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Datasheet for the decision of 10 March 2015

Case Number: T 0140/12 - 3.3.10

Application Number: 03701257.2

Publication Number: 1470098

IPC: C07C51/12, C07C53/08

Language of the proceedings: EN

Title of invention:
PROCESS CONTROL IN PRODUCTION OF ACETIC ACID VIA USE OF HEAVY PHASE DENSITY MEASUREMENT

Patent Proprietor:
Celanese International Corporation

Opponent:
BP Chemicals Limited

Headword:

Relevant legal provisions:
EPC Art. 100(a), 54(2), 84, 123(2)
RPBA Art. 12(4)

Keyword:
Novelty (no) - main request
Clarity (no) - auxiliary request 1
Auxiliary request 2 -
withdrawn during opposition proceedings - not admitted
Added subject-matter (yes) - auxiliary request 3

Decisions cited:
T 1186/06, T 0361/08, T 0922/08, T 1231/09

Catchword:

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Case Number: T 0140/12 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 10 March 2015

Appellant: (Patent Proprietor)	Celanese International Corporation 1601 West LBJ Freeway Dallas, TX 75234 (US)
Representative:	Kirsch, Susan Edith Carpmaels & Ransford LLP One Southampton Row London WC1B 5HA (GB)
Respondent: (Opponent)	BP Chemicals Limited Chertsey Road Sunbury-on-Thames, Middlesex TW16 7BP (GB)
Representative:	Hill, Simon Stephen BP International Limited Global Patents & Technology Law Chertsey Road Sunbury-on-Thames, Middx TW16 7LN (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 15 November 2011 revoking European patent No. 1470098 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	P. Gryczka
Members:	R. Pérez Carlón
	C. Schmidt

Summary of Facts and Submissions

I. The appellant (patent proprietor) lodged an appeal against the decision of the opposition division to revoke European patent No. 1 470 098.

II. An opposition had been filed on the ground that the subject-matter of the claims of the patent as granted was not novel and did not involve an inventive step (Article 100(a) EPC).

III. The documents forming part of the opposition proceedings include the following:

D1: WO 02/04394

IV. Claim 1 of the patent as granted (main request) reads as follows:

"A method for effecting process control in a reaction for the production of acetic acid through the reaction of methanol and carbon monoxide in a reaction mixture comprising methyl acetate, comprising the steps of:

measuring the density of the heavy phase of a light ends distillation column comprising methyl iodide and methyl acetate with a densitometer; and

controlling reaction conditions in the reactor in response to the measured density."

Claim 1 of auxiliary request 1 contains, in addition to the features of claim 1 of the main request, the following disclaimer:

"wherein the densitometer is not an optical densitometer."

Claim 1 of auxiliary request 2, which is identical to the request filed as auxiliary request 2 under cover of a letter dated 22 September 2011 during the opposition proceedings and withdrawn at the oral proceedings before the opposition division, contains, in addition to the features of claim 1 of the main request, the following:

"wherein the conditions of the reaction mixture are controlled by adjusting the temperature of the reaction mixture; or wherein the conditions of the reaction mixture are controlled by adjusting the flow of methanol to the reaction mixture; or wherein the conditions of the reaction mixture are controlled by adjusting the temperature of the reaction mixture and by adjusting the flow of methanol to the reaction mixture."

Lastly, claim 1 of auxiliary request 3 limits the subject-matter of claim 1 of the main request by requiring a *"nuclear densitometer".*

V. The opposition division considered that the subject-matter of claim 1 of the patent as granted was not novel over D1, which disclosed a method for effecting process control by measuring the density of the heavy phase of a light ends distillation column with an infrared analyser. It also concluded that the then pending first and second auxiliary requests contained added subject-matter.

