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**D E C I S I O N**  
of 9 October 2001

**Case Number:** T 0067/98 - 3.3.1

**Application Number:** 89306418.8

**Publication Number:** 0351964

**IPC:** C10M 141/10

**Language of the proceedings:** EN

**Title of invention:**

Synergistic combination of additives useful in power transmitting compositions

**Patentee:**

ExxonMobil Chemical Patents Inc.

**Opponent:**

The Lubrizol Corporation

**Headword:**

Friction modifier/EXXON

**Relevant legal provisions:**

EPC Art. 54(1), (2), 56

EPC R. 27(1) c

**Keyword:**

"Novelty (yes) - alleged prior use not substantiated"

"Inventive step (no) - obvious solution"

**Decisions cited:**

T 0328/87; T 0440/91; T 0472/92, T 0939/92

**Catchword:**

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Case Number: T 0067/98 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 9 October 2001

**Appellant:** ExxonMobil Chemical patents Inc.  
(Proprietor of the patent) 200 Park Avenue  
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**Representative:** Lewis, Pauline Therese  
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**Respondent:** The Lubrizol Corporation  
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**Representative:** Crisp, David Norman  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 3 December 1997  
revoking European patent No. 0 351 964 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** A. J. Nuss  
**Members:** P. F. Ranguis  
S. C. Perryman

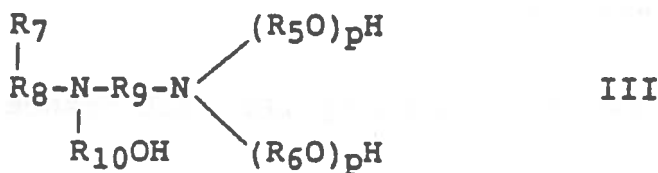
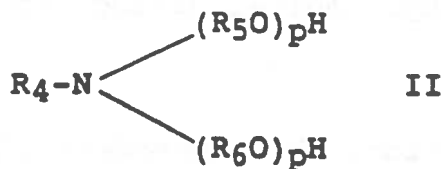
### Summary of Facts and Submissions

I. The Appellant (Proprietor of the Patent) lodged an appeal against the decision of the Opposition Division to revoke the European patent No. 0 351 964 (European patent application No. 89 306 418.8) pursuant to Article 102(1) EPC.

II. The patent was granted with 25 claims, independent Claim 1 reading:

"1. A lubricating oil composition adaptable for use as a power transmitting fluid which comprises:

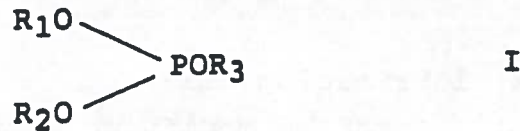
- (a) lubricating oil;
- (b) a friction modifying amount of borated or unborated hydroxyhydrocarbyl amine compound having one of the following Formulas II or III:



wherein R<sub>4</sub> represents a C<sub>7</sub>-C<sub>28</sub> straight or branched chain saturated or unsaturated aliphatic hydrocarbon radical; R<sub>5</sub> and R<sub>6</sub> represent the same or different straight or branched chain C<sub>2</sub>-C<sub>6</sub>

alkylene radical; R<sub>7</sub> represents H or CH<sub>3</sub>; R<sub>8</sub> represents a C<sub>7</sub>-C<sub>27</sub> straight or branched chain alkylene radical; R<sub>9</sub> represents a straight or branched chain C<sub>1</sub>-C<sub>5</sub> alkylene radical; R<sub>10</sub> represents a straight or branched chain C<sub>1</sub>-C<sub>5</sub> alkylene radical; and p, independently, represents 1-4; and

(c) an amount of an organic phosphite ester effective to impart both anti-wear and friction modification to the composition, said organic phosphite ester having the formula



wherein R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub>, independently, represent the same or different aryl or alkyl-substituted aryl hydrocarbyl radical having from 6 to 30 carbon atoms.

