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Datasheet for the decision of 17 September 2019

Case Number: T 0298/17 - 3.3.10

Application Number: 10737342.5

Publication Number: 2462114

IPC: C07C407/00, C07C409/00, C08F4/34, C08F4/38

Language of the proceedings: EN

Title of invention:
STORAGE STABLE AND SAFE PEROXIDE EMULSIONS WITH A HIGH ACTIVE OXYGEN CONTENT

Patent Proprietor:
Nouryon Chemicals International B.V.

Opponents:
ARKEMA France
United Initiators GmbH

Headword:

Relevant legal provisions:
EPC Art. 100(b)

Keyword:
Sufficiency of disclosure - (no) - all requests

Decisions cited:
G 0009/91, T 1003/96, T 0409/91, T 0435/91

Catchword:

Europäisches Patentamt
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Case Number: T 0298/17 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 17 September 2019

Appellant: (Patent Proprietor)	Nouryon Chemicals International B.V. Velperweg 76 6824BM Arnhem (NL)
Representative:	LKGlobal UK Ltd. Cambridge House, Henry Street Bath BA1 1BT (GB)
Respondent: (Opponent 1)	ARKEMA France 420 Rue d'Estienne d'Orves 92700 Colombes (FR)
Representative:	Gorintin, Sarah ARKEMA France Département Propriété Industrielle 420, rue d'Estienne d'Orves 92705 Colombes Cedex (FR)
Respondent: (Opponent 2)	United Initiators GmbH Dr.-Gustav-Adolf-Str. 3 82049 Pullach (DE)
Representative:	Heubeck, Christian Weickmann & Weickmann Patent- und Rechtsanwälte PartmbB Richard-Strauss-Strasse 80 81679 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 7 December 2016 revoking European patent No. 2462114 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	P. Gryczka
Members:	R. Pérez Carlón
	W. Van der Eijk

Summary of Facts and Submissions

I. The appeal lies from the decision of the opposition division revoking European patent No. 2 462 114.

II. Two notices of opposition had been filed on grounds that include insufficiency of disclosure (Article 100(b) EPC).

III. The opposition division concluded that the claimed invention was not sufficiently disclosed for it to be carried out by a person skilled in the art, as the skilled reader lacked information on how to prepare the claimed oil-in-water emulsions which contain the required peroxide and satisfy the classification test for organic peroxide type F.

IV. With the statement setting out the grounds of appeal, the appellant (patent proprietor) filed a main request corresponding to the first auxiliary request before the opposition division and auxiliary requests 1 to 4. Auxiliary request 5 was filed with a letter dated 8 January 2019.

Claim 1 of the main request reads as follows:

"Emulsion comprising an oil phase dispersed in an aqueous phase, wherein said oil phase comprises at least 53 wt% and not more than 77 wt% of one or more organic peroxides, more than 50 wt% of which have a molecular active oxygen content of at least 7.00 wt%, said emulsion satisfying the classification tests for organic peroxide type F, and wherein diisobutyryl peroxide makes up at least 95 wt% of the total amount of organic peroxide that is present in the emulsion."

V. When compared to claim 1 of the main request, claim 1 of auxiliary request 1 requires that the oil phase comprises at least 68 wt% of one or more organic peroxides.

Claim 1 of auxiliary request 2 contains the following in addition to the features of claim 1 of auxiliary request 1:

"*and wherein the active oxygen content of the emulsion is at least 2.60 wt% and not higher than 4.60 wt%*".

Claim 1 of auxiliary request 3 further restricts the claimed emulsion by requiring the active oxygen content of the emulsion to be:

"*at least 3.5 wt% and not higher than 4.20 wt%*".

Claim 1 of auxiliary request 4 contains all the features of claim 1 of auxiliary request 3 and, in addition:

"and wherein the aqueous phase comprises one or more anti-freeze agents and at least 50 wt% water".

Lastly, claim 1 of auxiliary request 5 is worded as follows:

"*Emulsion comprising 50-65 vol% of an oil phase dispersed in an aqueous phase, wherein said oil phase comprises at least 68 wt% and not more than 77 wt% of one or more organic peroxides, more than 50 wt% of which have a molecular active oxygen content of at least 7.00 wt%, said emulsion satisfying the classification tests for organic peroxide type F, and wherein diisobutyryl peroxide makes up at least 95 wt%*

of the total amount of organic peroxide that is present in the emulsion, the active oxygen content of the emulsion is at least 3.5 wt% and not higher than 4.20 wt%, and wherein the aqueous phase comprises at least 50 wt% water, 0.5-1.5 wt% polyvinyl acetate, a surfactant in an amount below 1.0 wt%, and one or more anti-freeze agents in an amount such that the emulsion does not freeze at a temperature of -20°C".

