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Datasheet for the decision of 18 December 2012

Case Number: T 0098/12 - 3.3.03

Application Number: 03741063.6

Publication Number: 1636273

IPC: C08F 2/32

Language of the proceedings: EN

Title of invention:
Synthetic thickeners for cosmetics

Patent proprietor:
LAMBERTI S.p.A.

Opponent:
SOCIETE D'EXPLOITATION DE PRODUITS POUR L'INDUSTRIE CHIMIQUE, S.E.P.P.I.C

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0098/12 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 25 October 2012

Appellant: (Opponent)	SOCIETE D'EXPLOITATION DE PRODUITS POUR L'INDUSTRIE CHIMIQUE, S.E.P.P.I.C 75 quai d'Orsay F-75007 PARIS CEDEX 07 (FR)
Representative:	Conan, Philippe Claude, et al L'Air Liquide D.S.P.I. 75, quai d'Orsay F-75321 Paris Cedex 07 (FR)
Respondent: (Patent proprietor)	LAMBERTI S.p.A. Via Piave 18 I-21041 Albizzate (Varese) (IT)
Representative:	Gislon, Gabriele Marietti, Gislon e Trupiano S.r.l. Via Larga 16 I-20122 Milano (IT)
Decision under appeal:	**Decision of the opposition division of the European Patent Office posted 21 November 2011 rejecting the opposition.**

Composition of the Board:

Chairman: B. ter Laan
Members: D. Marquis
C. Vallet

Summary of Facts and Submissions

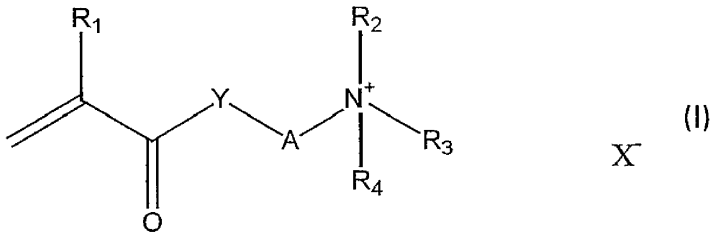
I. The appeal by the opponent lies from the decision of the opposition division dated 21 November 2011 to reject the opposition to European patent N° 1 636 273 based on the application number 03 741 063.6, originating from international application PCT/IT2003/000389 having an international filing date of 24 June 2003 and published as WO2004/113393.

II. The patent was granted with a set of fifteen claims of which claims 1, 8 and 15 were independent and read as follows:

"1. Inverse emulsion wherein the weight ratio between the aqueous phase and the organic phase is from 4:1 to 2:1 and containing from 20 to 70% by weight of an acrylic polymer obtained by inverse emulsion polymerisation of

i. from 55 to 75% by weight of an anionic acrylic monomer containing a strongly acidic functional group;

ii. from 0.1 to 5% by weight of a cationic acrylic monomer of the formula (I)



(I)

wherein

R_1 is hydrogen or methyl;

R_2, R_3, R_4 are, one independently of the others, hydrogen or C_1-C_4 alkyl;
Y is NH or O;
A is a C_1-C_6 alkylene; X is chloride,

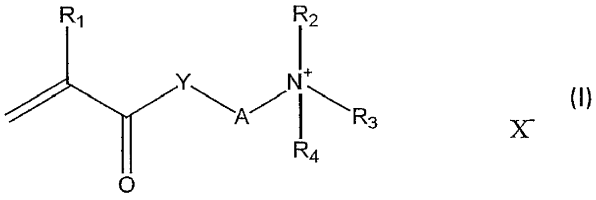
iii. from 25 to 45% by weight of a C_3-C_5 anionic acrylic monomer containing a carboxylic group."

