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**D E C I S I O N**  
**of 21 July 2004**

**Case Number:** T 1025/02 - 3.3.1

**Application Number:** 94109169.6

**Publication Number:** 0630960

**IPC:** C10M 161/00

**Language of the proceedings:** EN

**Title of invention:**  
Lubricating oil composition

**Patentee:**  
IDEMITSU KOSAN COMPANY LIMITED

**Opponent:**  
Infenium International Ltd.

**Headword:**  
Lubricating Oil/IDEMITSU

**Relevant legal provisions:**  
EPC Art. 56

**Keyword:**  
"Inventive stp (yes) - improvement - credible within whole  
scope claimed - non-obvious"

**Decisions cited:**  
T 0002/83

**Catchword:**  
-



Case Number: T 1025/02 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 21 July 2004

**Appellant:** Infenium International Ltd.  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 29 July 2002  
rejecting the opposition filed against European  
patent No. 0630960 pursuant to Article 102(2)  
EPC.

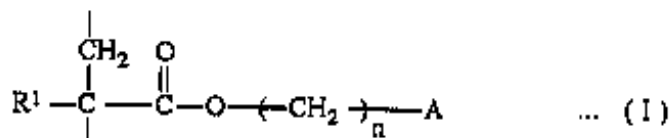
**Composition of the Board:**

**Chairman:** J. M. Jonk  
**Members:** R. Freimuth  
R. T. Menapace

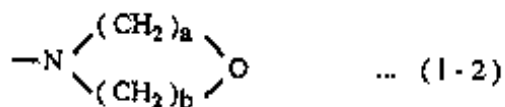
### Summary of Facts and Submissions

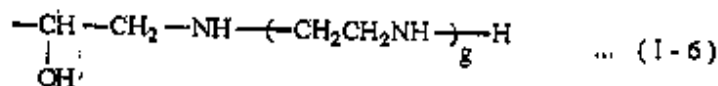
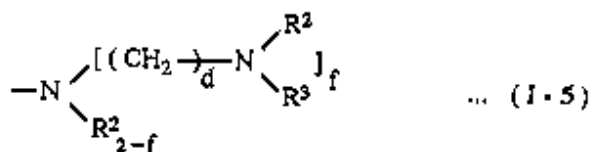
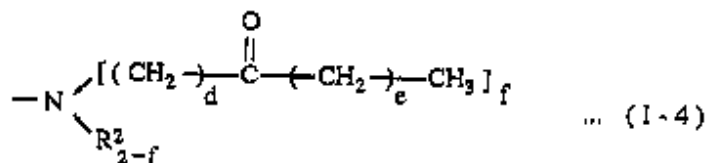
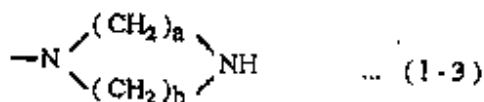
I. The Appellant (Opponent) lodged an appeal on 18 September 2002 against the decision of the Opposition Division posted on 29 July 2002 rejecting the opposition against European patent No. 630 960 which was granted on the basis of fifteen claims, the only independent claim 1 reading as follows:

"1. A lubricating oil composition which comprises (a) a base oil comprising at least one selected from the group consisting of mineral oils and synthetic oils, (b) a copolymer having a repeating unit (I) represented by the formula (I)

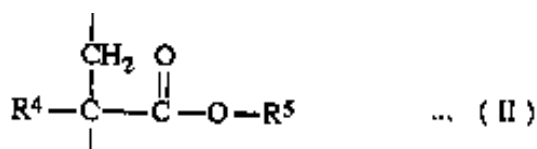


wherein R<sup>1</sup> is hydrogen or an alkyl group having 1 to 6 carbon atoms; A is a group of the following formula (I-1), (I-2), (I-3), (I-4), (I-5) or (I-6); n is an integer of 1 to 8;





wherein each of R<sup>2</sup> and R<sup>3</sup> is independently hydrogen or an alkyl group having 1 to 20 carbon atoms; each of a and b is independently an integer of 1 to 3; each of d and e is independently an integer of 1 to 6; f is an integer of 1 or 2; g is an integer of 0 to 6; and R<sup>1</sup> and A may be the same or different every repeating unit, and a repeating unit (II) represented by the formula (II)



wherein R<sup>4</sup> is hydrogen or an alkyl group having 1 to 6 carbon atoms; R<sup>5</sup> is an alkyl group having 1 to 24 carbon atoms, and R<sup>4</sup> and R<sup>5</sup> may be the same or different every repeating unit, and wherein, the content of said

repeating units (I) being in the range of 0.5 to 20 parts by weight with respect to 100 parts by weight of the repeating unit (II), (c) an amine-based antioxidant, and (d) a thiadiazole compound."

