Internal distribution code:

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

Datasheet for the decision of 2 December 2013

Case Number: T 2086/10 - 3.3.01

Application Number: 00911075.0

Publication Number: 1171534

IPC: C09D175/06, C09D133/24, C08G18/08, C08G18/42

Language of the proceedings: EN

Title of invention:
CROSSLINKABLE COATING COMPOSITIONS

Patent Proprietor:
DSM IP Assets B.V.

Opponents:
Akzo Nobel N.V.

Headword:
Carbonyl group containing crosslinkable polyolefins/DSM

Relevant legal provisions:
EPC Art. 56, 104(1)

Keyword:
Sole request: inventive step (no) - obvious alternative
Apportionment of costs - (no)

Decisions cited:
T 0273/07, T 0544/94, T 0632/88, T 0507/89, T 0275/89

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 2086/10 - 3.3.01

D E C I S I O N
of Technical Board of Appeal 3.3.01
of 2 December 2013

Appellant: (Opponent I)	Akzo Nobel N.V. Velperweg 76 NL-6824 BM Arnhem (NL)
Representative:	Derks, Wilbert Hoyng Monegier LLP Rembrandt Tower, 31st Floor Amstelplein 1 1096 HA Amsterdam (NL)
Respondent: (Patent Proprietor)	DSM IP Assets B.V. Het Overloon 1 6411 TE Heerlen (NL)
Representative:	Kirk, Martin DSM Intellectual Property P.O. Box 4 6100 AA Echt (NL)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted on 9 August 2010 concerning maintenance of the European Patent No. 1171534 in amended form.**

Composition of the Board:

Chairman:	A. Lindner
Members:	G. Seufert
	D. Rogers

Summary of Facts and Submissions

I. Opponent I lodged an appeal against the interlocutory decision of the opposition division, dispatched on 9 August 2010, on the amended form in which European patent No. 1 171 534 could be maintained.

II. The present decision refers to the following documents:

(1) WO 00/24837
(4) US 5,348,997
(13) WO 97/26303
(14) US 4,996,250
(17) Web encyclopaedia on definition of alkyds (Mc Graw Hill, Sci.-Tech Dictionary
(18) Alkyd Resins for Printing Inks, Akzo Nobel brochure
(19) SETAL 6306 SS-60, a polyester resin, Nuplex brochure, updated 9 June 2006
(20) Acronal A 603, Technische Information - Anstrich- und Lackrohstoffe, July 1995

III. Notices of opposition were filed by opponents I and II requesting revocation of the patent in suit in its entirety on the grounds of lack of novelty and inventive step (Article 100(a) EPC).

IV. In a first decision, the opposition division held that the subject-matter of the main request and the auxiliary request, both filed during the oral proceedings before the division on 22 February 2005, lacked novelty over the disclosure of document (1) and accordingly revoked the patent.

V. The patent proprietor lodged an appeal against this first decision of the opposition division (hereinafter the first appeal).

VI. The board, in a different composition, decided in the first appeal (T 572/05) that the main request, filed on 27 April 2007, did not comply with Article 84 EPC. The board also decided that the first auxiliary request filed on the same date complied with Articles 123(2), 123(3) and 84 EPC and that its subject-matter was novel over the available prior art. The case was remitted to the department of first instance for further prosecution.

VII. With letter of 11 October 2007 opponent II withdrew its opposition.

VIII. With letter of 11 March 2008, opponent I raised a further ground for opposition under Article 100(b) EPC, which it explicitly withdrew at the oral proceedings before the opposition division (see Minutes, point 3).

IX. In its second decision regarding the patent in suit, the opposition division held that the subject-matter of the main request filed with letter of 20 May 2010, which was identical to the first auxiliary request on which the board decided in the first appeal (see point VI above), was inventive over the prior art.

X. The main request underlying the contested decision contains claim 1 to 12, independent claims 1, 11 and 12 reading as follows:

"1. An aqueous crosslinkable coating composition comprising as aqueous dispersed components:
(i) at least one autoxidisably crosslinkable organic

polymer containing unsaturated fatty acid residues, and

(ii) at least one vinyl polymer which is not autoxidisably crosslinkable and bears carbonyl functional groups formed by the free-radical addition polymerisation of at least one carbonyl-containing mono-ethylenically unsaturated monomer with at least one other olefinically unsaturated monomer not providing carbonyl functionality, wherein the weight average molecular weight of the vinyl polymer is within the range 2,000 to 1,000,000; and

wherein said composition has present therein carbonyl reactive amine and/or hydrazine functional groups which impart crosslinkability to component (ii)."

