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D E C I S I O N
of 1 August 2005

Case Number: T 0221/03 - 3.3.6

Application Number: 98902735.4

Publication Number: 0958334

IPC: C10L 1/08

Language of the proceedings: EN

Title of invention:

-

Applicant:

ExxonMobil Research and Engineering Company

Opponent:

-

Headword:

Diesel additive/EXXONMOBIL

Relevant legal provisions:

EPC Art. 54, 56, 84, 111, 123(2)

Keyword:

"Compliance with Articles 84 and 123(2) EPC (yes, after amendment) "

"Novelty (yes): composition of starting feed, of blended components and of final product not specified in the prior art documents"

"Inventive step (yes) "

Decisions cited:

-

Catchword:

-



Case Number: T 0221/03 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 1 August 2005

Appellant: ExxonMobil Research and Engineering Company
1545 Route 22 East
Clinton Township
Annandale, NJ 08801 (US)

Representative: Genevieve, L. Troch
ExxonMobil Chemical Europe Inc.
Intellectual Property Law Shared Services
P.O. Box 105
B-Machelen (BE)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 10 October 2002
refusing European application No. 98902735.4
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: P. Krasa
Members: L. Li Voti
U. Tronser

Summary of Facts and Submissions

- I. This appeal lies from the decision of the Examining Division to refuse the European patent application No. 98 902 735.4, relating to a diesel additive for improving cetane, lubricity and stability.
- II. The refusal was based on the set of 12 claims filed by the Applicant under cover of the letter of 15 February 2002 together with amended pages of the description.

This set of 12 claims contained independent claims 1, 6 and 8 reading, respectively, as follows:

"1. A diesel fuel additive having

- (i) ≥ 90 wt % C_{16} - C_{20} paraffins, of which $\geq 50\%$ are isoparaffins of which at least a portion are mono-methyl branched;
- (ii) cetane number of ≥ 87 ;
- (iii) ≥ 2500 ppm as oxygen of C_{14} - C_{16} linear, primary alcohols;
- (iv) a boiling range in the range of from 540 to 680°F (282.2 to 360.0°C)."

"6. A process for preparing a diesel fuel additive comprising the steps of

- (a) reacting hydrogen and carbon monoxide at reaction conditions in the presence of a non-shifting Fischer-Tropsch catalyst,
- (b) recovering at least a portion of the liquid product of the reaction and separating at least a portion of the liquid product into a heavier fraction and a lighter fraction,

(c) hydroisomerizing at hydroisomerization conditions at least a portion of the heavier fraction and recovering a 700°F-(371.1°C-) product,

(d) combining the lighter fraction of step (b) with the 700°F-(371.1°C-) product of step (c) and recovering diesel fuel additive having a boiling range in the range of from 540 to 680°F (282.2 to 360.0°C)."

"8. The additive of any of claims 1 to 5 or the additive obtained by the process of claim 6 or 7 combined with diesel material in an amount of from 1 to 50 wt %."

This set of claims contained also dependent claims 2 to 5, 7 and 9 to 12 relating to particular embodiments of the claimed additives or process.

III. In its decision, the Examining Division, referring by virtue of Article 54(3) EPC to documents

(2): WO-A-97/14769 and

(3): WO-A-97/14768,

found *inter alia* that

- example 2 of documents (2) or (3) disclosed a Diesel Fuel B which was a 250 to 700°F boiling fraction of a blend prepared by using the same feed, the same catalyst and the same reaction conditions as used in example 1 of the present application;

- therefore, said Diesel Fuel B had to be identical with the 250 to 700°F boiling fraction obtained in example 1 of the present application;
- example 3 of both documents (2) and (3) disclosed a Diesel Fuel D which was a 500 to 700°F cut of Diesel Fuel B;
- since Diesel Fuel B corresponded to said 250 to 700°F boiling fraction obtained in example 1 of the present application, Diesel Fuel D was not distinguishable from the composition of the 50 to 80% volume fraction (cuts 6 to 8 of table 1B) obtained according to example 1 of the present application;
- the cetane number of such a fraction could be calculated from table 1B of the present application and corresponded with that of present claim 1;
- moreover, even though the subject-matter of claim 1 required a boiling point within the range of 540 to 680°F, i.e. a more restricted boiling point range than that of said Diesel Fuel D, the selection of such a diesel with a narrower boiling point range could not confer novelty to the claimed subject-matter since
 - (a) the selection of the range of boiling materials of claim 1 could not be seen as the selection of a narrow range out of the broader range of the prior art (Diesel Fuel D);

- (b) the selected range was not sufficiently remote from the outer limits of the range disclosed in the prior art documents;
 - (c) the selection did not appear to bring about any new technical effect;
- the subject-matter of claim 1 lacked thus novelty.

