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Datasheet for the decision of 18 May 2009

Case Number: T 1064/06 - 3.3.05

Application Number: 98908332.4

Publication Number: 0964835

IPC: C03C 25/00

Language of the proceedings: EN

Title of invention:
Protective materials for optical fibers which do not substantially discolor

Patentee:
DSM IP Assets B.V.

Opponent:
Hexion Specialty Chemicals, Inc.

Headword:
Optical fiber coating/DSM

Relevant legal provisions:
EPC Art. 54, 83, 84, 123 (2)
EPC R. 80

Keyword:
"Amendments allowable: combination of features directly and unambiguously derivable from the application as filed"
"Clarity (yes)"
"Sufficiency of disclosure (yes)"
"Novelty (yes)"

Decisions cited:
T 0017/86, T 0284/94

Catchword:
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Case Number: T 1064/06 - 3.3.05

D E C I S I O N
of the Technical Board of Appeal 3.3.05
of 18 May 2009

Appellant: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 18 May 2006 revoking European patent No. 0964835 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: H. Engl
Members: J.-M. Schwaller
C. Vallet

Summary of Facts and Submissions

I. This appeal was lodged by the patent proprietor (hereinafter the "appellant") against the decision of the opposition division revoking European patent No. 0 964 835 on the ground that claim 1 of the four requests then on file lacked novelty over Example 12 of document US 5 587 40 (D1).

In particular, independent claims 1 and 19 of auxiliary request 3 read as follows:

"1. An optical fiber apparatus for transmitting light signals comprising:
at least one optical fiber transmission path, at least one protective region for said transmission path, wherein said protective region comprises a radiation-cured composition which exhibits a non-yellowing, delta E value measured by a method involving a mathemetical [sic] manipulation, FMC-2, of less than 12 after four weeks of aging at 125°C, wherein said radiation-cured composition also exhibits a glass transition temperature greater than about 50°C.

19. A radiation-curable composition comprising the following pre-mixture ingredients before radiation cure:
(A) about 20 wt.% to about 80 wt.% of at least one urethane (meth)acrylate oligomer comprising (i) at least one polyether oligomer backbone, (ii) at least one aliphatic urethane linking group, and (iii) at least one end-capping radiation-curable group;
(B) about 20 wt.% to about 80 wt.% of at least one monomer diluent for said oligomer,

(C) optionally, an effective amount of at least one photoinitiator, and wherein the glass transition temperature of said composition, after radiation cure, is greater than about 50°C, and
wherein said composition, after radiation cure, has a delta E value measured by a method involving a mathemetical [sic] manipulation, FMC-2, of less than 12 after 4 weeks of aging at 125°C.

II. With the grounds for appeal, the appellant filed a single set of claims as main request as well as new experimental evidence.

III. With a letter dated 11 August 2008, the appellant submitted five further sets of claims as auxiliary requests I to V.

IV. The respondent's arguments were received with letters dated 16 February 2007 and 23 March 2009, respectively.

V. With a letter dated 27 April 2009, the appellant submitted four new requests in replacement for those then on file. Independent claims 1 and 15 of the main request read as follows:

"1. An optical fiber apparatus for transmitting light signals comprising:
at least one optical fiber transmission path,
*at least one protective region for said transmission path, wherein said protective region comprises a radiation-cured composition which exhibits a non-yellowing, delta E value measured by a method involving a mathematical manipulation, FMC-2, of less than **7** after four weeks of aging at 125°C,*

wherein said radiation-cured composition exhibits a glass transition temperature greater than about 50°C ***and wherein said radiation-cured composition is a radiation-cure product of a radiation-curable composition comprising the following pre-mixture ingredients before radiation cure:***
(A) 20 wt.% to 80 wt.% of at least one urethane (meth)acrylate oligomer comprising (i) at least one polyether oligomer backbone, (ii) at least one aliphatic urethane linking group, and (iii) at least one end-capping radiation-curable group;
(B) 20 wt.% to 80 wt.% of at least one monomer diluent, said at least one monomer diluent comprising ethoxylated bisphenol A diacrylate;
(C) optionally an effective amount of at least one photoinitiator*."*

"15. A radiation-curable composition comprising the following pre-mixture ingredients before radiation cure
(A) about 20 wt.% to about 80 wt.% of at least one urethane (meth)acrylate oligomer comprising (i) at least one polyether oligomer backbone, (ii) at least one aliphatic urethane linking group, and (iii) at least one end-capping radiation-curable group;
(B) about 20 wt.% to about 80 wt.% of at least one monomer diluent for said oligomer, ***said at least one monomer diluent comprising ethoxylated bisphenol A diacrylate****;*
(C) optionally, an effective amount of at least one photoinitiator, wherein said oligomer A, said diluent B, or both comprises at least one isocyanurate group, and wherein the glass transition temperature of said composition, after radiation cure, is greater than about 50°C, and wherein said composition, after

*radiation cure, has a delta E value measured by a method involving a mathematical manipulation, FMC-2, of less than **7** after four weeks of aging at 125°C."*

(Bold characters added by the board to identify the differences with the independent claims 1 and 19 of auxiliary request 3 of the contested decision)

VI. At the oral proceedings, which took place on 18 May 2009, the respondent objected to the above claims under Articles 84 and 123(2) EPC as well as under Rule 80 EPC. It also maintained the ground of opposition under Article 100(b) EPC, but indicated that it did not wish to argue further on this issue.