VI. The arguments of the appellant relevant for the present decision are the following:

Claim 18 of document D1 disclosed a method for effecting process control by measuring the density of the heavy phase of a light ends distillation column with an infrared analyser. However, an infrared analyser was not a densitometer, as required by claim 1, since it was not a device capable of directly determining the mass density of a composition. Even if an infrared analyser were to be considered a densitometer, document D1 did not sufficiently disclose how to measure or calculate density with such a device and was thus not enabling in that respect. Claim 1 of the patent as granted was for these reasons novel over document D1.

Lastly, the appellant considered that claim 1 of auxiliary request 3 found the required basis in the passage on page 9, line 39, of the application as originally filed.

VII. The arguments of the respondent relevant for the present decision, already brought forward in the written proceedings, are the following:

Any device capable of determining density, such as an infrared analyser as disclosed in D1, was a densitometer. D1 provided the skilled person with the information required in order to measure the density of the heavy phase of a light ends distillation column with an infrared analyser. Claim 18 of document D1 thus disclosed all the features of claim 1 of the patent as granted, whose subject-matter was for this reason not novel.

The feature "optical densitometer" in claim 1 of auxiliary request 1 was not clear, since it was not

apparent whether it was intended to clarify that a measurement of mass density was required or to exclude mass densitometers which operated via spectroscopic method.

Auxiliary request 2 was identical to auxiliary request 2 filed under cover of a letter dated 22 September 2011 during the opposition proceedings and withdrawn at the oral proceedings before the opposition division. The appellant had thereby prevented the opposition division from taking a decision on its subject-matter. Admitting this request into the proceedings would be unfair to the respondent and contrary to procedural efficiency since it could lead to a remittal which would unduly prolong the proceedings. For this reason, this request should not be admitted into the proceedings.

Lastly, the feature "nuclear densitometer" had only been disclosed in the application as originally filed in connection with the embodiment in Figure 2, including limitations not required by claim 1 of auxiliary request 3, which therefore contained added subject-matter.

VIII. The appellant informed the board that it would not be represented at the oral proceedings, which took place on 10 March 2015.

IX. The final requests of the parties were the following:

- The appellant requested in writing that the decision under appeal be set aside and that the patent be maintained as granted or, subsidiarily, on the basis of one of the auxiliary requests 1, 2

or 3, all filed with letter dated 26 March 2012.

- The respondent requested that the appeal be dismissed.

X. At the end of the oral proceedings, the decision was announced.

Reasons for the Decision

1. The appeal is admissible.

Main request, novelty:

2. Claim 1 of the main request is directed to a method for effecting process control in a reaction for the production of acetic acid by measuring the density of the heavy phase of a light ends distillation column with a densitometer, and controlling reaction conditions in the reactor in response to the measured density.

3. It has not been disputed that claim 18 of document D1 discloses a method for effecting process control in a reaction for the production of acetic acid comprising measuring the density of a sample from the heavy phase of a light ends recovery decanter vessel with an infrared analyser and adjusting the reaction conditions in the reactor (options a, d and e) in response to that measurement.

The question however arises whether an infrared analyser is a densitometer, as required by claim 1.

3.1 Document D1 discloses calibrating the values of infrared measurement by chemometric techniques

(page 20, lines 18-20). The spectral regions used for the calibration are provided in Table 1, and the mixture used for the calibration of the heavy phase of the light ends distillation column is disclosed on page 25, lines 11-16. Table 2 reflects the values obtained from said calibration. The density mainly depends on the amount of MeI (density 2.3 g/mL) as explained on page 36, lines 23-24.

This model is applied in example 1 to the decanter heavy phase, which corresponds to the phase required by claim 1, and the values obtained are shown in Table 7. The infrared measurement thus makes it possible to determine the density of the phase, and hence an infrared analyser is a densitometer (i.e. a device capable of providing the density of a mixture) as required by claim 1. Document D1 discloses, therefore, all the features required by claim 1 of the patent in suit.

4. The appellant argued that a densitometer was a device capable of *directly* measuring mass density. An infrared analyser might determine the compositional information of a sample, but it could not carry out a direct mass density measurement. Such a device was therefore not a densitometer, and for this reason the subject-matter of claim 1 of the main request was novel.

