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**Datasheet for the decision
of 24 October 2006**

Case Number: T 0200/04 - 3.3.01

Application Number: 97106277.3

Publication Number: 0802243

IPC: C09D 5/16

Language of the proceedings: EN

Title of invention:
Coating composition

Patentee:
BASF NOF Coatings Co., Ltd., et al

Opponent:
Chugoku Marine Paints Limited

Headword:
Anti-fouling composition/BASF NOF

Relevant legal provisions:
EPC Art. 54, 56, 69, 83, 100(b), 123(2)(3)
EPC R. 57a

Keyword:
"Main and first auxiliary request: inventive step (no) - obvious solution"
"Second auxiliary request: amendment - extending beyond the protection conferred by the patent as granted (yes)"
"Third auxiliary request: amendment occasioned by grounds of opposition (yes); supported by the application as originally filed (no) - inadmissible generalization of examples"
"Fourth auxiliary request: inventive step (no) - obvious solution"

Decisions cited:

G 0001/98, T 0181/82, T 0270/90, T 0955/90

Catchword:

-



Case Number: T 0200/04 - 3.3.01

DECISION
of the Technical Board of Appeal 3.3.01
of 24 October 2006

Appellant: Chugoku Marine Paints Limited
(Opponent) 1-7 Meijishinkai
Ohtake
Hiroshima 739-0652 (JP)

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
1 December 2003 concerning maintenance of the
European patent No. 0802243 in amended form.

Composition of the Board:

Chairman: A. Nuss
Members: P. Ranguis
J. Van Moer

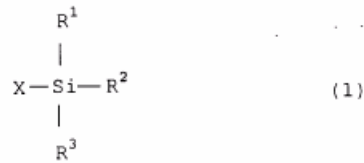
Summary of Facts and Submissions

I. The Appellant (Opponent) lodged an appeal against the interlocutory decision of the Opposition Division maintaining the European patent No. 0 802 243 in an amended form pursuant to Article 102(3) EPC.

II. The decision under appeal was based on a set of three claims. Claim 1, the sole independent claim, reads as follows:

"1. A coating composition comprising, as essential components,
(A) at least one rosin compound selected from tall rosin, gum rosin, wood rosin, hydrogenated rosin, rosin modified by reaction with maleic anhydride, formylated rosin, polymerised rosin, zinc rosinate, calcium rosinate, copper rosinate and magnesium rosinate;
(B) at least one polymer containing an organosilyl ester group having a weight-average molecular weight of from 1,000 to 150,000,
wherein said at least one polymer is composed of:
(i) a polymer obtained by polymerizing at least one monomer A represented by formula (1), the polymer containing units derived from said monomer(s) A in an amount of 100% by weight;
(ii) a polymer obtained by polymerizing at least one monomer A and at least one polymerizable monomer other than said monomer(s) A selected from acrylic acid, an acrylic ester, methacrylic acid, a methacrylic ester, a vinyl ester, a maleic ester, a fumaric ester, a crotonic ester, an itaconic ester, a citraconic ester, styrene, vinyltoluene, α -methylstyrene and acrylonitrile; or

(iii) a mixture of the polymers (i) and (ii),



wherein R¹, R², and R³ are the same or different and each represents an alkyl group or an aryl group; and X represents an acryloyloxy group, a methacryloyloxy group, a maleinoyloxy group, a fumaroyloxy group, an itaconoyloxy group or a citraconoyloxy group, the proportion of said at least one rosin compound to said at least one polymer containing an organosilyl ester group being from 1/99 to 99/1, by weight on a solid basis, and

(C) an antifoulant."

III. Notice of opposition had been filed by the Appellant requesting revocation of the patent as granted in its entirety *inter alia* on the ground of insufficiency of disclosure (Article 100(b) EPC) or lack of novelty and inventive step (Article 100(a) EPC). *Inter alia* the following documents were submitted in opposition proceedings:

- (1) EP-A-364 272 and
- (2) JP-A-18216/1995 in its English translation.
- (3) US-A-4 962 135

IV. The Opposition Division held in its decision that, on the one hand, the Opponent had not submitted any evidence in support of the alleged insufficiency of disclosure and, on the other hand, the experimental part of the patent in suit contained twenty non-contested fully detailed working examples. It

followed that the objection under Article 100(b) EPC was to be rejected.

Regarding novelty, neither document (1) nor document (2) disclosed directly and unambiguously the combination of components (A) and (B).

