

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
29 June 2006 (29.06.2006)

PCT

(10) International Publication Number
WO 2006/069376 A3

(51) International Patent Classification:
C09D 5/08 (2006.01) *C09D 5/10* (2006.01)

Eden Avenue, Cincinnati, OH 45267-0829 (US). **YANG, Lin** [CN/US]; P.O. Box 670829, Wherry G7, 3223 Eden Avenue, Cincinnati, OH 45267-0829 (US).

(21) International Application Number:
PCT/US2005/047036

(74) Agents: **WILLIS, Ryan, L.** et al.; Taft, Stettinius & Hollister, LLP, 425 Walnut Street, Cincinnati, OH 45202-3957 (US).

(22) International Filing Date:
22 December 2005 (22.12.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/638,729 22 December 2004 (22.12.2004) US
60/695,333 30 June 2005 (30.06.2005) US

(71) Applicant (for all designated States except US): **UNIVERSITY OF CINCINNATI** [US/US]; Intellectual Property Office, P.O. Box 670829, Wherry G7, 3223 Eden Avenue, Cincinnati, OH 45267-0829 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VAN OOLJ, Wim, Johan** [NL/US]; P.O. Box 670829, Wherry G7, 3223 Eden Avenue, Cincinnati, OH 45267-0829 (US). **MUGADA, Trilok** [IN/US]; P.O. Box 670829, Wherry G7, 3223 Eden Avenue, Cincinnati, OH 45267-0829 (US). **SURYAN-RAYANA, Karthik** [IN/US]; P.O. Box 670829, Wherry G7, 3223 Eden Avenue, Cincinnati, OH 45267-0829 (US). **SETH, Anuj** [IN/US]; P.O. Box 670829, Wherry G7, 3223 Eden Avenue, Cincinnati, OH 45267-0829 (US). **ZHU, Danqing** [CN/US]; P.O. Box 670829, Wherry G7, 3223

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

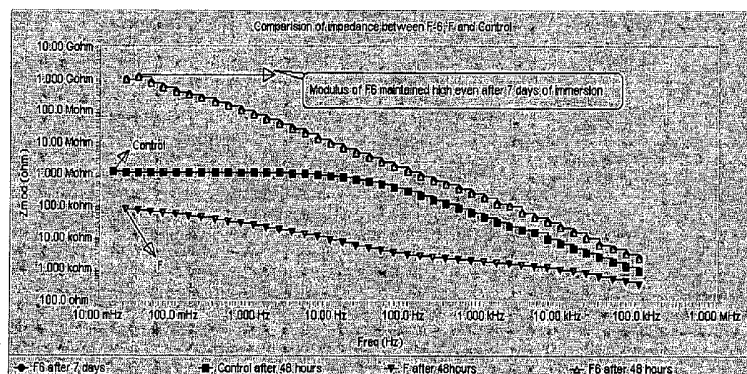
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: IMPROVED SUPERPRIMER



(57) Abstract: An exemplary superprimer in accordance with the instant invention includes a composition capable of coating a substrate and curing to provide a hydrophobic film inhibiting corrosion, the composition comprising: (a) a mixture of silanes; (b) a dispersible or soluble resin; and (c) an aqueous or non-aqueous solvent. Moreover, the invention includes the aforementioned superprimer composition, wherein the mixture of silanes includes at least one of a bis-sulfur silane, a bis-benzene silane, a bis-alkane silane, a bis-alkene silane, and a bis-amino silane.

WO 2006/069376 A3



(88) Date of publication of the international search report:

26 October 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

 Inter application No
 PCT/US2005/047036

 A. CLASSIFICATION OF SUBJECT MATTER
 INV. C09D5/08 C09D5/10

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)
 C09D

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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/009717 A (UNIVERSITY OF CINCINNATI; VAN OOIJ, WIM, JOHAN; STACY, MATTHEW, B; ANU) 29 January 2004 (2004-01-29) claims 1-14	1-14
X	EP 1 130 131 A (NIPPON PAINT CO., LTD) 5 September 2001 (2001-09-05) paragraphs [0013] - [0015], [0022]; claim 3	1-14
A	WO 2004/009714 A (UNIVERSITY OF CINCINNATI; VAN OOIJ, WIM, JOHAN; PALANIVEL, VIGNESH, M) 29 January 2004 (2004-01-29) claims 1-8	1-14

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search

9 June 2006

Date of mailing of the international search report

25. 08. 2006

Name and mailing address of the ISA/

 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Buestrich, R

INTERNATIONAL SEARCH REPORT

nal application No.
r. CT/US2005/047036

Box 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 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 all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
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.:

1-14

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ 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: 1-14

Invention 1 (claims 1-14) claims a composition comprising a bis-silane; and a water soluble or dispersible polymer and a method of making coatings with said composition.

2. claims: 15-20,23-26

Invention 2 (claims 15-20, 23-26) claims a composition comprising 0.2-4 wt% silane; and 5-22 wt% organic binder and 30-95 wt% zinc dust and various methods with various different compositions which contain zinc dust (method claims 17, 19, 23 and 24).

3. claims: 21-22

Invention 3 (claims 21-22) claims a method of forming a composition comprising a mixing a non-aqueous solvent and a resin to form a first part; mixing a silane and the first part to form a composition comprising 5-60 wt% water soluble resin 0.5-50 wt% silane and 5-40 wt% solvent.

4. claims: 27-68

Invention 4 (claims 27-68) claims a composition comprising a mixture of silanes; a dispersible or soluble resin; and an aqueous or non-aqueous solvent and a method (claim 48) of making coatings with a similar composition.

5. claim: 69

Invention 5 (claim 69) claims a composition comprising a silane comprising between 0.5-20 wt% of the resulting coating; and a dispersible or resin comprising between 10-30 wt% of the resulting coating; and zinc dust comprising between 70-90 wt% of the resulting coating.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

6. claim: 70

Invention 6 (claim 70) claims a composition comprising a silane comprising between 0.5-50 wt% of the resulting coating; and a dispersible or resin comprising between 10-30 wt% of the resulting coating; and carbon black comprising between 40-80 wt% of the resulting coating.

INTERNATIONAL SEARCH REPORT

Inte application No
PCT/JP2005/047036

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2004009717	A	29-01-2004	AU 2003259219 A1	09-02-2004
			CA 2492936 A1	29-01-2004
			EP 1523530 A1	20-04-2005
			MX PA05000879 A	19-10-2005

EP 1130131	A	05-09-2001	DE 60114680 D1	15-12-2005
			DE 60114680 T2	03-08-2006
			JP 2001316845 A	16-11-2001
			US 2001042491 A1	22-11-2001

WO 2004009714	A	29-01-2004	AU 2003259218 A1	09-02-2004