"11. A coated substrate having a coating obtainable from an aqueous crosslinkable coating composition as claimed in any one of claims 1 to 10."

"12. Use of an aqueous crosslinkable coating composition as claimed in any one of claims 1 to 10 for coating a substrate."

XI. In its statement of grounds of appeal, the appellant (opponent I) maintained its objection of lack of inventive step. In addition, it filed further documents (numbered documents (17) to (20) by the board).

XII. In a communication accompanying the summons to oral proceedings, the board indicated the issues to be discussed during oral proceedings. With respect to inventive step, the board indicated the principles according to which inventive step was to be assessed and gave its preliminary opinion on which documents,

namely documents (13) or (14), could be considered as a suitable starting point.

XIII. With letter of 28 November 2013, the appellant provided further arguments in support of its objection regarding lack of inventive step and informed the board that it would not be represented at the oral proceedings scheduled on 2 December 2013.

XIV. Oral proceedings took place as scheduled. The discussion with respect to inventive step focused on the question whether or not the experimental data present in the patent in suit supported the alleged improvements in the properties (yellowness, mechanical strength and chemical resistance) of the claimed compositions. After the discussion regarding inventive step, the chairman of the board invited the respondent to present its arguments with respect to its request of apportionment of costs.

XV. The arguments of the appellant with respect to the decisive issues, provided in writing, can be summarised as follows:

- Inventive step

Blending different polymers to tailor the properties of the blend to the requirements of the envisaged end-use was well known. Such blends were known from various prior art documents, including documents (13) or (4). Document (13) already described aqueous compositions comprising autoxidisably crosslinkable alkyds with polymers, which were not autoxidisably crosslinkable, but had other crosslinking means. The statement of the opposition division that the acrylic polymer in document (13) was not crosslinkable was therefore

incorrect. In particular, document (13) described compositions comprising a vinyl polymer (A), a surfactant (B) and a resin (C), which could be alkyd containing unsaturated fatty acids (see page 5, third paragraph and examples 5, 6 and 8). Most preferred as described on page 4, paragraph 7 was a combination of an acrylate polymer with an alkyd resin. On pages 6 and 8, document (13) disclosed curing of the compositions by a plurality of curing mechanisms. Furthermore, on page 5 it was mentioned that the resins could be modified with other functional groups including acetoacetates, for example by using acetoacetoxyethyl methacrylate which was a carbonyl group containing monomer. On page 8 various acetoacetate functional resin were specifically mentioned. Furthermore, document (13) also disclosed suitable amino resins (see page 6), i.e. resins with carbonyl reactive amino groups. Document (13) did not disclose polymers A with azomethine (Schiff base) crosslinking, but described polymers A with certain other crosslinking means. The problem according to paragraph [0005] of the patent in suit was therefore already solved in document (13).

The molecular weight in claim 1 of the main request was extremely broad and did not present a purposive selection over the prior art. No advantages or surprising effects that could support an inventive step were associated with the claimed range.

Furthermore, the claimed subject-matter was obvious from a combination of document (4), describing blends of alkyd resins with carbonyl containing copolymer, and document (13), disclosing the use of autoxidisably crosslinkable alkyd resins in combination with vinyl polymers having certain other crosslinking mechanisms.

XVI. The arguments of the respondent with respect to the decisive issues can be summarised as follows:

- inventive step

Document (13) was not a suitable starting point for the present invention, because it was concerned with a different problem, namely providing compositions with a high dry solids content and low viscosity (page 1, lines 14 to 19 and 23 to 24). Furthermore, it taught away from the present invention. On page 2 of document (13), it was indicated that the selection of the polymer components was of great importance for the invention and the selection of the surfactant crucial to the stability of the composition. Although various crosslinking mechanisms were disclosed, the cross-linking via formation of Schiff bases in polymers A was not mentioned. Thus, in view of the importance of the polymer components, the skilled person would not make any changes at all to the teaching of document (13). Furthermore, there was no mention of the molecular weight of the vinyl polymer in this document.

