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Datasheet for the decision of 16 March 2011

Case Number: T 1250/08 - 3.3.03

Application Number: 98964872.0

Publication Number: 1042402

IPC: C08L 33/14

Language of the proceedings: EN

Title of invention:
Curable film-forming compositions

Patentee:
PPG Industries Ohio, Inc.

Opponent:
DuPont Performance Coatings GmbH & Co. KG
BASF Coatings GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56, 83

Relevant legal provisions (EPC 1973):
-

Keyword:
"Sufficiency of disclosure (main request): yes"
"Inventive step (main request): yes"

Decisions cited:
T 0035/85, T 0197/86, T 1002/92, T 1586/05, T 0608/07

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1250/08 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 16 March 2011

Appellant: (Opponent 02)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office dated 9 April 2008 and posted 30 May 2008 rejecting the oppositions filed against European patent No. 1042402 pursuant to Article 102(2) EPC 1973.

Composition of the Board:

Chairman: B. ter Laan
Members: O. Dury
C.-P. Brandt

Summary of Facts and Submissions

I. The appeal by opponent 02 lies against the decision of the opposition division dated 9 April 2008 to reject the oppositions filed against European patent No. EP 1 042 402 B1, based on application 98964872.0.

II. The granted patent was based on 21 claims of which claims 1 and 21 read:

"1. A curable film-forming composition comprising:
(a) an acrylic polyol polymer;
(b) 20 to 35 percent by weight, based on total weight of resin solids, of an aminoplast; and
(c) 1 to 20 percent by weight, based on total weight of resin solids, of a triazine compound of the formula: $C_3N_3(NHCOXR)_3$, wherein X is nitrogen, oxygen, sulfur, phosphorus, or carbon, and R is a lower alkyl group having one to twelve carbon atoms, or mixtures of lower alkyl groups;
wherein the total of components (b) and (c) is greater than 25 and less than 45 percent by weight, based on the total weight of resin solids."

"21. A multi-component composite coating composition comprising a base coat deposited from a pigmented film-forming composition and a transparent top coat applied over the base coat in which the transparent top coat is deposited from a clear film-forming composition according to any of claims 1-20."

III. Two notices of opposition against the patent were filed on 18 March 2003 (opponent 01) and 16 April 2003 (opponent 02), respectively, in which the revocation of

the patent in its entirety was requested on the grounds of Art. 100 (a) EPC (lack of novelty as well as lack of an inventive step; both opponents), Art. 100 (b) EPC (opponent 02) and Art. 100 (c) (opponent 01).

The oppositions were supported, *inter alia*, by the following documents:

D1: EP-A-0 604 922

D2: Document consisting of two pages, namely an email from Mr. Lidell to Mrs. Uebermuth dated 18 February 2003 and a fax from Mr. Lidell to Mrs. Uebermuth dated 26 February 2003.

IV. The decision under appeal was based on claims 1 to 21 as granted. In its decision announced at the end of the oral proceedings held before the opposition division on 9 April 2008 and issued in writing on 30 May 2008, the opposition division rejected the oppositions. The opposition division held that the requirements of Art. 123 (2) EPC were fulfilled. Regarding Art. 83 EPC, the opposition division considered that, despite a clarity issue related to the formula of the triazine, curable film-forming compositions as claimed could be obtained. Novelty was also acknowledged because none of the cited documents disclosed all the claimed features. Starting from D1 as the closest prior art document and considering that the patent in suit provided curable coating compositions having improved acid etch and mar resistance and that the solution given in the claims to achieve that improvement was not obvious in view of the documents on file, the presence of an inventive step was also accepted.

V. On 2 July 2008, opponent 02 (appellant) lodged an appeal against the above decision. The prescribed fee was paid on the same day. The statement of grounds of appeal was received on 25 September 2008 and was supported *inter alia* by documents D1 and D2.

Opponent 01 did not lodge an appeal.

Together with a further submission dated 10 March 2011, the appellant filed the following documents and requested that they be admitted to the proceedings:

D11: A new formaldehyde-free etch resistant melamine crosslinker; A. Essenfeld and K.J. Wu; Cytec Industries Inc.; Presented at the "Waterborne, High-Solids, and Powder Coatings Symposium", February 5-7, 1997;

D12: Micro- and nano-indentation and scratching for evaluating the mar resistance of automotive clearcoats, European Coatings Journal, 7-8/1999.

VI. On 31 January 2009, the patent proprietor, now respondent, filed comments on the statement of grounds of appeal.

VII. In response to the summons for oral proceedings, letter dated 2 December 2010, Opponent 01 (party as of right) announced that they would not attend the oral proceedings.

