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**Datasheet for the decision  
of 20 November 2019**

**Case Number:** T 2619/16 - 3.3.03

**Application Number:** 10712412.5

**Publication Number:** 2414407

**IPC:** C08F12/08, C08F4/34

**Language of the proceedings:** EN

**Title of invention:**

AQUEOUS SOLID DIACYL PEROXIDE SUSPENSION

**Patent Proprietor:**

Akzo Nobel Chemicals International B.V.

**Opponent:**

ARKEMA France

**Relevant legal provisions:**

EPC Art. 56  
RPBA Art. 12

**Keyword:**

Inventive step - (main request: no)  
Auxiliary requests submitted with the statement of grounds of  
appeal - admitted (no)



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Case Number: T 2619/16 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 20 November 2019**

**Appellant:** ARKEMA France  
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**Respondent:** Akzo Nobel Chemicals International B.V.  
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**Representative:** Akzo Nobel Chemicals IP Group  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 5 October 2016  
rejecting the opposition filed against European  
patent No. 2414407 pursuant to Article 101(2)  
EPC.**

**Composition of the Board:**

**Chairman** D. Semino  
**Members:** O. Dury  
R. Cramer

## Summary of Facts and Submissions

- I. The appeal by the opponent lies from the decision of the opposition division posted on 5 October 2016 rejecting the opposition filed against European patent No. 2 414 407.
- II. Claim 1 of the granted patent, which is the sole granted claim relevant for the present decision, read as follows:
- "1. Aqueous suspension comprising:
- 35-45 wt% of solid diacyl peroxide particles having a d50 particle size in the range 1-10 micrometers, measured by a static light scattering technique
  - 0.05-0,8 wt% of a dispersant, and
  - not more than 1 wt% of an organic solvent."
- III. A notice of opposition to the patent was filed requesting revocation of the patent in its entirety.
- IV. In the contested decision the following documents were *inter alia* cited:
- D1: US 4 734 135
  - D2: EP-A-0 263 619
  - D5: US 5 270 271
  - D11: JP 07-330 715 A (translation in English)
- V. In that decision, the opposition division *inter alia* decided to admit D11 into the proceedings and held that the subject-matter of the granted claims was novel

over D11 and was inventive step starting from example 2 of D2 as closest prior art. In addition, the opposition division indicated that even if D11 were selected as closest prior art, which was disagreed with, an inventive step would be acknowledged, also when taking into account the teaching of D1 and D2.

- VI. The opponent (appellant) lodged an appeal against the above decision and requested that the decision of the opposition division be set aside and the patent be revoked.
- VII. In the reply to the statement of grounds of appeal, the patent proprietor (respondent) requested that the appeal be dismissed (**main request**) or, in the alternative, that the patent be maintained in amended form according to any of auxiliary requests 1 to 5 filed therewith.

Claim 1 of **auxiliary request 1** differed from granted claim 1 in that the following features were added at the end of the claim:

"provided that the aqueous suspension comprises 35-45 wt% of solid unsubstituted dibenzoyl peroxide particles having a d50 particle size in the range 1-10 microns, measured by a static light scattering technique".

Claim 1 of **auxiliary request 2** differed from claim 1 of auxiliary request 1 in that the aqueous suspension was further defined as "having a viscosity of 800 mPa.s or less, as measured at 22±3°C by a Erichsen Disc viscosimeter type 332/1, and a shelf-life time of at least two months, determined as described in the

examples".

Claim 1 of **auxiliary request 3** differed from claim 1 of auxiliary request 2 in that the amount of dispersant was limited to "0.1-0.6 wt%" (instead of "0.05-0,8 wt%").