Furthermore, the claimed subject-matter represented a non-obvious alternative over those documents in that neither document (1) nor document (2) suggested the selected combination of components (A) and (B).

Although, the skilled person could have envisaged to add "rosin" to the disclosed compositions, there was, however, no information in documents (1) and (2) which would have made him contemplate and/or try this "theoretical option" as requested by the "could/would" approach. Neither documents (1) or (2) identified "rosin" as a necessary and preferred additive and the full content of those documents were silent as to the technical consequences associated with the presence of "rosin".

- V. At the oral proceedings which took place on 24 October 2006, the Respondent (Proprietor of the patent) defended as main request the patent in suit on the basis of the claims as maintained (see point II above) and subsidiarily on the basis of
- a set of three claims as **first auxiliary request**.
The claims according to this request differ from that of the main request exclusively in that in Claim 1, the substituents R^1 , R^2 , and R^3 defining the monomer A (see formula (1), point II above) were

branched alkyl group having up to 20 carbon atoms or an aryl group; or,

- a set of three claims as **second auxiliary request**. The claims according to this request differ from that of the main request exclusively in that in Claim 1, the formula (1) representing the monomer A was replaced by the following list of monomers A:
"triisopropylsilyl (meth)acrylate, triisobutylsilyl (meth)acrylate, tri-s-butylsilyl (meth)acrylate, triphenylsilyl (meth)acrylate, tri-p-methylphenylsilyl (meth)acrylate, tribenzylsilyl (meth)acrylate, dicyclohexylphenylsilyl (meth)acrylate, t-butyl diphenylsilyl (meth)acrylate, triphenylsilyl methyl maleate, tri-p-tolylsilyl ethyl maleate, triisopropylsilyl isoamyl maleate, triisobutylsilyl phenyl maleate, t-butyl diphenylsilyl methyl maleate, triphenylsilyl methyl fumarate, tri-p-methylphenylsilyl methyl fumarate, triisopropylsilyl methyl fumarate, triisobutylsilyl methyl fumarate, tri-2-chloroisopropylsilyl methyl fumarate, tri-t-butylsilyl methyl fumarate, triphenylsilyl methyl itaconate, tri-p-fluorophenylsilyl methyl itaconate, triisopropylsilyl methyl itaconate, triisobutylsilyl methyl itaconate, tri-2-cyanoisopropylsilyl methyl itaconate, tri-t-butylsilyl methyl itaconate, triphenylsilyl methyl citraconate, tri-p-hydroxyphenylsilyl methyl citraconate, triisopropylsilyl methyl citraconate, triisobutylsilyl methyl citraconate, tri-2-bromoisopropylsilyl methyl citraconate and tri-t-butylsilyl methyl citraconate"; or,

- a set of six claims as **third auxiliary request**.

Claim 1 according to this request differs from that of the main request in that zinc rosinate, calcium rosinate, copper rosinate and magnesium rosinate were deleted as component (A) and Claim 4 reads as follows:

"4. A method for preparing a coating composition comprising the step of mixing, as essential components:

(A) at least one rosin compound selected from tall rosin, gum rosin, wood rosin, hydrogenated rosin, rosin modified by reaction with maleic anhydride, formylated rosin and polymerised rosin;

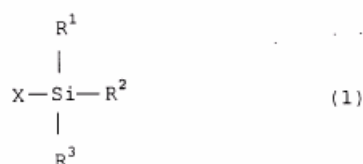
(B) at least one polymer containing an organosilyl ester group having a weight-average molecular weight of from 1,000 to 150,000,

wherein said at least one polymer is composed of:

(i) a polymer obtained by polymerizing at least one monomer A represented by formula (1), the polymer containing units derived from said monomer(s) A in an amount of 100% by weight;

(ii) a polymer obtained by polymerizing at least one monomer A and at least one polymerizable monomer other than said monomer(s) A selected from acrylic acid, an acrylic ester, methacrylic acid, a methacrylic ester, a vinyl ester, a maleic ester, a fumaric ester, a crotonic ester, an itaconic ester, a citraconic ester, styrene, vinyltoluene, α -methylstyrene and acrylonitrile; or

(iii) a mixture of the polymers (i) and (ii),



wherein R^1 , R^2 , and R^3 are the same or different and each represents an alkyl group or an aryl group; and X represents an acryloyloxy group, a methacryloyloxy group, a maleinoyloxy group, a fumaroyloxy group, an itaconoyloxy group or a citraconoyloxy group, the proportion of said at least one rosin compound to said at least one polymer containing an organosilyl ester group being from 1/99 to 99/1, by weight on a solid basis, and

(C) an antifoulant"; or,

- a set of three claims as **fourth auxiliary request**. The claims according to this request differ from those of the main request exclusively in that in Claim 1, zinc rosinate, calcium rosinate, copper rosinate and magnesium rosinate were deleted as component (A).

