

Publication in the Official Journal ~~Yes~~ / No

File Number: T 654/90 - 3.3.1

Application No.: 83 110 345.3

Publication No.: 0 106 350

Title of invention: High solids coating compositions containing polycaprolactone polyol reactive diluents and a process for preparing a cured film coating therefrom

Classification: C09D 3/66

D E C I S I O N
of 8 May 1991

Proprietor of the patent: Union Carbide Corporation

Opponent: Interlox Chemicals Limited

Headword: Coatings/UNION CARBIDE

EPC Article 83

Keyword: "Insufficient disclosure - common general knowledge"

Headnote



Case Number : T 654/90 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 8 May 1991

Appellant : Interlox Chemicals Limited
(Opponent) 3 Bedford Square
London WC1B 3RA (GB)

Representative : French-Lynch, Cecil
Laporte Industries Ltd.
Group Patents Dept.
P.O. Box 2
Moorfield Road
Widnes, Cheshire WA8 0JU (GB)

Respondent : Union Carbide Corporation
(Proprietor of the patent) 39 Old Ridgebury Road
Danbury
Connecticut 06817 (US)

Representative : Barz, Peter Dr. et al
Siegfriedstrasse 8
W-8000 München 40

Decision under appeal : Decision of Opposition Division of the European
Patent Office dated 21 June 1990 rejecting the
opposition filed against European patent
No. 0 106 350 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : K.J.A. Jahn
Members : R.W. Andrews
J.-C. Saisset

Summary of Facts and Submissions

- I. European patent No. 0 106 350 in respect of European patent application No. 83 110 345.2 which was filed on 17 October 1983 was granted on 28 May 1986 (cf. Bulletin 86/22) on the basis of thirteen claims. Independent Claims 1 and 12 read as follows:

"1. A high solids composition having a solids content of from 50 to 90 weight percent comprising a hydroxyl functional acrylic polymer, an alkylolated melamine and a polycaprolactone polyol, wherein the ratio of the equivalent weight of the alkylolated melamine to the total hydroxyl equivalent weight of the hydroxyl functional acrylic polymer and the polycaprolactone polyol is from 1.0 to 1.8.

12. A process for preparing a cured film coating comprising: (1) mixing until homogeneous a high solids composition having a solids content of from 50 to 90 weight percent comprising a hydroxyl functional acrylic polymer, an alkylolated melamine and a polycaprolactone polyol, wherein the ratio of the equivalent weight of the alkylolated melamine to the total hydroxyl equivalent weight of the hydroxyl functional acrylic polymer and the polycaprolactone polyol is from 1.0 to 1.8; (2) applying the homogeneous high solids composition as a film coating on a suitable surface; and (3) curing the film coating by baking for a period of time and at a temperature sufficient to crosslink the alkylolated melamine with the hydroxyl functional acrylic polymer and the polycaprolactone polyol."

- II. On 23 February 1987 a notice of opposition was filed in which the revocation of the patent was requested on the grounds that the disclosure of the invention was

insufficient and its subject-matter was not novel and did not involve an inventive step. The opposition was supported, inter alia, by the following documents:

- I A brochure entitled "Cyanamid high solids amino cross-linking agents", published April 1977 (cf. subscript on the last page),
- V Technical leaflet No. A20-168(P) entitled "CAPA 200 in high solid acrylic coatings" issued March 1981.

After expiry of the time limit for filing notice of opposition the Opponent (Appellant) referred to the following documents:

- X Plaste und Kautschuk, Volume 27(9a), pages 528 to 532 (1980) and an English translation thereof (XI)
- XIV A technical leaflet entitled "Dyno surface coating resins" dated August 1979, and
- XVI A technical leaflet entitled "Beetle Coating Resins" printed March 1978.

III. By a decision dated 21 June 1990 the Opposition Division rejected the opposition. The Opposition Division held that although there was no explanation of the expression "equivalent weight of the alkylolated melamine" in the disputed patent, the skilled person would be able to carry out the invention. The Opposition Division also decided that the claimed subject-matter was novel and involved an inventive step in the light of the disclosure of document V.

IV. An appeal was lodged against this decision on 11 August 1990 with payment of the prescribed fee. In his statement of grounds of appeal filed on 6 October 1990, the Appellant maintained his view that the disclosure of the disputed patent was insufficient and that the claimed

subject-matter did not involve an inventive step. However, since the Appellant could not ascertain the equivalent weight of resin BE 683 or substantiate by written evidence the figure of 1145 for the hydroxy equivalent weight of resin H260XB referred to in document V, he was not in a position to contest the Opposition Division's conclusion that the claimed subject-matter was novel.

- V. The Appellant requested that the decision under appeal be set aside and the patent revoked. The Respondent (proprietor of the patent) has neither replied to any of the official communications nor filed any requests in respect of the appeal.

Reasons for the Decision

1. The appeal is admissible.
2. The disputed patent relates to high solids coating compositions comprising hydroxyl functional acrylic polymers, alkylolated melamines and, as reactive diluent, polycaprolactone polyols. However, it was found that, in order to obtain coatings having the desirable hardness and solvent resistance properties without unacceptable brittleness, the ratio of the equivalent weight of the alkylolated melamine to the total hydroxyl equivalent weight of the hydroxyl functional acrylic polymer and the polycaprolactone polyol must be between 1.0 and 1.8. If this ratio is less than 1.0 the coatings are soft and lack solvent resistance, whereas at ratios greater than 1.8 the coatings, while hard and solvent resistant, are undesirably brittle.

