BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen
(D) [ ] No distribution

D E C I S I O N
of 17 February 2004

Case Number: T 0257/01 - 3.3.6

Application Number: 94923923.0

Publication Number: 0707672

IPC: D21H 19/58

Language of the proceedings: EN

Title of invention:
Latex-based coating composition

Patentee:
THE DOW CHEMICAL COMPANY

Opponent:
Raisio Chemicals Oy

Headword:
Latex-based coating composition/DOW CHEMICAL

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty (main request) - no: wording of claim not delimited over the prior art"
"Inventive step (auxiliary request) - no: obvious alternative in regard to the properties of interest; technical prejudice not proven"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0257/01 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 17 February 2004

Appellant: (Proprietor of the patent)	THE DOW CHEMICAL COMPANY 2030 Dow Center Midland, Michigan 48674 (US)
Representative:	Raynor, John W.H. Beck, Greener & Co. 7 Stone Buildings Lincoln's Inn London WC2A 3SZ (GB)
Respondent: (Opponent)	Raisio Chemicals Oy Raisionkaari 60 FI-21200 Raisio (FI)
Representative:	Lalli, Esko Raisio Chemicals Ltd. P.O. Box 101 FI21201 Raisio (FI)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 22 December 2000 revoking European patent No. 0707672 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: P. Krasa
Members: L. Li Voti
V. Di Cerbo

Summary of Facts and Submissions

I. The present appeal is from the decision of the Opposition Division to revoke the European patent no. 0 707 672, relating to a polymer latex composition for use in paper coating.

II. In its notice of opposition the Opponent sought revocation of the patent on the grounds of Article 100(a) EPC, in particular for lack of novelty and inventive step of the claimed subject-matter.

The following documents were inter alia cited in support of the opposition:

(1): A.P. Titov et al.: "Inhibition of emulsion polymerisation by rosin soap", International Polymer Science and Technology, vol. 17, no. 12, 1990, pages T/27 and T/28
(3): JP-A-3277602 (English translation and its Abstract)
(4): EP-A-0295399

III. In its decision the Opposition Division found that the claimed subject-matter did not comply with the requirements of the EPC.

In particular it found that the subject-matter of claim 1 according to the main request related to a composition not excluding the presence of other sulphur-free chain transfer agents (CTAs) in combination with rosin and, therefore, it was anticipated by document (3), disclosing a polymer latex composition comprising rosin containing abietic acid and a sulphur- and halogen-free CTA.

As regards claim 1 of the auxiliary request, the Opposition Division found that

- document (3) taught to reduce the amount of the used sulphur-type CTA and to replace it with rosin in order to reduce the odour of the composition;

- the polymeric latex compositions of document (3) provided paper coatings having good dry and wet pick properties and blister resistance and the compounds indicated specifically as CTAs in this document were considered to be responsible for the increased blister resistance;

- the use of compounds not containing sulphur as CTAs was suggested in document (3);

- furthermore, it was known, e.g. from documents (1) or (4), that the rosins used in document (3) were themselves good chain transfer agents;

- therefore, it was obvious for the skilled person to eliminate the sulphur-type CTA completely from the compositions of document (3) and to use only rosin as CTA, if blister resistance was not desired.

The Opposition Division also noted that the Patent Proprietor (Appellant) had not provided any evidence in support of its allegation that the skilled person, at the priority date of the patent in suit, would have refrained from using rosin as the only CTA since he would have expected to obtain a composition having a

high gel content and thus reduced coating binding strength.

Claim 1 of the main request, submitted under cover of the letter dated 7 January 2000 (claim 1 thereof having been amended and filed during oral proceedings before the Opposition Division) read as follows:

"1. A polymer latex composition for use in paper coating, the composition having a glass transition temperature between -10°C and 70°C prepared with a sulphur- and halogen-free chain transfer agent, and comprising, in polymerized form,
(A) from 10 weight percent to 80 weight percent of monovinylidene aromatic monomer(s);
(B) from 20 weight percent to 65 weight percent of conjugated diene monomer(s);
(C) from 0 weight percent to 70 weight percent of acrylate monomer(s);
(D) the balance being other polymerizable comonomer(s); and wherein the sulphur- and halogen-free chain transfer agent is abietic acid-containing rosin."