If document (13) was considered to be the closest prior art, the problem to be solved in the light of this document was the provision of improved compositions as indicated in paragraph [0005] of the patent. More particularly, it was the provision of compositions with improved mechanical strength and chemical resistance, without increase in yellowing of the coatings, or compositions with reduced yellowing of the coatings without adversely affecting the coatings' mechanical strength and chemical resistance. Evidence that this problem had been solved was provided in tables 1 to 6 of the patent in suit summarising the properties of examples according to the invention and comparative

examples. The latter differed only in that the vinyl polymer did not contain carbonyl groups. The effects were not huge, but this was not required for acknowledging an inventive step.

Document (4) referred to pigment dispersions, not binders as in document (13). The skilled person had therefore no reason to use the Schiff base crosslinking disclosed therein in D13.

- Apportionment of costs

The respondent had every expectation that the appellant would be present during the oral proceedings. There was no apparent reason for the appellant to decide so late on its non-attendance. As a consequence of the appellant's behaviour, it was to late for the respondent to cancel its travel plans. The cost of oral proceedings should therefore be apportioned.

XVII. The appellant requested in writing that the decision under appeal be set aside and that the patent be revoked.

XVIII. The respondent requested that the appeal be dismissed and that there be an apportionment of costs concerning the oral proceedings.

XIX. At the end of the oral proceedings the decision of the board was announced.

Reasons for the Decision

1. The appeal is admissible.

2. Non-appearance at oral proceedings before the board

2.1 As announced (see point XIII above), the appellant did not attend the oral proceedings before the board to which it had been duly summoned.

2.2 According to Rule 115(2) EPC, oral proceedings may continue in the absence of a duly summoned party that does not appear. According to Article 15(3) of the Rules of Procedure of the Boards of Appeal (RPBA), the board is not obliged to delay any step in the proceedings, including its decision, by reasons only of the absence at the oral proceedings of any party duly summoned who may then be treated as relying only on its written case. In deciding not to attend oral proceedings the appellant chose not to avail himself of the opportunity to present its observations and comments orally.

2.3 The contentious issues were apparent from the decision under appeal, the statement of grounds of appeal and the reply thereto. The parties had also been informed with the board's communication annexed to the summons to oral proceedings on the issues that had to be discussed during these proceedings. Hence, the appellant must have expected that during oral proceedings the board would consider these issues. Hence, the board concludes that the appellant had an opportunity to present its observations and comments on the grounds and evidence on which the board's decision, arrived at during oral proceedings, is based. The board was, therefore, in a position to take a final decision at the oral proceedings despite the absence of the duly summoned appellant.

Main and sole request

3. Inventive step

3.1 Claim 1 of the main request is directed to an aqueous crosslinkable coating compositions comprising (i) an autoxidisably crosslinkable organic polymer containing an unsaturated fatty acid residue and (ii) a non-autoxidisably crosslinkable vinyl polymer obtained from monoethylenically unsaturated monomers bearing carbonyl functional groups and olefinically unsaturated monomers without such a group. Furthermore, carbonyl reactive amine and hydrazine functional groups imparting cross-linkability to the vinyl polymer are present (see point X above).

3.2 Similar compositions of an autoxidisably crosslinkable polymer containing an unsaturated fatty acid and a vinyl polymer are known from document (13). Page 7 of this document refers to compositions of dispersion A with no reactive function and resin C, wich is an alkyd with unsaturated fatty acid (see combination a)). Dispersion A is obtained from monoethylenically unsaturated monomers (see page 2, third paragraph and claim 1). Example 12 of document (13) illustrates a composition according to combination a), wherein dispersion A is an acrylic polymer and resin C is an autoxidisably crosslinkable alkyd resin comprising an unsaturated fatty acid (see example 6).

The board also notes that document (13) is mentioned in the patent in suit as starting point for the present invention aiming at improving the mechanical strength and resistance to chemicals of the blends disclosed in document (13). These blends are known for their reduced yellowing of the coating - a disadvantage linked to the

autoxidisably crosslinkable polymers containing unsaturated fatty acid residues, which due to their capability of crosslinking have good mechanical strength, chemical resistance and appearance (see patent in suit, paragraphs [0002] to [0005]).