The Examining Division found also that

- claim 1 contravened the requirements of Article 84 EPC since it did not specify the essential feature of the invention that the content of mono-methyl branched species in the isoparaffins had to be of at least 25wt.%;
- the amendment on page 7, paragraph 2, third sentence, of the description to read "Group IB metals can also or additionally be used." instead of the original wording "Group IB metals can also be used." contravened the requirements of Article 123(2) EPC.

IV. An appeal was filed against this decision by the Applicant (Appellant).

A new set of 12 claims containing independent claims 1, 6 and 8 and new amended pages of the description were filed by the Appellant under cover of the letter dated 1 July 2005.

Claim 1 of this set of claims differs from claim 1 considered in the decision under appeal only insofar as

it specifies that **at least 25 wt% of the isoparaffins contained in component (a) are mono-methyl branched.**

Claim 6 of this set of claims differs from claim 6 considered in the decision under appeal insofar as the claimed process is specified to be one **for the preparation of the diesel fuel additives according to claims 1 to 3.**

Claim 8 differs from claim 8 considered in the decision under appeal insofar as it does not relate any longer to an additive but to **the use of the additive of any one of claims 1 to 5 to improve cetane number, lubricity and stability of diesel fuels,** said additive being present in amount of from 1 to 50 wt%.

Dependent claims 2 to 5, 7 and 9 to 12 refer to particular embodiments of the claimed additive, process and use, respectively.

As regards the description, page 7 was amended to reinstate in paragraph 2, third sentence, the original wording "Group IB metals can also be used."

V. The Appellant submitted that

- the grounds of refusal based upon Articles 84 and 123(2) EPC had been removed by amendments;
- the Diesel Fuel D disclosed in the documents (2) and (3) was a cut having a different boiling range, a different cetane number and different composition than the additive claimed in the present application;

- moreover, the claimed additive brought about additional technical benefits not provided by the products of the prior art;
- therefore, the subject-matter of claim 1 had to be considered as being novel and inventive over the cited documents.

VI. The Appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the set of claims submitted under cover of the letter of 1 July 2005 with the further amended pages of the description filed under cover of the same letter.

Reasons for the Decision

1. *Articles 84 and 123(2) EPC*

1.1 Since the amended claim 1 filed under cover of the letter of 1 July 2005 specifies the essential feature of the invention that the content of mono-methyl branched species in the isoparaffins is of at least 25 wt.% and the original wording "Group IB metals can also be used." has been reintroduced into page 7, paragraph 2, third sentence, of the description (see point IV above), the respective grounds of not compliance with the requirements of the EPC (see point III above) do not apply any longer to these amended application documents.

- 1.2 The Board is satisfied that the amended claims and the newly filed amended pages of the description comply with the requirements of Articles 84 and 123(2) EPC.

In particular, the use claims 8 to 12 find support on page 1, first full paragraph and page 3, first full paragraph, of the application as originally filed.

2. *Novelty*

- 2.1 The subject-matter of claim 1 relates to a diesel fuel additive having specific amounts of C₁₆₋₂₀ paraffins, including specific amounts of mono-methyl branched isoparaffins, and specific amounts of C₁₄₋₁₆ linear, primary alcohols and having a specific cetane number and a specific boiling range.

Example 2 on page 10 of each of documents (2) and (3) discloses a Diesel Fuel B prepared by blending 78 wt% of a Hydroisomerized F-T Reactor Wax, 12 wt% of Unhydrotreated F-T Cold Separator Liquids and 10 wt% of F-T Hot Separator Liquids, the Hydroisomerized F-T Reactor Wax having been prepared by using a known preparation process of the prior art, and distilling therefrom a 250-700°F boiling fraction (diesel fuel B).