VI. The Appellant, first, contested the decision of the first instance (see point IV above) and submitted in essence the following arguments in respect thereof. The claimed subject-matter gave rise to objection under Article 100(b) EPC on the ground that the technical problem might not be solved within the whole claimed area since when R^1 , R^2 , and R^3 were methyl, the resulting trimethylsilyl groups were rapidly hydrolysed in sea water, in contradiction with the purpose of the patent in suit.

Regarding the grounds of opposition under Article 100(a) EPC, novelty was not contested any longer. The claimed subject-matter did not however involve an inventive step over the teaching of document (1). Document (1) related to anti-fouling compositions comprising an

hydrolysable/blocked acid functional polymer (A) as required by part (B)(ii) of Claim 1. It was unambiguous that trialkylsilyl blocking groups were preferred. The polyvalent cation (B) was preferably a metal carboxylate salt which might be selected from octanoate, naphthenate, versatate, rosinate, caproate or caprylate. The anti-fouling composition also contained a marine biocide which might be cuprous oxide, namely the anti-foulant (C) as required in Claim 1. Document (1) thus described all the components of the claimed compositions and it was obvious to put them together. Furthermore, there was in the opposition-appeal file no direct comparison with document (1). The various technical reports submitted were, therefore, not relevant in that respect.

The same conclusion applied to Claim 1 of the first auxiliary request since the term trialkylsilyl blocking groups covered branched and unbranched alkyl groups. No technical effect was associated with the use of branched alkyl groups.

Claim 1 of the second auxiliary request resulted from amendments which extended the claimed subject-matter beyond the protection conferred by the patent as granted, in particular, as far as monomer A was tribenzylsilyl (meth)acrylate, dicyclohexylsilyl (meth)acrylate or tri-2-chloroisopropyl methyl fumarate. Those monomers were not covered by the formula (1) as defined in Claim 1 of the patent as granted.

The same argument as set out with regard to the main request applied to the fourth auxiliary request since

rosinate was formed due to reaction of rosin with the metal provided by the anti-fouling agent (C).

VII. Regarding inventive step of the main request, the Respondent submitted in essence the following arguments.

The core concept of the invention according to document (1) was that the hydrolysable/blocked acid functional polymer (A) and the polyvalent cation (B) became cross-linked after the composition has been applied to a surface in order to provide a toughened coating. The function of the blocking groups was to prevent the polymer from crosslinking with the compound (B) during storage. It was essential however for the invention of document (1) that the triorganosilyl ester groups (TOSE) be rapidly hydrolysed when in contact with seawater so that the desired crosslinking takes place, for instance one week after the immersion. It could be seen in that respect from the description that when the acid functional polymer (A) was blocked by triorganosilyl ester groups (TOSE), substantially all the TOSE were hydrolysed from a 100µm coating film of the polymer within one week of immersion in seawater. Furthermore, document (1) pointed out that if a blocked acid-functional polymer was used as the component (A), that is one containing TOSE substituents, then the most satisfactorily used salt was an octoate or a naphthenate, i.e. not a rosinate. By contrast, the aim in the patent in suit was entirely different in that the hydrolysis of the polymer (B) containing the TOSE groups occurred extremely slowly such that the erosion of the film by a thickness of 100µm took more than six months. Thus document (1) nowhere disclosed or suggested the combination of a metal rosinate with an acid-functional

polymer blocked with TOSE groups to achieve the technical effect of the patent in suit.

The subject-matter of the first auxiliary request was moreover non-obvious for the additional reason that document (1) did not mention a single branched alkyl group. All the alkyl groups mentioned were linear and hydrolysed rapidly. The branched alkylsilyl groups defined in Claim 1, by contrast, hydrolysed slowly which constituted a different technical effect contrary to the teaching of document (1).

With regard to the subject-matter of the second auxiliary request, the Respondent argued that Claim 1 had to be interpreted in view of the description under Article 69(1) EPC. The patent in suit properly construed covered as alkyl groups, optionally substituted alkyl groups, cyclohexyl groups or benzyl groups (see paragraph [0027]).

