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D E C I S I O N
of 12 September 2002

Case Number: T 0731/01 - 3.3.7

Application Number: 91306114.9

Publication Number: 0466409

IPC: C09D 133/02

Language of the proceedings: EN

Title of invention:
Polymer blend

Patentee:
ROHM AND HAAS COMPANY

Opponent:
BASF Aktiengesellschaft
Clariant GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
"Amendments - added subject-matter (yes)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0731/01 - 3.3.7

D E C I S I O N
of the Technical Board of Appeal 3.3.7
of 12 September 2002

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 11 May 2001 revoking European patent No. 0 466 409 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: R. E. Teschemacher

Members: B. L. ter Laan
G. Santavicca

Summary of Facts and Submissions

I. Mention of the grant of European patent No. 0 446 409 in respect of European patent application No. 91 306 114.9, filed on 4 July 1991, was published on 3 September 1997 on the basis of a set of five claims, Claim 1 reading:

"A film forming polymeric binder free of volatile organic solvent characterised in that it comprises a non-pigmented blend of at least one hard emulsion polymer latex having a glass transition temperature (T_g) greater than 25°C, preferably from 25 to 65°C; and at least one soft emulsion polymer latex having a T_g from 10°C to -5°C; said blend comprising from 20 to 40 weight percent of said hard emulsion polymer and from 80 to 60 weight percent of said soft emulsion polymer; and wherein said hard and soft emulsion polymers are both copolymers derived from monomer systems, at least the major proportion of which is constituted by either butyl acrylate and methyl methacrylate, or by butyl acrylate and styrene, with the balance, if any, of each monomer system being constituted by one or more other monoethylenically unsaturated comonomers, the relative proportions of said butyl acrylate and methyl methacrylate, or said butyl acrylate and styrene, as the case may be, and said other monoethylenically unsaturated comonomers, if present, in each of the two monomer systems being different and being such as to provide, respectively, said hard and soft polymers."

Claims 2 to 4 referred to preferred embodiments of the binder according to Claim 1. Claim 5 concerned an aqueous paint composition containing any of the binder compositions of the previous claims.

II. On 29 May 1998 and 2 June 1998, two notices of opposition against the granted patent were filed, in which the revocation of the patent in its entirety was requested on the grounds set out in Article 100(a) EPC (lack of novelty and lack of inventive step) and Article 100(c) EPC.

III. By a decision issued in writing on 11 May 2001, the Opposition Division revoked the patent. That decision was based on a main and a first auxiliary request, both filed on 18 December 2000, according to which claims 1 to 4 were formulated as "use" claims.

The Opposition Division held that the expression "...at least the major proportion of which...", present in both requests, was to be interpreted so that, in addition to the four identified monomers, the polymers could contain up to 49% of other monomers. For that interpretation there was no basis in the original application, so that the feature "...at least the major proportion of which..." constituted added subject-matter (Article 123(2) EPC).

IV. On 29 June 2001 the proprietor (appellant) lodged an appeal against the above decision and paid the prescribed fee on the same day. The statement of grounds of the appeal was filed on 10 September 2001, referring to the requests upon which the appealed decision was based. By letter of 9 August 2002, two further sets of claims were filed as second and third auxiliary requests, Claim 1 of the second auxiliary request reading:

"Use of a film forming polymeric binder free of volatile organic solvent in a paint for reducing or

eliminating the need for a volatile organic solvent coalescent in said paint wherein said binder comprises a blend of at least one hard emulsion polymer latex having a glass transition temperature (T_g) from 25° to 65°C; and at least one soft emulsion polymer latex having a T_g from 10°C to -5°C; said blend comprising from 20 to 40 weight percent of said hard emulsion polymer and from 80 to 60 weight percent of said soft emulsion polymer; and wherein said hard and soft emulsion polymers are both copolymers derived from monomer systems, at least 94.2% of which is constituted by either butyl acrylate and methyl methacrylate, or by butyl acrylate and styrene, with the balance, if any, of each monomer system being constituted by one or more other monoethylenically unsaturated comonomers, the relative proportions of said butyl acrylate and methyl methacrylate, or butyl acrylate and styrene, and said other monoethylenically unsaturated comonomers, if present, in each of the two monomer systems being different and being such to provide, respectively, said hard and soft polymers."

Claim 1 of the third auxiliary request read:

"Use of a film forming polymeric binder free of volatile organic solvent in a paint for reducing or eliminating the need for a volatile organic solvent coalescent in said paint wherein said binder comprises a blend of at least one hard emulsion polymer latex having a glass transition temperature (T_g) from 25° to 65°C; and at least one soft emulsion polymer latex having a T_g from 10°C to -5°C; said blend comprising from 20 to 40 weight percent of said hard emulsion polymer and from 80 to 60 weight percent of said soft emulsion polymer; and wherein said hard and soft

emulsion polymers are both copolymers derived from monomer systems, at least 97% of which is constituted by either butyl acrylate and methyl methacrylate, or at least 94.2% of which is constituted by butyl acrylate and styrene, with the balance, if any, of each monomer system being constituted by one or more other monoethylenically unsaturated comonomers, the relative proportions of said butyl acrylate and methyl methacrylate, or butyl acrylate and styrene, and said other monoethylenically unsaturated comonomers, if present, in each of the two monomer systems being different and being such to provide, respectively, said hard and soft polymers."

