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Datasheet for the decision of 11 June 2024

Case Number: T 0229/22 - 3.3.06

Application Number: 11727715.2

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Title of invention:
PROCESS FOR PRODUCING FUEL FROM A BIOLOGICAL ORIGIN THROUGH A SINGLE HYDROPROCESSING STEP IN THE PRESENCE OF A NIW CATALYST

Patent Proprietor:
UPM-Kymmene Corporation

Opponent:
Neste Oyj

Headword:
PROCESS FOR PRODUCING FUEL FROM A BIOLOGICAL ORIGIN THROUGH A SINGLE HYDROPROCESSING STEP IN THE PRESENCE OF A NIW CATALYST / UPM-Kymmene Corporation

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Added subject-matter - yes

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Catchword:

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Case Number: T 0229/22 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 11 June 2024

Appellant: (Opponent)	Neste Oyj Keilaranta 21 02150 Espoo (FI)
Representative:	Zacco Denmark A/S Arne Jacobsens Allé 15 2300 Copenhagen S (DK)
Respondent: (Patent Proprietor)	UPM-Kymmene Corporation Alvar Aallon katu 1 00100 Helsinki (FI)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 6 December 2021 concerning maintenance of the European Patent No. 2576731 in amended form.**

Composition of the Board:

Chair	R. Elsässer
Members:	P. Ammendola
	R. Winkelhofer

Summary of Facts and Submissions

I. The opponent (hereinafter **appellant**) as well as the patent proprietor appealed the interlocutory decision of the opposition division finding that the patent in amended form with the claims of auxiliary request 1 complied with the EPC.

II. Subsequently, the patent proprietor withdrew their appeal and, thus, is designated hereinafter as the **respondent**.

III. Claim 1 of the auxiliary request 1 that the opposition division found allowable (hereinafter **maintained claim 1**) reads as follows:

"*1. A process for producing a mixture of fuel components, characterized in that the process comprises*

providing a feed of biological origin selected from tall oil or crude tall oil;

subjecting said feed of biological origin and a hydrogen gas feed to a single step of hydroprocessing in the presence of a catalyst system comprising a NiW catalyst supported on zeolite-Al_2O_3 to form a mixture of fuel components, whereby

the step of hydroprocessing is carried out at a temperature range from 280°C to 500°C and at a pressure of 30 to 200 bar."

IV. With the statement of grounds of appeal, the appellant, *inter alia*, disputed the findings of the opposition

division that the maintained claim 1 complied with Article 123(2) EPC.

V. With their reply to the appeal the respondent rebutted the above objections.

VI. Oral proceedings were held before the board on 11 June 2024.

VII. The appellant (opponent) requests that the decision under appeal be set aside and amended such that the patent be revoked.

VIII. The respondent (patent proprietor) requests that the appeal be dismissed.

Reasons for the Decision

1. Added subject-matter (Article 123(2) EPC): maintained claim 1

1.1 The appellant argued in essence that claim 1 (which describes a process for hydroprocessing a feed of biological origin into a mixture of fuel components, see III above) contravened Article 123(2) EPC because the patent application as originally filed did not directly and unambiguously disclose a process with the following two features in combination:

(a) the feed of biological origin is "*selected from tall oil or crude tall oil*"

and

(b) the catalyst system comprises "*a NiW catalyst supported on zeolite-Al_2O_3*".

1.2 According to the respondent the direct and unambiguous disclosure of a process having both these features was

instead implied in the original application because the latter not only disclosed the processing of tall oil or crude tall oil (hereinafter **TO/CTO**) as an individualized and explicitly preferred embodiment of the process of the invention, for which the original application provided several additional teachings, but also gave the reason for this preference, namely that, contrary to the prior art two-step processes for hydroprocessing vegetable oils, the process of the invention had the advantage to not require an intermediate purification step for removing sulphur containing compounds. Hence, TO/CTO were clearly the (sole or the most) preferred feeds according to the patent application.

Even in the hypothetical case that the original patent application could be considered to also implicitly disclose tallow as another preferred feed, then TO/CTO and tallow would represent a list of just two preferred feeds, and thus, to choose one thereof would not represent a selection relevant under the established case law for the combination of two selections from two lists of certain lengths.