The added method-type Claims 4 to 6 of the third auxiliary request were not objectionable under Rule 57a EPC, because the amendments which had been included in Claim 1 of this request compared to Claim 1 as granted restricted the product claims in such a way that the added method-type claims provided additional valuable protection insofar as any metal which was present in the coating composition might react with the rosin compound (A) to form a metal rosinate. Claims 4 to 6 aimed to recapture a part of the protection which had been abandoned by the deletion in Claim 1 of any metal rosinate. Support for Claims 4 to 6 could be found in the experimental part of the application as originally filed.

Even if one admitted that rosinate could be formed in the composition of Claim 1 of the fourth auxiliary request since rosin could partially react with a metal, that reaction depended of many possibilities. Furthermore, even in that case, document (1) did not give the person skilled in the art any hint to contemplate a composition comprising rosin as an essential feature.

VIII. The Appellant requested that the decision under appeal be set aside and the patent be revoked.

The Respondent requested that the appeal be dismissed or that the patent be maintained on the basis of the first to fourth auxiliary request filed with the letter of 29 October 2004.

IX. At the end of the oral proceedings the decision of the Board was announced.

Reasons for the Decision

1. The appeal is admissible.

Main request (claims as maintained by the Opposition Division)

2. Amendments

2.1 The subject-matter of Claim 1 derives directly and unambiguously from the content of the application as originally filed (see Claims 1, 2, 3 and 5; page 10, bottom to page 11, line 6 and page 15, line 19 to

page 16, line 17). The subject-matter of Claims 2 and 3 corresponds to the subject-matter of Claims 4 and 5 as originally filed. The amendments, therefore, comply with the requirement of Article 123(2) EPC.

2.2 Since the subject-matter of Claim 1 represents a restriction in comparison to Claim 1 as granted, no objection under Article 123(3) EPC is to be made, either.

3. Sufficiency of disclosure

3.1 A European patent gives rise to objection under Article 100(b) EPC if it does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by the person skilled in the art. This ground of opposition refers directly to the requirement provided by Article 83 EPC. The essence of the Appellant's arguments regarding lack of disclosure is that the technical problem might not be solved within the whole claimed area since the trimethylsilyl groups were allegedly rapidly hydrolysed in sea water, in contradiction with the objective of the patent in suit.

3.2 However, as far as the ground of opposition under Article 100(b) is concerned, the question is rather whether the combination of functional polymers having carboxylic acid blocked with trimethylsilyl groups with a rosin component and an anti-foulant can or cannot work as an anti-fouling coating composition.

In that context, according to the jurisprudence of the Boards of Appeal, each of the parties to the

proceedings carries the burden of proof for the facts it alleges (see e.g. decision **T 270/90**, OJ EPO 1993, 725, point 2.1). Although the burden was upon him, the Appellant nevertheless neither submitted evidence in the form of working experiments nor literature in the relevant technical field to support the contention that the claimed subject-matter did not work. Since the Appellant failed to convincingly substantiate its allegation, the ground of opposition under Article 100(b) EPC is rejected.

4. Novelty

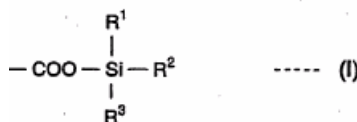
Neither the Opposition Division nor the Appellant raised any objection against novelty of this request. The Board after having examined the prior art cited is also satisfied that the requirement of Article 54 EPC is met. In view of the outcome of the decision, it is not necessary to give details in this respect.

5. Inventive step

- 5.1 The patent in suit as reflected by Claim 1 of this request relates to a rosin-based coating composition for use in preventing the attachment of organisms to the surfaces of structures submerged in seawater. This composition comprises a rosin compound (A); a rosin compatible polymer (B) which achieves enhanced solubility in sea water after immersion therein; and a conventionally-known anti-foulant (C) chosen among inorganic compounds, organometallic compounds, and metal-free organic compounds (see [0001], [0018], [0019] and [0041]).

5.2 In accordance with the "problem-solution" approach consistently applied by the Boards of Appeal, it is necessary, as a first step, to establish the closest state of the art which is normally a prior art document disclosing subject-matter aiming at the same objective as the claimed invention and having the most relevant technical features in common.

