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Datasheet for the decision of 30 April 2009

Case Number: T 1015/06 - 3.3.01

Application Number: 97937364.4

Publication Number: 0923625

IPC: C09D 125/06

Language of the proceedings: EN

Title of invention:
Stain resistant water-borne coating composition

Patentee:
Orica Australia Pty Ltd

Opponent:
BASF SE
Akzo Nobel N.V.
Rohm and Haas Company

Headword:
Water-borne coating composition/ORICA AUSTRALIA PTY LTD.

Relevant legal provisions:
RPBA Art. 13(1)(3)
EPC Art. 123(2), 100(b)(c), 84
EPC R. 80

Keyword:
"Auxiliary requests I and II - Admissibility - (yes)"
"Main request and Auxiliary request II - Added matter - (yes)"
"Auxiliary request I - Sufficiency of disclosure - (no)"

Decisions cited:
T 1586/05, T 0452/04, T 0943/00, T 0619/00, T 0680/93, T 0288/92, T 0256/87

Catchword:
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Case Number: T 1015/06 - 3.3.01

D E C I S I O N
of the Technical Board of Appeal 3.3.01
of 30 April 2009

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 19 April 2006 revoking European patent No. 0923625 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: P. Ranguis
Members: J.-B. Ousset
D. S. Rogers

Summary of Facts and Submissions

I. This appeal lies from the decision of the opposition division to revoke the European patent EP-B-0 923 625 on the basis of the main request and the auxiliary requests I to V.

II. Claim 1 of the main request reads as follows:

"1. A water-borne domestic household paint comprising an anionically stabilised addition polymerised polymeric dispersion polymerised from a carboxylic acid containing ethylenically unsaturated monomer selected from acrylic acid and methacrylic acid, a hydrophobic aromatic ethylenically unsaturated high Tg monomer selected from styrene and alpha methyl styrene, and an C_2-C_{12} acrylate ester monomer, **characterised in that** the relative proportions of ethylenically unsaturated monomers are selected such that the following Equation I is satisfied:

$$a = (5+b)/(c + d/2.4)^2 \qquad (I)$$

where
a = 2 - 13
b = weight percent hydrophobic aromatic high Tg monomer
c = weight percent acrylic acid
d = weight percent methacrylic acid

and further **characterized in that** the polymeric dispersion has Tg -15 to 30°C."

III. Oppositions were filed on the grounds of lack of sufficiency (Article 100(b) EPC), unallowable extension

of the claimed subject-matter (Article 100(c) EPC and lack of novelty and lack of inventive step (Article 100(a) EPC).

In its decision, the opposition division held that the main request fulfilled the requirements of Articles 100(c) and 84 EPC. A basis in the description as originally filed was present for the disputed value of temperature "30°C". In the absence of any clear teaching in the description as originally filed, the opposition division considered that the person skilled in the art could not find in this description the particular procedure to be applied to determine the Tg. The patent description as originally filed was fundamentally ambiguous due to the different methods of measurement of the Tg that it contained, which were likely to produce different results. Therefore, the person skilled in the art would be unable to establish whether any particular Tg was the one referred to in claim 1. Thus he could not be sure that he was working within the ambit of the claims or not. The disclosure of the patent in suit was thus regarded as insufficient in view of the Article 100(b) EPC. The same conclusions were reached concerning auxiliary requests I to IV.

IV. Oral proceedings took place on 30 April 2009 before the board. During these proceedings, the appellant withdrew all the requests which were on file and requested that the procedure be continued on the basis of the main request, and a first and second auxiliary request filed during the oral proceedings.

Claim 1 of the main request reads as follows:

"1. A water-borne domestic household paint comprising an anionically stabilised addition polymerised polymeric dispersion polymerised from a carboxylic acid containing ethylenically unsaturated monomer selected from acrylic acid and methacrylic acid, a hydrophobic aromatic ethylenically unsaturated high Tg monomer selected from styrene and alpha methyl styrene, and an C_2-C_{12} acrylate ester monomer, characterised in that the relative proportions of ethylenically unsaturated monomers are selected such that the following Equation I is satisfied:

$$a = (5+b)/(c + d/2.4)^2 \qquad (I)$$

where
a = 2 - 13
b = weight percent hydrophobic aromatic high Tg monomer
c = weight percent acrylic acid
d = weight percent methacrylic acid

and further characterized in that the polymeric dispersion has Tg -15 to 25°C."