V. Oral proceedings were held on 12 September 2002 in the absence of opponent 2 (respondent 2) who had withdrawn their request for oral proceedings and had announced that they would not attend (letter dated 31 July 2002), in conformity with Rule 71(2) EPC.

VI. The arguments of the appellant, submitted in writing and during the oral proceedings, can be summarized as follows:

Though it was accepted that the original application lacked a verbatim disclosure of the expression: "at least the major proportion of which", the application documents nevertheless provided adequate support for the introduction of the expression. If that was considered in the context of the description and examples, it was clear that the polymers, which were conventional binder copolymers, were derived from monomer systems essentially constituted by butyl acrylate and methyl methacrylate or by butyl acrylate and styrene, with the possible presence of a very small

quantity of other monomers, typically less than 10%. The major constituents of the polymers determined the general properties and the nature of the polymers, which would be changed if up to 49% of other monomers were present, according to the interpretation of the Opposition Division. The second and third auxiliary requests were supported by values given in the worked examples. Therefore, the amendments were derivable from the original disclosure, so that the requirements of Article 123(2) EPC were fulfilled.

VII. The arguments of the respondents (opponent 1 submitted its arguments only during the oral proceedings, opponent 2 only in writing) can be summarized as follows:

There was no support in the original disclosure for the interpretation of "the major proportion" as more than 50%, nor for at least 90%. The presence of other monomers in an amount of over 10%, depending on their nature, would not necessarily result in a change of polymer properties, so that the skilled person would not conclude from the description that butyl acrylate, methyl methacrylate and styrene should be present in an amount of at least 50% or at least 90% or, more generally, to form the major proportion. Alternative monomers, of which ethylhexyl acrylate had properties comparable to those of butyl acrylate, were specifically indicated in the patent description. Therefore, the claimed subject-matter did not comply with Article 123(2) EPC. This was also valid for the second and third auxiliary requests which constituted an unallowable generalization of the examples.

VIII. The appellant requested that the decision under appeal

be set aside and the patent be maintained on the basis of the main request as annexed to the impugned decision or, alternatively, on the basis of one of the three auxiliary requests (first auxiliary request as annexed to the impugned decision; second and third auxiliary request as submitted by letter dated 9 August 2002).

The respondents requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

Main and first auxiliary request

2. Claim 1 of the main and the first auxiliary request both contain the requirement that "at least the major proportion" of the binder copolymer should be constituted of either butyl acrylate and methyl methacrylate or butyl acrylate and styrene. The parties agreed that that expression was not present as such in the original application. Therefore, the question to be answered is whether or not the original application supports the implications of that expression.

2.1 The appellant's arguments were mainly based upon the opinion that "the major proportion" is unclear and hence in need of interpretation on the basis of the information contained in the original description. However, the meaning of "major", in common language, is "greater than" or "more than half" (see eg the Shorter Oxford English Dictionary, third edition, 1978, page 1262, under "major" and "majority"). Therefore, "the major proportion" would mean more than 50%. This

interpretation is in line with the remark of the appellant (then applicant) in its letter dated 4 October 1996, page 1, third paragraph, that "the new main claim characterises the selected polymers ... as containing "at least" a major proportion of either BA/MMA or BA/St, the "at least" thus embracing copolymers consisting of either BA/MMA or BA/St or copolymers consisting of a major proportion of either BA/MMA or BA/St plus a third or a fourth comonomer to make up the balance of the system, and obviously in a lesser amount than the BA/MMA or BA/St."

2.1.1 According to the original description, when the soft polymer and the hard polymer are copolymers, they may be prepared from the same monomers but in different proportions. Such monomers are conventional monoethylenically unsaturated monomers typically used in the preparation of latex binders for use in coatings. They include lower alkyl (C_1-C_{10}) acrylates, lower alkyl (C_1-C_{10}) methacrylates, styrene, alpha-methyl styrene and other substituted styrenes, ethylene, isoprene, butadiene, vinyl chloride, vinylidene chloride, acrylonitrile, vinyl acetate, acrylic and methacrylic acid, and the like. The polymers may additionally be formed using adhesion promoters, such as ureido functional monomers (original paragraph bridging pages 7 and 8; patent specification page 4, lines 25 to 32). As a specific illustration, a soft copolymer formed from butyl acrylate and styrene or from butyl acrylate and methyl methacrylate having a T_g of about 0 to 6°C, in combination with about 40 weight percent of a hard copolymer, having a T_g of 20 to 60°C, formed from butyl acrylate and methyl methacrylate or butyl acrylate and styrene or from ethylhexyl acrylate, styrene and acrylonitrile, is mentioned (original

page 8, second full paragraph; patent specification page 4, lines 35 to 39). Preferred embodiments regarding the polymer particle size, the relative amounts of soft and hard polymers and their T_gs are also indicated (original pages 8 and 9; patent specification page 4, lines 40 to 52). However, nothing is said about the amounts of the individual monomers in the polymer, nor of their ratios.