II. Notice of Opposition had been filed by the Appellant requesting revocation of the patent as granted in its entirety on the grounds of lack of inventive step. *Inter alia* the following documents were submitted in opposition proceedings:

(1) US-A-2 892 784 and

(8) US-A-3 909 420.

III. The Opposition Division held that the claimed subject-matter was novel and involved an inventive step. The patent in suit aimed at improving the frictional characteristics and the oxidation stability of lubricating oils. Document (1) was considered as the closest prior art since it was concerned with lubricating oil compositions having good oxidation stability. The compositions of that document comprised the components (a), (b) and (c). Document (8) also described a lubricating oil composition having improved resistance to oxidative attacks and comprising the components (a), (c) and (d). Thus, the skilled person seeking to improve the oxidation stability of compositions known from document (1) could indeed have been inclined to add component (d) known from document (8), but he could not predict that the combination of the additives (b), (c) and (d) gave rise to a synergistic effect. The test results of examples according to the invention and of comparative examples

comprised either in the patent in suit or submitted in examination proceedings showed that the oxidation stability increased dramatically once the combination of all three components (b), (c) and (d) was added to component (a). However, the skilled person would not combine these three additives in the expectation of such an improvement. Therefore the claimed subject-matter was not obvious.

IV. The Appellant started in the assessment of inventive step from document (1) which described a lubricating oil composition having oxidation stability and comprising the components (a), (b) and (c) as defined in claim 1 of the contested patent. That document was also concerned with the improvement of the frictional characteristics, since oxidation of the oil resulted in solid products which deposited out; therefore, oxidation stability and maintenance of frictional characteristics were different labels for the same technical effect. The problem underlying the invention was to be seen in the improvement of oxidation stability and of frictional characteristics over a long period of time. The test reports provided by the Respondent showed some improvement of the technical effects aimed at, however, not for the whole breadth of claim 1. The reports tested only one single lubricating oil composition according to the invention wherein component (b) comprised the group (I-1) and component (d) was a particular thiadiazole compound. Therefore it was doubtful whether the same technical improvements were also achieved by lubricating oil compositions wherein component (b) comprised another group (I-2) to (I-6) and component (d) is different. With respect to the matter of obviousness, document (8) addressed the

problem of oxidation stability and described lubricating oil compositions comprising the components (a), (c) and (d) as defined in claim 1 of the contested patent. Thus, from the combination of documents (1) and (8), the skilled person had expected an increase in oxidation stability, and consequently an improvement of frictional characteristics when adding component (d) from document (8) to the lubricating oil composition of (a), (b) and (c) known from document (1). Therefore the lubricating composition proposed in claim 1 was obvious and it was not rendered inventive by any allegedly unexpected extent of this obvious improvement. The improvement of the frictional characteristics over a long period of time was anyhow a mere bonus effect which could not support inventive step.

- V. The Respondent (Proprietor of the patent) submitted that the present invention addressed lubricating oil compositions showing oxidation stability and maintenance of frictional characteristics over a long period of time. Considering document (1) as closest prior art which disclosed a lubricant oil composition comprising components (a), (b) and (c), he emphasised that this document aimed at oxidation stability, but did not address the maintenance of frictional characteristics over time. The same finding applied to document (8) disclosing lubricant oil compositions comprising components (a), (c) and (d). However, the problem underlying the invention was to improve the frictional properties over a long period of time. Oxidation stability and frictional characteristics of lubricating oil were substantially different technical effects and not different labels for the same technical property. This fact was illustrated by examples 1 and 4

of the patent in suit wherein the lubricating oil compositions showed approximately the same frictional characteristics, but great difference in oxidation stability. The Respondent submitted a test report on 29 June 2004 designed to show the maintenance of frictional characteristics over time of two lubricating oil compositions, one reflecting document (1) and the other document (8). He argued that the frictional characteristic of the lubricating oil composition according to example 1 of the patent in suit was superior to either of the comparative compositions. As neither document addressed the problem of how to maintain the frictional characteristics over a long period of time that improvement was unexpected rendering the claimed invention non-obvious. This improvement of frictional characteristics shown in the test reports for a specific composition claimed was credible for the whole breadth of claim 1 since all the claimed variants of component (b) comprised the same particular structural element.

VI. The Appellant requested that the decision under appeal be set aside and the patent be revoked.

The Respondent requested that the appeal be dismissed and the patent be maintained as granted or on the basis of the auxiliary request submitted on 29 June 2004.

VII. At the end of the oral proceedings held on 21 July 2004 the decision of the Board was announced.



## Reasons for the Decision

1. The appeal is admissible.

### *Main request*

2. *Inventive step*

The sole issue arising from this appeal consists in deciding whether or not the subject-matter of the claims of the patent in suit as granted involves an inventive step.