Claim 1 of **auxiliary requests 4 and 5** differed from claim 1 of auxiliary requests 1 and 2, respectively in that the following features were added at the end of the claim:

"and wherein the aqueous suspension is prepared by milling a mixture of the diacyl peroxide particles, water, dispersant, and optional other components in a rotor/stator unit, a colloid mill, a pearl mill, a ball mill, a dispax, or an ultrasonic mill"

- VIII. The parties were summoned to oral proceedings.
- IX. With letter of 17 May 2019, the respondent informed the Board that they would not participate in the oral proceedings, without providing any further arguments.
- X. In a communication dated 29 May 2019 sent by the Board, issues to be discussed at the oral proceedings were specified, whereby it was in particular indicated that:
- It appeared that it could be concurred with the appellant that D11 constituted a suitable starting point, in alternative to D2, for the assessment of the inventive step, whereby examples 1-7 of D11 (table 1) appeared to be particularly relevant (section 8.1). An analysis concerning the assessment of the inventive step starting from D11 as closest prior art was further provided, whereby

the combination of D11 with D5 was *inter alia* contemplated (sections 8.3 to 8.5).

- The sole arguments put forward by the respondent in respect of inventive step were in respect of D2 as the closest prior art document and no case had been made by the respondent starting from D11 as closest prior art (section 8.2).
  
- Neither had the respondent explained why the operative auxiliary requests were filed and which objections they could overcome (and why), nor had the appellant put forward any additional argument(s) or objection(s) in that respect. Under such circumstances, it appeared that the same issues as identified for the main request would also be relevant for the auxiliary requests (section 10).

XI. Oral proceedings were held on 20 November 2019 in the presence of the appellant.

XII. The appellant's arguments, as far as relevant to the present decision, were essentially as follows:

**Inventive step of the main request**

- (a) Contrary to the finding of the opposition division, D11 was a suitable closest prior art document since it also dealt with the same problems as the ones addressed in the patent in suit.
  
- (b) The subject-matter of granted claim 1 differed from the compositions prepared in the examples of D11 in that the peroxide initiator had to exhibit a specific particle size (d50), which was not

indicated in D11.

- (c) The examples of the patent in suit illustrating the subject-matter being claimed could not be fairly compared to the comparative examples of the patent in suit. Further considering that no evidence was on file showing that a technical effect was related to the distinguishing feature identified above, the problem effectively solved by granted claim 1 over the closest prior art could only reside in the provision of an aqueous suspension of solid diacyl peroxide particles, which had good stability and viscosity, as an alternative to the ones of the examples of D11.
- (d) Considering that aqueous suspensions of solid diacyl peroxide with a particle size d50 in the range of 1 to 10  $\mu\text{m}$  were usual in the art, the skilled person had no difficulty to prepare them, as shown e.g. in D5.
- (e) In view of the above, the subject-matter of granted claim 1 was not inventive.

**Admittance of auxiliary requests 1 to 5**

- (f) Auxiliary requests 1 to 5 were not substantiated. In addition, they neither satisfied the requirements of Article 84 and 123(2) and (3) EPC, nor those of Rule 80 EPC.
- (g) Auxiliary requests 4 and 5 were further late-filed and should have been filed in the first instance proceedings if it was the respondent's intention to defend these claims.

(h) Therefore, auxiliary requests 1 to 5 should not be admitted into the proceedings.

XIII. The respondent's arguments, as far as relevant to the present decision, may be summarised as follows:

**Main request**

(a) The sole arguments submitted in respect of inventive step were based on D2 as closest prior art. No case was made starting from D11 as closest prior art document.

**Auxiliary requests 1 to 5**

(b) Apart from giving the basis in the application as filed for the amendments made in claim 1 of each of auxiliary requests 1 to 5 as compared to granted claim 1, none of the objections relevant for the granted claims was addressed and no arguments were submitted in support of the inventive step of auxiliary requests 1 to 5, in particular regarding the inventive step starting from D11 as closest prior art.

XIV. The appellant requests that the decision of the opposition division be set aside and that the patent be revoked.

The respondent requests that the appeal be dismissed (main request) or, in the alternative, that the decision under appeal be set aside and the patent be maintained in amended form on the basis of one of auxiliary requests 1 to 5 filed with the rejoinder to the statement of grounds of appeal.