Claim 1 of the first auxiliary request reads as follows:

"1. A water-borne paint comprising an anionically stabilised addition polymerised polymeric dispersion polymerised from a carboxylic acid containing ethylenically unsaturated monomer selected from acrylic acid and methacrylic acid, a hydrophobic aromatic ethylenically unsaturated high Tg monomer selected from

styrene and alpha methyl styrene, and an C_2-C_{12} acrylate ester monomer, characterised in that the relative proportions of ethylenically unsaturated monomers are selected such that the following Equation I is satisfied:

$$a = (5+b)/(c + d/2.4)^2 \qquad (I)$$

where
a = 2 - 13
b = weight percent hydrophobic aromatic high Tg monomer
c = weight percent acrylic acid
d = weight percent methacrylic acid

and further characterized in that the polymeric dispersion has Tg -15 to 25°C."

Claim 1 of the second auxiliary request reads as follows:

"1. A water-borne paint comprising an anionically stabilised addition polymerised polymeric dispersion polymerised from a carboxylic acid containing ethylenically unsaturated monomer selected from acrylic acid and methacrylic acid, a hydrophobic aromatic ethylenically unsaturated high Tg monomer selected from styrene and alpha methyl styrene, and an C_2-C_{12} acrylate ester monomer, characterised in that the relative proportions of ethylenically unsaturated monomers are selected such that the following Equation I is satisfied:

$$a = (5+b)/(c + d/2.4)^2 \qquad (I)$$

where
a = 2 - 13
b = weight percent hydrophobic aromatic high Tg monomer
c = weight percent acrylic acid
d = weight percent methacrylic acid

and further characterized in that the polymeric dispersion has a Fox Tg -15 to 25°C."

V. In his statement of grounds of appeal, the appellant (patentee) argued as follows:

- the Tg figures in the examples 1-3 of the patent in suit are given in Fox Tg. This applied also to examples 4 to 10, since they were prepared as in example 1.

- the paragraph 41 of the patent in suit taught the person skilled in the art, that even if Fox Tg was appropriate in most examples and it thus would be the skilled person's first choice. It was not appropriate for a situation when a polymer dispersion does not form a film at room temperature and thus would not be suitable to be used in the mixtures of the invention.

- the specific sentence of paragraph 41 of the patent in suit "*In practice we find in most cases the Tg as determined by various available methods is close to the theoretical Fox Tg*" would suggest to the person skilled in the art that Fox Tg could be appropriately used. Moreover, the person skilled in the art would understand the meaning of the word "close".

- when the measured Tg was significantly different from the Fox Tg, then the person skilled in the art, in view of the content of paragraph 41 of the patent in suit (page 11, lines 16 to 33 of the application as filed), would adjust the monomer composition in order to lower the film forming temperature of the dispersion. The adjusted Tg would still fall within the range of -15 to 25°C. Furthermore, when the behaviour is such that the required film forming properties are not met, an adjustment of the Tg by modifying the monomer compositions or the type of monomer would give the suitable Fox Tg to render the dispersion film forming. A reference to Christopher Henry Such's declaration of 25 August 2006 and more particularly to paragraphs 5 to 14 was made.

VI. The respondents (opponents 1 and 3) replied to the statement of grounds of appeal as follows:

- the term "domestic" found in each auxiliary request was not disclosed in the description as originally filed in combination with a water-borne household paint. Moreover, auxiliary request III infringed the requirements of Article 123(2), because the dispersion was not required to be aqueous. Auxiliary request IV was objected to on the basis of Rule 80 EPC.

- the respondents concurred with the reasons given by the opposition division in the decision under appeal. They emphasized that the Tg determined by the different methods can vary significantly from

the value of the theoretical Fox Tg by referring back to the content of the patent in suit. In the absence of any particular method to be used for determining the Tg, the person skilled in the art did not have enough information in the patent to reproduce the claimed invention. Reference was also made to Mr Alvin M. Maurice's declaration. The film forming ability at room temperature emphasized by the appellant did not appear to be a requirement of the claimed invention in view of the application as originally filed.

VII. The appellant requested that the decision under appeal be set aside and that the case be remitted to the department of the first instance for consideration of the objections based on Articles 100(a) EPC in respect of the main request, or either of the auxiliary requests I and II submitted at the oral proceedings.

VIII. The respondents requested that the appeal be dismissed.

IX. At the end of the oral proceedings, the decision of the board was announced.

Reasons for the Decision

1. The appeal is admissible.

2. Admissibility of the main and auxiliary requests I and II

2.1 Article 13(1) of the RPBA gives the board the possibility to exercise its discretion when deciding to

allow any further amendments from a party after the filing of its statement of grounds of appeal. The complexity of the amendments and procedural economy are taken into consideration when exercising this discretion. Moreover, any amendments sought after oral proceedings have been arranged are not admitted if they raise issues, which cannot reasonably be dealt with without adjournment of the oral proceedings (Article 13(3) RPBA).

