

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



WIPO | PCT



## (10) International Publication Number

WO 2013/131835 A3

(43) International Publication Date  
12 September 2013 (12.09.2013)

## (51) International Patent Classification:

C08G 18/10 (2006.01)	C08G 18/40 (2006.01)
C08G 18/22 (2006.01)	C08G 18/62 (2006.01)
C08G 18/24 (2006.01)	C09D 175/04 (2006.01)
C08G 18/38 (2006.01)	

## (21) International Application Number:

PCT/EP2013/054235

## (22) International Filing Date:

4 March 2013 (04.03.2013)

## (25) Filing Language:

English

## (26) Publication Language:

English

## (30) Priority Data:

12158432.0	7 March 2012 (07.03.2012)	EP
61/608,251	8 March 2012 (08.03.2012)	US

(71) Applicant: AKZO NOBEL COATINGS INTERNATIONAL B.V. [NL/NL]; Velperweg 76, NL-6824 BM Arnhem (NL).

(72) Inventors: SCHERER, Taco; Jelgersmastraat 35, NL-2023 EN Haarlem (NL). VAN BEELEN, Nicolaas Jacob; Golfstroom 16, NL-2221 XM Katwijk aan Zee (NL). VAN DER PUTTEN, Antonius Josephus; Brittenhuis 30, NL-2211 VZ Noordwijkerhout (NL). VAN ADRICHEM, Arnoldus Adrianus Jozef Maria; Kerkeland 9, NL-2171 PS Sassenheim (NL). BRUIN, David Elias; Sneeuwbalstraat 198, NL-2565 WH Den Haag (NL). GAGLIARDO, Marcella; Bloemgaarde 22, NL-1902 HD Castricum (NL).

(74) Agent: AKZO NOBEL IP DEPARTMENT; Velperweg 76, NL-6824 BM Arnhem (NL).

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

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

3 April 2014

## (54) Title: NON-AQUEOUS LIQUID COATING COMPOSITION

(57) Abstract: The invention relates to a non-aqueous liquid coating composition comprising a) a polyol, b) a polyisocyanate cross-linker c) one or more thiol-functional compounds, d) a metal-based curing catalyst for catalyzing the addition reaction of isocyanate groups and hydroxyl groups, e) a base having a pKa value of at least 7, and which base does not react with isocyanate groups in a way wherein the basicity is reduced, and f) one or more acid group-containing compounds, wherein the one or more thiol-functional compounds are present in an amount to provide a molar ratio of thiol groups over the metal atoms of the metal-based curing catalyst of 1 or higher, and wherein the base is present in a molar amount lower than the molar amount of thiol groups, and wherein the molar ratio of acid groups and base groups is 1:1 or higher.

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2013/054235

A. CLASSIFICATION OF SUBJECT MATTER				
INV.	C08G18/10	C08G18/22	C08G18/24	C08G18/38
	C08G18/62	C09D175/04		C08G18/40

ADD.

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)

C08G 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 practicable, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/046333 A1 (AKZO NOBEL COATINGS INT BV [NL]; VAN STEENIS DIRK JAN VINCENT CHRISTIA) 29 April 2010 (2010-04-29) page 1, lines 3-7 examples E1.1-E1.6, E.2.1-E.2.4 -----	1-8
X	US 4 788 083 A (DAMMANN LAURENCE G [US] ET AL) 29 November 1988 (1988-11-29) table 19 column 23, lines 27-30 claim 1 -----	1-8
X	WO 2007/020269 A1 (AKZO NOBEL COATINGS INT BV [NL]; VAN ENGELEN ANTONIUS HENDRIKUS [NL];) 22 February 2007 (2007-02-22) page 14, line 24 - page 15, line 8 page 23, lines 1-12; table 3 claims 1,4,5,6 -----	1-8



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 application or patent 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	Date of mailing of the international search report
20 January 2014	13/02/2014

Name and mailing address of the ISA/  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040,  
Fax: (+31-70) 340-3016

Authorized officer

Bezard, Stéphane

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/054235

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 2010046333	A1	29-04-2010	AU 2009306509 A1 CN 102197059 A EP 2340268 A1 JP 2012506467 A KR 20110073604 A RU 2011120461 A US 2011212267 A1 WO 2010046333 A1		29-04-2010 21-09-2011 06-07-2011 15-03-2012 29-06-2011 27-11-2012 01-09-2011 29-04-2010
US 4788083	A	29-11-1988	AT 398573 B AU 575741 B2 AU 6868487 A BE 1001374 A3 BR 8701388 A CA 1303015 C CH 672750 A5 CN 87102399 A DE 3709631 A1 DK 151187 A ES 2004125 A6 FI 871338 A FR 2596292 A1 GB 2188327 A HU 207745 B IL 82003 A IN 168614 A1 IT 1203375 B MX 168226 B NL 8700713 A NO 871251 A NZ 219791 A RU 2024553 C1 SE 466138 B SE 9001182 A US 4788083 A		27-12-1994 04-08-1988 15-10-1987 17-10-1989 29-12-1987 09-06-1992 29-12-1989 07-10-1987 15-10-1987 28-09-1987 01-12-1988 28-09-1987 02-10-1987 30-09-1987 28-05-1993 18-07-1991 04-05-1991 15-02-1989 13-05-1993 16-10-1987 28-09-1987 26-04-1989 15-12-1994 07-01-1992 01-10-1991 29-11-1988
WO 2007020269	A1	22-02-2007	AT 465194 T AU 2006281351 A1 AU 2006281352 A1 ES 2344154 T3 JP 2009504864 A JP 2009504865 A US 2008234410 A1 US 2008281034 A1 WO 2007020269 A1 WO 2007020270 A1		15-05-2010 22-02-2007 22-02-2007 19-08-2010 05-02-2009 05-02-2009 25-09-2008 13-11-2008 22-02-2007 22-02-2007