VIII. Oral proceedings were held on 16 March 2011 in the presence of the appellant and the respondent.

a) After an exchange of arguments regarding Art. 83 EPC, the respondent filed a new main request (claims 1-21), claim 1 reading as follows:

"1. A curable film-forming composition comprising:
(a) an acrylic polyol polymer;
(b) 20 to 35 percent by weight, based on total weight of resin solids, of an aminoplast; and
(c) 1 to 20 percent by weight, based on total weight of resin solids, of a triazine compound of the formula: $C_3N_3(NHCOXR)_3$, wherein X is ~~nitrogen,~~ oxygen or sulfur, ~~phosphorus, or carbon,~~ and R is a lower alkyl group having one to twelve carbon atoms, or mixtures of lower alkyl groups;
wherein the total of components (b) and (c) is greater than 25 and less than 45 percent by weight, based on the total weight of resin solids."

Claims 2-21 of the new main request corresponded to claims 2-21 as granted.

b) During the oral proceedings, the appellant submitted two further documents:
D13: PMSE, Polymeric Materials Science and Engineering, volume 77, Proceedings of the American Chemical Society, Fall meeting, 8-11 September 1997; K.J. Wu and A. Essenfeld; Cytec Industries Inc.; 3 pages
D14: A new Formaldehyde-Free Crosslinker, Research Disclosure, November 1996, pages 751-756.

IX. The appellant's arguments with regard to the main request may be summarised as follows:

(a) Late filed documents

The appellant requested the admission of each of documents D11 to D14 into the proceedings for the following reasons:

- the documents had only been retrieved during the preparation for the oral proceedings and had not been easy to find because they did not belong to the patent literature;
- D11 disclosed curable coating compositions comprising components a), b) and c) according to claim 1 of the main request. D11 taught that such compositions exhibited a good compromise between acid etch and mar resistance (last sentence on page 248; Table 7). D11, thus, provided the same solution as the patent in suit to the problem of improving acid etch and mar resistance. Consequently, D11 was more relevant than D1 and represented a more suitable closest prior art;
- D12 showed that the resin used in Table 7 of D11 was an acrylic polyol polymer according to granted claim 1 a);
- D13 and D14 both disclosed the same relevant information as D11 and bore a more explicit publication date;
- D11 to D14 were therefore highly relevant;
- D11 to D14 were not difficult to understand; their admission into the proceedings would not delay the procedure.

(b) Sufficiency of disclosure

The appellant argued that the requirements of Art. 83 EPC were not fulfilled because the patent

provided neither an unambiguous definition of the term "resin solids" recited in claim 1 nor an appropriate method of determination thereof.

Besides, noting that the patent in suit:

- provided contradictory information with regard to the definition of the percentages given in the claims as "resin solids" (reference was made to paragraphs [0061], [0062], [0064] and [0065]); and
- did not provide information as to how to measure said amounts of "resin solids",

the appellant concluded that it could not be ascertained which amounts of components a), b) and c) should be used.

Consequently, the skilled person was neither in a position to carry out the invention nor to know whether or not he was working within the scope of the claims. The requirements of Art. 83 EPC were, thus, not met.

(c) The novelty objection raised in writing was withdrawn.

(d) Inventive step

Applying the problem-solution approach, the appellant submitted that:

- D1 was the closest prior art;
- the distinguishing features of the claims of the main request over D1 resided in the amounts of the triazine and aminoplast curing agents b) and c) defined in claim 1;

- the problem allegedly solved was to provide a better compromise between mar resistance and acid etch resistance;
- the solution to that problem resided in an increase of the amount of aminoplast as well as an increase of the total amount of (aminoplast + triazine) crosslinkers;
- Example 18 of the patent in suit, which was not according to claim 1 of the main request, exhibited both good mar and acid etch resistance. Example 21, according to claim 1 of the main request, showed good mar resistance but poor acid etch resistance. Those data showed that the problem of providing an improved compromise between mar and acid etch resistance was not solved over the whole scope of the claims. The appellant could, in fact, not identify any problem which had effectively been solved;
- the problem effectively solved should, thus, be redefined as the provision of further curable film-forming compositions;
- the general teaching of D1 was to use a combination of aminoplast and triazine curing agents, which included those defined in claim 1 of the main request, in amounts of 99:1 to 0.2:1 (page 6, lines 55-56).
- Examples 3, 4, 6 and 8 of D1 showed that curable film forming compositions comprising the resins in amounts now being claimed, led to both good acid etch and mar resistance; in addition, properties mentioned in D1 such as pencil hardness were related to abrasion resistance.