III. By its opposition, the Respondent (Opponent) sought revocation of the patent in suit under Article 100(a) EPC on the ground that its subject matter (i) lacked novelty, on the basis of an alleged prior use, in view of documents:

- (4) invoices issued by LUBRIZOL France to BP,
- (5) copy of sales brochure of LUBRIZOL 6752D dated April 1989
- (6) schedule of total sales of LUBRIZOL 6752D,
- (7) letter signed by Mr De Potter (BP OIL) to the attention of Mr P. De Saedeleer (LUBRIZOL S.A),

dated 23 June 1995,

- (8) copy of the brochure of LUBRIZOL 6752D (limited distribution) dated October 1980,
- (9) declaration of Dr Walter G. Copan dated 15 October 1997,

and (ii) did not involve an inventive step in view *inter alia* of documents:

- (2) US-A-4 129 508,
- (3) US-A-3 254 025

IV. The Opposition Division considered, in particular, that the Opponent had not submitted convincing evidence showing that the chemical composition of the product LUBRIZOL 6752D was accessible to the public before the priority date of the patent in suit.

The Opposition Division held, furthermore, that the subject matter of Claim 1 did not involve an inventive step over document (2) as the closest state of the art in combination with document (3) on the ground that it would have been obvious to the person skilled in the art to replace the component dialkylphosphite in Example A of document (2) by its equivalent triarylphosphite disclosed in document (3) and thus arrive at the claimed invention.

V. Oral proceedings took place on 9 October 2001. The Appellant informed the Board that it would not be represented at these oral proceedings and requested that a decision be taken on the basis of its written submissions. These Oral proceedings thus took place in the absence of the Appellant (Rule 71(2) EPC).

VI. The Appellant's submissions in the written proceedings can be summarised as follows:

- The problem addressed by the patent in suit was to provide improved lubricating oils, particularly automatic transmissions fluids (ATF's) with friction properties meeting the requirements of the Mercon<sup>R</sup> specification disclosed in the newly submitted document

(12) A specification for automatic transmission fluid for service in vehicles sold by the Ford motor Company (WSP-M2C185-A), 2 February 1987,

in particular the requirement for static breakaway torque ranging from 90 to 130Nm between cycles 200 and 400.

- In that respect, the experiments submitted with the Statement of Grounds of Appeal showed the improved effect provided by the claimed invention in terms of friction properties compared with lubricating compositions using other additives.

Furthermore, it was found that the combination of a hydroxyamine of formula (II) or (III) with a triarylphosphite of formula (I) was synergistic.

- Document (2) was concerned with the use of ethoxylated amines as components in demulsifier compositions for fuels and lubricants including automatic transmissions fluids. While a demulsifier was used to overcome the undesirable interaction of the fuel or lubricant with water during storage and/or handling or reclaiming operations, a friction modifier was concerned with the performance of the fluid during operation of

the transmission. Therefore, document (2) did not address the technical problem underlying the patent in suit. In particular, the lubricating composition disclosed in Example A of this document comprised a conventional friction modifier based on polyoxyethylene tallow amine (Ethomeen T/12) and a dialkyl phosphite was employed with no indication anywhere as to why this material was used.

- The person skilled in the art would not have had any incentive to combine the teaching derivable from Example A of document (2) with document (3) given that the latter:
  - (i) was not concerned with automatic transmission fluids,
  - (ii) was not concerned with friction modification,
  - (iii) indicated that phosphites including triaryl phosphites might not by themselves impart extreme pressure or oxidation inhibiting properties.

VII. The Respondent's submissions both in the written proceedings and at the oral proceedings can be summarised as follows:

- The patent in suit lacked novelty in view of the prior sale of Lubrizol 6752D as evidenced by documents (4) to (9) submitted before the Opposition Division and in addition documents
  - (10) conditions générales de vente/ general terms of sale and transcribed version of these terms,
  - (11) report of an analysis carried out on an ATF formulation.

- The patent in suit did not involve an inventive step over document (2) in combination with document (3). The technical problem to be solved could not be based on the Mercon<sup>R</sup> specifications since there were no reference to this test in the patent in suit. Furthermore, the automatic transmission fluids of Example A of document (2) contained as friction modifier Ethomeen T/12 which was stated to be a preferred compound according to the patent in suit and a dialkyl phosphite which was known to be equivalent to triaryl phosphite as shown by document (3). Regarding document (3), he disputed that this document was not concerned with automatic transmission fluids and, in sharp contrast with the Appellant's view, pointed out that dialkyl and triaryl phosphites alone were disclosed as extreme pressure and corrosion-inhibiting agents.

VIII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained as granted.

The Respondent requested that the appeal be dismissed.