2.1.2 In the original examples, polymers of butyl acrylate (BA), methyl methacrylate (MMA), styrene (St), ethylhexyl acrylate (EHA), acrylonitrile (AN) and/or methacrylic acid (MAA) are disclosed in the following weight ratios:

Sample	1	2	3*	4	5**	6**	7**	8**
BA	65	27	57	27	0	0	57	48
St	29.2	69.4	0	0	40	19	37.7	46.7
MAA	2.5	2	40	2	0	0	2	2
MMA	2.3	1.1	2	70	0	0	2.3	2.3
EHA	0	0	0	0	30	50	0	0
AN	0	0	0	0	25	25	0	0

* The values indicated in sample 3 in the original description for MAA and MMA are not in conformity with the amounts said to have been present in the monomer emulsion, which shows a ratio of 57BA/0St/2MAA/40MMA.

** The ratios of samples 5 to 8 have also been calculated on the basis of the composition of the monomer emulsion.

2.1.3 The general information conveyed by the original description is to combine a hard with a soft copolymer

for the preparation of which conventional monomers may be used. Soft copolymers of butyl acrylate and styrene or butyl acrylate and methyl methacrylate and hard copolymers of butyl acrylate and methyl methacrylate, butyl acrylate and styrene or ethylhexyl acrylate, styrene and acylonitrile are mentioned. Copolymers are exemplified that contain also other monomers than those, in most of which one monomer already makes up more than half of the copolymer. Since any other combination would therefore also provide the major proportion, there is no clue that either of the specifically claimed combinations of butyl acrylate with styrene and butyl acrylate with methyl methacrylate should form more than half of the monomers that constitute the copolymer, nor is there a hint that such should be the case regardless of the individual amounts of the monomers within these combinations.

2.1.4 Therefore, on the basis of reading "more than half" in the expression "the major proportion", there is no disclosure in the original application for the subject-matter now being claimed.

2.2 If the appellant's view was followed that "the major proportion" should be interpreted as "more than 90%", one would arrive at the same conclusion. There is no indication either in the original description or in the examples from which the skilled person could conclude that the copolymers should contain more than 90% of a combination of either butyl acrylate and styrene or butyl acrylate and methyl methacrylate, even less so since no limitation is indicated as to the amounts of the individual monomers.

2.3 Also by any other interpretation, the Board can find no

basis in the original application for the expression "at least the major proportion of which" now present in Claim 1.

For these reasons, the main and the first auxiliary request do not fulfil the requirements of Article 123(2) EPC.

Second auxiliary request

3. In the second auxiliary request the expression "the major proportion" is replaced by 94.2%. The appellant argued that that amendment was based on sample 1, in which 1105 g of butyl acrylate and 496.4 g styrene were reacted with 39.1 g methyl methacrylate, 42.5 methacrylic acid and 17 g of an adhesion promoter, the sum of butyl acrylate and styrene thus making up 94.2% of the copolymer.

However, that value is only disclosed in the particular context of sample 1, in conjunction with the specific amounts of the other monomers as well as other properties such as particle size, % solids and viscosity. In particular, there is no disclosure of 94.2% of the butyl acrylate/methyl methacrylate combination, nor is there disclosure for the sum of butyl acrylate and styrene without any limits as to their individual amounts.

Therefore, the claimed subject-matter of the second auxiliary request does not comply with the requirements of Article 123(2) EPC either.

Third auxiliary request

4. In the third auxiliary request a minimum amount of 94.2% for butyl acrylate/styrene and a minimum amount of 97% for the combination butyl acrylate/methyl methacrylate replace "the major proportion". According to the appellant, the latter value was based on samples 3 and 4, in which 969, resp. 459 g of butyl acrylate and 680, resp. 1190 g methyl methacrylate were reacted with 34 g methacrylic acid and 17 g of an adhesion promoter, the sum of butyl acrylate and methyl methacrylate thus making up 97% of the copolymer.

However, that value is only disclosed in the particular context of samples 3 and 4, in conjunction with the specific amounts of the other monomers as well as other properties such as particle size, % solids and viscosity. In particular, there is no disclosure of 97% butyl acrylate/methyl methacrylate without any limits as to the individual amounts of these monomers.

Regarding the minimum value of 94.2% for butyl acrylate/styrene, the reasons given for the second auxiliary request are equally applicable to the third auxiliary request.

5. It follows from the above that none of the requests meets the requirements of Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Eickhoff R. Teschemacher