– the subject matter of the main request represented a routine variation within the teaching of D1; it was, thus, obvious to solve the above identified problem by providing the compositions according to the main request.

X. The respondent submitted the following arguments:

(a) Late filed documents

The respondent protested against the admission into the proceedings of any of D11 to D14 for the following reasons:

– the publication date of D11 and D13 was not clearly established because the documents bore no explicit publication date. There was no evidence whether or not the content of these documents, which were both conference proceedings, had indeed been made available to the public, and if it had, which part of it. Only D14 had a publication date earlier than the priority date of the patent in suit and could be considered as valid prior art;
– D11 and D12 had been filed only six days before and D13 and D14 even during the oral proceedings before the Board of Appeal;
– the argument of the appellant that the documents were only found during the preparation for the oral proceedings should not be an excuse for filing allegedly relevant documents so late;
– the objection based on e.g. D14 as raised by the appellant represented a completely new line of argumentation, which had not been used before. The filing of D14 had neither been rendered necessary in order to reply to a communication of the Board of

Appeal nor as a consequence of an amendment of the claims. In particular, none of the documents cited until the day of the oral proceedings dealt with the property of "mar resistance" in the sense of "abrasion resistance" according to the patent in suit. In this respect the references to "mar" in D1 which had been relied upon by the appellant, related to "solvent resistance" and not to "abrasion resistance". Should D14 be admitted into the proceedings and the line of argumentation of the appellant be followed, the respondent would be taken by surprise and could not have prepared a proper defence;

– the content of D14 could not be clearly established. It was not clear whether the values reported in e.g. Table 3 of D14, which corresponded to Table 7 of D11, related to the total formulation or to resin solids. Regarding the triazine curing agent TACT, D14 reported that various forms of TACT were available, each varying in its resin solids content, but failed to indicate which form was used in Table 3. Hence, the distinguishing feature(s) of the claims of the main request over D14 could not be clearly established and no comparison with D14 could be made;

– the statement of D14 corresponding to that of page 268 of D11 implied that the results of Table 3 of D14 could not be generalised. Hence, the teaching derived by the appellant from D14 was based on hindsight, knowing the results of the patent in suit.

(b) Sufficiency of disclosure

– the objections related to the "resin solids" represented a completely new line of reasoning that

had never been raised by any of the opponents during the opposition or the appeal proceedings. Therefore, that objection should be rejected because of its late filing;

- regarding the lack of definition of "resin solids", in the field of curable film forming compositions, the term "resin solids" referred to the solid parts of all components involved in the curing reaction i.e. resin component(s) and curing agents. Components that did not take part in the reaction were to be disregarded. This was in line with the teaching provided in the tables given in paragraphs [0062], [0064] and [0065] of the patent in suit. Although the term "resin solids" in the table of paragraph [0061] should rather have been indicated as "solids", its meaning became clear by the information provided in the tables of paragraphs [0062] and [0064] of the patent in suit;
- concerning the method of measurement of "resin solids" the respondent explained that such methods were well known in the art. The appellant had in particular had no difficulty in using similar information when interpreting the prior art documents cited in the proceedings.

(c) Inventive step

- D1 was the closest prior art document;
- the distinguishing features of the claims of the main request resided in the amounts of the triazine and aminoplast curing agents b) and c) defined in claim 1;

- the problem solved over D1 was to provide an improved balance of mar i.e. abrasion resistance and acid etch resistance;
- the term "Rubs to Mar" disclosed in the examples of D1 explicitly referred to "solvent resistance" as taught in the footnotes of Tables 1-2 of D1 and not to "abrasion resistance" as in the patent in suit. Hence, none of the documents cited by the appellant actually dealt with the problem of "mar resistance" in the sense of the patent in suit;
- the examples of the patent in suit demonstrated that the problem had been solved by the distinguishing feature(s) of the granted claims. The respondent pointed out that since each set of Examples 1-20, 21-25 and 25-27 made use of different resin systems, a comparison could only be made between examples of one given set but not between examples of different sets. In particular, Examples 18 and 21 of the patent in suit could not be compared, as argued by the appellant, because they concerned completely different compositions. In addition, they did not differ from each other in the above identified distinguishing features;
- the comparative examples of the patent in suit, e.g. Example 2 or 18, were either according to the teaching of D1 or even closer to the invention than D1; the results given in the patent in suit showed that compositions as claimed did result in an improved balance between acid etch and mar/abrasion resistance;
- the above-defined problem was therefore effectively solved;
- it was not clear whether the amounts reported in the examples of D1 referred to total formulations or

resin solids. However, the amounts probably referred to solid resins because it was the usual way of comparing in the technical field under consideration.