Moreover, in the respondent's view, original claim 4 as well as the corresponding passage on page 19, lines 5-6, would expresses a preference for NiW on zeolite-Al_2O_3.

1.3 Compliance with Article 123(2) EPC of maintained claim 1 has to be established considering what a skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the documents as filed.

1.4 Hence, in the present case, of relevance is what follows:

(a) It is apparent to the skilled reader of the sections entitled "*Background of the invention*" and *"Brief description of the invention*" on pages 1 to 3 of the description, that the originally claimed invention is a process for hydroprocessing biological starting materials into renewable hydrocarbon components for fuels that is claimed to be advantageous over the prior art because it only requires a single hydroprocessing step. Through this single hydroprocessing step the process of the invention would achieve higher yields and avoid the additional investment costs and process complexity, in comparison to prior art processes, such as (see on page 1, the sentence starting at line 14 with "*For example*...") the prior art two-step hydroprocessing of vegetable oils which contain sulphur (i.e. a prior art process which combines a first step in which the biological components are hydrogenated into n-paraffins, with a second step in which the latter are isomerized to branched-chain paraffins), and which also requires an intermediate purification step for removing sulphur containing compounds.
It is also explained in the section *"Brief description of the invention*" that the *"preferred embodiments of the invention are disclosed in the dependent claims*" (last sentence on page 1), and that the single-step hydroprocessing is enabled by the use of dewaxing catalysts, which tolerate sulphur well, and which are able to hydrogenate the double bonds and reduce sulphur compounds to hydrogen sulphide, as well as to promote isomerization and cracking, whereby the

isomerization improves the cold flow properties of the obtained fuel.

(b) As correctly stressed by the respondent, TO is already mentioned in the "*Brief description of the invention*" as the sole example of the feeds of biological origin of the process of the invention (see on page 2, lines, 5 to 7, the passage reading "*It has surprisingly been found out that dewaxing catalysts, which tolerate sulphur well, can be used for hydroprocessing feeds originating from biological materials, such as tall oil feed, to produce fuel components, as effectively as or even better than actual sulphur removing catalysts*", emphasis added by the board). This teaching is then followed by the explicit description of TO/CTO as the feeds of biological origin in a preferred embodiment of the invention (see the passage on page 5, lines 10 to 11, of the original application, reading: "*According to a preferred embodiment of the present invention the feed of biological origin is tall oil or crude tall oil*", emphasis added by the board). The preference for TO/CTO is further supported by several passages in the original application relating specifically to their use (see page 5, lines 12 to 13 and 21 to 23; page 6, lines 23 to 31; page 10, lines 1 to 2; page 18, lines 12 to 15), and by the use of CTO for obtaining Product 1 of Example 1 (see also Tables 1 and 2 of the original application).

Hence it needs to be established if all these teachings justify the respondent's conclusion that TO/CTO are implicitly but nevertheless directly and unambiguously disclosed in the original application as the (sole or the most) preferred feeds.

(c) However, the sole original claim mentioning TO/CTO is claim 3, in which TO and CTO are mentioned in a long list of other possible feeds. Thus, and given the indication in the last sentence on page 1 of the same original application that the preferred embodiments were those "*disclosed in the dependent claims*" (see also in (a) above), the absence of any original claim in which TO/CTO are individualised as preferred feeds, further supports a literal construction of the above-cited passage on page 5, lines 10 to 11, namely as describing the use of TO/CTO just in "*a*" preferred embodiment (and not, for instance, "the" or "the most" preferred embodiment) of the invention.

(d) Nor is the fact that the original application explicitly acknowledges as an example of relevant prior art the two-step hydroprocessing of vegetable oils comprising sulphur (compare "(a)" above), and thus also mentions the advantage vis-à-vis this prior art of the single-step hydroprocessing of TO/CTO (compare "(b)" above), sufficient to conclude that the embodiment of the process of the invention in which the feed is TO/CTO is implied in the original application to be the one having more advantages and, thus, the most preferred.