IX. At the end of the oral proceedings the decision of the Board was announced orally.

#### **Reasons for the Decision**

1. The appeal is admissible.
2. *Novelty - Article 54(1) and (2) EPC*



- 2.1 The Respondent argued that LUBRIZOL 6752D was sold to BP Belgium before the priority date of the patent, anticipating, therefore, the claimed subject matter.
- 2.2 Concerning the issue whether an invention has been made available to the public by prior use, the following facts must be established:
- (a) the date on which the prior use occurred,
  - (b) exactly what was in prior use and
  - (c) the circumstances surrounding the prior use
- (cf. T 472/92, OJ EPO 1998, 161, point 3.2 of the reasons and T 328/87, OJ EPO 1992, 701, point 3.3 of the reasons).
- 2.3 Documents (4), (7) and (10) show that a sale of LUBRIZOL 6752D occurred before the priority date of the patent and that this sale was not limited by any obligation to maintain secrecy. Document (6) is redundant in that respect since a single sale is sufficient to render the article sold available to the public within the meaning of Article 54(2) EPC. The sole remaining question to be decided here is whether it is established, on the basis of the evidence submitted by the Respondent, that the product LUBRIZOL 6752D sold before the priority date of the patent in suit is such that it anticipates the subject matter of the said patent (cf. point 2.2 (b) above).
- 2.4 Documents (5) and (8) cannot be of any help in that respect since they do not disclose the composition of LUBRIZOL 6752D. Document (9) is an affidavit signed by Dr. Copan stating that the person skilled in the art would have been able to identify the major components of LUBRIZOL 6752D using the standard analytical

procedures available prior to 24 June 1988. This document does not contain information about the composition of LUBRIZOL 6752D either. Document (11) is an undated report whose author is unknown, relating to the analysis of a "sample" of LUBRIZOL 6752D blended at 9% into a base oil. However, the Appellant did not provide evidence on a critical point, namely that the sample which was analysed was of the type of those which were sold to BP Belgium before the priority date of the patent in suit. Therefore, the Board considers that the Respondent's submission in this respect is incomplete and thus not substantiated. It follows that prior use of a lubricating composition as claimed is not acknowledged by the Board.

2.5 Furthermore, the Board has reached the conclusion that the subject-matter of the claims is also novel over the other cited prior art. As this point was not disputed, it is not necessary to give detailed reasons for this finding.

3. *Inventive step - Article 56 EPC*

3.1 The patent in suit relates in its Claim 1 (cf. point II above) to a lubricating oil composition adaptable for use as a power transmitting fluid comprising (a) a lubricating oil, (b) a friction modifying agent of formula (II) or (III) and (c) an organic phosphite ester of formula (I). The objectives to be achieved, as indicated in the patent in suit, consist in providing a lubricating oil having enhanced anti-wear, friction modification, and oxidation inhibition properties (cf. page 21, lines 17 to 19 of the patent in suit). In relation to these objectives and to relevant technical features already present in the prior art, a selection

among the documents cited in the proceedings must be made as to which is to be considered as the "closest state of the art".

3.2 Document (2) discloses additives for lubricants, such as automatic transmission fluids (cf. col. 10, lines 53 to 65), functioning as demulsifier additives, namely preventing the contamination of lubricants by water, especially during storage and/or handling. Those additives comprise a mixture of (A) one or more reaction products of a hydrocarbon-substituted succinic acid or anhydride with one or more polyalkylene glycols or monoethers thereof, (B) one or more organic basic metal salts, and (C) one or more alkoxyated amines. Example A discloses a lubricating composition suitable for use as an automatic transmission fluid (ATF) comprising, in particular, a mineral oil, a conventional friction modifier based on polyoxyethylene tallow amine (Ethomeen T/12), falling within the formula II of the patent in suit, 0.1% of a dialkylphosphite and 0.2% of a demulsifier. The Appellant argued that this document was not concerned with the problem addressed by the patent in suit. It is true that what might be seen as the inventive concept of this document is directed to the provision of a new demulsifier additive. However, when the teaching of the citation is to be established for the purpose of determining the closest state of the art under the "problem-solution" approach applied by the Boards of Appeal in assessing inventive step according to Article 56 EPC, one cannot ignore the concrete embodiment as also disclosed therein and merely focus on the inventive aspect which that prior art document concentrates on, namely demulsifier additives. The claims put forward do not exclude the presence of such additives. It follows that the material teaching

derivable by a person skilled in the art from document (2) is the provision of a lubricating composition, in particular, the lubricating composition suitable for use as an automatic transmission fluid disclosed in Example A.