2.2 Claim 1 of the main request is identical to claim 1 of the first auxiliary request submitted by the appellant with his statement of grounds of appeal. Auxiliary request I, which differs from the main request in that the word "domestic" was deleted and auxiliary request II, which differs from the main request in that the Tg is expressed in "Fox Tg", represent fair attempts to overcome the formal objections based on Article 123(2) EPC and Rule 80 EPC and they are not based on a new subject-matter, which could either surprise the respondents or raise new issues requiring the postponement of oral proceedings (see Article 13(3) RPBA).

2.3 Therefore, these requests are admitted into the procedure (Articles 13(1) and (3) RPBA).

Main request

3. Amendments

3.1 The expression "An aqueous coating composition" (see claim 1 in the application as filed) has been replaced

by the expression "A water-borne domestic household paint" in claim 1 of this request.

3.2 Article 123(2) EPC prohibits amendments generating "subject-matter which extends beyond the content of the application as filed". In order to determine whether or not the subject-matter of an amended claim satisfies this requirement it has to be examined whether that amended claim comprises technical information which a skilled person would not have objectively and unambiguously derived from the application as filed (see decisions T 288/92, point 3.1 of the reasons and T 680/93, point 2 of the reasons, neither published in OJ EPO).

3.3 In the present case, the question is whether claim 1 due to the technical feature "A water-borne domestic household paint", complies with Article 123(2) EPC.

3.4 The disputed expression finds no explicit support in the application as filed. Indeed, the expression "water-borne" found throughout the description as originally filed is never mentioned in combination with the expression "domestic household".

3.5 The appellant referred to various passages of the description, either belonging to the content of the description of the invention or to the content of the "background of the invention". However, both parts of the application as filed are to be distinguished from each other, since generally the "background of the invention" refers to subject-matters not covered by the invention.

3.6 With respect to the content of the invention, the application states that the invention relates to water-borne coating compositions and in particular to coating compositions that exhibit good stain resistance properties (see page 1, lines 3-4 of the application as filed). Example 1 of the description shows that the film formed is dried at 25°C and tested with stains (e.g. red wine, tea ...)(see page 16, "Evaluation of Paints, lines 10 to 15 of the application as filed). Furthermore, under the title "Summary of the invention", the invention provides in one form an aqueous coating composition (see page 7, lines 7-8 of the application as filed).

However, from those three parts of the description, it cannot be inferred that the water-borne composition is specifically meant to be used in a "domestic household". Indeed, stains can occur equally in commercial uses (bars, restaurants …). Furthermore the aqueous coating composition recited under the "Summary of the invention" is not limited to a water-borne household domestic paint since the expression "domestic household" does not appear therein.

3.7 Even when considering the content of the background of the invention, no conclusion can be reached due to the lack of coherence of this part of the description. Indeed, from the different expressions referred to by the appellant, namely "Paints are widely used in households", "domestic stains", "domestic staining materials", "water-borne latex paints", "domestic household applications", "common household staining materials" (see page 1, lines 6, 8, 11, 22; page 4, line 3; page 7, line 6 respectively of the application

as filed), a water-borne domestic household paint as recited in claim 1 does not directly and unambiguously emerge.

3.8 In view of the above, the description as originally filed does not disclose directly and unambiguously water-borne domestic household paints having the features set out in claim 1. The requirements of Article 123(2) EPC are thus not met and this request is to be rejected.

First auxiliary request

4. Sufficiency of disclosure

4.1 The present objection of lack of sufficiency of disclosure arises from the dispute between the parties regarding the definition of the Tg which is one of the parameters defining the claimed water-borne-paint in claim 1.

4.2 The opposition division relying, in particular, upon the decision T 256/87 (points 10 and 17) held that in order to carry out the invention, the skilled person must be in a position to establish whether a product falls within the area covered by the claim and to reliably prepare the claimed product. However in T 256/87 the requirement relating to the skilled person knowing when he was working "within the forbidden area of the claims" was concerned with the clarity of the claims, under Article 84 EPC, rather than with sufficiency of disclosure (see T 943/00, point 10.5.1; T 619/00, point 5.3; T 452/04, point 5.7.1 and T 1586/05, point 6.3.1). Since the non compliance with

the requirement of Article 84 EPC is not a ground of opposition, the arguments, facts or evidence related to the question whether or not the skilled person works "within the forbidden area of the claims" are irrelevant.