5.2.1 Document (2) discloses a coating composition having an anti-fouling effect and stability in storage for a long period of time which comprises (A) a polymer having in its molecule triorganosilylester group represented by the formula (I)



wherein R¹-R³ may be *inter alia* an alkyl group, (B) copper or copper compounds, (C) an alkoxy silane compound. Besides the above-mentioned components A to C, if necessary, it can be used in combination with pigments, various additives, among them resins such as *inter alia* rosin (see page 1, abstract and claim; page 6, third paragraph and page 8, first paragraph). No worked example with rosin compound is disclosed.

This document aims at the same objective as the patent in suit. The composition comprises the same acid functional polymer blocked by triorganosilyl ester groups (TOSE) and a copper compound as anti-foulant. However, the presence of a rosin compound is rather incidently mentioned among an unlimited list of additives.

5.2.2 Document (1) is concerned with antifouling coating compositions used on surfaces likely to come into contact with marine fouling organisms such as algae, seaweed and barnacles, for example on ships or boats (see page 1, lines 1 to 5).

An antifouling composition according to this document comprises a biocide for marine organisms which is preferably a metalliferous pigment sparingly soluble in seawater, for example cuprous oxide, zinc oxide, and a solution or dispersion of a binder polymer (A) which is an acid-functional polymer or a polymer hydrolysable to an acid-functional polymer and a solution of a salt of a polyvalent metal or of a precursor thereof, namely compound (B) (see page 3, lines 20 to 24).

The acid-functional polymer (A) contains preferably carboxylic groups. The acid groups are preferably pendent to the polymer chain. When it contains carboxylic groups, the acid-functional polymer (A) is preferably an addition polymer of an olefinically unsaturated carboxylic acid. The polymer (A) can be in the form of free acid groups or can be bonded to a blocking group by a hydrolysable bond. Example of suitable hydrolysable blocking groups for the acid groups of polymer (A) are triorganosilyl groups, for example trialkylsilyl groups such as trimethylsilyl groups (see page 3, lines 30 to 32 and page 4, lines 11 to 19).

The compound (B) may be a salt of a polyvalent metal with a monobasic organic acid. Examples of metal which can be used as the polyvalent cation of the compound (B) are *inter alia* copper or zinc. The salt can be for

example an octoate, naphthenate, "Versatate", rosinatate, caproate or caprylate (see page 3, lines 53-54; page 4, lines 46 to 54).

From the above, it turns out that document (1) aims at the same objective as the patent in suit and has more relevant technical features in common with the claimed subject-matter than document (2) since the compositions disclosed in document (1) necessarily comprise the components (A), (B) and (C) defined in Claim 1 of this request.

5.3 Thus, starting from document (1), the technical results or effects successfully achieved by the claimed subject-matter are to be determined for defining the objective technical problem to be solved by the invention.

5.3.1 According to the established jurisprudence of the Boards of Appeal, some beneficial effects or advantageous properties, if appropriately demonstrated by means of truly comparable results, could in certain circumstances properly form a basis for the definition of the problem that the claimed invention sets out to solve and could, in principle, be regarded as an indication of inventive step; the only comparative tests suitable for this are, however, those which are concerned with the structurally closest state of the art to the invention, because it is only here that the factor of unexpectedness is to be sought (see T 181/82, OJ EPO 1984, 401, point 5 and T 955/96, point 5.10).

5.3.2 In the present case, as pointed out by the Appellant, there is no direct comparison between the claimed

subject-matter and the technical matter disclosed in document (1). Since no beneficial effects or advantageous properties can be acknowledged vis-à-vis the closest state of the art, i.e. document (1), a less ambitious problem must be formulated. The Board in that respect does not deviate from the view of the first instance that the technical problem to be solved vis-à-vis document (1), may only be seen in the provision of an alternative (further) anti-fouling composition giving a coating film.

- 5.4 As a solution, the patent in suit proposes the compositions as defined in Claim 1. In view of the description, in particular the examples of the patent in suit, the Board is satisfied that the technical problem as above defined is solved within the whole area claimed.
- 5.5 It remains to be decided whether or not the solution claimed was obvious in view of the prior art cited.
- 5.5.1 The question arises, in particular, whether or not, the person skilled in the art when trying to solve the technical problem defined above, would have been directed in an obvious manner to try with a reasonable expectation of success an anti-fouling composition comprising as a binder, a polymer the carboxylic acid groups of which are bonded to a hydrolysable trialkylsilyl blocking group, a solution of a polyvalent metal salt made of zinc, calcium, copper or magnesium rosinate and a biocide for marine organisms.
- 5.5.2 The Respondent argued, in particular, that document (1) taught that the polymer (A) had to be rapidly

hydrolysed for cross-linking with the polyvalent cation. The mechanism of the claimed composition would be, to the contrary, totally different in that the hydrolysis of the polymer (B) containing the TOSE groups occurred extremely slowly such that the erosion of the film by a thickness of 100µm took more than six months. Therefore, even though the person skilled in the art could have made the composition in view of document (1), he would not have made it to achieve the technical effect of the patent in suit.