- 3.3 Document (3) discloses a lubricating composition to be used in power transmitting units comprising as detergent an oil-soluble nitrogen- and boron-containing product and other additives, in particular, extreme pressure agents or corrosion inhibitors such as the dialkyl phosphites or triarylphosphites.
- 3.4 Among those two documents, the Board observes that Example A of document (2) comprises the same friction-modifier and is the state of the art which requires the minimum of modifications compared to the claimed invention. For these reasons, document (2), in particular Example A, represents the closest prior art to the patent in suit.
- 3.5 With the Statement of Grounds of Appeal, the Appellant filed five tests (experiment 1 being according to the patent and experiments 2 to 5 being comparative) aimed at showing the improved friction properties of the claimed lubricating compositions. Those experiments were based on the Mercon<sup>R</sup> specification (12) introduced in 1987 which requires *inter alia* that the static breakaway torque be between 90 and 130 Nm from 200 to 4000 cycles in order that a lubricating composition be suitable as ATF. The Respondent disputed that the technical problem could be reformulated with respect to the Mercon<sup>R</sup> specification given that there was no reference to this specification in the patent in suit.

Article 123(2) and Rule 27(1) (c) EPC do not exclude a redefinition of the technical problem provided that the person skilled in the art could recognise the same as

implied or related to the problem initially suggested (cf. T 440/91 of 22 March 1994, point 4.1 of the reasons). As the patent in suit indicates that one of the objects of the invention is to provide ATF additives capable of meeting new and more stringent property requirements (cf. page 3, lines 13 to 15), the Board accepts that the technical problem being reformulated in view of document (2) with respect to the Merkon<sup>R</sup> specification even though this specification was not mentioned in the patent in suit.

According to the constant jurisprudence of the Boards of Appeal, the nature of the comparison must be such that it shows the improved effect over the closest state of the art. In that context, only experiments 1 and 2 can be considered for that purpose, given experiments 3 to 5 do not comprise polyoxyethylene tallow amine (Ethomeen T/12) as friction modifier as is required in Example A of document (2) (cf. point 3.2 above). A comparison between the experiments 1 and 2 shows that a lubricating composition comprising a lubricating oil, a dispersant, an antioxidant, a viscosity modifier, a di-ethoxylated Tallow amine of formula II (cf. point II above) and triphenyl phosphite meets the requirements of the Mercon<sup>R</sup> specification (experiment 1), while a similar lubricating composition wherein triphenyl phosphite is replaced by dioleyl phosphite does not (experiment 2).

The Board is, however, not convinced that this comparison is such that it demonstrates that the technical problem was solved within the whole area defined in Claim 1 for the following reasons:

- Experiment 1 was made with a lubricating composition comprising an hydroxyhydrocarbyl amine compound of formula II (cf. point II above). There is no evidence that a lubricating

- composition comprising an hydroxyhydrocarbyl amine compound of formula III (cf. point II above) meets the Mercon<sup>R</sup> specification.
- Experiment 1 was made with a lubricating composition comprising a triphenylphosphite (cf. point II above). No evidence was submitted that a lubricating composition comprising an aryl phosphite, the group aryl being substituted by alkyl groups (cf. point II above), meets the Mercon<sup>R</sup> specification.
  - The Appellant has criticised experiments done by the Respondent as being formulations which do not contain other additives typically present in ATFs, such as dispersants, V.I. improvers, antioxidants (page 7 of Statement of Grounds of Appeal). The Respondent has replied that if these are essential, then they should appear in the claims (letter of 27 May 1997, page 5). Certainly, for the purpose of recognizing an improvement by what is claimed over the closest prior art, the Board must be satisfied that the improvement is due to the claimed features. Experiment 1 was made with a lubricating composition comprising 4% dispersant (borated PIBSA-PAM) and 3.5% viscosity modifier (Polymethacrylate) which are not components required by Claim 1. As on the Appellant's own arguments it cannot be excluded that these additives have a critical effect, the Board lacks any proper basis for concluding that for everything covered by Claim 1, an improvement has been shown.