(e) On the contrary, it is apparent that at least the hydroprocessing according to the invention of another feed, i.e. "*tallow*", free from sulphur, is explicitly disclosed in the original application to provide several advantages. In fact, the original application also explicitly teaches (from page 10, line 27 to page 11, line 10; page 15, lines 6 to 7), that tallow has surprisingly been found

processable "*selectively and with good yield to fluid fuel components*", while allowing (apparently by virtue of the presence in rendered tallow of protein residue) the efficient control of the extent of isomerization and cracking, and without possibly requiring certain optional steps that may be advantageous for other feeds (of "*hydropolishing*").

(f) Finally, the fact that the whole patent application nevertheless points to the TO/CTO (among the preferred feeds listed e.g. in original claim 3) as well as to tallow (also mentioned in the same list) is apparently confirmed by the examples of the invention. In these examples the hydroprocessing is carried out either on CTO (resulting in Product 1 of Example 1, see also "(b)" above) or on tallow, resulting in Product 2 of Example 1 (see also Tables 1 and 2 of the original application). Moreover, all diesel fuels of Example 2 (see samples 3 to 6 in Table 3) are obtained by using the Product 2 of Example 1 (i.e. the one derived from tallow). The fact that the product obtained from tallow is implicitly disclosed at least as preferred as that obtained from CTO, is finally reflected in the last sentence of the original application reading "*As can be realized from the results of Table 2 and 3 the cetane index of the products 1 and 2 is extremely good. The products are suitable for blending components and the products improve significantly the cold properties when blended to summer grade diesel (0/-5)*" (page 21, lines 9 to 12).

(g) Hence, the disclosure of the whole original application does not imply that the TO/CTO is the sole or the most preferred feed.

Nor can all the teachings of the original patent application (see "(a)" to "(f)" above), some of which are possibly contradictory, be equated to a hypothetical (implicit but nevertheless direct and unambiguous) disclosure of TO/CTO and tallow in a list of two equally suggested alternatives.

(h) Hence, a (first) selection of TO/CTO is required among the feeds listed e.g. in original claim 3 (and, thus, in accordance with the definition in the last line on page 1 of the original application, among the feeds of the preferred embodiments of the invention), in order to arrive at the limitation of the feed in maintained claim 1. For such selection the original patent application provides no direct and unambiguous pointer, due to the fact that the explicit indication on page 5, lines 10 to 11, of TO/CTO as the feed in a preferred embodiment of the invention, is not accompanied by any corresponding definition in a dependent claim (as instead implied by the description's own indication in the last sentence on page 1), and to the fact that at least another feed in that list, i.e. tallow, is disclosed to be at least as advantageous as TO/CTO.

(i) As to the limitation of the catalyst to NiW supported on "*zeolite-Al_2O_3*" also recited in maintained claim 1, it is apparent and undisputed that this catalyst is only disclosed in the list of preferred catalysts recited in the sentence on page 6, lines 5 to 6, of the original application

reading "*The dewaxing catalyst material according to the present invention is NiW on a support selected from Al_2O_3, zeolite, zeolite-Al_2O_3, and Al_2O_3-SiO_2*" (to which corresponds original claim 4, in accordance with the definition of the preferred embodiments of the invention, in the last line on page 1 of the original application).

(j) It is also undisputed that the sole relevant teachings in the remainder of the original application (namely the sentence "*Preferably the dewaxing catalyst is NiW on an Al_2O_3*", immediately following the above-cited passage on page 6, lines 5 to 6, as well as the fact that both products of Example 1 are indicated in Table 1 as obtained by using "*NiW/Al_2O_3*") indicate that among the four preferred alternatives listed on page 6, lines 5 to 6, of the original application or in original claim 4, the one of NiW supported on zeolite-Al_2O_3 is different from that for which the original application provides further pointers.

(k) Hence also a (second) selection of one of the three less preferred catalysts disclosed on page 6, lines 5 to 6, is required to arrive at the subject-matter of maintained claim 1, in the absence of any further pointer thereto.

(l) In conclusion, to arrive at the combination of features in maintained claim 1 objected to by the appellant, it is necessary to combine two selections within the disclosure of the original application, one involving a less preferred feature, for none of which there is a clear pointer. Hence, such a combination of selections is

not directly and unambiguously disclosed in the original application.

1.5 Accordingly, maintained claim 1 does not comply with the requirements of Article 123(2) EPC and thus the respondent's sole request cannot be allowed.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chair:

A. Pinna R. Elsässer

Decision electronically authenticated