- 5.5.3 The Board is however not convinced by this argument. First, a difference of mechanism is in itself meaningless if it does not materialize in a technical effect. In the present case, the technical effect of the composition is basically to prevent the attachment of marine-organisms over a long period. It was up to the Respondent to demonstrate that less readily hydrolysable groups had a technical impact on the erosion rate of the film. The Respondent failed in that respect (see point 5.3.2 above). Furthermore, the argument of the Respondent is at odds with the claimed-subject-matter which embraces compositions wherein the polymer (B) may comprise in a large majority free carboxylic groups when the polymer (B) is a mixture of (i) and (ii). It is hardly possible to understand in that case how the slow erosion of the film is connected with the rate of hydrolysis of the blocking groups.
- 5.5.4 In the absence of convincing arguments to the contrary, the Board can only conclude that the person skilled in the art must expect that all the embodiments resulting from the combinations of the various information contained in document (1), even that not specifically

highlighted, can represent a solution to the technical problem defined above (see point 5.3.2 above).

On that basis, the presumption prevails that a particular embodiment embraced by document (1) consisting in a composition comprising as binder polymer (A), an addition polymer of an olefinically unsaturated carboxylic acid blocked by trialkylsilyl hydrolysable groups, a salt of a polyvalent metal such as a zinc or copper rosinate as compound (B) and a biocide for marine organisms will achieve the technical result which is sought. Since such a composition falls within the scope of present Claim 1, it derives therefrom that it would have been obvious for the person skilled in the art in view of document (1) to design a composition within Claim 1 to solve the above defined technical problem. Consequently, Claim 1 cannot be regarded as involving an inventive step in the sense of Article 56 EPC.

- 5.6 Since the Board can only decide on a request as a whole, the main request is, therefore, rejected under Article 56 EPC.

First auxiliary request

6. Amendments

- 6.1 The subject-matter of this request comprises all the amendments of the main request and differs therefrom in that R^1 , R^2 , and R^3 are the same or different and each represents a branched alkyl group having up to 20 carbon atoms or an aryl group. Such a further amendment is supported by the application as originally filed

(see page 12, third paragraph). The amendments, therefore, comply with the requirement of Article 123(2) EPC.

- 6.2 Since the subject-matter of Claim 1 represents a restriction in comparison to Claim 1 as granted, no objection under Article 123(3) EPC is to be made, either.

7. Novelty

The Appellant did not raise any objection against novelty of this request. The Board after having examined the prior art cited is also satisfied that the requirement of Article 54 EPC is met. In view of the outcome of the decision, it is not necessary to give details in this respect.

8. Inventive step

- 8.1 As already stated, document (1) discloses that the polymers (A) may contain carboxylic acid groups blocked by tri**alkyl**silyl ester groups (see point 5.2.2 above). It is to be noted however that "alkyl" is a generic term of art standing for both branched and unbranched alkyl substituents. In the absence of any evidence showing beneficial effects or advantageous properties due to the choice of trialkylsilyl ester groups wherein the alkyl substituent is a branched alkyl, the inventive step issue does not change with regard to that set out for the main request (see point 5 above).

- 8.2 The Board holds, therefore, that in view of document (1) the person skilled in the art looking for further anti-

fouling compositions would have also been directed in an obvious manner to compositions wherein the alkyl groups of the trialkylsilyl groups are branched, so that the subject-matter of Claim 1 does not involve an inventive step in the sense of Article 56 EPC.

- 8.3 Since the Board can only decide on a request as a whole, the first auxiliary request is also rejected.

Second auxiliary request

9. Amendments

- 9.1 In Claim 1 of this request, the formula defining the monomer A was replaced by a list of monomers including tribenzylsilyl (meth)acrylate, dicyclohexylphenylsilyl (meth)acrylate, tri-2-chloroisopropylsilyl methyl fumarate.