– none of the examples of D1 showed compositions comprising absolute amounts of aminoplast as high as in the claims of the main request; hence, no incentive could be found in D1 to use an absolute amount of aminoplast curing agent of at least 20 % resin solids as defined in the claims. The passage on page 6, lines 55-56 of D1, relied upon by the appellant, only related to relative amounts of aminoplast and triazine curing agent;

– therefore, it was not obvious to solve the above-defined problem by using amounts of triazine and aminoplast curing agents as defined in claim 1.

XI. The appellant (opponent 02) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requested that the patent be maintained on the basis of the main request (claims 1-21) filed during the oral proceedings of 16 March 2011.

XII. The Board announced its decision at the end of the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. *Sufficiency of disclosure*

2.1 The argumentation of the appellant relating to the term "resin solids" had never been addressed before the oral proceedings i.e. neither during the examination or the opposition proceedings, nor during the written phase of the appeal proceedings. However, this new objection did not alter the appellant's case in a way that the respondent could not prepare a proper defence, as demonstrated during the oral proceedings. Hence, the issue has been dealt with.

2.2 In order to meet the requirements of Art. 83 EPC, an invention must be disclosed so as to allow the skilled person to put it into practice, which means in the present case to prepare a composition according to claim 1 of the main request. The subject matter of said claim 1 is directed to a composition comprising compounds a), b) and c) as defined therein. In the absence of any specific teaching related to their preparation in the whole patent, it is considered that these compositions may be prepared by merely using standard mixing techniques.

2.3 Although the term "resin solids" is not specifically defined in the patent in suit, on the basis of the information provided in the whole patent, this term can be read as encompassing the solid parts of all the components that form the film upon curing i.e. the polymeric resin(s) to be cured together with the

crosslinkers building the bridges between the polymeric chains. This interpretation is derivable from the information provided in the Tables of paragraphs [0062], [0064] and [0065] of the patent in suit.

The indication "resin solids" in the table of paragraph [0061] with reference to additives present in the so-called "pre-mixture", which are considered as not taking part in the film-forming reaction, might at first glance be misleading. However, this ambiguity is removed by the indications given in Table 1 of paragraph [0062] and the explanations given in paragraph [0060] of the patent in suit wherein the examples according to the invention are clearly distinguished from the comparative ones; from that information, it can be concluded that the ingredients of the "pre-mixture" listed in paragraph [0061] should not be taken into account for the calculation of the percentages of resin solids defined in claim 1. Besides, the data given in the table of paragraph [0065] further clarify that the percentages of resin solids are based on all polymeric resins involved in the film-forming reaction. Hence, there can be no doubt that the term "resin solids" given in claim 1 of the main request means the solid parts of all the components that form the film upon curing i.e. only the polymeric resin(s) together with the crosslinkers.

2.4 How the amount of "resin solids" should be determined belongs to the usual knowledge of the person skilled in the art and the appellant provided no evidence that it would not be possible to measure the amounts of resins, aminoplast and triazine crosslinkers defined in claim 1 using standard techniques.

2.5 In addition, the objection of insufficient disclosure raised by the appellant is in fact related to an insufficiency which arises from an alleged ambiguity, in relation to both the definition and the determination method of "resin solids". Although an ambiguity may, under certain circumstances, lead to a lack of sufficiency according to Art. 83 EPC, it may also be related to an issue of lack of clarity according to Art. 84 EPC, which is in itself not a ground of opposition (see decision T 608/07; not published in OJ EPO; point 2.5 of the reasons). In order for an insufficiency to arise out of an ambiguity, it is normally necessary to show that the ambiguity deprives the person skilled in the art of the promise of the invention. However, in the present case, the appellant has not only failed to demonstrate that the absence in the patent in suit of an appropriate measurement method for the term "resin solids" indeed leads to an ambiguity in the scope of the claims (Art. 84 EPC) but it has also not been shown why the alleged ambiguity would prevent the skilled person to put the claimed invention into practice (Art. 83 EPC).

2.6 Finally, the argument of the appellant that in the absence of an indication of a method of determination of "resin solids" the skilled person would not know whether or not he was working within the claimed subject matter is an objection related to the scope of the claims and is, thus, an issue of clarity according to Art. 84 EPC, which is not a ground of opposition, and not of sufficiency of disclosure according to Art. 83 EPC (see e.g. T 1586/05, not published in OJ EPO: point 6.3 of the reasons).

2.7 The Board therefore arrives at the conclusion that the invention is disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art as required by Art. 83 EPC.