Dependent claims 2 to 10, related to particular embodiments of the claimed product and claim 11 to the use of such a product in a composition for paper coating. Claims 2 to 11 were the same as the respective claims of the patent as granted.

Claim 1 of the auxiliary request, submitted by the Appellant during the oral proceedings before the opposition division, differed from the respective claim of the main request insofar as it precised that "the

whole of the chain transfer agent employed in the polymerization is an abietic acid-containing rosin".

IV. An appeal was filed against this decision by the Patent Proprietor.

Copy of the auxiliary request, identical to that presented before the opposition division, was filed with the statement of the grounds of appeal of 19 April 2001.

In the oral proceedings held before the Board on 17 February 2004 the Appellant clarified that its main request was that presented during the oral proceedings at first instance.

The Appellant submitted in writing and orally that

- the wording of claim 1 of the main request had to be read in combination with the description and had thus to be understood as requiring the presence of only those CTAs which are free of sulphur and halogen;

- even though document (3) listed compounds free of sulphur and halogen beside those containing sulphur as possible CTAs, the technical problem dealt with in this document related to the reduction of the odour caused by the use of the sulphur-type CTA and the examples of this document always contained a sulphur-type CTA; therefore, in the light of the technical problem stated in this document, such CTAs containing sulphur had to be considered to be essential components of the disclosed compositions; the skilled person would thus have understood the teaching of this document as

requiring the use of sulphur- and halogen-free CTAs only in combination with such sulphur-type CTAs;

- rosins containing abietic acid were not used as CTAs according to document (3);

- therefore, the subject-matter of the claims was novel.

As regards inventive step it submitted that

- document (3) taught to reduce the amount of sulphur-containing CTAs but not to eliminate them completely from the polymer latex compositions; therefore, the skilled person would have expected their elimination to affect substantially the properties of the resulting composition;

- since it was known that the use of rosins as the only CTAs led to the formation of compositions having high gel content, the skilled person would not have seriously contemplated to use them as the only CTA within the context of document (3) in order to provide paper coatings having reduced odour and good bonding properties, i.e. good dry and wet pick properties;

- the experimental evidence contained in the patent in suit showed surprisingly that the compositions of the claimed invention could possess excellent bonding properties despite of their higher gel content;

- the other cited documents were not relevant since, for example, document (4) related to the preparation of adhesive compositions and not of compositions for paper coating;

- the claimed subject-matter thus involved an inventive step.

V. The Respondent and Opponent submitted in the oral proceedings inter alia that

- the wording of claim 1 according to the main request did not exclude the presence of other sulphur-containing or sulphur-free CTAs; therefore, the claimed subject-matter lacked novelty in the light of document (3);

- document (3) already provided a polymer latex composition for paper coating having good wet and dry pick and no odour; therefore the technical problem underlying the invention of the patent in suit had to be seen in the provision of an alternative composition having properties similar to those of the products of document (3) but having a different CTA;

- since it was known, for example, from document (4) that rosin was a suitable CTA for emulsion polymerization and document (3) suggested the use of the specific compounds identified as CTAs in that document for reducing the blistering of the compositions, it was obvious to carry out the polymerization of the compositions disclosed in document (3) without such CTAs and only with rosin if a reduced blistering was considered not necessary;

- the tests of the patent in suit showed that good wet and pick properties were not achieved throughout the whole range of compositions covered by the claims;

- the claimed subject-matter lacked thus an inventive step.

VI. The Appellant requests that the decision under appeal be set aside and that the patent be maintained on the basis of the main request submitted under cover of the letter dated 7 January 2000 (claim 1 thereof being amended and filed during oral proceedings before the Opposition Division, designated new main request); or alternatively on the basis of the auxiliary request filed under cover of a letter dated 19 April 2001.

The Respondent requests that the appeal be dismissed.

Reasons for the Decision

1. *Main Request*

1.1 Novelty

1.1.1 The subject-matter of claim 1 relates to a polymer latex composition having a glass transition temperature between -10°C and 70°C and thus suitable for paper coating comprising, in polymerized form,

(A) from 10 weight percent to 80 weight percent of monovinylidene aromatic monomer(s);

(B) from 20 weight percent to 65 weight percent of conjugated diene monomer(s);

(C) from 0 weight percent to 70 weight percent of acrylate monomer(s);

(D) the balance being other polymerizable comonomer(s) and prepared with a CTA which is abietic acid-containing rosin.