VI. The arguments of the appellant relevant to the present decision were as follows:

The claimed emulsions were sufficiently disclosed, as the skilled reader found in paragraphs [0006], [0008] and [0013] to [0020] the required information for obtaining emulsions that satisfy the classification tests for organic peroxide type F. Examples 1 and 2 and Comparative example A also provided the skilled reader with sufficient information, by showing that the emulsion's stability was the crucial parameter. Lastly, the skilled reader could easily evaluate the performance of an emulsion in the tests defined in claim 1 by calculating whether the decomposition heat of the peroxide was lower than that of the evaporation of water and any more volatile solvent present in the emulsion. Moreover, the respondents had not discharged their burden of proof in this respect.

VII. The arguments of the respondents (opponents) relevant to the present decision were as follows:

Even if the emulsions of Examples 1 and 2 did satisfy the tests for organic peroxide type F and were thus embodiments of claim 1, the skilled person could only find further compositions within the ambit of claim 1 by trial and error. This represented an undue burden,

with the consequence that the claimed subject-matter was not sufficiently disclosed.

VIII. Oral proceedings before the board of appeal took place on 17 September 2019.

IX. The final requests of the parties were as follows:

- The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of its main request, or auxiliarily, on the basis of one of auxiliary requests 1-5, the main request and auxiliary requests 1-4 as filed with the statement of grounds of appeal dated 27 March 2017 and auxiliary request 5 as filed with the letter of 8 January 2019.

- The respondents 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.

Sufficiency of disclosure

2. Main request

2.1 Claim 1 of the main request relates to an emulsion whose oil phase contains at least 53 wt% and no more than 77 wt% of one or more peroxides, of which at least 95 wt% is diisobutyryl peroxide. In addition, said emulsion must satisfy the classification tests for

organic peroxide type F.

These classification tests are defined in the Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, by the United Nations. If an organic peroxide formulation is classified as "type F", it may be considered for transport in IBC (Intermediate Bulk Container) or tanks. This was not in dispute.

2.2 The opposition division concluded that the subject-matter of the first auxiliary request then pending, which is the main request in these appeal proceedings, was not sufficiently disclosed for it to be carried out by a person skilled in the art.

The skilled person would not find sufficient information on how to obtain the oil-in-water emulsions of claim 1, that contain diisobutyryl peroxide and satisfy the classification tests for organic peroxide type F.

2.3 According to the case law of the Boards of Appeal, the requirements of sufficiency of disclosure are met if the claimed invention can be performed by a person skilled in the art without undue burden, using common general knowledge and with regard to the information in the patent in suit (T 409/91, OJ EPO 1994, 653, Reasons 3.5; T 435/91, OJ EPO 1995, 188, Reasons 2.2.1).

In the present case, the issue is whether the patent in suit and common general knowledge provide the required information that would allow the skilled person to obtain emulsions with the components defined in claim 1, at the same time satisfying the classification

tests for organic peroxide type F.

2.4 The appellant acknowledged that not every emulsion with the other features required by claim 1 is an emulsion "satisfying the classification tests for organic peroxide type F". The feature requiring that the emulsion must satisfy the classification tests for organic type F was thus additional to the other technical features of the claim.

For this reason, the invention can only be considered to be sufficiently disclosed if the skilled person is in a position to identify how emulsions satisfying the classification tests for organic peroxide type F can be prepared while observing the other features required by the claim, such as the relative amount of oil phase and the type and relative amount of peroxide.

2.5 The appellant has not relied on any evidence showing that, at the date of filing, the skilled person knew how to obtain emulsions with the other features of claim 1 which also satisfy the classification tests for organic peroxide type F. The required information should thus be found in the patent in suit.

2.6 In order to show that the claimed invention was sufficiently disclosed, the appellant relied on the teaching in paragraphs [0006] and [0008] with respect to the peroxide concentrations, [0020] regarding the concentration of the aqueous phase, and [0013] to [0019] with respect to the suitable ingredients of the aqueous phase and their concentrations.