## Reasons for the Decision

### Main request (patent in suit)

1. Inventive step
  - 1.1 Closest prior art
    - 1.1.1 The parties disagreed regarding the selection of the closest prior art document, in particular regarding whether or not D11 could constitute a suitable starting point for the assessment of the inventive step, as an alternative to document D2 which was selected by the opposition division. In that respect, the opposition division held that, although both D2 and D11 were "very good candidates for being the closest prior art", D2 was the most suitable starting point for the assessment of the inventive step (contested decision: first paragraph on page 15 of the reasons).
    - 1.1.2 According to the EPO case law, the closest prior art for assessing inventive step is a prior art disclosing subject matter conceived for the same purpose or aiming at the same objective as the claimed invention and having the most relevant technical features in common, i.e. requiring the minimum of structural modifications (Case Law of the Boards of Appeal of the EPO, 9th edition, 2019, I.D.3.1).
    - 1.1.3 In the present case, the patent in suit deals with aqueous diacyl peroxide suspensions to be used in the production of e.g. styrenic polymers, whereby the use of a pourable fluid of a finely suspended peroxide, i.e. a composition with a suitable viscosity and

peroxide particle size, is of particular interest. Also, these compositions should exhibit good shelf-life-time (patent in suit: paragraphs 1-4, 9, 21). According to paragraph 5 of the patent in suit, compositions comprising low amounts of dispersants are in particular required for polystyrene production.

- 1.1.4 The analysis of the opposition division according to which D2 is a suitable closest prior art because it belongs to the same technical field and it aims at solving similar problems as the patent in suit (reasons: bottom of page 14) was not contested in appeal.
- 1.1.5 However, document D11 (paragraphs 1-3 and 6-7) is also directed to the preparation of aqueous suspensions of solid diacyl organic peroxide compositions to be used as an initiator e.g. in the polymerisation of styrenic polymers and which exhibit good stability and workability (i.e pumpability). In addition, such aqueous suspensions comprising low amounts of dispersant are disclosed in examples 1-7 of D11.
- 1.1.6 Therefore, it is agreed with the opposition division's finding according to which both D2 and D11 may be considered as closest prior art documents. In view of this, there is no reason to disregard D11 as a suitable starting point for the assessment of the inventive step. In particular, in the circumstances of the present case, it cannot be concluded that D11 is a prior art disclosure which is irrelevant to the claimed subject-matter in the sense that it does not mention a problem that is at least related to the ones derivable from the patent specification. Also, it cannot be concluded that D11 does not represent a promising starting point for the skilled person aiming at solving

the technical problems set out in the patent specification.

1.1.7 The above conclusion, according to which D11 is a suitable closest prior art, is further confirmed by the fact that D11 was referred to on page 2, third paragraph, of the original application (paragraph 7 of the patent in suit), which is related to the presentation of the relevant state of the art documents, and by the fact that D11 was further used as comparative example 1 in the experimental part of the application as filed (which is identical to comparative example 1 of the patent in suit).

1.1.8 For those reasons, it is concurred with the appellant that D11 constitutes a suitable starting point, as an alternative to D2, for the assessment of the inventive step. Also, examples 1-7 of D11 (table 1) are particularly relevant.

1.2 Distinguishing feature(s) over examples 1 to 7 of D11

The appellant argued, as in the first instance proceedings (see section 24 of the minutes of the oral proceedings before the opposition division), that the subject-matter of granted claim 1 only differed from the compositions prepared in examples 1 to 7 of D11 in the specific range d50 indicated therein, which is not explicitly disclosed in D11. The Board has no reason to deviate from that view, in particular because said d50 was the only distinguishing feature identified by the respondent in the first instance proceedings (see section 25 of the minutes of the oral proceedings before the opposition division) and this analysis was never disputed.