4.3 In the present case, regarding insufficiency, the question is whether the person skilled in the art, using the description as filed and his common general knowledge, is able to prepare the claimed water-borne paints without undue burden.

4.4 For preparing the water-borne paints of the invention, the person skilled in the art can choose an acrylic acid or a methacrylic acid; a styrene or alpha methyl styrene; and an C_2-C_{12} acrylate ester monomer, in the relative proportions as indicated in Equation I (see page 7, lines 8 to 21 of the application as filed). The aqueous dispersions may be prepared by known means (see page 10, lines 6-7 of the application as filed). The aqueous dispersions obtained must have a glass transition temperature (Tg) from -15 to 25°C. It is not disputed by the appellant that Tg is an important characteristic of the aqueous dispersions and, therefore, of the water-borne paints (see page 11, lines 16-17 of the application as filed and statement of grounds of appeal, paragraph 4.4, second sentence). Glass transition temperature, Tg, defines the onset of long range molecular motion where the polymer contained in the aqueous dispersion preserves the outward appearance of a solid but becomes rubbery and then tacky with increasing temperature and undergoes plastic flow and elastic deformation (page 11, lines 18 to 21 of the application as filed). The board can admit that

this is a fundamental property of a water-borne paint which in that case must have a Tg of -15 to 25°C.

4.5 The key paragraph of the description states that:

"An important characteristic of the aqueous dispersions of the present invention is their glass transition temperatures (Tg). The term glass transition temperature is well known in the art and generally defines the onset of long range molecular motion wherein the polymer preserves the outward appearance of a solid but becomes rubbery and then tacky with increasing temperature and undergoes plastic flow and elastic deformation. The theoretical Tg is often calculated in accordance with the Fox equation 1/Tg =Wi/Ti. However, Tg can be measured in accordance with the differential thermal analysis method set out in the Journal of Paint Technology, Volume 41, pages 167 - 168 (1969) or by testing for softening points, using minimum film forming temperature gradient bars or thermomechanical analysis (TMA). In practice we find in most cases that the Tg as determined by the various available methods is close to the theoretical Fox Tg. However, in some cases significant variations can occur and typically anionic latexes behave as if their Tg is 10 - 15°C above the Fox Tg and with non-ionic latexes they behave as if their Tg is less than their Fox Tg. In those instances we prefer to use Tg as measured on actual dispersions, after film formation using a measurement such as TMA." (see page 11, lines 16 to 33 of the application as filed).

4.6 From this passage, the person skilled in the art receives various pieces of information:

1) he can use the Fox equation to select the amount and the type of monomers that are to be polymerised to form an anionic dispersed polymer having a calculated Tg that falls within the required range, namely within the range -15 and 25°C.

2) In practice, it was found in most cases that the Tg as determined by the various available methods is close to the theoretical Fox Tg.

3) however, in some cases significant variations can occur between the calculated Fox Tg and the measured Tg. Typically, anionic latexes behave as if their Tg is 10-15°C above the Fox Tg.

4.7 Thus, from the above cited statement two interpretations are possible.

4.7.1 First, all the anionic latexes behave as if their Tg was 10-15°C above the Fox Tg (see point 3) of 4.6). However, this interpretation is not in line with the examples "according to the invention" (see page 14, lines 2-3 of the application as filed). Indeed, Example 1, describes an aqueous dispersion having good properties as a paint and the Fox Tg of which is 22°C. Following the interpretation that anionic latexes behave as if their Tg is 10-15°C above the Fox Tg, example 1 would be not according to the invention. Therefore, this interpretation is to be excluded.

4.7.2 Second, for anionic latexes "in most cases" the measured Tg is "close" to the calculated Fox Tg (see

point 2) of 4.6) and in "some" cases anionic latexes behave as if their Tg is 10-15°C above the Fox Tg (see point 3) of 4.6).

This interpretation is in conformity, in particular, with Example 1, where the Tg of the aqueous dispersion would be "close" of the calculated Fox Tg of 22°C and, therefore, within the defined range of -15 to 25°C.

That means that for a given calculated Tg of 20°C, the aqueous dispersion containing the anionic latex may have a Tg close to 20°C and probably within the defined range of -15 to 25°C or may have a Tg 10-15°C above the calculated Tg, namely outside the defined range of -15 to 25°C.

4.8 Given this finding, a serious question arises whether the person skilled in the art has been given sufficient information to carry out the invention.