Paragraph [0006] of the patent in suit refers to the effect of replacing a portion of the phlegmatiser with peroxide, which is reflected in claim 1 by the feature

"said oil phase comprises at least 53 wt% and no more than 77 wt% of one or more peroxides", as disclosed in paragraph [0008]. However, as acknowledged by the appellant itself, this requirement is not sufficient to obtain an emulsion "satisfying the classification tests for organic peroxide type F".

Paragraphs [0013] to [0019] merely provide a list of possible components and their amounts in the aqueous phase. They do not teach whether any of these components affects the performance of the emulsion in the classification tests for organic peroxide type F.

Paragraph [0020] discloses the preferred relative amount of oil phase in the emulsion and the active oxygen content resulting from it. As in the previous case, the patent in suit does not allow the skilled reader to identify how any of these parameters could influence the performance of a peroxide emulsion in the tests defined in claim 1.

2.7 At the oral proceedings before the board, the appellant argued that the skilled person could find in Examples 1 and 2, allegedly according to the claimed invention, and Comparative example A, not according to claim 1, sufficient information on how to obtain emulsions that satisfy the classification tests for organic peroxide type F. These examples showed that the key issue was the stability of the emulsion.

However, paragraph [0032] discloses the emulsion of Comparative example A as "very stable", with 99% of the dispersed phase volume well below 10 micron. The board fails to see any difference between this paragraph and [0026], which discloses that Example 1 has exactly the same properties. This argument of the appellant cannot

be followed.

2.8 The appellant argued that the respondents had the burden of proving that the claimed emulsions could not be obtained, and that the respondents had not filed any evidence in this respect. The appellant argued that, according to G 9/91 and T 1003/96, the patentee should be given the benefit of doubt on the issue of sufficiency of disclosure.

It is generally accepted that opponents should bear the burden of proof on the issue of sufficiency of disclosure. However, the appellant acknowledged that not every emulsion with the other features of claim 1 satisfies the classification tests for organic peroxide type F. The respondents do not need to prove facts that the appellant does not question.

2.9 In its last written substantive submissions, the appellant argued that the skilled person could predict whether an emulsion would satisfy the classification tests for organic peroxide type F if the total heat that can be generated by the complete decomposition of peroxide was not higher than the heat required to evaporate the water and any lower boiling compounds present in the emulsion.

However, the appellant has not provided any evidence that the skilled person would have been aware of that possibility at the date of filing of the patent in suit. Thus, this argument cannot be followed, regardless of whether such a method could lead to a reliable prediction.

2.10 The skilled person, trying to obtain emulsions according to claim 1, can only resort to trial and

error to find out which of the emulsions containing the required amount of diisobutyryl peroxide in the oil phase would satisfy the classification tests for organic peroxide type F. This represents an undue burden.

As the patent in suit does not contain the required information that would allow a skilled person to identify suitable candidates that satisfy the classification tests for organic peroxide type F, the board concludes that the subject-matter of claim 1 is not disclosed in a manner that is sufficiently clear and complete for it to be carried out by a person skilled in the art.

3. Auxiliary requests 1 to 4

It was not disputed that with respect to sufficiency of disclosure the situation is the same for claim 1 of these auxiliary requests, and that the arguments set out above also apply *mutatis mutandis*, with the result that none of these requests is allowable.

4. Auxiliary request 5

The appellant argued that, by restricting the claimed emulsion to one having the most preferred components and relative amounts, the issue of sufficiency no longer arose with respect to the subject-matter of claim 1 of auxiliary request 5.

However, claim 1 of auxiliary request 5 does not contain any feature beyond those already discussed in the context of the disclosure of the main request (see point 2.6 above). If the description of the patent in suit does not sufficiently disclose the claimed

invention, it cannot be argued that, by introducing features taken from said description, the issue of lack of disclosure is solved. The appellant acknowledged that not every composition that fulfils the other requirements of claim 1 of auxiliary request 5 is a composition that satisfies the classification tests for organic peroxide type F. The situation with respect to the issue of sufficiency of disclosure is thus the same as for the main request.

For these reasons, and regardless of its admissibility, auxiliary request 5 is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Rodríguez Rodríguez P. Gryczka

Decision electronically authenticated