VII. The appellant requested that the decision under appeal be set aside and that the case be remitted to the department of first instance for further prosecution.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. *Main request*

1.1 Admissibility of the amendments - Rule 80 EPC

The respondent considered that certain amendments in claims 1 and 15 were not occasioned by a ground of opposition. It argued in particular that the addition into claim 1 of the features (A), (B) and (C), or the redrafting of claim 15 - previously dependent upon claim 3 - as an independent claim, did not address the objections raised.

1.1.1 The board observes that the amended independent claims 1 and 15 of the main request have been submitted in response to respondent's objections raised in letter dated 16 February 2009.

The amended claims 1 and 15 furthermore correspond to independent claim 1 and **independent** claim 20 (not dependent claim 15 as alleged by the respondent) of the patent as granted, respectively, to which further technical features have been inserted, thus conferring on independent claims 1 and 15 a considerably reduced scope of protection in comparison to that of the independent claims 1 and 20 as granted.

In this context, and even if certain features might appear not absolutely necessary for overcoming the objections raised by the opponent, the board is nevertheless convinced that the redrafting of the claims as proposed in the present main request was occasioned by the different grounds of opposition and was therefore submitted in an attempt to overcome the objections raised. The respondent's argumentation under Rule 80 EPC therefore does not hold in the present case.

1.2 Allowability of the amendments - Article 123(2) EPC

1.2.1 The respondent's arguments that the subject-matter of independent claims 1 and 15 extended beyond the content of the application as filed were as follows:

- the sole reference in the application as originally filed to the mathematical method FMC-2 as a way of calculating delta E was disclosed in the examples, in particular in Example 1. As there was no disclosure

of this method in relation to the delta E measurements in the general part of the description, the skilled person would not consider that the delta E values referred to in the claims could only be calculated according to the FMC-2 method. Since the FMC-2 method was only disclosed in the application as filed in relation to the examples, its introduction into claim 1 without the other features of Example 1 (in particular those specified on page 36 involving the illuminant, the mode, the area of measurement, the specular component, the UV filter and the background) was improperly a selection from a combination of features which could not be separated.

– The addition of features (A), (B) and (C) into claim 1 constituted added subject-matter because there was no clear and unambiguous disclosure in the application as filed for a combination of these three features with the other features of claim 1.

– There was no basis for the combination of the feature "at least one monomer diluent comprising ethoxylated bisphenol A diacrylate" - which is one component of the long list of diluents disclosed at page 15 - with the other features of independent claims 1 and 15.

1.2.2 The board cannot accept the above arguments and considers that the subject-matter of independent claims 1 and 15 does not extend beyond the disclosure of the application as filed for the following reasons:

Firstly, it is undisputed that all features of the said independent claims 1 and 15 are individually and literally disclosed in the originally filed documents.

A glass transition temperature of greater than about 50°C is disclosed in original claims 4 and 20.

A non-yellowing property as measured by a color change delta E value of less than 7, after ageing at 125°C for four weeks, is a preferred feature of the claimed curable compositions, as disclosed in original claim 2 and on page 32, lines 8 to 13 of the application as originally filed and published as WO-A-98/39264.

The feature relating to the mathematical manipulation FMC-2 appears in the passage bridging pages 35 and 36 of WO-A-98/39264, which refers to the publication entitled "*A measurement of the contribution of UV cured coatings and ink binders towards color change of UV cured inks*" by D.M. Szum, in Radtech Europe '93 Conference Proceedings (also document D2 in the present proceedings) involving said FMC-2 method as a part of a measurement method for the color ageing behaviour (delta E). It is true that the said passage is part of the explanations given in connection with Example 1. However, it is clear in the context of the application as a whole that no other method than the one referred to in full detail and involving the mathematical FMC-2 manipulation is envisaged for determining delta E throughout the application (cf. T 17/86, OJ EPO 1989, 297; reasons, point 2.3; T 284/94, OJ EPO 1999, 464; reasons, points 2.1.3 and 2.1.4). Although different methods may exist, the application documents as originally filed and published do not contain information which could lead to the assumption that any delta E values had been measured differently than according to Szum (and involving FMC-2). This is all the more so as the respondent has shown that the choice

of the mathematical evaluation method is critical for achieving consistent results. The skilled person had therefore no reason to assume that the non-yellowing property values cited in the patent in suit were measured and calculated in a way other than expressly indicated therein. Therefore, the board considers that the inclusion of said feature in the claims does not add new information not present in the originally filed application documents.