Example 1 of the present application (page 10, paragraph (c)) contains almost literally the same disclosure as these examples of the prior art, the Hydroisomerized F-T Reactor Wax having been prepared under identical process conditions and by using identical catalysts.

However, neither example 1 of the present application nor the examples 2 of documents (2) and (3) identify precisely the composition of the starting feed used in the preparation of such Hydroisomerized F-T Reactor Wax or the compositions of the Cold and Hot Separator Liquids blended therewith. Moreover documents (2) and (3) do not identify the composition of the obtained Diesel Fuel B and just teach in the respective example 3 that the Diesel Fuel B can be separated by distillation into two fractions, a 250-500°F fraction (Diesel Fuel C) and a 500-700°F fraction (Diesel Fuel D) whilst the present application lists the boiling points and the cetane number of nine different fractions obtained by distilled fractionation of the blending product (see table 1B on page 11).

Since the wording "Hydroisomerized F-T Reactor Wax" as well as the wordings "Unhydrotreated F-T Cold Separator Liquids" and "F-T Hot Separator Liquids" are generic terms identifying a generic class of compositions and not the specific components of which they are made, it cannot be deduced from the disclosures of documents (2) and (3) that the compositions of the blended components used according to these documents are identical to those used in example 1 of the present application.

The Board finds thus that it cannot be assumed, on the basis of the teaching of documents (2) and (3), that the Diesel Fuel B obtained by the process disclosed in the cited documents is identical to the 250-700°F boiling fraction obtained in the present application.

Consequently, it cannot be concluded that the Diesel Fuel D, a 500 to 700°F cut of Diesel Fuel B according

to examples 3 of both documents (2) and (3), is identical to the composition of the 50 to 80% volume fraction (cuts 6 to 8 of table 1B) obtained according to example 1 of the present application as argued in the decision under appeal.

- 2.2 Moreover, the Board agrees with the Appellant's view that Diesel Fuel D of documents (2) and (3), having a broader boiling point range (500 to 700°F) than the product of claim 1 (540 to 680°F), must necessarily have a different composition and thus different amounts, calculated on the total weight of the distilled fraction, of the specific paraffin species and of the specific alcohols of claim 1 and thus also a different cetane number.

Since the Diesel Fuel D of documents (2) and (3) has a composition differing in several respects from that claimed in the present application, the evaluation of the novelty of the claimed subject-matter cannot boil down to the evaluation of the selection of a specific portion of the known product having a selected narrower boiling point range as found in the decision under appeal.

- 2.3 The Board concludes that the subject-matter of claim 1 is novel over the teaching of documents (2) and (3).
- 2.4 The subject-matter of claim 6, relating to the preparation of the novel composition of claim 1, and that of claim 8 relating to its use are thus also necessarily novel.

2.5 The subject-matter of all claims is thus novel over the cited prior art.

3. *Inventive step*

As regards inventive step the Board notes that documents (2) and (3), being prior art only by virtue of Article 54(3) EPC, cannot be taken into consideration for the evaluation of inventive step (see point 4.4 of the reasons of the decision under appeal).

The only cited document of the prior art which can be considered is thus

document (1): US-A- 5324335.

Regarding the evaluation of inventive step in the light of the teaching of this prior art document, the Board has no reason to depart from the finding of the first instance, expressed in point 2.3 of the communication of 25 October 2001, that the claimed additive involves an inventive step over this prior art.

Since the subject-matter of claim 1 involves an inventive step, also the remaining claims must involve an inventive step.

4. *Description*

The description of the present application has been brought into agreement with the allowable set of claims.

Therefore, no further objections are outstanding against the description of the present application.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to grant a patent with the following documents:
 - (a) Claims 1 to 12 and pages 2, 2a, 5 to 10, 12 and 13 of the description as filed under cover of the letter of 1 July 2005;
 - (b) Pages 1a to 1d, 11 and 14 and figure 1/1 as filed under cover of the letter of 15 February 2002;
 - (c) Pages 1, 3 to 4 and 15 of the description as originally filed.

The Registrar:

The Chairman:

G. Rauh

P. Krasa