- 2.1 The patent in suit is directed to a lubricating oil composition having excellent frictional characteristics and oxidation stability.

Similar lubricating oil compositions already belong to the state of the art: document (1) discloses in claims 1 and 2 a lubricating oil composition comprising a mineral oil, which is component (a) according to the patent in suit, a diarylamine oxidation inhibitor, which is component (c) according to the patent in suit, and a copolymer of an alkylmethacrylate with 15.4 parts by weight of an alkylmethacrylate substituted with a dialkylamine, which copolymer is component (b) according to the patent in suit. This lubricating oil composition shows oxidation stability (column 1, line 61).

For these reasons, the Board considers, in agreement with the Appellant, the Respondent and the Opposition Division, that the disclosure of document (1) specified above represents the closest state of the art, and,

hence, the starting point in the assessment of inventive step.

- 2.2 In view of this state of the art the problem underlying the patent in suit, as indicated in the patent specification on page 2, line 39 and page 5, line 58 and as submitted by the Respondent during the appeal proceedings, consists in providing a lubricating oil composition having improved inhibition of the change with the lapse of time in the frictional characteristics.
- 2.3 As the solution to this problem the patent in suit proposes the lubricating oil composition according to claim 1 comprising a thiadiazole compound (d) in addition to the components (a), (b) and (c).
- 2.4 To demonstrate that the claimed lubricating oil compositions achieve the purported improvement in the inhibition of the change of the frictional characteristics over time, the Respondent relied on the test report comprised in the specification of the patent in suit and on the report submitted on 29 June 2004. Thus, example 1 of the patent in suit refers to a lubricating oil composition according to the invention comprising the components (a), (b), (c) and (d); it indicates that the frictional characteristic of 1.02 of the fresh composition changes merely to 1.04 after the degradation thereof. Comparative example 1-1 of the test report dated 29 June 2004, which is identical to the comparative example 1-1 of the test report submitted in examination proceedings on 14 August 1998, refers to a lubricating oil composition comprising the identical components (a), (b) and (c), but in the

absence of component (d); hence, it is a fair comparison to example 1 of the patent in suit and truly reflects the impact of the additional component (d) distinguishing the claimed compositions from those of the closest prior art document (1). This comparative example 1-1 specifies that the frictional characteristic of the fresh comparative lubricating oil composition of 1.02 deteriorates to 1.18 after the degradation thereof. This frictional characteristic of the comparative example is inferior to that of the example according to the invention showing a superior frictional characteristic after degradation of 1.04.

- 2.4.1 In the lubricating compositions of example 1 and comparative example 1-1, component (b) was one specific copolymer comprising a comonomer according to formula (I-1) of the patent in suit (see point I above) which is an amino substituted alkylmethacrylate. All the other alternative comonomers listed in claim 1, i.e. formulae (I-2) to (I-6), have a chemical structure very similar to that of the comonomer (I-1) since they all belong to the same class of compounds, namely to amino substituted alkylmethacrylates. Thus, the Respondents argument is plausible that lubricating compositions according to the invention which comprise a copolymer (b) of any of the comonomers (I-2) to (I-6), show the same superiority in frictional characteristics as the lubricating composition tested comprising a copolymer of comonomer (I-1).

Therefore the alleged improvement in the inhibition of the change of the frictional characteristics over time has been successfully demonstrated and is credible for the whole scope of claim 1.

2.4.2 At the oral proceedings before the Board, the Appellant, for the first time, expressed doubts whether the improvement in frictional characteristics was achieved within the whole breadth of claim 1 since the Respondent's test report tested one lubricating oil composition according to the invention wherein component (b) comprised exclusively comonomers of formula (I-1) and component (d) was one specific thiadiazole compound.

However, the Appellant, even on the Board's request, was unable to substantiate his objection. Thus, when raising his doubts, he has merely speculated without providing any substantiating facts or corroborating evidence. The burden of proving the facts it alleges lies with the party invoking these facts. If a party, whose arguments rest on these alleged facts, is unable to discharge its onus of proof, this goes to the detriment of that party. Thus, in the absence of any pertinent evidence presented by the Appellant the Board cannot accept his objection.

2.4.3 At the oral proceedings before the Board, the Appellant alleged, also for the first time, that the Respondent had admitted in parallel US-proceedings concerning the same invention that not all thiadiazoles (d) claimed led to an improvement of properties. The Respondent explicitly disputed this contention. However, this again constitutes a mere allegation of the Appellant which is unsupported by any evidence what the Board accepts neither.

2.4.4 For these reasons, the Board is satisfied that the problem underlying the patent in suit as defined in point 2.3 above has been successfully solved within the whole area claimed.