3. Late filed documents

3.1 According to established EPO case law, in proceedings before the Boards of Appeal, late filed documents "should only very exceptionally be admitted into the proceedings in the appropriate exercise of the Board's discretion, if such new material is *prima facie* highly relevant in the sense that it can reasonably be expected to change the eventual result and is thus highly likely to prejudice maintenance of the European patent" (see e.g. point 2 of the headnote of T 1002/92: published in OJ EPO 1995, 605). A further important consideration to be taken into account is the avoidance of procedural complications and uncertainty for patent proprietors during the appeal stage of opposition proceedings, having regard also to the fact that a European patent may subsequently be the subject of revocation proceedings before national courts (T 1002/92, section 3.2).

3.2 Further, Art. 12 (2) of the Rules of Procedure of the Boards of Appeal states that "the statement of grounds of appeal and the reply shall contain a party's complete case. They shall set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed, amended or upheld, and should specify expressly the facts, arguments and evidence relied on.".

3.3 D11 and D12 were filed only six days, i.e. three working days before the oral proceedings before the Board. D13 and D14 were even filed later, namely during the oral proceedings, and were not even mentioned in the letter with which D11-D12 were filed. Thus, none of D11 to D14 had been presented in the notice of opposition pursuant to Rule 76 (c) EPC (former Rule 55 (c) EPC 1973) in support of the grounds of opposition on which the opposition was based so that each of these documents is late filed.

3.4 The appellant explained that the reason why D11-D14 had been filed so late was that these documents had only been found during the preparatory works for the oral proceedings before the Board. That explanation does however not provide sufficient reason to allow the filing of documents at such a late stage. From the submissions of the appellant it does not appear that the documents had been particularly difficult to retrieve but rather that they resulted from a supplementary search performed in preparation of the oral proceedings before the Board. Hence, the origin of the late filing appears to reside in the fact that the appellant did not perform a complete search at an earlier stage of the proceedings. Especially from a party that has lost in the first instance, some diligence in filing a complete case when entering the appeal stage might be expected. However, as there is no evidence of a wilful strategy, the Board comes to the conclusion that the late filing was merely due to a lack of diligence and was not intentional. Consequently, a procedural abuse has not been established.

3.5 Documents D11 and D13 do not have a clear publication date. Besides, they are both conference proceedings but there is no evidence on file whether or not these presentations have indeed been given and/or what the content of these presentations was. Hence, it can not be established that D11 and/or D13 do represent prior art.

D12 was published in 1999 i.e. after both the priority dates (24 December 1997 and 4 May 1998) and the filing date (22 December 1998) of the patent in suit and therefore does not belong to the prior art.

Therefore, D11, D12 and D13 cannot be regarded as being highly likely to prejudice the maintenance of the European patent, so that they are not admitted into the proceedings.

3.6 The publication date of D14 is not subject to any doubt.

3.6.1 According to the appellant, D14 represented a more suitable closest prior art document than D1 because it was the only document that explicitly taught curable film forming compositions comprising components a), b) and c) according to claim 1 of the main request leading to a good compromise between acid etch and mar resistance, as in the patent in suit.

D14 discloses in Table 3 a composition consisting of 74,0 of an unidentified compound "Doresco® TA39-21" (a product of Dock resins Corp., Linden, NJ), 13,0 tris(alkoxycarbonylamino) triazine (TACT), 13,0 melamine formaldehyde (MF) and 0,7 dodecylbenzene

sulfonic acid that shows a good "mar resistance" as well as a good "etch resistance".

According to the patent in suit (paragraph [0003] and both notes 1 on page 9, line 50, and page 10, line 36, indicating that cleanser is used) mar resistance is seen as abrasion resistance. However, there is no explanation in D14 with regard to the meaning of the property "mar resistance" reported in Table 3, in particular nowhere in D14 reference is made to "abrasion resistance". On the other hand, in D14, Table 3, "mar resistance" is indicated in terms of "MEK Rubs, to Mar" and "MEK Rubs, to Remove", which is exactly the same terminology as used in D1, a document originating from the same author/inventor (see also the appellant's letter of 10 March 2011, bottom of page 1). In D1 that terminology however refers to solvent resistance (see e.g. Tables 1 and 2, where the number of Methyl Ethyl Ketone Rubs necessary to Mar or to Remove the coating is indicated), not to abrasion resistance, as in the patent in suit.

Hence, there is a clear suggestion in D1 that the term "mar resistance" used in D14 is not related to the "mar and abrasion resistance" referred to in the patent in suit.