Since the function of a CTA is that of controlling the molecular weight of the final polymer by binding radically to its chain, claim 1 requires that abietic acid-containing rosin is incorporated in the chain of the final polymer.

1.1.2 The polymer latex compositions prepared according to document (3) possess all the features (A) to (D) of claim 1, are suitable for paper coating and thus have a Tg within the range of claim 1 and also comprise an abietic acid-containing rosin and another component as CTA, e.g. a sulphur-containing CTA (see e.g. page 2, lines 1 to 14; the passage bridging pages 6 and 7; example 1; the passage bridging pages 16 and 17; page 19, lines 8 to 12).

This has not been disputed by the Appellant.

Moreover, even though rosin is not indicated in document (3) to be used as CTA, it was known to the skilled person at the publication date of document (3) that rosin was a CTA for emulsion polymerization. This has also not been disputed by the Appellant.

Therefore, rosin, because of its known properties as CTA, has to be necessarily incorporated into part of the chain of the final polymer of document (3).

1.1.3 The Appellant has put forward that the wording of claim 1 "prepared with a sulphur- and halogen-free chain transfer agent" has to be interpreted as not excluding the possibility of using other sulphur- and halogen-free CTAs beside rosin but excluding sulphur- and halogen-type CTAs (see point IV above).

In the Board's view, it cannot be disputed that the wording of claim 1 allows the possibility of using other CTAs apart from rosin and that it does not contain any explicit limitation as to the presence of sulphur- or halogen-type CTAs.

All technical features of claim 1 being clear, the Board concludes thus that claim 1 cannot be interpreted in the present case in a more restricted way than as understood by a skilled person on reading.

Moreover, the description itself does not prohibit explicitly the use of such CTAs in combination with rosin and does not state that the above wording should be interpreted as suggested by the Appellant.

Thus, the subject-matter of claim 1 does not exclude the possibility of using other sulphur- and halogen-free CTAs beside rosin and extends to compositions prepared using mixtures of CTAs, sulphur-type CTAs not excluded, in combination with rosin.

Since document (3), as explained above (point 1.1.2) and not disputed by the Appellant, discloses compositions comprising a sulphur-type CTA and rosin, the subject-matter of claim 1 lacks novelty.

The main request has thus to be dismissed.

2. *Auxiliary Request*

2.1 Novelty

Claim 1 of the auxiliary request differs from claim 1 of the main request only insofar as it requires that abietic-acid containing rosin is the only chain transfer agent used in the preparation of the claimed polymer latex composition.

The Board is thus satisfied that document (3) cannot anticipate the subject-matter of this claim, since it requires the presence of another CTA in addition to rosin (see point 1.1.2 above).

The Respondent has not disputed the novelty of the subject-matter of this claim.

2.2 Inventive step

2.2.1 The patent in suit and, in particular, the subject-matter of claim 1, relates to a polymer latex composition suitable for paper coating prepared by using a sulphur-free and halogen-free CTA (see page 2, lines 3 to 4).

As explained in the patent in suit, sulphur- or halogen- containing CTAS had been used in the past for preparing latex compositions useful in paper coating applications and for providing coatings of high strength. However, the use of the known sulphur-

containing CTAs caused an undesirable odour and the use of the known halogen-containing CTAs was not desirable because of environmental concerns (page 2, lines 5 to 9).

The technical problem underlying the patent in suit is therefore defined in the description of the patent in suit as the provision of other polymer latex compositions having no odour but binding properties similar to those of the products prepared with such sulphur- or halogen-containing CTAs (page 2, lines 10 to 13).

The Board considers document (3), as agreed by both parties during oral proceedings, to represent the most suitable starting point for the evaluation of inventive step. This citation is in fact also concerned with the problem of the unpleasant odour caused by the use of sulphur-containing CTAs (see page 3, lines 4 to 7).

Document (3) discloses, as explained in points 1.1.2 and 2.1 above, a composition differing from that claimed only insofar as it requires the presence of another CTA, e.g. a sulphur-type CTA, in addition to rosin.