However, the term densitometer merely refers to a device capable of measuring density, independently of whether such measurement is direct or not. An infrared analyser is suitable for measuring the mass density of a mixture (see for example Table 8 of D1) and for this reason is considered a densitometer, as required by claim 1. This appellant's argument is thus

unconvincing.

5. The appellant has further argued that document D1 was not an enabling disclosure. By using an infrared analyser, the mass density of a mixture could only be obtained as the result of a calculation. However, D1 failed to provide the necessary information on how to carry out said calculation, in particular in the case of a complex mixture such as that of the heavy phase. Since the embodiment of effecting process control in response to the density measured with an infrared analyser was not enabling, it could not anticipate the subject-matter of claim 1.

However, as explained in point 3.1 above, D1 provides the required information and the skilled person would have no difficulty carrying out the method of controlling using an infrared analyser.

This appellant's argument is thus unconvincing.

6. The subject-matter of claim 1 is for these reasons not novel over document D1, with the consequence that the ground defined in Article 100(a) EPC precludes the maintenance of the patent as granted.

Auxiliary request 1, clarity:

7. Claim 1 of auxiliary request 1 is directed to a method which includes the step of measuring the density of the heavy phase of a light ends distillation column with a densitometer which is "not an optical densitometer".

Article 84 in conjunction with Rule 43(1) EPC stipulates that the claims must be clear and define the matter for which protection is sought in terms of the

technical features of the invention. These requirements serve the purpose of ensuring that the public is not left in any doubt as to which subject-matter is covered by a particular claim and which is not (see T 337/95, OJ EPO 1996, 628, Reasons 2.2 to 2.5).

In the present situation, the term "not an optical densitometer" could exclude any instrument that uses optical measurements for determining density, such as an infrared analyser, or could exclude any instrument which measures "optical density" in contrast to "mass density", which would not exclude an infrared analyser. Since it is not clear what is excluded by the feature "not an optical densitometer", claim 1 of auxiliary request 1 is not clear as required by Article 84 EPC, with the consequence that this request is not allowable.

Auxiliary request 2, admissibility:

8. Auxiliary request 2 had been filed during opposition proceedings and was withdrawn at the oral proceedings before the opposition division.

According to Article 12(4) RPBA, a board has the discretionary power to hold inadmissible requests which could have been presented in the first-instance proceedings. This applies in particular to requests such as auxiliary request 2, filed and subsequently withdrawn during opposition proceedings, since such a withdrawal prevents a decision of the opposition division on this request. It would be inequitable for the respondent to suffer the consequence of actions over which it had no power (see for example T 361/08, Reasons 13; T 1186/06, Reasons 5; T 1231/09, Reasons 1, T 922/08, Reasons 2, all of them unpublished in

OJ EPO). For these reasons, the board decides to make use of its discretion not to admit auxiliary request 2 into these appeal proceedings.

Auxiliary request 3, amendments:

9. Claim 1 of auxiliary request 3 requires the step of measuring the density of the heavy phase of a light ends distillation column with a nuclear densitometer.

As a basis for this feature, the appellant relied on the passage on page 9, line 35 of the application as originally filed, in which the term "nuclear densitometer" is explicitly mentioned.

This passage, however, describes the embodiment of the claimed invention represented by figure 2. In figure 2, a densitometer, which can be a nuclear densitometer, is placed as an in-line device which allows for continuous monitoring of the heavy phase (page 9, line 39). However, claim 1 of auxiliary request 3 does not require a continuous, in-line monitoring but includes also the embodiment of taking samples of the heavy phase whose density is determined off-line, as disclosed on page 10, line 2, of the description.

Since a nuclear densitometer is only disclosed in connection with a continuous, in-line monitoring of the heavy phase, whereas claim 1 is not limited to such a monitoring, the method for effecting process control of claim 1 of auxiliary request 3 does not find a basis in the application as originally filed, as required by Article 123(2) EPC, and this request is thus not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Schneider P. Gryczka

Decision electronically authenticated