"8. Process for the preparation of an inverse emulsion characterised by:

a. preparing a composition consisting of from 40 to 60% by weight of water, and for the remaining percentage by weight of a mixture of acrylic monomers consisting of:

i. from 55 to 75% by weight of an anionic acrylic monomer containing a strongly acidic functional group;

ii. from 0.1 to 5% by weight of a cationic acrylic monomer of the formula (I)



(I)

wherein
R_1 is hydrogen or methyl;
R_2, R_3, R_4 are, one independently of the others, hydrogen or C_1-C_4 alkyl;
Y is NH, or O;
A is a C_1-C_6 alkylene; X is chloride,

iii. from 25 to 45% by weight of a C_3-C_5 anionic acrylic monomer containing a carboxylic group.

b. adding to the composition prepared in a. an aqueous solution of an alkali to regulate the pH between 4 and 7, a cross-linking agent and an initiator of radical polymerisation, maintaining the temperature between 3 and 7°C;

c. preparing an organic phase containing one or more water-in-oil emulsifiers;

d. introducing the mixture obtained in b. into the organic phase prepared in c. and emulsifying the two phases by vigorous stirring;

e. initiating the polymerisation and completing it maintaining the temperature between 55 and 95°C under vigorous stirring;

f. cooling the reaction mixture to 35-45°C and adding an oil-in-water emulsifier."

"15. Use of an inverse emulsion according to any of the claims from 1 to 7, for the preparation of cosmetic formulations."

The remaining claims were dependent claims directed to embodiments of claim 1 (claims 2 to 7) and of claim 8 (claims 9 to 14).

III. A notice of opposition against the patent was filed on 10 February 2009. The opponent requested the revocation of the patent in its entirety based on Article 100(a) EPC (inventive step).

IV. The decision of the opposition division was based, inter alia, on the following documents:

D1: WO-A-99/36445
D2: EP-B1-0 186 361
D3: US-B1-6 329 483.

V. At the oral proceedings held on 09 November 2011, the opposition division rejected the opposition. Starting from D1 as the closest prior art, the opposition division formulated the technical problem as to provide a thickener in the form of a stable emulsion that gave stable cosmetic formulations and had a good thickening efficiency as well as improved compatibility with skin and hair. The examples of the patent in suit demonstrated that the technical problem had been solved. As neither of D3, D5, D4 and D2 led to the solution provided in the patent in suit, the subject matter of the claims as granted was found to be inventive.

VI. On 19 January 2012, the opponent lodged an appeal; the prescribed appeal fee was paid on the same day. The statement setting out the grounds of appeal was filed on 27 March 2012. The appellant requested that the patent be revoked.

VII. On 11 Mai 2012, the Board issued a summons to attend oral proceedings to be held on 10 October 2012, rescheduled to 18 December 2012 by communication of 23 July 2012.

VIII. By letter of 10 August 2012, the respondent (patent proprietor) filed comments on the statement of grounds of appeal and requested the dismissal of the appeal or

the maintenance of the patent as amended on the basis of two auxiliary requests filed therewith.

By letter of 11 September 2012, the respondent filed further comments on the statement of grounds of appeal together with two tests (Tests A' and B').

IX. By letter of 29 October 2012, the appellant filed a series of four tests (Tests N° 1 to 4).

X. Oral proceedings were held on 18 December 2012 in the presence of both parties.

XI. The appellant's arguments may be summarised as follows:

(a) D1 represented the closest prior art.

(b) D1There was no demonstration of an improvement of the thickening properties over D1. The variations of the Brookfield viscosity measured were not significant, as shown in the tests provided on 29 October 2012. The cationic monomer forming part of the polymerization mixture had little or no influence on the viscosity of the inverse emulsion product.

(c) Therefore, the technical problem solved over D1 was to provide an alternative thickening agent for anionic polymers.

(d) D3 disclosed the preparation of emulsions from copolymers comprising a cationic monomer. The cationic monomer in the copolymers led to stable emulsions that displayed good affinity for skin and hair. Inverse emulsions were encompassed. D3 taught that in order to perform an inverse polymerization on the monomers described therein,

the monomers should be hydrosoluble. It was known that by reducing the number of carbon atoms of the ammonium substituent R^1, the monomer would become more hydrosoluble.

(e) The cationic monomers of the patent in suit could be readily made and were also known from D4 or D5 which also disclosed their use in inverse emulsion polymerization.

(f) When the amounts of monomers (i) and (iii) were 75% and 25% by weight respectively, the acrylic polymer obtained by inverse emulsion polymerisation as disclosed in claims 1 and 2 of the patent in suit could not contain the cationic monomer (ii). This range of products was not inventive as the alleged invention could not be performed over the whole scope of the claims (Board of Appeal decision T 939/92).

XII. The respondent's arguments may be summarised as follows:

(a) D1 represented the closest prior art.

(b) The technical problem over D1 was to provide inverse emulsions as thickening agents for cosmetic formulations that displayed improved compatibility with skin and hair.