3.6.2 Regarding the compositions disclosed in table 3 of D14, there is no indication in D14 whether the amounts of each of the components making up the compositions refer to the total formulation of the composition or rather to its resin solids.

Concerning the resin "Doresco TA39-21" mentioned in Table 3 of D14, none of the cited documents, in particular D12, provides any information in this regard.

Besides, according to D14, the triazine crosslinker TACT exists in different forms, varying in the concentration of solids in the solution (see page 1: section "Chemical Description and Applications") but it fails to indicate which of those forms is used in the compositions of Table 3.

In view of the above, the exact disclosure of Table 3 of D14 can not be unambiguously determined and its admission into the proceedings would raise new substantive issues that could not be solved during the oral proceedings.

3.6.3 For these reasons, the Board can neither conclude that D14 is a more relevant prior art than D1 nor that D14 is *prima facie* highly relevant in the sense that it is likely to prejudice the maintenance of the patent in suit, so that D14 is also not admitted into the proceedings.

4. Novelty

The novelty objection raised by the appellant in writing was withdrawn during the oral proceedings. The Board is satisfied that the subject matter of the main request is novel over the prior art documents cited in these proceedings.

5. Inventive step

5.1 Closest prior art

5.1.1 The first instance and both parties had considered D1 as the closest prior art document. The Board sees no reason to depart from that position.

5.1.2 D1 concerns durable compositions and use of same. D1 aims at combining the advantages of aminoresin based coating compositions (low cost and low curing temperatures) and those of triazinetris-carbamate based systems (good environmental etch resistance and absence of formaldehyde emissions during cure), without the drawbacks of either system (page 2, lines 24 to 27). To that end, it discloses a curable composition comprising a polyfunctional hydroxy group containing material, a triazinetris-carbamate and an acid cure catalyst (claim 1). The composition may further contain an aminoresin crosslinking agent (claim 2). The weight ratio of the amino resin to the carbamate may be in the range of from 99:1 to 0.2:1 (claim 11; page 6, lines 55-56). The weight ratio of the polyfunctional hydroxy group containing material to the sum of the aminoresin crosslinking agent and the carbamate co-crosslinking agent is in the range of from 99:1 to 0.5:1 (claim 12; page 6, lines 56-58).

In Examples 3, 4, 6 and 8, coating compositions consisting of an acrylic polyol polymer and amino resin crosslinker as well as, optionally, a triazine crosslinker are described. Composition D according to Example 3 contains 73.3 g of an acrylic copolymer (prepared as indicated in Example 1), 13.4 g of an

amino resin crosslinker CYMEL® 303, 13.4 g 2,4,6-tris-(butoxycarbonylamino)-1,3,5-triazine and 0.4 g para-toluenesulfonic acid. Composition E according to Example 3 contains 73.3 g of an acrylic copolymer (prepared as indicated in Example 1), 26,7 g of CYMEL® 303 and 0.4 g para-toluenesulfonic acid. In composition F of Example 4, Example 3 is repeated, it contains CYMEL® 323 and dimethyl acid pyrophosphate instead of CYMEL® 303 and para-toluenesulfonic acid, respectively. Composition H according to Example 6 contains 72 g of a commercial acrylic resin (TA 39-14; a product of Dock resins Corp., Linden, N.J. having an equivalent weight of 450; page 13, lines 29 to 30), 14 g of an amino resin crosslinker, 14 g 2,4,6-tris-(butoxycarbonyl-amino)-1,3,5-triazine and 0.6 g para-toluenesulfonic acid. In Example 8 five compositions (J to N) are described containing J:7.80, K:77.5, L:72.2, M:76.5 and N:78.3 TA 39-14 acrylic resin, J:19.8, K:14.6, L:11.4, M:4.7 and N:21.8 g amino resin crosslinker, J:2.2, K:7.9, L:11.4, M:18.8 and N:0.0 g 2,4,6-tris-(butoxycarbonyl-amino)-1,3,5-triazine, all compositions containing 0.4 g para-toluenesulfonic acid.

In Examples 6 and 8, there is no information about the resin solids content of the resin used. Also, it is not clear in any of the examples of D1 whether the amounts refer to the total composition or to the resin solids. Furthermore, both parties agreed that Composition J of Example 8 contains an error in the amount of resin indicated. Hence, it is not possible to determine the exact amounts of each of the composition components disclosed in any of those examples.

In the examples (Tables 1 and 2) reference is made to "solution resistance", which is different from abrasion resistance (see point 3.6.1 above). No mention is made of abrasion resistance.

