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Datasheet for the decision of 21 February 2024

Case Number: T 0592/20 - 3.3.10

Application Number: 10719549.7

Publication Number: 2424949

IPC: C09J11/06, C09J201/10, C09J175/04, C09J201/00, C08G18/28

Language of the proceedings: EN

Title of invention:
MOISTURE CURABLE SILYLATED POLYMER COMPOSITIONS CONTAINING REACTIVE MODIFIERS

Patent Proprietor:
Momentive Performance Materials Inc.

Opponent:
Wacker Chemie AG

Headword:

Relevant legal provisions:
EPC Art. 123(2), 123(3)
RPBA Art. 13(1)

Keyword:
Amendments - allowable (no)
Late-filed auxiliary requests - justification for late filing (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0592/20 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 21 February 2024

Appellant: (Patent Proprietor)	Momentive Performance Materials Inc. 260 Hudson River Road Waterford, NY 12188 (US)
Representative:	Gille Hrabal Partnerschaftsgesellschaft mbB Patentanwälte Brucknerstraße 20 40593 Düsseldorf (DE)
Respondent: (Opponent)	Wacker Chemie AG Hanns-Seidel-Platz 4 81737 München (DE)
Representative:	Mieskes, Klaus Theoderich Wacker Chemie AG Intellectual Property Hanns-Seidel-Platz 4 81737 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 3 January 2020 revoking European patent No. 2424949 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chair	M. Kollmannsberger
Members:	R. Pérez Carlón
	T. Bokor

Summary of Facts and Submissions

I. The appellant (patent proprietor) lodged an appeal against the decision of the opposition division revoking European patent No. 2 424 949.

II. Notice of opposition had been filed *inter alia* on the ground of added subject-matter (Article 100(c) EPC).

III. The opposition division concluded that claim 1 of the patent as granted lacked the required basis in the application as originally filed.

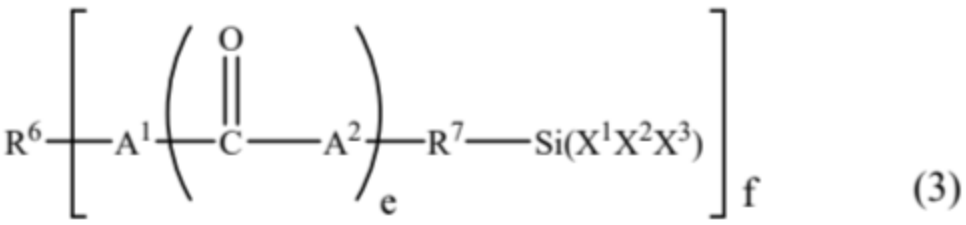
The moisture-curable polymer (a) of formula (3) required by claim 1 was to be prepared from a hydroxyl-terminated polyalkylene by Synthetic Method 2 in paragraphs [0047] to [0050] of the application as originally filed. Synthetic Method 2 required the reaction of a polyol reagent [0048] and silanes containing an isocyanate functional group of formula (6) [0049] thus leading to a product of Formula (3) having a group R^6 which was the polyalkylene oxide part of the polyol. However, claim 1 also covered compounds including a chain extension of the polyol and there was no basis for that embodiment in the filed application.

Claim 1 of the auxiliary requests then pending did not require the moisture-curable polymer (a) to be of Formula (3) and contained product-by-process features instead. As a consequence, the auxiliary request was not limited to a moisture-curable polymer having six or fewer hydrolysable silyl groups, which was a limitation required by Formula (3) in claim 1 of the patent as granted through the feature "f is 1 to 6". The auxiliary requests thus contravened the requirements of

Article 123(3) EPC and were therefore not admitted into the proceedings.

IV. Together with the statement setting out the grounds of appeal, the appellant filed a main request and auxiliary requests 1 and 2. Claim 1 of all three requests relates to a moisture-curable resin comprising defined proportions of components (a), (b) and (c).

Claim 1 of the main request and of auxiliary request 1 requires moisture-curable component (a) to have the general formula (3):
"



(3)

wherein:

each occurrence of R^6 is independently a monovalent or polyvalent organic polymer fragment having a number average molecular weight of from 500 to 25,000 grams per mole and prepared from a hydroxyl-terminated polyalkylene oxide having a terminal ethylenic unsaturation of less than 0.02 milliequivalent per gram and a number average molecular weight of between from 500 and 24,000 grams per mole;

each occurrence of A^1 is divalent oxygen (-O-),

each occurrence of A^2 is substituted nitrogen of the structure $-NR^8-$, wherein R^8 is hydrogen;

[...]

e is 1 and f is 2".

Claim 1 of auxiliary request 2 does not require component (a) to have the general formula (3) but,

instead, requires it to be

"[...] prepared by reacting a hydroxyl-terminated polyalkylene oxide, selected from a hydroxyl-terminated polypropylene oxide, hydroxyl-terminated polyethylene oxide, and hydroxyl-terminated polybutylene oxide, said hydroxyl terminated polyalkylene oxide having a terminal ethylenic unsaturation of less than 0.02 milliequivalent per gram and a number average molecular weight of between from 500 and 24,000 grams per mole; with a hydrolysable silane containing an isocyanate-functional group of the general Formula (6):

$$OCN\text{-}R^{7}\text{-}SiX^{1}X^{2}X^{3} \qquad (6)$$

wherein the ratio of -NCO to -OH is from 0.5 to 1".

