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**Datasheet for the decision
of 20 June 2013**

Case Number: T 1245/11 - 3.3.01

Application Number: 04025781.8

Publication Number: 1529828

IPC: C10M 105/34, C10M 105/38,
C07C 69/22, C10M 177/00

Language of the proceedings: EN

Title of invention:
Lubricant base oil of palm fatty acid origin

Applicant:
Malaysian Palm Oil Board

Headword:
Lubricant base oil/MALAYSIAN PALM OIL BOARD

Relevant legal provisions:
EPC Art. 123(2), 84, 56, 54
RPBA Art. 13

Keyword:
"Main request: Clarity (yes) - after amendment"
"Novelty (yes)"
"Inventive step (no) - obvious selection"
"Auxiliary request: Admissibility (no)"

Decisions cited:
T 1033/10, T 0181/82

Catchword:
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Case Number: T 1245/11 - 3.3.01

D E C I S I O N
of the Technical Board of Appeal 3.3.01
of 20 June 2013

Appellant: Malaysian Palm Oil Board
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Bandar Baru Bangi
43000 Kajang,
Selangor Darul Ehsan (MY)

Representative: Thurston, Joanna
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 18 January 2011
refusing European patent application
No. 04025781.8 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairwoman: L. Seymour
Members: J.-B. Ousset
L. Bühler

Summary of Facts and Submissions

- I. An appeal was filed against the decision of the examining division to refuse the European patent application No. 04 025 781.8.
- II. The following document is relevant for the present decision:
- (7) EP-A-0 712 834
- III. The examining division found that the then pending main and auxiliary requests lacked an inventive step starting from document (7) as closest prior art.
- IV. In the communication annexed to the summons to oral proceedings, a number of issues to be discussed were identified, including added matter, clarity, novelty and inventive step.
- V. During oral proceedings, the appellant submitted a main request and an auxiliary request to replace those previously on file.

Claim 1 of the main request reads as follows (emphasis added by the board):

"1. A process for producing a lubricant base oil comprising the steps of

a) esterifying a palm fatty acid, wherein **palm fatty acid refers to saturated and non-saturated fatty acids derived from palm oil and/or palm kernel oil having 8-18 carbon atoms** with a polyhydric alcohol selected from

neopentyl glycol, pentaerythritol, trimethylol propane, diethyl propanediol, ethylene glycol, their isomers or a mixture thereof in the presence of an acid catalyst at elevated temperature,

b) continuously removing water formed as a by-product during the reaction in (a) by distillation,

c) removing the acid catalyst and impurities from the resultant product of step (a) and (b)

characterized by adding an azeotroping agent to facilitate continuous removal of water in step (b) and in that the elevated temperature is in the range of 80°C to 210°C and the molar excess of fatty acid to polyhydric alcohol is not less than 2."

Claim 1 of the auxiliary request reads as follows:

"1. A process for producing a lubricant base oil comprising fatty polyol esters selected from neopentylglycol dicaprylate, neopentylglycol dicaprate, neopentylglycol dilaurate, neopentylglycol dioleate, pentaerythritol tetracaprylate, pentaerythritol tetracaprate, trimethylolpropane tricaprylate, trimethylolpropane tricaprate and ethyleneglycol dioleate, the process comprising the steps of

a) esterifying palm fatty acid, wherein palm fatty acid refers to saturated and non-saturated fatty acids derived from palm oil and/or palm kernel oil having 8-18 carbon atoms with a polyhydric alcohol selected from neopentyl glycol, pentaerythritol, trimethylol propane, ethylene glycol, their isomers or a mixture thereof in the presence of an acid catalyst at elevated temperature,

- b) continuously removing water formed as a by-product during the reaction in (a) by distillation,
- c) removing the acid catalyst and impurities from the resultant product of step (a) and (b)

characterized by adding an azeotroping agent to facilitate continuous removal of water in step (b), in that the elevated temperature is in the range of 80°C to 210°C, the molar excess of fatty acid to polyhydric alcohol is not less than 2, and in that the viscosity of the fatty polyol ester lubricant base oil at 40°C is between 7 cSt and 27 cSt, and at 100°C between 2 cSt and 7 cSt."

The appellant argued as follows:

- The term "palm fatty acid" was clearly defined in the claims as referring to a mixture of fatty acids derived from palm oil and/or palm kernel oil.
- The claimed matter was novel vis-à-vis document (7).
- Closest prior art document (7) did not relate to the same problem as the one set out in the present application.
- The high content in oleic acid was an essential feature of document (7), which was not the case in the present application.
- The claimed process showed higher cost effectiveness and the oil obtained was more stable compared to the process of document (7).

- The scope of the auxiliary request had been restricted to specific esters.

- VI. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request, or alternatively, on the basis of the auxiliary request, both filed during oral proceedings.

- VII. At the end of the oral proceedings, the decision of the board was announced.

Reasons for the Decision

- 1. The appeal is admissible.

- 2. Main request - Admissibility
 - 2.1 The main request filed at the oral proceedings before the board is considered to be admissible, since it was filed as a clear and direct response to the formal objections raised by the board in its annex to the summons to oral proceedings. Moreover, the amendments did not raise any new issues (Article 13(1), (3) of the Rules of Procedure of the Boards of Appeal (RPBA)).

- 2.2 Article 123(2) EPC

The appellant has introduced into the wording of claim 1, the specific passage on page 4, lines 2 to 5 of the description as originally filed. Moreover, the

temperature is in the range of 80°C to 210°C as recited in claim 2 as originally filed.

