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Datasheet for the decision of 27 July 2015

Case Number: T 2565/12 - 3.3.03

Application Number: 08717358.9

Publication Number: 2118165

IPC: C08G59/18, C08L63/00

Language of the proceedings: EN

Title of invention:
AQUEOUS EPOXY RESIN COMPOSITIONS

Patent Proprietor:
Huntsman Advanced Materials (Switzerland) GmbH

Opponent:
Momentive Specialty Chemicals Research Belgium S.A.

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - main request (yes)

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Case Number: T 2565/12 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 27 July 2015

Appellant: (Opponent)	Momentive Specialty Chemicals Research Belgium S.A. Avenue Jean Monnet 1 1348 Ottignies Louvain-la-Neuve (BE)
Representative:	Momentive Speciality Chemicals Research Belgium IP Section Avenue Jean Monnet 1 1348 Ottignies Louvain-la-Neuve (BE)
Respondent: (Patent Proprietor)	Huntsman Advanced Materials (Switzerland) GmbH Klybeckstrasse 200 4057 Basel (CH)
Representative:	Bohest AG Holbeinstrasse 36-38 4051 Basel (CH)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 2 November 2012 rejecting the opposition filed against European patent No. 2118165 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	B. ter Laan
Members:	D. Marquis
	R. Cramer

Summary of Facts and Submissions

I. The appeal by the opponent lies from the decision of the opposition division posted on 2 November 2012 rejecting the opposition against European patent N° 2 118 165 (based on application number 08717358.9).

II. The patent was granted with a set of 9 claims of which claim 1 read as follows:

"1. Curable, aqueous epoxy resin composition, comprising
a) an epoxy compound,
b) an aminic curing agent which is an aqueous solution of a product from the reaction between i) an adduct between a polyamine and a liquid glycidyl ether which is not a glycidyl ether of a polyalkylene glycol, and ii) an epoxidized polyalkylene glycol, and
c) from 0.5 to 15 wt.-%, based on the sum of the components b) and c), of a compound of the general formula (I)

$$R_1\text{-}[OCH_2CH_2]_x\text{-}OC_4H_9 \quad (I),$$

whereby
R_1 = -H or $-C_4H_9$, and x = 1, 2, 3 or 4."

Claims 2 to 9 were directed to preferred embodiments of claim 1.

III. In the notice of opposition against the patent revocation of the patent was requested on the grounds according to Article 100(a) EPC (lack of novelty and lack of inventive step).

IV. By a decision announced orally on 22 October 2012, the opposition division rejected the opposition against the

patent. In the decision it was held that the main request (claims as granted) was novel and inventive in view of the two documents cited (D1: US-A-4 116 900; D2: US-A-4 304 700).

V. On 14 December 2012, the opponent lodged an appeal against the decision of the opposition division and paid the prescribed appeal fee on the same day. The statement setting out the grounds of the appeal was filed on 26 February 2013. The appellant requested that the patent be revoked on the ground of lack of an inventive step in view of the closest prior art D1 (US-A-4 304 700), in combination with the documents D2 (US-A-4 116 900) and D3 (US-A-4 315 044).

VI. The reply to the statement of the appeal was filed by the respondent (patent proprietor) on 10 September 2013. Two auxiliary requests were filed together with arguments in favour of an inventive step of the main request.

VII. On 31 October 2014, the parties were summoned to oral proceedings to be held on 27 July 2015.

VIII. By letter of 3 June 2015, the appellant maintained the arguments on inventive step and declared that he would not be represented at the oral proceedings before the Board.

IX. On 17 July 2015, the respondent filed a calculation of the weight ratios of the ether solvent used in some of the examples of D1.

X. Oral proceedings were held on 27 July 2015.

XI. The appellant's arguments may be summarised as follows:

D1 (US-A-4 304 700) was the closest prior art document as it dealt with the same problem as that of the patent in suit, namely to increase the viscosity over time (pot life) of the curable epoxy composition. The solution to that problem, the use of an ethylene glycol butyl ether as a co-solvent, is discussed in D1 itself.

The difference between D1 and the patent in suit was the chemical structure of the amino adduct which was not a key feature of the solution to the problem posed. That structure was however known from D2 (US-A-4 116 900). The skilled reader would have considered D2 because its teaching was part of the common general knowledge. Also, because D2 was cited both in D1 and in D3, the skilled person would have made a link between all the cited documents. The subject matter of the patent in suit therefore lacked an inventive step in view of D1 in combination with D2 and D3 (US-A-4 315 044).

XII. The respondent's arguments may be summarised as follows:

None of the documents cited in appeal dealt with the technical problem set out in the patent in suit, namely to obtain a composition having a recognizable end of pot life by a distinct rise in the viscosity.

D1 (US-A-4 304 700) aimed at improving pot life, which was defined as the time where either the viscosity rose above a threshold value U determined by the Gardner-Holdt method, or sedimentation or stratification developed. It did not refer to the same problem as the patent in suit so that it did not in fact qualify as a

proper starting point for the subject-matter being claimed. D1 differed from the patent in suit in that it disclosed a water insoluble polyamine-terminated salted adduct as a crosslinker. D2 (US-A-4 116 900) did not provide a motivation to replace the crosslinker disclosed in D1 by an aminic curing agent b) defined as an aqueous solution of a polyalkylene glycol containing adduct, as in the patent in suit.

D1 and D3 (US-A-4 315 044) were two unrelated documents each citing D2. It was not possible to link D1 and D3 through D2. The subject-matter of the patent in suit was therefore inventive.

XIII. The appellant requested that the decision under appeal be set aside and that the European patent No. 2 118 165 be revoked.