5.2 Problem to be solved

The problem addressed in the patent in suit is to provide curable film-forming compositions having an improved balance between acid etch and mar resistance (see paragraphs [0006], [0007], [0051], [0068] and Table 2 of the patent in suit). In this regard, "mar resistance" is to be understood as "abrasion resistance" as mentioned in paragraph [0003] of the patent in suit (see point 3.6.1 above).

5.3 Solution

The solution to the above problem resides in the compositions defined in claim 1 of the main request, which are characterised in that they contain specific absolute amounts of aminoplast curing agent (b) and triazine curing agent (c) as well as a specific total amount of triazine and aminoplast curing agents (b)+(c), which is not explicitly disclosed in D1. These features represent, thus, the distinguishing features of claim 1 of the main request over D1.

5.4 Success of the solution

5.4.1 Table 1 of the patent in suit discloses different compositions consisting of an acrylic polyol polymer (obtained in Example A of the patent in suit), an aminoplast curing agent (SETAMINE US 138) and a

triazine curing agent corresponding to compounds a), b) and c), respectively, according to claim 1 of the main request and a premixture comprising various additives (see paragraph [0061] of the patent in suit). Examples 3, 4, 7-9, 12 and 20 illustrate the subject matter of claim 1 whereas Examples 2, 5-6, 10-11 and 13-19 are comparative compositions containing the curing agents b) and/or c) in amounts outside the ranges defined in claim 1 of the main request: in Examples 2, 13 and 14 the total amount of crosslinkers (b+c) is 20,0%, 45,0% and 55,0% by weight, respectively (compared to >25 to <45% by weight in claim 1); in Examples 5, 6, 10 and 11 the amount of aminoplast crosslinker b) is 45,0; 10,0; 40,0 and 10,0 % respectively (compared to 20-35% by weight in claim 1); in Example 15, the amount of triazine crosslinker c) is 30,0% by weight (compared to 1-20% by weight in claim 1); in Example 16 the triazine crosslinker c) is absent whereas in Examples 17 and 19 the aminoplast b) is absent; in Example 18, the amount of aminoplast b) is 13,4% by weight (compared to >25 to <45% by weight in claim 1).

All comparative examples either show bad acid etch resistance (i.e. a rating higher than "3", which does not correspond to a "pass" as indicated in the footnote of Table 2) or lower "bake mar gloss" values i.e. lower mar/abrasion resistance than the examples according to present claim 1, whereas the examples according to claim 1 show more balanced results (patent in suit, Table 2).

5.4.2 The same considerations apply regarding Examples 21 and 24, illustrative of the subject matter of claim 1 of the main request and those of comparative Examples

22-23. Each of these coatings was obtained from a composition consisting of an acrylic polyol polymer (obtained in Example B of the patent in suit), an aminoplast curing agent and a triazine curing agent corresponding to compounds a), b) and c), respectively, according to claim 1 of the main request and an identical mixture of various additives (see paragraph [0064] of the patent in suit). In comparative Example 22, the triazine crosslinker is absent and in comparative Example 23, the aminoplast crosslinker is absent. Again, the comparative examples either show bad acid etch resistance (Example 22) or lower "bake mar gloss" values i.e. lower mar/abrasion resistance (Example 23) than Examples 21 or 24 according to present claim 1, the examples according to claim 1 showing more balanced results (patent in suit, Table 2).

5.4.3 Examples 25-27 are illustrative of the subject matter of claim 1 of the main request and concern coatings obtained from compositions consisting of an acrylic polyol polymer (obtained in Example B of the patent in suit), an aminoplast curing agent and a triazine curing agent corresponding to compounds a), b) and c), respectively, according to claim 1 of the main request, an additional polyester polyol and an identical mixture of various additives (see paragraph [0065] of the patent in suit). Each of Examples 25-27 led to coatings having a good balance between acid etch and mar/abrasion resistance.

5.4.4 Examples 1-20 of the patent in suit may not be directly compared with Examples 21-27 since they concern compositions that not only differ in the amounts of crosslinkers b) and c) but also in the nature of the

polymeric resin a). Examples 1-20 were made using the acrylic resin as prepared in Example A, Examples 22-24 with that of Example B and Examples 25-27 with a mixture of the acrylic resin of Example B and an additional polyester polyol. Hence, the only proper comparisons are either those within Examples 1-20, or those within Examples 21-24, or those within Examples 25-27. The arguments of the appellant based on the comparison of Example 18 and each of Examples 21 and 27 can therefore not be followed.

5.4.5 Therefore, the results of Table 2 of the patent in suit show that the examples illustrative of claim 1 of the main request provide a better compromise between acid etch and mar/abrasion resistance than the comparative examples performed using amounts of aminoplast and triazine crosslinkers b) and c) outside the ranges defined in said claim 1.