- 9.2 The Appellant objected to this request on the ground that those monomers were not covered by Claim 1 of the patent as granted which indicated " R^1 , R^2 , and R^3 are the same or different and each represents an alkyl group or an aryl group". The Respondent argued that Claim 1 had to be interpreted in view of the description under Article 69(1) EPC.

- 9.3 With regard to the interpretation of a claim by reference to the description of the patent under Article 69(1) EPC, the Board observes that this article of the EPC belongs to Part II, Chapter III. This Chapter contains provisions concerning the effects of patent and patent applications and is to be applied by the Courts responsible for deciding on infringement

cases (see G 1/98, OJ EPO 2000, 111, point 4 of the reasons). Article 69 EPC is, therefore, not designed to be a substitute for the requirements of Article 123(3) EPC.

9.4 The Board finds it necessary to point out that in the technical field of organic chemistry, the term "alkyl" is one of elementary knowledge and stands for an univalent acyclic saturated radical containing only the elements of carbon and hydrogen, which clearly does not comprise the dicyclohexyl or 2-chloroisopropyl or benzyl radicals. The same is true for the term "aryl" standing for univalent aromatic hydrocarbon radicals having the free valence at a ring atom, which does not therefore comprise the benzyl radicals.

9.5 In view of the above, the subject-matter of Claim 1 of this request extends beyond the protection conferred by the patent as granted in contravention of the requirements of Article 123(3) EPC and for this reason, this request is to be rejected.

Third auxiliary request

10. Amendments

10.1 According to Rule 57a EPC, the claims may be amended, provided that the amendments are occasioned by grounds of opposition specified in Article 100 EPC, even if the respective ground has not been invoked by the Opponent. The present request comprises six claims.

10.1.1 Claim 1 of this request differs from that of the main request in that the metal rosinate were deleted (see

point II above). The Board sees no objection under Rule 57a in that respect.

10.1.2 Claims 4 to 6 relate to a method of preparing a coating composition (see point V above). The Respondent justified the introduction of those claims on the ground that the added method-type Claims 4 to 6 provided additional valuable protection insofar as any metal which was present in the coating composition might react with the rosin compound (A) to form a metal rosinate. Claims 4 to 6 sought to recapture a part of the protection which had been abandoned by the deletion in Claim 1 of any metal rosinate.

10.1.3 The question whether or not the fresh Claims 4 to 6 can be considered *prima facie* as a fair attempt to avoid the objection raised against the former requests depends on the interpretation of those claims. Assuming that method Claim 4 yields a coating composition wherein all the rosin is reacted with the metal present in the mixture, for instance provided by an anti-foulant agent, the situation, in the Board's judgment, would not be changed with regard to the former requests and the Board would have refused this request under Rule 57a EPC since the amendments are not appropriate. However, this interpretation may not be a realistic one. Indeed, from a chemical point of view, it does not seem unreasonable that the reaction of rosin and the metal is most probably a partial one so that some rosin will remain in the composition. Therefore, the claimed subject-matter would appear to differ from that of the former requests in that the resulting composition comprises rosin in addition to metal rosinate. This can thus be considered as an appropriate attempt to avoid

the objections raised against the former requests, and the Board sees no objection under Rule 57a EPC.

10.2 However, as admitted by the Respondent, there is no general description of the claimed method in the application as originally filed. The sole reference to a method for preparing the coating compositions can be found in the part relating to the specific examples. The question that arises, therefore, is whether or not the subject-matter of Claim 4 may be considered as supported by the application as originally filed as required by Article 123(2) EPC.

10.2.1 The patent application comprises twenty examples numbered 1 to 20, wherein polymer solutions S_1 to S_{16} are mixed either alone or in specific combinations, with one or several rosin derivatives and with one or several anti-fouling agents (see tables 6 to 10).

10.2.2 In the Board's judgment, there are two possible readings of those examples. Either in view of the description of the examples as a whole, it may be considered that those variations in the kinds of ingredients and in the respective amounts show that any mixture is possible so that the generalization is admissible. Or, by contrast, it may be considered that for each polymer solution, the amount and the kind of rosin compound and the amount and the kind of anti-fouling agent is critical. The Board observes in that respect that the last interpretation is quite as valid as the former one given that for some polymer solutions, the amount of added rosin compound is extremely low, namely 2 parts or 0.5 parts for 100 parts of mixtures (see page 35, Table 10, Examples 19 and 20 respectively)

whereas for some other polymer solutions, the amount of rosin compound is extremely high, namely 60 or 70 parts for 100 parts of the mixture (see page 35, Table 10, Example 18 or page 33, Table 8, Example 12 respectively). From this point of view, the subject-matter of Claim 4 is an inadmissible generalization since nothing in the description indicates to the person skilled in the art that the observed variations are not essential to make a coating composition. That finding corresponds to a typical ambiguous situation that the person skilled in the art cannot finally clarify. It derives therefrom that the subject-matter of Claim 4 is not directly and unambiguously derivable from the content of the application as originally filed and is in contradiction with the requirements of Article 123(2) EPC.