(c) The inverse emulsions of the patent in suit were stable and displayed thickening properties demonstrated in the examples and in the tests provided with letters dated 30 September 2009 and 11 September 2012.

(d) D3 did not disclose an inverse emulsion and the cationic monomers were different from those of the patent in suit.

(e) D3 did not teach the use of strong acid monomers and did not disclose the cationic monomer of present claim 1. The technical effect addressed in D3 required the ammonium substituent R^1 in the cationic monomer of formula II to be hydrophobic so that it was only partially soluble in water.

(f) The skilled worker would not look for cationic monomers in D4 or D5 because these documents were remote to the patent in suit.

(g) The question of whether the invention could be carried out over the whole scope of the claims because the amounts of monomers (i) and (iii) could add up to 100% was not an issue of inventive step.

XIII. The appellant (opponent) requested that the decision under appeal be set aside and that the European patent N° 1 636 273 be revoked.

The respondent (patent proprietor) requested that the patent be maintained as granted (main request) or on the basis of one of the two auxiliary requests submitted with letter dated 10 August 2012.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. Inventive step

2.1 The patent in suit relates to the use of inverse emulsions as synthetic thickeners in cosmetic formulations that possess skin and hair compatibility (paragraphs [0001] and [0003]). Such emulsions for cosmetic use are known from D1 which the parties as well as by the opposition division regarded as the closest prior art. The Board sees no reason to depart from this point of view.

2.2 D1 (claim 1) discloses a composition comprising an oil phase, an aqueous phase, at least one emulsifier of water-in-oil (W/O) type, at least one emulsifier of oil-in-water (O/W) type, characterized in that the said composition is an inverted latex comprising from 20% to 60% by weight, and preferably from 25% to 45% by weight, of a branched or crosslinked anionic polyelectrolyte based on at least one monomer having a strong acidic function, copolymerized with at least one monomer having a weak acidic function.

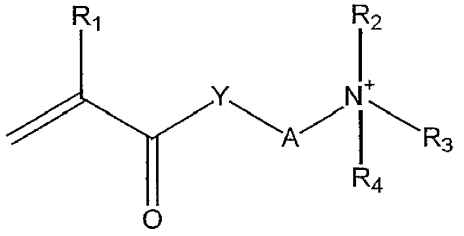
Several emulsions prepared using an inverse latex according to D1 are said to be stable and homogeneous (D1, page 14, line 1 to page 15, line 10). Brookfield viscosity measurements performed in water (example 1; page 15, lines 5 to 10) reveal the thickening properties of these emulsions. Cosmetic formulations prepared therefrom are said to be compatible with skin and hair (page 8, lines 20 to 30 and examples 2 to 41).

2.3 On the basis of paragraph [0009] of the patent in suit, the respondent formulated the technical problem solved over the closest prior art as to provide inverse emulsions as thickening agents for cosmetic

formulations that display improved compatibility with skin and hair.

Examples 1 and 2 of the patent in suit describe the preparation of inverse emulsions according to claim 1 and evaluate their stability and thickening properties. Examples 3 and 4 describe cosmetic formulations based on the emulsions of examples 1 and 2. The respondent provided supplementary tests with letter of 30 September 2009. These tests contained inverse emulsions of acrylic polymers containing varying amounts of a cationic monomer according to claim 1 said to have been prepared according to the procedure described in the patent in suit. Further tests provided on 11 September 2012 showed variations of the Brookfield viscosity at several rotational speeds, pH and salt concentrations of inverse emulsions of an acrylic polymer with and without cationic monomer. None of those tests featured an inverse emulsion according to the closest prior art D1, so that they cannot demonstrate an improvement of the compatibility of the claimed inverse emulsions with skin and hair over those described in D1. In view of the above, the technical problem effectively solved can only be seen as to provide further inverse emulsions as thickening agents for cosmetic formulations that have good compatibility with skin and hair.

2.4 The solution to that problem is the inverse emulsion of claim 1 as granted and more particularly, the use of from 0.1 to 5% by weight of a cationic acrylic monomer of the formula (I)



(I)

wherein

R_1 is hydrogen or methyl;

R_2, R_3, R_4 are, one independently of the others, hydrogen or C_1-C_4 alkyl;

Y is NH or O;

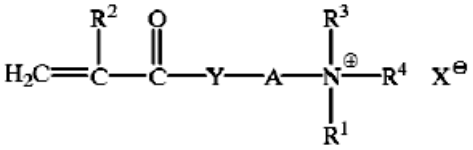
A is a C_1-C_6 alkylene; X is chloride,

in the preparation of an acrylic polymer.