Since the compositions of document (3) already provided coatings for paper having high wet and dry pick and no odour (see page 19, lines 2 to 25), the technical problem underlying the invention of the patent in suit has thus to be seen in the light of document (3), similarly to the description of the patent in suit, as the provision of an alternative polymer latex composition not comprising a sulphur- or halogen-

containing CTA and having no odour but similar binding properties.

The Board, in view of the whole experimental evidence contained in the patent in suit, is satisfied that the claimed subject-matter has successfully solved the above mentioned technical problem.

Thus, it remains to decide whether or not the said solution involves an inventive step.

2.2.2 The Appellant has put forward that document (3) taught to reduce the amount of sulphur containing CTAs but not to eliminate them completely from the polymer latex compositions and has also argued that the skilled person would have thus expected their elimination to affect negatively the properties of the resulting composition.

Moreover, since the use of rosins as the only CTAs was known to lead to the formation of compositions having high gel content, the skilled person would have been dissuaded from using them as the only CTAs within the context of document (3) in order to provide paper coatings having reduced odour and good dry and wet pick properties and it would have not seriously contemplated to prepare a composition without a sulphur-containing CTA.

As already pointed out in the decision of first instance (point 5.2 of the reasons for the decision), the Appellant has not provided any evidence in support of its allegation that the skilled person, at the priority date of the patent in suit, would have

refrained from using rosin as the only CTA since it would have expected to obtain a composition having a high gel content and being thus unsuitable for providing a paper coating having good bonding properties.

However, the burden of proof for the existence of such a prejudice lies in the present case on the Appellant relying on this argument (see e.g. T 0585/92, unpublished in OJ EPO, point 3.2 of the reasons for the decision). In the absence of any pertinent evidence in regard to the existence of such a prejudice, the Appellant's submission has to be disregarded as a mere allegation.

Moreover, document (3) already suggested using a sulphur-free compound as the only CTA. In fact, on page 7 it is stated: "These compounds may be used **alone** or in combination of at least two." (lines 17 and 18, emphasis added), wherein the wording "These compounds" refers to the preceding list of CTAs to be used within the context of the invention of document (3), which list comprises a number of non-sulphur CTAs (lines 9 to 16).

The fact that in all examples of this document use is made of a sulphur-type CTA cannot be considered either to restrict this teaching of document (3), which has to be understood taking into account the whole document and not isolated passages thereof (see e.g. T 312/94, unpublished in OJ EPO, point 2.2 of the reasons for the decision).

Furthermore, the description of document (3) refers both to the known necessity of reducing the content of sulphur-type CTAs because of their bad odour (page 3, lines 4 to 7) and to the fact that the prior art had already proposed the use of sulphur-free CTAs alone (page 3, lines 8 to 10). Nowhere, in the following discussion of the technical problem underlying the invention, i.e. the provision of a polymer latex composition having reduced odour, there is an indication that the presence of a sulphur-type CTA is essential for achieving the desired goal (page 3, lines 13 to 16).

The Board concludes therefore that the use of sulphur-free compounds as the only CTAs was one option of the teaching of document (3), which the skilled person, looking for a solution of the existing technical problem, would have envisaged.

Moreover, document (3) teaches that the achievement of good bonding properties was due to and governed by the amounts of the respective monomers of the used polymer which are the same as used in the patent in suit (see page 4, last 5 lines and page 6, lines 15 to 22 and point 1.1.2 above). Therefore, the skilled person would not have expected any drawbacks in regard to these properties from replacing the CTAs specifically disclosed in this document with other known CTAs.

2.2.3 Since document (3) suggested the use of the specific CTAs used in that document for reducing the blistering of the compositions (see passage bridging pages 7 and 8) and the rosin used in document (3) was known to be itself a suitable CTA (see point 1.1.2 above), the

Board concludes that it was obvious for the skilled person, faced with the technical problem of providing an alternative polymer latex composition not comprising a sulphur- or halogen-containing CTA and having no odour but similar bonding properties to those of the products of document (3), to try a polymer latex composition having the same monomers as used in document (3) and containing rosin as required by document (3) but in the absence of the CTAs specifically indicated in that document, if a reduction of blistering was considered not necessary.

Therefore, the Board has no reason to deviate from the conclusions of the first instance in regard to inventive step and concludes that the subject-matter of claim 1 does not comply with the requirements of Articles 52(1) and 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Rauh P. Krasa