Secondly, as regards the combination with the remaining claim features (A), (B) and (C), the board observes that independent claim 20 as originally filed already disclosed the following features **in combination**:

A radiation-curable composition comprising the following pre-mixture ingredients before radiation cure:

(A) about 20 wt.% to about 80 wt.% of at least one urethane (meth)acrylate oligomer comprising (i) at least one polyether oligomer backbone, (ii) at least one aliphatic urethane linking group, and (iii) at least one end-capping radiation-curable group;

(B) about 20 wt.% to about 80 wt.% of at least one monomer diluent for said oligomer,

(C) optionally, an effective amount of at least one photoinitiator,

and wherein the glass transition temperature of said composition, after radiation cure, is greater than about 50°C, and

wherein said composition, after radiation cure, is substantially non-yellowing.

Numerous concrete examples for component (B), the monomer diluent, are disclosed in the detailed disclosure of the invention at page 15, lines 17 to 35. More specifically, at page 15, lines 32 and 33, ethoxylated bisphenol-A diacrylate is disclosed as a monomer diluent (component (B)). By way of this general disclosure, the skilled person is taught to use ethoxylated bisphenol-A diacrylate as a monomer diluent in curable compositions, for instance in those defined in claim 20. The original application documents, in particular the passages dealing with the function of the monomer diluent (page 14, line 25 to page 15, line 16) contain no indication that the choice of a particular monomer diluent was in any way essential for achieving a preferred, reduced non-yellowing property. Therefore, it is evident to the skilled person that ethoxylated bisphenol-A diacrylate is a suitable monomer diluent in such radiation-curable compositions which, after radiation cure, exhibit a non-yellowing property in the range of delta E of less than 7 (measured according to Szum, after four weeks of ageing at 125°C).

1.2.3 The claims dependent on the above independent claims find their support in the following passages of the application as filed:

- claims 2 to 8: claims 3, 5, 6, 7, 8, 9, 10, respectively;

- claim 9: claim 11 in combination with claim 2;

- claim 10: claim 12 in combination with 2;
- claims 11 and 12: claims 13 and 14, respectively;
- claim 14: page 17, lines 9 to 10;
- claim 16: claim 22;
- claim 17: page 6, lines 31 to page 7, line 1.

1.2.4 Since claims 1 to 17 of the main request do not extend beyond the content of the application as filed, the board concludes that the requirements of Article 123(2) EPC are met.

1.3 Clarity - Article 84 EPC

1.3.1 The respondent argued that the claims contravened Article 84 EPC, because there was no disclosure or teaching anywhere in the patent in suit specifying the manner in which the FMC-2 method might be used in order to calculate delta E. There was furthermore no evidence that the FMC-2 method was part of common general knowledge.

1.3.2 The board cannot accept these arguments because, on the one hand, the patent in suit clearly and unambiguously describes (see paragraph [0107]) that the colour aging behaviour (delta E) of the cured films was measured by conventional methods as disclosed in D2, and, on the other hand, D2 indicates - in the first lines of page 748 - that the color change of the aged samples was measured by making use of the mathematical manipulation FMC-2 disclosed in the publication "*Principles of Color*

Technology", 2nd Edition, John Wiley & Sons, 1981, pages 101 to 102. Accordingly, there is a clear teaching in the patent in suit of the manner in which the FMC-2 method might be used in order to calculate delta E.

In this context and in the absence of further evidence that the FMC-2 method as described in the above publication was for instance not clear enough for making reliable delta E measurements, the board is convinced that the claims meet the requirements of Article 84 EPC.

1.4 Sufficiency of disclosure - Article 83 EPC

The respondent maintained its objection without providing further arguments.

The board being however satisfied with the arguments and conclusions of the opposition division concerning this issue (reference is made to item 3. of the contested decision), concludes that the contested patent meets the requirements of Article 83 EPC.

1.5 Novelty

Novelty having no longer been disputed and none of the known state of the art documents disclosing the combination of features - in particular the combination of pre-mixture ingredients (A) and (B) - presently claimed, the board concludes that the subject-matter of claims 1 and 15 of the present request meets the requirements of Article 54 EPC.

2. Remittal

Since the decision to revoke the patent did not address the inventive step issue, the Board considers it appropriate to exercise its power conferred by Article 111(1) EPC to remit the case to the first instance for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution.

The Registrar: The Chairman:

C. Vodz H. Engl