Indeed, in the absence of any guidance enabling the person skilled in the art to determine for a given composition of monomers (type and amount) whether the Tg will be close to the calculated Tg (Fox) or 10-15°C above the calculated Tg (Fox), the question arises whether the person skilled in the art has reliable information from the general description for preparing the appropriate dispersion.

4.9 The appellant in support of his case submitted the declaration of an expert, Mr Such.

4.9.1 Mr Such expresses the opinion that the determination of the composition is based on a reverse engineering

process according to which the Tg is first selected and then, using the Fox equation, the amount and type of the different monomers is determined in order to prepare a polymer dispersion having that Tg. In other words, he would prepare a polymer dispersion such that it had a Fox Tg falling within the required temperature range.

4.9.2 Furthermore, Mr Such considers that in most cases the use of a Fox Tg will be adequate in predicting polymer dispersions that will be suitable for use in performing the invention.

4.9.3 Mr Such further admits that the fact that a Fox Tg and a measured Tg may be different is well known in the art and that the reference to the difference being "significant" (see point 4.5 above) means that the difference is so great that despite what the Fox Tg may suggest it does not adequately reflect the polymer dispersion's ability in practice to form a film at ambient temperatures. In that case, the Tg of the dispersion should be measured, an appropriate lower Fox Tg selected and a modified monomer composition calculated so that a suitable paint is obtained.

4.10 However, in the board's judgment, Mr Such does not address the key issue of the requirement of sufficiency (see 4.8). Mr Such does not provide any information on how the person skilled in the art would be able to predict, when selecting the monomers (type and amount), whether he would obtain an aqueous dispersion close to the calculated Tg or whether he would obtain one 10-15°C above. In fact, Mr Such comes to the conclusion that only the testing of the aqueous dispersion will

enable the person skilled in the art to determine whether the dispersion is appropriate or not. However, this result would only be valid for the given dispersion without giving the person skilled in the art any general teaching which could be applied to other dispersions. Therefore, the person skilled in the art in view of the teaching of the description, in selecting a particular composition of monomers, is given no practical technical teaching on how to obtain the water-borne paint having the required Tg.

4.11 Regarding the information contained in the examples, the following is to be noted.

Among the examples of the description, Example 1 describes an aqueous dispersion of Fox Tg +22°C which reveals good properties (see pages 14 to 17 of the application as filed). Examples 3 to 7 are outside the scope of the invention (Fox Tg higher than +25°C). Examples 2, 8 to 14 are incomplete since only the percentage of styrene, acrylic acid and methacrylic acid are given, the methyl methacrylate and butyl acrylate levels being "adjusted" to give the appropriate Tg.

Therefore, the examples cannot be used to remedy the deficiency of the description since they either relate to a very specific composition from which no general teaching can be drawn or are insufficiently disclosed.

4.12 The person skilled in the art, in the absence of any guidance as to the choice of the kind and amount of monomers, is obliged each time to formulate and test the polymer dispersion for use as a water-borne paint.

That means the person skilled in the art can only establish by trial and error whether a particular dispersion will or will not provide a satisfactory result. Given that this finding applies to all the possible water-borne paints within the scope defined in claim 1, this amounts to an undue burden.

4.13 In conclusion, the patent does not give the person skilled in the art sufficient information to allow him to carry out the claimed invention therein described. For this reason the first auxiliary request gives rise to objection under Article 100(b) EPC and is to be rejected.

Second auxiliary request

5. Amendments

5.1 Claim 1 of this request differs from claim 1 of the first auxiliary request in that the Tg range is now expressed in Fox Tg.

5.2 In view of the content of the description relating to the glass transition temperature (see point 4.5 above), it does not emerge directly and unambiguously from it whether the Tg is the calculated Tg (Fox) or one of the measured Tg's, or the physical phenomena of the onset of long range molecular motion, etc.

5.3 Nor can the examples help in that respect. Example 1 describes an aqueous dispersion having a calculated Tg (Fox) within the required range and examples 8 to 14 describe aqueous dispersions having a non defined Tg.

Therefore, no general teaching can be drawn that Tg is unambiguously the Fox Tg.

5.4 There is no basis in the application as originally filed from which it can be inferred directly and unambiguously by the person skilled in the art that the range values of the Tg defined in claim 1 are Fox Tg values.

5.5 Claim 1 contravenes Article 123(2) EPC and since the Board can only decide on a request as a whole, this request is to be rejected.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar The Chairman

M. Schalow P. Ranguis