2.5 Finally, it remains to be decided whether or not the proposed solution to the problem underlying the patent in suit is obvious in view of the cited state of the art.

2.5.1 The closest prior art document (1) (see point 2.1 above) to start from teaches a lubricating oil composition comprising the components (a), (b) and (c) and optionally other additives. However, that document does not give any incentive to incorporate a thiadiazole as component (d) and to increase thereby the frictional characteristics. Thus, document (1), on its own, does not render obvious the solution proposed by the claimed invention

2.5.2 Document (8) is directed to a lubricating oil composition comprising a mineral oil, which is component (a) according to the patent in suit, a naphthylamine, which is component (c) according to the patent in suit, and a thiadiazole, which is component (d) according to the patent in suit. Though this lubricating oil composition shows excellent oxidation stability (column 1, lines 11 and 12), that document does not address the technical problem underlying the patent in suit of improving the inhibition of the change with the lapse of time in the frictional characteristics (see point 2.2 above). For this simple reason document (8) cannot give any hint on how to solve that technical problem since a skilled person

would not take the teaching of that document into consideration when looking for a solution to the problem underlying the invention, i.e. when seeking to improve the inhibition of the change of the frictional characteristics over time.

Thus, the Appellant's objection of obviousness based on document (8) leaves aside the established jurisprudence of the Boards of Appeal according to which, when assessing inventive step, the decisive question is not whether the skilled person **could** have arrived at the invention - in the present case by incorporating component (d) from document (8) in the known lubricating oil composition of (a), (b) and (c) - but whether he **would** have done so in the present case with the reasonable expectation of improving the frictional characteristics over a long period of time (see for example decision T 2/83, OJ EPO 1984, 265, point 7 of the reasons). Thus, as is clear from the preceding considerations, the latter condition has not been met since the decisive fact remains that document (8) does not address that objective. Hence, the skilled person would ignore document (8) when aiming at a solution to the problem underlying the patent in suit.

Therefore, the Appellant's obviousness objection based on that document is devoid of merit.

- 2.5.3 The Appellant further objected to inventive step on the ground that oxidation stability and frictional characteristics were different labels for the same technical property with the consequence that document (8) dealing with oxidation stability rendered the subject-matter claimed obvious, and on the ground that

the improvement in inhibiting the change of frictional characteristics over time was a mere bonus effect which arose routinely in addition to an obvious increase in oxidation stability.

However, the improvement in frictional characteristics is not a mere bonus effect but relates to the sole problem underlying the patent in suit (see point 2.2 above) since the objective problem underlying the invention is to be solely determined on the basis of the technical effects successfully achieved which, in the present case, is alone the improvement in inhibiting the change of frictional characteristics over time. The Appellant's reference to the matter of oxidation stability as a problem underlying the patent in suit appears to have its origin in the specification of that patent which addresses also oxidation stability as a property of the claimed lubricating oil compositions. Apart from the fact that the patent in suit specifies the improvement in frictional characteristics as being "the primary object of the present invention" (page 5, line 58), the Respondent has not taken up before the Board the improvement of oxidation stability as the problem underlying the invention and he cannot be compelled to do so.

Furthermore, there are no facts or evidence in support of the Appellant's allegation that oxidation stability and frictional characteristics were different labels for the same technical property. The examples 1 and 4 in the specification of the patent in suit are rather proof to the contrary. While the change of the frictional characteristics over time of the lubricating oil compositions is approximately the same in both

examples, their oxidation stability, expressed as increase in total acid value, is substantially different. Confronted with this finding at the oral proceedings before the Board the Appellant conceded that frictional characteristics of a lubricating oil composition are influenced only in part by the effect of oxidation stability.

For these reasons, the Appellant's argument does not convince the Board.

2.5.4 The Appellant argued also that the extent of an effect could not support inventive step when this effect was obvious *per se*. However, in the present case the improvement in frictional characteristics, not the extent of thereof, forms the basis of the inventive ingenuity. Hence, the Appellant's argument cannot apply in the present case.

2.5.5 To summarize, in the Board's judgment, none of the documents addressed above renders the claimed invention obvious, either taken alone or in combination.

The Appellant not relying on further prior art in order to support his objection of obviousness, the Board is satisfied that none of the other documents in the proceedings renders the proposed solution obvious.

2.6 For these reasons the Board concludes that the subject-matter of claim 1 and, by the same token, that of dependent claims 2 to 15 involves an inventive step within the meaning of Articles 52(1) and 56 EPC.



*Auxiliary request*

The preceding main request being allowable for the reasons set out above, there is no need for the Board to decide on the auxiliary request.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

N. Maslin

J. Jonk