- 10.3 Since the Board can only decide on a request as a whole, the third auxiliary request is rejected as inadmissible as not in compliance with Article 123(2) EPC.

Fourth auxiliary request

11. Amendments

- 11.1 The subject-matter of Claim 1 of this request comprises all the amendments of the main request and differs therefrom in that the rosin compound was selected from tall rosin, gum rosin, wood rosin, hydrogenated rosin, rosin modified by reaction with maleic anhydride, formylated rosin, polymerised rosin. The amendments, therefore, comply with the requirement of Article 123(2) EPC.

11.2 Since the subject-matter of Claim 1 represents a restriction in comparison to Claim 1 as granted, no objection under Article 123(3) EPC is to be made, either.

12. Novelty

The Appellant did not raise any objection against novelty of this request. The Board after having examined the prior art cited is also satisfied that the requirement of Article 54 EPC is met. In view of the outcome of the decision, it is not necessary to give details in this respect.

13. Inventive step

13.1 At the oral proceedings, the Board heard nothing convincing why document (1) should not be considered as the closest state of the art for determining the technical problem to be solved in view thereof.

Indeed, despite of the deletion of the rosin compounds selected from zinc rosinate, calcium rosinate, copper rosinate and magnesium rosinate, it remains that Claim 1 is open-ended due to the feature "comprising". From a legal point of view, that finding does not exclude that a metal rosinate as defined above is present. But this finding still more stands out as undisputable in view of the chemical reality underlying the wording of Claim 1.

As pointed out by the Respondent in the course of the written proceedings "any metal which is present" may react with the rosin compound (A) to form a metal

rosinate. When the anti-foulant is cuprous oxide or zinc oxide, this yields cuprous or zinc rosinate respectively by partial reaction with rosin, namely compound (A) (see point 10.1.2 above). This is all the more confirmed by document (3) which teaches that abietic acid which is the principal component of rosin can partially react with other components of the paint like ZnO, Cu₂O (see col. 4, lines 32 to 51). Furthermore, document (1) discloses on page 12, line 44, as a rosinate compound, a rosin 50% neutralised by zinc oxide which yields inevitably to a mixture of zinc rosinate and rosin.

Therefore, the Board concludes that when the anti-foulant is zinc oxide or cuprous oxide, the claimed composition comprises as an essential component zinc rosinate or copper rosinate and rosin respectively.

For this reason, document (1) is to be considered as the closest state of the art (see point 5.2.2 above).

- 13.2 In the absence of any evidence showing beneficial effects or advantageous properties, the technical problem to be solved remains the same as that set out with regard to the main request, namely in the provision of an alternative anti-fouling composition giving a coating film (see point 5.3.2 above).
- 13.3 It remains to be decided whether or not the claimed solution was obvious in view of the prior art cited.
 - 13.3.1 As pointed out above Claim 1 of this request encompasses coating compositions comprising necessarily a mixture of copper or zinc rosinate and rosin when

compound (A) is rosin and the anti-fouling agent (C) is cuprous or zinc oxide.

13.4 The person skilled in the art looking for alternative anti-fouling compositions of document (1) would have been directed in an obvious manner to compositions wherein the rosin compound is partially neutralized by zinc oxide as taught by document (1) since document (1) discloses on page 12, line 44, as a rosinate compound, a rosin 50% neutralised by zinc oxide which yields to a mixture of zinc rosinate and rosin. That feature being the sole distinguishing feature compared to the subject-matter of Claim 1 of the main request, it derives therefrom that the same reasons which have led the Board to conclude that the main request should be rejected for lack of inventive step also apply to this request (see point 5.5 above). The subject-matter of Claim 1 does not, therefore, involve an inventive step in the sense of Article 56 EPC.

13.5 Since the Board can only decide on a request as a whole, the first auxiliary request is also rejected.

14. None of the requests submitted by the Appellant, therefore, comply with the requirements of the EPC and the patent is to be revoked.

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

N. Maslin

A. Nuss