5.4.6 The comparative examples of the patent have not been performed using the same acrylic polyol polymer a) as in D1. However, the comparative examples of the patent in suit actually represent embodiments lying closer to the claimed subject-matter than the disclosure of D1, so that the advantageous effect attributable to the features distinguishing the claimed subject-matter from D1, in particular the specific absolute amounts of crosslinkers b) and c), is in fact more clearly demonstrated (T 35/85, not published in OJ EPO: see point 4 of the reasoning; T 197/86, published in OJ EPO 1989, 371: see points 4, 6.1 and 6.1.2 of the reasoning). In this regard, comparative Examples 2 and 13 of the patent in suit show that compositions according to the general teaching of D1 but made using

amounts of crosslinkers b) and c) just outside the ranges defined in present claim 1 do not provide an acceptable compromise between acid etch resistance (too low in Example 13) and mar/abrasion resistance (too low in Example 2) i.e. they fail to solve the technical problem. Similarly, Example 18, which may be considered to represent a fair illustration of the teaching of Example 3/coating D of D1, also fails to solve the technical problem (mar/abrasion resistance too low).

5.4.7 Finally, although all the examples provided in the patent in suit were performed using a single type of triazine crosslinker c) and a single aminoplast crosslinker b), in the absence of any evidence to the contrary, the Board sees no reason to suppose that the claimed effect is not present over the whole scope of the claims.

5.4.8 In view of the above considerations, the Board is satisfied that the problem as defined in the patent in suit, namely to provide compositions exhibiting an improved compromise between acid etch and mar/abrasion resistance over D1 has been satisfactorily solved.

5.5 Obviousness

5.5.1 It remains to be decided whether or not it was obvious to solve the problem identified above, i.e. to achieve an improved compromise between acid etch and mar/abrasion resistance, by modifying the compositions of D1 according to claim 1 of the main request i.e. whether or not it was obvious to use the crosslinkers b) and c) in amounts that fulfil the three requirements

regarding the amounts of b), c) and (b+c) defined in claim 1.

5.5.2 It has been established that the "mar resistance" in D1 does not correspond to the mar/abrasion resistance in the sense of the patent in suit but rather to "solvent resistance" (see point 3.6.1 above). There is no indication that "abrasion resistance" and "solvent resistance" are in any sort interrelated or correlated.

The argument of the appellant that the other properties examined in D1 such as pencil hardness were equivalent to abrasion resistance is not supported by any evidence and can therefore not be followed.

Hence, D1 does not deal with the "mar/abrasion resistance" forming an essential part of the problem solved by the claimed subject matter according to the main request.

5.5.3 None of the cited documents in fact deals with curable film forming compositions having good mar/abrasion resistance. Therefore, none of those documents could effectively suggest the solution proposed by claim 1 of the main request in order to solve the problem addressed by the patent in suit. The skilled person starting from D1 as closest prior art and aiming at providing an improved compromise between acid etch and mar/abrasion resistance would not find any guidance either in D1 or in any of the other documents related to the exact amounts of aminoplast and triazine crosslinkers to be used.

D1 in particular does not provide a suggestion, nor a motivation to modify the compositions of Example 3/coatings D-E so as to arrive at the compositions according to claim 1 of the main request. That it was obvious merely to add 1 % triazine to the composition of coating E of D1 in order to arrive at the subject matter of present claim 1, as the appellant argued, is not based on any disclosure in any of the documents on file, in particular not since none of them mentions mar/abrasion resistance. The same is valid regarding the proposed increase of aminoplast crosslinker in the composition of coating D. This line of argumentation of the appellant can hence only be seen as hindsight, knowing the solution proposed by the patent in suit.

5.6 In view of these considerations, the Board comes to the conclusion that the skilled person aiming at providing curable film forming compositions exhibiting an improved compromise between acid etch and mar/abrasion resistance would not have modified the compositions of D1 so as to use specific amounts of crosslinkers b) and c) and to arrive at the compositions now being claimed.

5.7 Therefore, the subject-matter of claim 1 of the main request is inventive. Since claims 2-20 are dependent on claim 1, those, too, fulfil the requirements of Art. 56 EPC. The same is valid for claim 21 which is directed to a product comprising a coating deposited from a composition according to any of claims 1-20.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent in amended form on the basis of the main request (claims 1-21) as filed during the oral proceedings of 16 March 2011 and after any necessary consequential amendment of the description.

The Registrar: The Chairman:

K. Boelicke B. ter Laan