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(88) Date of publication of the international search report:
30 July 2009

(54) Title: COPOLYMERS OF EPOXY COMPOUNDS AND AMINO SILANES

(57) Abstract: The present invention provides for a composition comprising the reaction product of a. an oxirane or oxetane compound comprising at least two oxirane or oxetane groups; and b. an amino silane having the formula: N(H)(R¹)R²Si(OR³)_{3-a-b-c}(OR⁴)_a(R⁵Si(OR⁶)_d(R⁷)_e)_b R_c with R¹ is chosen from the group consisting of H or a monovalent hydrocarbon radical containing one to 20 carbon atoms; R² and R⁵ are independently selected from a group consisting of oxygen or a divalent linear or branched hydrocarbon radical consisting of 1-60 carbons; R⁴ is a hydrocarbon radical that contains 3 to 200 carbon atoms; R³, R⁶, R⁷, and R⁸ and are each independently selected from the group of monovalent linear or branched hydrocarbon radicals having from 1 to 200 carbon atoms; the subscript b is zero or a positive number and has a value ranging from 0 to 3; the subscripts a, and c are zero or positive and have a value ranging from 0 to 3 subject to the limitation that (a + b + c) ≤ 3; the subscripts d and e are zero or positive and have a value ranging from 0 to 3 subject to the limitation that (d + e) ≤ 3.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER					
INV.	C07F7/18	C08F8/32	C08G59/14	C08G59/40	C08G65/336
	C08G77/388	C08G77/54	C08J3/03	C08J3/09	C09D171/02
	C09D183/08	D06M15/643	D06M15/65		

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C07F C08F C08G C08J C09D D06M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, IBM-TDB, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 866 244 A (OWENS CORNING FIBERGLASS CORP) 16 March 1971 (1971-03-16) page 1, lines 1-3; example 17	1,7-9, 17-21, 27-31, 37-41, 47-50
X	KR 2005 0088650 A (DON CO LTD [KR]; NANOCRYSTAL CO LTD [KR]) 7 September 2005 (2005-09-07) abstract; examples	1
X	WO 91/06588 A (EASTMAN KODAK CO [US]) 16 May 1991 (1991-05-16) page 29, lines 1-6; examples 1,2	1,11
	-/--	

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

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| <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p> | <p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>*Z* document member of the same patent family</p> |
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Date of the actual completion of the international search	Date of mailing of the international search report
15 June 2009	23/06/2009

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2260 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Hein, Friedrich
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 80/00847 A (AMERON INC [US]) 1 May 1980 (1980-05-01) page 9, line 5 - page 10, line 26; claims 1,23-25; table 1	1
X	US 5 384 340 A (HARA OSAMU [JP] ET AL) 24 January 1995 (1995-01-24) cited in the application column 2, lines 35-51 column 3, lines 18-22; example 6	1-3
X	JP 05 214216 A (MATSUSHITA ELECTRIC WORKS LTD) 24 August 1993 (1993-08-24) paragraphs [0005], [0007]	1-3
X	JP 2005 281528 A (YOKOHAMA RUBBER CO LTD) 13 October 2005 (2005-10-13) abstract paragraph [0048]	1,2
X	US 4 972 008 A (LEE JUNG D [KR] ET AL) 20 November 1990 (1990-11-20) column 3, lines 52-70; example 5	1,2
X	JP 06 080946 A (AICA KOGYO CO LTD) 22 March 1994 (1994-03-22) abstract paragraphs [0006], [0007]	1,2
X	JP 54 129098 A (MITSUBISHI GAS CHEMICAL CO; JAPAN ATOMIC ENERGY RES INST; NIPPON CHEMI) 6 October 1979 (1979-10-06) abstract	1,2,5
P,A	WO 2007/149537 A (MOMENTIVE PERFORMANCE MAT INC [US]; KOCZO KALMAN [US]; AZOUANI SABINE) 27 December 2007 (2007-12-27) the whole document	1-50

INTERNATIONAL SEARCH REPORT

International application No.
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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 6-11, 16-21, 26-31, 36-41, 46-50

Composition comprising the reaction product of an oxirane or oxetane compound and an aminosilane; emulsions

2. claims: 2 (part), 3, 12 (part), 13, 22 (part), 23, 32 (part),
33, 42 (part), 43

Composition comprising the reaction product of an oxirane group- or oxetane-group containing siloxane and an aminosilane; emulsions

3. claims: 2 (part), 4, 12 (part), 14, 22 (part), 24, 32 (part),
34, 42 (part), 44

Composition comprising the reaction product of an oxirane group- or oxetane-group containing hydrocarbon and an aminosilane; emulsions

4. claims: 2 (part), 5, 12 (part), 15, 22 (part), 25, 32 (part),
35, 42 (part), 45

Composition comprising the reaction product of an oxirane group- or oxetane-group containing polyether and an aminosilane; emulsions

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
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