2.1 Document V discloses similar high solids coating compositions (cf. page 3). From the evidence provided by the Appellant (cf. Statutory Declaration of D.J. Leach, filed on 23 February 1987 and the Appellant's letter submitted on 21 March 1989), it is clear that this composition comprises a grade of titanium dioxide as pigment (Tiona 472), a hydroxyl functional acrylic polymer (H-260XB), an alkyolated melamine (Be 683) and a polycaprolactone diol (CAPA 200). In the Board's opinion, the expression "a high solids composition having solids content of from 50 to 90 weight percent" in the present Claim 1 has to be construed as relating to compositions having a high solids to solvent ratio with the solids being regarded as the total solids, i.e. including pigments (cf. page 1, lines 14 to 16 of the disputed patent). Thus, on this basis the composition disclosed on page 3 of document V contains 66.3% solids. If, on the other hand, pigments are disregarded in calculating the percentage solids content of the compositions (cf. page 8, lines 24 to 25), the composition disclosed in document V contains 49.75% by weight solids. Therefore, the only characterising feature of the compositions forming the subject-matter of the disputed patent which can serve to distinguish them from those of this prior art, is the requirement that the above-mentioned ratio should be between 1.0 and 1.8.

Therefore, in order that the disclosure of the patent in suit may be considered to be sufficient, the skilled person must be in a position to determine the ratio of the equivalent weight of the alkyolated melamine to the total hydroxyl equivalent weight of the hydroxy functional acrylic polymer and the polycaprolactone polyol. Since the only issue in dispute is whether either the skilled person knows or is able to determine the equivalent weight of an alkyolated melamine, it is only necessary to decide

whether the disclosure of the disputed patent is sufficient in this respect.

- 2.2 The disputed patent discloses that alkyolated melamines are well known and that many are available commercially. Suitable compounds are indicated by means of a general formula (cf. page 4, lines 42 to 58). In the Examples two methylolated melamines commercially available from American Cyanamid Company are used (cf. page 9, lines 10 to 13). However, the equivalent weight of these or any other alkyolated melamines is not given nor does the disputed patent contain any indication of how this parameter may be determined. Moreover, the Appellant's undisputed calculations filed on 23 February 1987 clearly demonstrate that the equivalent weight of the melamine resin MMI derived from the AM/OH Eq.wt. Ratio given in Examples 1, 6, 7 and 8 for compositions containing the same hydroxy functional acrylic polymer (HFAPI) and polycaprolactone (Polyol 1) varies considerably. Thus, it is impossible even to calculate an "assumed" equivalent weight for the melamine resin MMI. Therefore, in order to put the teaching of the disputed patent into practice the skilled person is forced to rely on his common general knowledge of alkyolated melamines.
- 2.3 In the present circumstances, it can be assumed that the skilled person would be aware of the technical brochures, such as documents I, XIV and XVI, issued by the manufacturers of alkyolated melamines. Of these, documents XIV and XVI are completely silent as regards the equivalent weight of the products described therein. Document I, on the other hand, either indicates that the equivalent weight of some products is not determinable because they have a high tendency to self-condense or that the equivalent weights may vary within a wide range, for example, 130 to 190. Thus, this document does not disclose

a specific equivalent weight for any of the alkyolated melamines referred to therein. This document also defines the equivalent weight of an alkyolated melamine as the grams of alkyolated melamine required to react with 1 gram-mole of carboxyl, hydroxyl or amide groups. However, no indication of how it may be measured is given.

Therefore, where the equivalent weight of an alkyolated melamine is not given by the manufacturer, for the patent to meet the requirement of sufficiency the skilled person must be in a position to determine the missing data. On the other hand, if the range of equivalent weight given for a particular product is very broad, the skilled person must also be able to determine the equivalent weight of his particular sample immediately before use, since he has to vary the proportions of the components of the mixture having regard to the equivalent weight of the alkyolated melamine in order to obtain a ratio within the specified range.

- 2.4 In the Board's judgment, it could not be expected of the addressee of the patent in suit, who is skilled in the field of coating compositions based on cross-linkable acrylate resins and melamine resins, that he would be aware of documents X and XII which resulted from a comprehensive search of the literature by the Appellant. Therefore, in accordance with the jurisprudence of this Board (cf. Decision T 206/83, OJ EPO 1987, 5 in particular point 11) the information contained in these documents cannot be regarded as forming part of the above-mentioned skilled person's common general knowledge.

In any case these specialist papers would not lend plausibility to the Respondent's unsupported allegation that standard methods are available for the determination of the equivalent weights of alkyolated melamines (cf.

his reply to the statement of grounds of opposition filed on 17 December 1987). Rather, the disclosure of these documents support the sworn statement of Dr. H. Stolzenbach that his employer's analytical department would not be able to determine the equivalent weight in the normal cause of their activities (cf. Exhibit D filed on 23 February 1987).

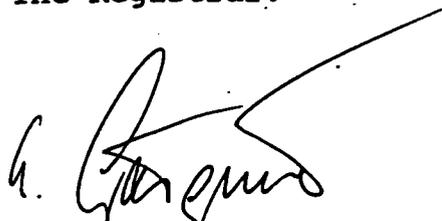
- 2.5 Therefore, in the absence of any disclosure in the disputed patent indicating how the equivalent weight of alkylolated melamines may be determined and the inability of the skilled person's common general knowledge to cure this deficiency, the disclosure of the patent in suit is insufficient.

Order

For these reasons, it is decided that:

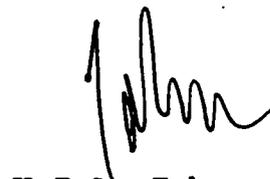
1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:



E. Görgmaier

The Chairman:



K.J.A. Jahn