V. The board informed the parties in a communication dated 29 March 2021 of its preliminary view that the main request and auxiliary request 1 contained added subject-matter and that the second auxiliary request would appear to contravene Article 123(3) EPC.

With its reply to the board's communication, the appellant filed auxiliary request 3. In addition to the features of auxiliary request 2, claim 1 requires the hydroxyl terminated polyalkylene oxide to be a diol.

VI. The appellant's arguments were as follows.

Claim 1 of the main request had a basis in the combination of claims 1, 2 and 6 as originally filed, with Synthetic Method 2 in paragraphs [0047] to [0051] and the diol disclosed in paragraph [0035]. An additional combination with claim 7 as originally filed was the basis for claim 1 of auxiliary request 1.

Claim 1 of auxiliary request 2 did not extend the scope of protection conferred by the patent as granted, even if it did not explicitly limit sub-index f to 6 or less. This feature was the inevitable result of the preparation method based on a hydroxyl-terminated polypropylene oxide and could thus be omitted.

Auxiliary request 3 had been filed in reply to the board's communication, addressed the issue of extension of the scope of protection in the preceding request and should thus be admitted into the proceedings.

VII. The respondent's arguments were as follows.

The product arising from the combination of Synthetic Method 2 and the starting material in paragraph [0035] of the description as originally filed necessarily had a residue R^6 which was the polyethylene oxide part of the polyol. This limitation was not required by claim 1, which thus contained added subject-matter. The same argument applied to claim 1 of auxiliary request 2.

Claim 1 of auxiliary request 2 did not include the structural limitations of Formula (3), such as for example that the sub-index f needed to be 6 or less, and thus extended the scope of protection conferred by the patent as granted.

The issue under Article 123(3) EPC with respect to claims lacking Formula (3) had been discussed before the opposition division and was part of the appealed decision. Auxiliary request 3 may have addressed this point but arguably raised new issues. At any rate, the request should have been filed earlier, and the board should not admit it into the proceedings.

VIII. Oral proceedings before the board were held on 21 February 2024. The parties' final requests were as follows:

The appellant requested that the decision under appeal be set aside and the patent be maintained
- with the claims filed as the main request, or those of the auxiliary requests 1 or 2, all filed with the statement of grounds of appeal, or
- with the claims filed as auxiliary request 3 with a letter dated 29 July 2021.

The respondent requested that the appeal be dismissed.

IX. At the end of the oral proceedings, the decision was announced.

Reasons for the Decision

1. The appeal is admissible.

2. Main request - amendments

2.1 Claim 1 of the main request relates to a moisture-curable resin composition. It comprises defined proportions of three components (a), (b) and (c). Component (a) is a moisture-curable polymer having at least one hydrolysable silyl group and being of Formula (3). Formula (3) in claim 1 is as follows:

$$R^6\ [-O-C(=O)-N(H)-R^7-Si(X^1X^2X^3)]_2$$

Polymer residue R^6 is linked to two hydrolysable silyl groups by one urethane group each.

2.2 The combination of claims 1, 2 and 6 as originally filed leads to a component (a) of formula (3) as follows:

$$R^6\ [-\mathbf{A^1}-C(=O)-\mathbf{A^2}-R^7-Si(X^1X^2X^3)]_2$$

in which A^1 and A^2 can be independently -O- or -NH-, and lacks the feature requiring R^6 to be prepared from a hydroxyl-terminated polyalkylene oxide having a terminal ethylenic unsaturation of less than 0.02 milliequivalent per gram and a number average molecular weight of between from 500 and 24,000 grams per mole.

2.3 The appellant argued that these features of claim 1 arose from the combination of claims 1, 2 and 6 with Synthetic Method 2 in paragraphs [0047] to [0051] referring back to the polyol in paragraph [0035] of the application as originally filed. Paragraph [0035] of the originally filed application disclosed a hydroxyl-functional polyol having the chemical composition, terminal ethylenic unsaturation and number average molecular weight required by claim 1. Synthetic Method 2 disclosed the reaction of an "above-mentioned hydroxyl-functional polyol" and hydrolysable silanes of formula (6).

$$OCN-R^7-SiX^1X^2X^3 \quad (6)$$

2.4 However, Synthetic Method 2 requires the addition of a silane (6) to a polyol such as that disclosed in paragraph [0035]. The product obtained from the hydroxyl-terminated polyalkylene oxide in [0035] is a compound of Formula (3) in which the polymer fragment R^6 is the polyalkylene oxide part of the starting polyol (i.e. the polyol without its -OH groups). This is however not a feature of claim 1, which only

requires the polymer of Formula (3) to be obtainable from a specific polyol but does not specify the method.

