request and the first auxiliary request were refused as the subject-matter claimed lacks novelty. The second auxiliary request was not admitted into the proceedings.

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:

M. Schalow P. Ranguis