In view of the fact that the patent in suit itself mentions document (13) as starting point of the invention, the respondent's position that document (13) is unsuitable is not convincing. The board also does not agree with the opposition division's statement that document (13) is "far away" from the presently claimed coating compositions or with the respondent's objection that document (13) teaches away from the present invention. In fact, with the disclosure of compositions comprising an autoxidisably crosslinkable polymer and a vinyl polymer, document (13) is close to being an anticipation. The absence of carbonyl functional groups in the vinyl polymer to which the opposition division objected and which makes this polymer "not autoxidisably" crosslinkable with amines or hydrazines represents the distinguishing feature between document (13) and the present invention. The additional presence of a surfactant in the combinations of document (13) is of no relevance, since the presence of such a compound is included in claim 1 of the main request due to the use of the word "comprising".

Hence, the board considers document (13) as the closest prior art and takes it as the starting point for assessment of inventive step.

3.3 At the oral proceedings before the board, the respondent defined the problem to be solved by the present invention as the provision of improved crosslinkable coating compositions, in particular the

provision of compositions with improved mechanical strength and chemical resistance and no deterioration through yellowing of the coatings, or compositions, the reduced yellowing of the coatings being achieved without adversely affecting the coatings' mechanical strength and chemical resistance. "Marginal improvements in some aspects" were also referred to by the opposition division in the contested decision.

As the solution to this problem, the patent in suit proposes compositions in which the not autoxidisably crosslinkable polymer bears carbonyl groups which are crosslinkable with amine and/or hydrazine groups, which are further present.

3.4 To demonstrate that this problem has been successfully solved, the respondent relied on the examples and comparative examples provided in tables 1 to 6 of the patent in suit. In particular, the respondent referred to table 1, examples C5 and 2, table 2, examples 7 and C8, or table 4, examples 17 and C16. The opposition division also referred in a general way to the results in tables 1 to 6 as evidence for the "at least marginal improvements" without, however, providing an analysis of those results, which could have supported its conclusion with regard to the alleged improvements.

3.5 According to the patent in suit a variety of tests had been carried out in order to establish the properties of the coatings obtained from the claimed compositions and those obtained from compositions where no carbonyl function is present. Chemical resistance had been tested for four liquids, namely water, ethanol, coffee and "Andy" (a commonly used Dutch detergent). In further tests "black heel mark resistance (BHMR)", yellowing, pencil hardness and hardness development had

been examined (see patent in suit, paragraph [0134]). The results of these tests are summarised in tables 1 to 6 of the patent in suit.

3.6 However, the data presented in those tables vary to such a degree that a general improvement - either with respect to yellowing or with respect to mechanical strength and chemical resistance - as argued by the respondent cannot be deduced.

3.6.1 Comparing example 2 of the invention with comparative example C5 (see table 1 of the patent in suit) shows the same degrees of yellowness. For two of the four test liquids both the comparative example and the example according to the invention show the same chemical resistance. Thus, a general improvement in chemical resistance is not apparent. The BHMR value in example 2 is higher than in C5. However, no data is given for pencil hardness or hardness development. By contrast, a comparison of examples 17 and C16 in table 4 of the patent in suit shows identical BHMR values, which indicates no improvement in mechanical strength. In addition, pencil hardness and time-dependent hardness development values over four days, which are given in table 4 (but not in table 1) are the same. Accordingly, these values cannot demonstrate an improvement either. With regard to chemical resistance, it is apparent that example 17 shows a better value for water than comparative example C16, but those for coffee are slightly worse, and those for ethanol or "Andy" are identical with the comparative example. Yellowness of the coating compositions is the same. Thus, no improvement has been shown for either yellowness or chemical resistance. A comparison of example 7 and C8 in table 2 shows an improvement in BHMR and reduced yellowness, in three out of the four

test liquids the values are the same, only one shows an improvement. The hardness development value, however, is better in the comparative example.

The board also notes that the data in tables 2 to 6 are in general rather inconsistent. Similar to the examples discussed in the paragraph above, improvements are shown in some tests, in others the results are the same for examples and comparative examples or better for the comparative examples. More importantly, for a considerable number of examples and comparative examples the data is incomplete, for example in tables 3 and 6, the data for yellowness is completely missing. In tables 2, 4 and 5 yellowness had not been measured for at least half of the examples and comparative examples. Thus, even if improvements are deducible for mechanical and chemical strength, it is not apparent that the value for yellowness is at least not adversely affected.