The respondent requested the dismissal of the appeal or the maintenance of the patent on the basis of one of the two auxiliary requests filed with the reply to the statement of grounds of the appeal.

Reasons for the Decision

1. The appellant was duly summoned to oral proceedings but did not attend, as announced in their letter of 3 June 2015. The oral proceedings were continued in the absence of the appellant, in accordance with Rule 115(2) EPC, the appellant being treated as relying only on their written case (Article 15(3) RPBA).

Main request (claims as granted)

2. The patent in suit deals with aqueous epoxy resin compositions. According to paragraphs 11 and 22 the problem to be solved is to provide aqueous epoxy resin compositions having a clearly recognizable end of pot life, characterized by a fast increase of the viscosity of the composition up to gelation.

2.1 Examples 2 to 5 of the patent in suit disclose aqueous epoxy resin compositions according to claim 1, containing an epoxy resin (according to claimed component a), an aqueous solution of an aminic curing agent obtained from the modification of an adduct of ethylenediamine and bisphenol A resin with a glycidylized polyethylene glycol 1000 (according to claimed component b), and 5 parts by weight of a different alkylene glycol alkylether (according to claimed component c). These examples show that the compositions 2 to 5 according to claim 1 display a pot life of approximately 2 to 3 hours, and, after expiration of that period, show a steep increase in their viscosity, whereas compositions containing the same epoxy resin and curing agent but a different glycol ether as component c) (Examples V6 to V9) do not display such a steep increase in viscosity.

3. D1 (US-A-4 304 700), taken by the appellant as the starting point for assessing inventive step, describes two component aqueous coating systems having as a first component an acid salt of a polyamine terminated polyepoxide adduct and as a second component a polyepoxide cross-linker (claim 1). The prime object of D1 is to provide a two component aqueous coating system that, when the components are mixed, forms a curable coating composition having improved mechanical and

chemical stability and which, when applied as a film, exhibits improved particle coalescence, film continuity, adhesion, flexibility, chip resistance and the like (column 1, lines 37 to 50). D1 indicates that the pot life of the two component aqueous based coating system can be lengthened through the use of a high percentage acid, particularly excess acid, when converting the polyamine terminated polyepoxide adduct to its corresponding salt to provide the first component (column 5, lines 14 to 32). The improvement of the pot life is described in that passage as being desirable and there is surprisingly no disadvantage of using excess acid in the case of the compositions of D1 (column 5, lines 34 to 38). The skilled person therefore recognizes in D1 a motivation and the means to lengthen the pot life of the two component aqueous coating system.

3.1 The object of D1 is however not to provide a fast increase of the viscosity of the composition towards the end of the pot life but rather to increase the length of pot life, i.e. to defer the point in time when the two component system is no longer suitable for specific applications as defined in column 8, lines 18 to 38, such as can coating (column 8, lines 58 to 61). Hence, the object of D1 and that of the patent in suit are different. D1 is not relevant for the problem addressed in the patent in suit, for which the compositions of present claim 1 have been shown to provide a solution. The only line of reasoning proposed by the appellant for analysing inventive step starts from the disclosure of D1. However, in view of the foregoing analysis, choosing D1 as starting point for judging inventive step can only be arrived at by relying on technical similarities between the claimed invention and the features of D1, i.e. with knowledge

of the claimed invention. Under these circumstances, that reasoning cannot lead to the conclusion that the subject-matter of claim 1 is obvious.

4. Nor can either of D2 (US-A-4 116 900) or D3 (US-A-4 315 044) be seen as representing an appropriate starting point.

4.1 D2 pertains to aqueous resinous coating compositions and in particular to cathodically electrodepositable aqueous resinous coating compositions (claim 1; column 2, lines 37 to 41) that are reaction products of polyepoxide resins adducted with a polyamine and further reacted with a monoepoxide or a monocarboxylic acid (claim 1; column 3, lines 1 to 6). The aim of D2 is to produce coating compositions that can be used in cathodic electrodeposition processes to coat metal articles with primer coatings having excellent corrosion resistance (column 2, lines 65 to 68). The coatings obtained from those compositions are characterized by their impact and corrosion resistance and exhibit no scribe creepage or blisters after 340 hours in a salt spray tank (Example 5). D2 does not address the pot life of the compositions produced nor does it aim at a steep increase of the viscosity at the end of the pot life. Therefore, it does not represent a proper starting point for assessing inventive step.

4.2 D3, which had only been cited at the appeal stage, describes stable epoxy dispersion compositions (claim 1). It aims at providing an aqueous dispersion of a bisphenol A type epoxy resin that exhibits long term stability under ambient storage conditions and at providing a freeze-thaw resistant water-borne paint composition containing self-emulsifying epoxy resin, which paint composition can be applied as a coating

that cures at room temperature to form a continuous thermoset film (column 2, lines 21 to 32). In the examples it is shown that the aqueous dispersions produced do not settle under stirring for half an hour or under storage at room temperature for a time period of several months. One of the objects of D3 is therefore a long pot life of the dispersions; it does not aim at a steep increase of the viscosity towards the end of pot life. D3 does therefore not represent an appropriate starting point either.

4.2.1 None of the documents cited in appeal in fact deal with a problem related to that addressed in the patent in suit. Therefore, the appellant's only line of argumentation against the presence of an inventive step, based on a combination of D1 with D2 and D3, cannot be followed.

4.2.2 Consequently, it cannot be concluded that, having regard to the state of the art, the subject-matter of the patent in suit was obvious. For that reason, the appellant's objection of lack of inventive step has to be rejected.

4.2.3 As the main request of the respondent (patent proprietor) is allowable there is no need to consider the auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: On behalf of the Chairman
(according to Art. 8(3) RPBA):

B. ter Heijden R. Cramer

Decision electronically authenticated