- 1.3 Problem effectively solved over the closest prior art
- 1.3.1 It is agreed with the appellant that the compositions prepared in the examples of the patent in suit according to granted claim 1 differ from the composition of comparative example 1 of the patent in suit not only in the use of suspensions of peroxide initiator having different particle sizes but also in that different dispersants and different amounts of thickener were used. Under these circumstances, the comparison of the examples of the patent in suit cannot illustrate an effect which is attributable to the distinguishing feature identified above, since they cannot demonstrate that the technical effect has its exclusive origin in the feature characterising the invention defined in the granted claims (see Case Law, *supra*, I.D.4.1, in particular the paragraph related to T 519/07).
- 1.3.2 Under these circumstance, the technical problem effectively solved over the closest prior art is seen as residing in the provision of a further aqueous suspension of solid diacyl peroxide particles which has good stability and viscosity, as an alternative to the ones of the examples of D11.
- 1.4 Obviousness
- 1.4.1 The question remains to be answered if the skilled person, desiring to solve the problem indicated in section 1.3.2 above, would, in view of the closest prior art, possibly in combination with other prior art or with common general knowledge, have modified the disclosure of the closest prior art in such a way as to arrive at the claimed subject matter.

1.4.2 In that respect, it is known in the art that aqueous suspensions of finely suspended peroxides are desirable (D1: column 1, lines 38-43, column 2, lines 25-31 and column 3, lines 20-24; D5: column 1, lines 32-49 and column 6, lines 48-62; paragraphs 2-3 of the patent in suit related to the prior art). A process of preparation of an aqueous suspension of solid diacyl peroxide particles having a d50 according to granted claim 1 is further known from D5 (claims 1-4 and 7-9; examples). In addition, no argument was provided by the respondent to refute the appellant's objection based on the combination of D11 with D5. Under these circumstances, there is no reason for the Board to reject the appellant's arguments.

1.4.3 Therefore, it is concluded that it is obvious to solve the problem defined in section 1.3.2 above by preparing an aqueous suspension of solid diacyl peroxide particles according to D11 using the preparation method of D5.

1.4.4 For these reasons, the subject-matter of granted claim 1 is not inventive and the main request, as a whole, is not allowable.

#### **Auxiliary requests 1 to 5**

2. Admittance

2.1 Considering that auxiliary requests 1 to 5 were submitted together with the respondent's rejoinder to the statement of grounds of appeal, the admission into the proceedings of these requests is subject to the stipulations of Article 12(4) RPBA, according to which (without prejudice to the power of the Board to hold inadmissible facts, evidence or requests which could

have been presented or were not admitted in the first instance proceedings), they shall be taken into account if and to the extent they relate to the case under appeal and meet the requirements in Article 12(2) RPBA (in which it is stipulated that the statement of grounds of appeal and the reply shall contain a party's complete case).

2.2 In the present case, the sole arguments in respect of auxiliary requests 1 to 5 which were submitted by the respondent concerned the basis in the application as filed for the amendments made as compared to the main request (rejoinder to the statement of grounds of appeal: bottom of page 1 and top of page 2), which is at most relevant for the issue of Article 123(2) EPC. However, no argument was provided by the respondent to explain why these auxiliary requests may overcome any objection against the main request, including the objection of lack of inventive step based on the combination of D11 with D5 which was put forward in the appellant's statement of grounds of appeal. In addition, no argument was put forward by the respondent in reaction to the Board's communication in which it was expressly indicated that no case had been made by the respondent in view of the objection of lack of inventive step starting from D11 as closest prior art (in particular in combination with D5) and that the respondent had not explained why the operative auxiliary requests were filed and which objections they were meant to overcome (and why). Under these circumstances none of auxiliary requests 1 to 5 is held to be substantiated and, for that reason, none of these requests satisfies the requirements of Article 12(2) RPBA.

- 2.3 For that reason, the requests are not to be taken into account and the Board, in the absence of any substantiation, finds it appropriate not to admit auxiliary requests 1 to 5 into the proceedings.
3. Considering that the respondent's main request is not allowable pursuant to Article 56 EPC and that auxiliary requests 1 to 5 are not admitted into the proceedings, the patent is to be revoked. Also, in view of that decision, there is no reason for the Board to deal with any other argument or objection put forward by the appellant.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



B. ter Heijden

D. Semino

Decision electronically authenticated