It has for long been a generally accepted legal principle that the extent of the patent monopoly should correspond to and be justified by the technical contribution to the art (cf. T 939/92 OJ EPO 1996, page 309, in particular point 2.4.2 of the reasons). In other terms, where an improvement is alleged to define the technical problem to be solved, this valuable effect must manifest itself over the whole area of the claimed subject matter. In the present case, the fact that a particular composition shows an improved effect, in the Board's judgment, does not demonstrate that all the claimed lubricating compositions do so. The Board, therefore, is not convinced that the claimed invention over its whole range exhibits improved friction properties over document (2).

Nor can the Board acknowledge any synergistic effect between the hydroxyamines of formula (II) or (III) and the triarylphosphites of formula (I). A synergistic effect between two compounds implies that the conjugated effect of those compounds is unexpectedly higher than the simple addition of the effects of the said compounds used alone. There is no evidence to support the presence of such effect.

3.6 In view of the closest state of the art, ie document (2), and in the absence of any evidence showing an improvement thereof, the technical problem underlying the patent in suit cannot be seen in providing lubricating compositions having enhanced friction properties, but only in the provision of a further lubricating composition for use as a power transmitting fluid such as automatic transmission fluids (ATF's).



- 3.7 The specification of the patent in suit demonstrates in Tables 4 and 5 on pages 24 to 26 that the problem is indeed solved within the entire scope of the claims. This finding was not contested by the Respondent.
- 3.8 It remains to be decided whether the claimed solution is obvious in view of the prior art. In particular, the question to decide is whether or not it would have been obvious for the person skilled in the art to devise a lubricating composition suitable for use as an automatic transmission fluid comprising a triphenylphosphite optionally alkyl-substituted.
- 3.9 It is not in dispute that document (2) in Example A discloses a lubricating composition suitable for use as an automatic transmission fluid comprising a lubricating oil (mineral oil), a friction modifier based on polyoxyethylene tallow amine (Ethomeen T/12), namely the same as one of the preferred amine of formula II (cf. patent in suit, page 8, line 30) and dialkylphosphite in an amount of 0.1% by weight.

The Board concurs with the Appellant that there is no indication anywhere in the document (2) as to why this material is used. However, it is within the skill of the person skilled in the art to determine the purpose for which dialkylphosphite is used. In that context, contrary to the Appellant's view, document (3) would have been considered by the person skilled in the art since it relates to the same technical field, namely lubricants intended for use in power transmitting units (cf. col. 1, lines 16 to 19). The Board observes, incidentally, that the patent in suit is not limited to automatic transmitting fluids but relates generally to power transmitting fluids (cf. page 2, lines 3 to 5 of the patent in suit).



The person skilled in the art understands from document (3) that dialkyl phosphites are well-known as extreme pressure agents and corrosion-inhibiting agents used in lubricating oils in amounts within the range from about 0.1% to about 10% (cf. col. 23, lines 36 to 38 and 44 to 45; col. 27, lines 47 to 50). This document suggests, therefore, that the dialkyl phosphite used in the lubricating composition of Example A of document (2) in an amount of 0.1% is used as extreme pressure agent and corrosion-inhibiting agent. No other purpose for its presence in Example A has been suggested. Furthermore, the person skilled in the art can infer from this document (3) that triaryl phosphites are used for the same purpose as dialkylphosphites (cf. col. 23, lines 44 to 45 and col. 26, lines 19 to 26) and that one can be substituted for another. It would thus have been obvious for the person skilled in the art seeking a further lubricating composition to the lubricating composition of Example A of document (2), to take into consideration the option of replacing the dialkylphosphite as extreme pressure agent and corrosion-inhibiting agent by a trialkylphosphite and as a result devising a composition as claimed according to the patent in suit.

In that context, the Board shares the opinion of the Respondent that in document (3), in contrast with the Appellant's view, dialkyl and triarylphosphites are described for themselves as extreme pressure agents and corrosion-inhibiting agents.

- 3.10 To summarize, Claim 1 does not involve an inventive step over document (2) in combination with document (3) contrary to the requirements of Article 56 EPC. Claims 2 to 25 fall with Claim 1, since the Board can only decide on the Appellant's request as a whole.

Order

For these reasons it is decided that:

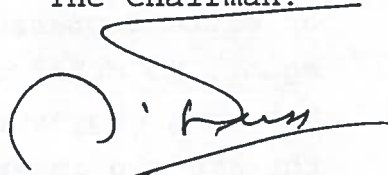
The appeal is dismissed.

The Registrar:



N. Maslin

The Chairman:



A. Nuss