2.5 It remains to be decided whether the solution to the technical problem defined above is obvious in view of the prior art. Starting from the closest prior art D1, the question to be answered is whether the skilled person would have introduced 0.1 to 5% by weight of a cationic acrylic monomer of the above formula (I) in the preparation of the inverse emulsion. D1 does not mention or suggest the use of such a cationic acrylic monomer so that the solution provided in the patent in suit is not obvious on the basis of D1 alone.

2.6 D3 (claim 1) discloses copolymers of carboxylic acids with 0,1-29,95% by weight of an olefinically unsaturated quaternary ammonium monomer B of formula (I) or of formula (II)

II



where

R^1 is C_6-C_{20}-alkyl, C_6-C_{20}-alkenyl, C_5-C_8-cycloalkyl, phenyl, phenyl(C_1-C_{12}-alkyl) or (C_1-C_{12}-alkyl)phenyl,

R^2 is hydrogen, methyl or phenyl,

R^3 and R^4 are each H or C_1-C_4-alkyl,

X is halogen, C_1-C_4-alkoxysulfonyloxy or C_1-C_4-alkanesulfonate,it also being possible for the latter to occur as R^3 or R^4 with the formation of a betaine structure,

Y is O or NH, and

A is C_1-C_6-alkylene, or a mixture of such ammonium compounds.

2.7 The copolymers of D3 can be prepared by inverse emulsion (column 5, lines 6 to 16) which is said to lead to emulsions that are stable (column 5, lines 55 to 67) as well as compatible with skin and hair (column 6, lines 1 to 4).

2.8 The cationic monomer (B) of formula (II) of D3 differs from that of formula (I) of the patent in suit in the definition of R_1. There is no suggestion in D3 to modify R^1 in the cationic monomer (B) of formula (II) in order to perform an inverse emulsion polymerization. The passages of column 5, lines 6 to 16 and lines 55 to 58 disclose that the cationic monomer (B) of D3 is suitable for inverse emulsion polymerization so that there is no incentive for the skilled person to carry out the modifications necessary to arrive at the claimed subject matter.

2.9 In view of the above, the skilled person would not consider the modification of the monomers of formula (II) of D3 and their use in the inverse emulsion polymerization of D1 in order to provide further inverse emulsions as thickening agents for cosmetic formulations that are compatible with skin and hair.

2.10 As for the documents D4 and D5, they do not disclose thickeners for cosmetic formulations compatible with skin and hair so that even if they disclosed inverse emulsions of a polymer made from a cationic monomer according to claim 1 of the patent in suit, they do not suggest the solution of the above-defined problem.

2.11 The argument of the appellant according to which the problem would not be solved over the whole breadth of the claims when the monomers (i) and (ii) make up to 100% by weight of the polymerization mixture cannot be followed. The claimed acrylic polymer is obtained by inverse emulsion polymerization of:

i. from 55 to 75% by weight of an anionic acrylic monomer containing a strongly acidic functional group;

ii. from 0.1 to 5% by weight of a cationic acrylic monomer of the formula (I)

iii. from 25 to 45% by weight of a C_3-C_5 anionic acrylic monomer containing a carboxylic group.

The wording of the claim is unambiguous and imposes the presence of the three monomers (i), (ii) and (iii) to perform the inverse emulsion polymerization. Monomer (ii) is not an optional component which could be

omitted during inverse polymerization. A monomer mixture containing only the monomers (i) and (iii) does not fall within the scope of the claim. Hence, the argument that the problem would not be solved over the whole scope of the claim is moot.

2.12 In view of the above, the subject-matter of claims 1, 8 and 15 is inventive so that Article 56 EPC is complied with. Since the dependent claims are directed to embodiments of claim 1 (claims 2 to 7) and claim 8 (claims 9 to 14), those claims, too, comply with Article 56 EPC.

Order

For these reasons it is decided that:

1. The appeal is dismissed.

The Registrar The Chairman

E. Görgmaier B. ter Laan