These amendments do not introduce any new subject-matter not disclosed in the description as originally filed.

2.3 Article 84 EPC

The board considers that the definition for "palm fatty acid" introduced into claim 1 makes it clear that the material used in the claimed process is a mixture of fatty acids derived from palm oil and/or palm kernel oil.

2.4 Novelty (Articles 52(1) and 54 EPC)

- 2.4.1 Claim 1 (cf. above point V) relates to a process for producing a lubricant base oil in which palm fatty acid, that is, a mixture of fatty acids derived from palm oil and/or palm kernel oil, is esterified at a temperature of 80 to 210°C with a specific polyhydric alcohol, selected from a list which includes trimethylol propane and pentaerythritol, in the presence of an acid catalyst. The molar excess of the fatty acid component with respect to the alcohol component is at least 2 (step (a)). An azeotroping agent facilitates continuous removal of water (step (b)). Acid catalyst and impurities are removed from the product (step (c)). It is noted in this context that palm fatty acid contains oleic acid (C₁₈). This was not disputed by the appellant (see also application as originally filed, page 4, lines 2 to 5).

2.4.2 Document (7) relates to the provision of polyol esters, useful in preparing lubricants (see e.g. page 25, line 25 to page 26, line 35).

Examples 1 and 4 of document (7) disclose specific processes for the preparation thereof by esterification of carboxylic acid mixtures with trimethylol propane and pentaerythritol, respectively. Xylene is used as solvent and methane sulfonic acid as catalyst. Water is removed from the reaction mixture at temperatures within the range claimed, at which xylene forms an azeotrope with water. The molar excess of carboxylic acid with respect to alcohol is greater than 2. Additional purification steps are also disclosed.

The carboxylic acid mixtures employed in examples 1 and 4 are derived from high oleic sunflower oils (for definition of Sunyl[®] 80, see page 5, lines 38 to 41). Consequently, the process of present claim 1 differs from those disclosed in examples 1 and 4 of document (7) in the source of fatty acid employed.

2.4.3 The board thus concludes that the subject-matter of claim 1 is novel.

2.5 Inventive step (Articles 52(1) and 56 EPC)

2.5.1 The board considers, in agreement with the appellant, that document (7) represents the closest prior art.

2.5.2 The appellant defined the problem underlying the present application as lying in the provision of a process to make available a lubricant base oil being

- obtained with a better cost effectiveness and exhibiting better oxidation stability.
- 2.5.3 The solution as defined in claim 1 relates to a process characterised in the fact that the source of the fatty acid mixture employed is palm oil and/or palm kernel oil.
- 2.5.4 According to the jurisprudence of the Boards of Appeal, any improvement alleged by a party should be demonstrated in view of the closest prior art (see e.g. T 181/82, OJ EPO 1984, 401). Since the appellant did not provide any comparative data which could show that the process of claim 1 provided the alleged advantages (see above point 2.5.2), the board cannot accept that the problem as defined by the appellant has been credibly solved.
- 2.5.5 Thus, the problem must be reformulated in a less ambitious manner as lying in the provision of an alternative process to make available a lubricant base oil.
- 2.5.6 Starting from document (7) and more particularly from examples 1 and 4 (summarised above in point 2.4.2), the person skilled in the art seeking to make available an alternative process for preparing lubricant base oil would consider, amongst the different natural vegetable oils specified therein, palm oil to be a suitable fatty acid source (see page 5, line 37). The skilled person would thus arrive at the process of claim 1 without any inventive ingenuity.

2.5.7 The appellant argued that document (7) dealt with a different problem in that high concentrations of oleic acid were required therein and in that palm oil was not mentioned as a preferred source of oleic acid.

These arguments are not considered to be convincing. It is firstly noted that the composition of the palm fatty acid used is not specified in claim 1. There are therefore no limitations imposed on the distribution of concentrations of fatty acids in the mixture derived from the stated source. Moreover, as outlined above, document (7) discloses that high oleic palm oil can be used to produce mixtures containing more than 72% of oleic acid (see page 5, lines 37 to 38).

2.5.8 The board therefore concludes that the subject-matter of claim 1 is not inventive.

3. Auxiliary request - Admissibility

The appellant submitted that the scope of claim 1 had been restricted to specific esters and thus represented a limitation of the claimed scope when compared to the main request, and this limitation was supported by the disclosure of the description (see page 13, Table 2).

However, the board notes that this request constitutes a change to the appellant's case and its admissibility has to be assessed in view of Article 13 RPBA.

According to Article 13(1) RPBA, the discretion of the board shall be exercised in view of *inter alia* the current state of the proceedings and the need for procedural economy. These criteria imply a requirement that a party present appropriate requests as early as

possible if such requests are to be admitted and considered (see e.g. T 1033/10, point 5.5 of the Reasons).

In the present case, the objection of lack of inventive step based on the disclosure of document (7) was a ground for the refusal of the present application, and this issue was addressed by the board in the communication annexed to the summons to oral proceedings. However, the auxiliary request was only filed by the appellant during oral proceedings before the board, following a comprehensive discussion on all the issues raised in said communication (cf. above point IV) and once the negative opinion of the board as to the inventive step of the main request had been announced. The appellant did not provide any reason to justify such a late filing of an attempt to overcome objections that had long been known. Therefore, the board decided not to admit this request into the proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

M. Schalow

L. Seymour