2.5 The appellant conceded that claim 1 covered polymers (a) in which R^6 was not necessarily the same as the polyalkylene oxide part of the polyol, see example 11.

Example 11 discloses the reaction of a polypropylene glycol diol and 0.5 equivalents of a diisocyanate. Representing the starting polymeric diol as HO-Z-OH and the diisocyanate as OCN-Y-NCO, the product obtained is a diol of the structure

HO-Z-OC(=O)-NH-Y-NH-C(=O)O-Z-OH.

Once all the diisocyanate is consumed, the product obtained is reacted with isocyanatopropyltrimethoxy-silane (6) to form a polymer of Formula (3), in which the polymer fragment R^6 is Z-OC(=O)-NH-Y-NH-C(=O)O-Z.

Example 11 thus proves that a product "prepared from" a polymeric diol HO-Z-OH does not necessarily have the polyalkylene oxide part of the polyol (Z) as polymeric fragment R^6.

2.6 By requiring the compound of Formula (3) to be prepared from a specific starting material with a specific chemical structure, claim 1 relates to a product having a group R6 obtainable from hydroxyl-terminated polyalkylene oxide but not necessarily containing it, unaltered, as would have been the case with a product obtainable by Synthetic Method 2. Claim 1 thus covers subject-matter extending beyond the content of the application as originally filed (Article 123(2) EPC). The main request is thus not allowable.

3. Auxiliary request 1 - amendments

The appellant conceded that the same argument as above applies to claim 1 of the auxiliary request 1, which is for this reason not allowable.

4. Auxiliary request 2

4.1 Under Article 123(3) EPC, a patent may not be amended in such a way as to extend the protection it confers.

4.2 Claim 1 of the auxiliary request 2 does not require the moisture-curable polymer component (a) to be of the general Formula (3). Instead, it requires it to be obtainable by a process which corresponds to Synthetic Method 2 in the description.

The issue is whether the product obtainable by the process defined in claim 1 of the auxiliary request 2 has all the structural features required by general Formula (3) in claim 1 of the granted patent.

Claim 1 of the patent as granted requires sub-index f, which defines the number of hydrolysable silyl groups in the polymer, to be 1 to 6. Each of these silyl groups is obtained by reaction of the -OH groups of the polyol starting material with a silane containing an isocyanate of general formula (6). Thus, the number f of hydrolysable silyl groups in the polymer of Formula (3) equals the number of -OH groups in the starting polyol material. This was not disputed.

Claim 1 of the auxiliary request 2 does not limit the number of -OH groups in the polyol starting material, which has to be 1 to 6 for obtaining a product having feature f in Formula (3) of the patent as granted. For

this reason alone, claim 1 of the auxiliary request 2 extends the scope of protection conferred and cannot thus be allowed (Article 123(3) EPC).

4.3 The appellant argued that, in view of paragraphs [0034] and [0035] of the description, the claimed invention did not contemplate polyols containing a large number of hydroxyl groups. A polyalkylene oxide obtained from a starter having seven or more -OH groups which could lead to a compound having f>6 was not common, and would not be considered by the skilled person to be a normal hydroxyl-terminated polyalkylene oxide, let alone a polyethylene, polypropylene or polybutylene oxide.

However, although paragraph [0034] explicitly discloses diols and triols as suitable polyols, the description does not limit the suitable polyols to them alone.

4.4 Auxiliary request 2 is therefore not allowable.

5. Auxiliary request 3 - admittance

5.1 Auxiliary request 3 was filed with a letter dated 29 June 2021. Pursuant to Article 13(1) RPBA, it may be admitted at the board's discretion.

5.2 The appellant argued that claim 1 of auxiliary request 3 had the features of claim 1 of auxiliary request 2 and further restricted the hydroxyl-terminated polyalkylene oxides to diols. The amendment addressed the issue with respect to Article 123(3) EPC in point 4.2 above and was filed in response to the board's communication. The auxiliary request 3 should thus be admitted into the proceedings.

5.3 However, the objection in point 4.2 above was discussed at the oral proceedings before the opposition division (see point 4 of the minutes), and it was the very reason why the auxiliary requests then pending were not admitted into the proceedings (see point 4 of the appealed decision). It was addressed in the grounds of appeal (see point 4.2) and in the respondent's reply (see point 7). The appellant was well aware of the reasons why the auxiliary request 2 might contravene Article 123(3) EPC. It should have filed the auxiliary request 3, argued to solve the issue, earlier in the proceedings.

In addition, claim 1 of the third auxiliary request raises new issues with respect to the amendments, such as whether the feature "diol" had been disclosed in combination with hydroxyl-terminated polyalkylene oxides in the application as originally filed (see point 2 of the respondent's letter dated 10 May 2022).

5.4 For these reasons, auxiliary request 3 is not admitted into the proceedings.

6. As there are no allowable requests, the appeal must be dismissed. Thus the board confirms the decision of the opposition division to revoke the patent.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

C. Rodríguez Rodríguez M. Kollmannsberger

Decision electronically authenticated