3.7 It follows from the above that the claimed improvements have not been convincingly established. According to established jurisprudence of the boards of appeal alleged but unsupported advantages cannot be considered in the determination of the technical problem underlying the invention. Consequently, the technical problem as defined by the respondent needs to be redefined in a less ambitious way, namely as the provision of further aqueous coating compositions.

In view of the experimental results summarised in tables 1 to 6 of the patent in suit, the board is satisfied that this problem has been solved.

3.8 It then remains to be decided whether or not the proposed solution is obvious in view of the prior art.

3.8.1 The board notes that document (13) already teaches that the polymers present in the compositions described therein can be modified with carbonyl bearing monomers (see page 5, last paragraph, lines 4 to 5, page 8, combination h1 to h5). Such groups are cross-linkable with amines (document (13), page 8, combinations h1 and h4). Thus, the skilled person, contrary to the statement of the opposition division, had already a clear and direct teaching in document (13) itself on how to solve the technical problem of providing alternative compositions, namely by modifying the polymers with carbonyl bearing crosslinkable groups, like acetoacetates such as acetoacetoxyethyl methacrylate. The choice of a particular composition, i.e. the combination of an autoxidisably crosslinkable alkyd resin C and a component A modified with crosslinkable acetoxyacetates, is neither critical nor purposive, but merely an arbitrary selection of no particular technical significance. The same applies with respect to the molecular weight for the vinyl polymer of the present invention, the choice of which has not been shown to result in any technical benefit vis-à-vis the closest state of the prior art and merely represents a non purposive and non critical restriction.

3.8.2 Furthermore, during the oral proceedings before the board the respondent conceded that Schiff base crosslinking (i.e. the reaction product of a carbonyl group with an amine or hydrazine) is well-known in the art. This is also confirmed by document (4), which discloses aqueous coating compositions comprising such crosslinkable vinyl polymers and hydrazine blended with a resin.

3.8.3 The respondent's argument that the skilled person had no reason to use the Schiff base crosslinkable polymers of document (4) in compositions of document (13), because document (4) was concerned with a different subject-matter, namely pigment dispersions, not binders, is not convincing. Document (4) refers to aqueous crosslinkable coating compositions (document (4), claim 1, column 1, lines 35 to 40). The crosslinkable compositions in document (13) are also used in paints and lacquers and as such may comprise pigments as illustrated in examples examples 25 to 32 of document (13). The board therefore sees no reason as to why the skilled person would not have considered using document (4).

3.9 For the aforementioned reasons, the board concludes that the subject-matter of claim 1 of the main and sole request does not involve an inventive step as required according to Article 56 EPC.

4. Apportionment of costs

4.1 The respondent requested that the costs for oral proceedings should be awarded to it because the appellant did not attend oral proceedings and gave notice of its non-attendance only a few days before the appointed day. It was therefore too late for the respondent to cancel its travel plans.

4.2 According to Article 104(1) EPC each party shall bear its own costs. Departure from this principle requires special circumstances, such as improper behaviour of a party, which makes a different apportionment of costs equitable. The non-appearance of a party does not in general adversely affect the party attending oral proceedings (T 273/07, T 544/94, T 632/88 and

T 507/89). While the board agrees with the respondent that a party is under the obligation to give notice in due time of its intended absence, costs can only be apportioned, if the absence of a party renders the oral proceedings unnecessary (T 275/89, OJ EPO 1992, 126)).

4.3 In the present case, the respondent itself has requested oral proceedings "if the Board does not intend to uphold the contested decision". This request was not conditional on the appellant's presence. In accordance with the requests of both parties and for the board to be able to finally decide on the case, oral proceedings were arranged. In its communication accompanying the summons to oral proceedings, the board had not indicated whether or not it considered the subject-matter to be inventive. It merely informed the parties of its preliminary opinion on the document representing the closest state of the art. The respondent had therefore no reason for assuming that the board would decide in its favour and uphold the contested decision. Hence, the appellant's absence did not render the oral proceedings unnecessary.

Accordingly, the respondent's request for an apportionment of costs is refused.

5. Admission of documents (17) to (20)

In view of the negative outcome (see point 3 above), a decision on the admission of documents (17) to (20) submitted by the appellant with the statement of grounds of appeal and objected to by the respondent is not necessary.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside

2. The patent is revoked.

3. The request for an apportionment of costs is refused.

The Registrar: The Chairman:

M. Schalow A. Lindner

Decision electronically authenticated