



(43) International Publication Date
22 June 2017 (22.06.2017)

(10) International Publication Number
WO 2017/106152 A3

(51) International Patent Classification:

C08G 18/75 (2006.01) *C08G 18/34* (2006.01)
C08G 18/08 (2006.01) *C08G 18/42* (2006.01)
C08G 18/10 (2006.01) *C09D 175/06* (2006.01)

(21) International Application Number:

PCT/US2016/066303

(22) International Filing Date:

13 December 2016 (13.12.2016)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

14/967,763 14 December 2015 (14.12.2015) US

(71) Applicant: PPG INDUSTRIES OHIO, INC. [US/US];
3800 West 143rd Street, Cleveland, Ohio 44111 (US).

(72) Inventors: CIACCIO, Francesco; Via A. Depretis, 13,
15121 Alessandria (IT). ANTONACI, Annamaria; Via
Bergamo 67, 15121 Alessandria (IT). BONELLO, Eddy;
Via Prandio 22, 15030 Villanova Monferrato (IT).
SCHOCH, Stephane; Hausweinberg 91, 71334 Beinstein
(DE). KLAEGGER, Wolfgang; August-Laemmle-Weg 15,
71229 Leonberg (DE). SEILER, Beate; Breitacker 80,
74182 Obersulm (DE). CAMERANO, Jose; Bozener-
strasse 1, 71638 Ludwigsburg (DE). SINGER, Debra, L.;
420 Fox Meadow Drive, Wexford, Pennsylvania 15090
(US). SCHWENDEMAN, John, E.; 238 Courtney Place,
Wexford, Pennsylvania 15090 (US). SWARUP, Shanti;
4918 Meadow Crest Drive, Allison Park, Pennsylvania
15101 (US).

(74) Agents: FRANKLIN, J. Caleb et al.; PPG Industries, Inc.,
One PPG Place, 39th Floor, Pittsburgh, Pennsylvania
15272 (US).

(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, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, SA, 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, ST, 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, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii))

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:

14 September 2017

(54) Title: BRANCHED POLYESTER-URETHANE RESINS AND COATINGS COMPRISING THE SAME

(57) Abstract: An uncured branched polyester-urethane resin prepared by free radical polymerization of an unsaturated polyester prepolymer having a polyol segment, an unsaturated polycarboxylic acid and/or an anhydride and/or ester thereof, and a urethane segment, wherein the polymerization occurs primarily by reaction of the unsaturation is disclosed. Coatings comprising the same are also disclosed, as are substrates coated at least in part with such coatings.



WO 2017/106152 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/066303

A. CLASSIFICATION OF SUBJECT MATTER

INV. C08G18/75 C08G18/08 C08G18/10 C08G18/34 C08G18/42
C09D175/06

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 B05D

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	US 2002/002237 A1 (IRLE CHRISTOPH [DE] ET AL) 3 January 2002 (2002-01-03) examples 1-4,6-7 -----	1-27
X	WO 2015/153844 A1 (PPG IND OHIO INC [US]) 8 October 2015 (2015-10-08) page 3, line 5; examples 1-2,4-5 -----	1-27
X	US 2011/021694 A1 (TRINDADE DELSON JAYME [US]) 27 January 2011 (2011-01-27) paragraph [0043]; example 1 -----	1-27
X	US 2015/064476 A1 (KANDA TAKASHI [JP]) 5 March 2015 (2015-03-05) paragraphs [0038] - [0060]; claims 1,17-18 -----	1-27



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

11 August 2017

Date of mailing of the international search report

24/08/2017

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

Scheuer, Sylvie

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2016/066303

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002002237	A1	03-01-2002	AT 282651 T 15-12-2004
		AT 282652 T 15-12-2004	
		AU 743019 B2 17-01-2002	
		AU 755832 B2 19-12-2002	
		BR 9903717 A 12-09-2000	
		BR 9903723 A 12-09-2000	
		CA 2280108 A1 17-02-2000	
		CA 2280109 A1 17-02-2000	
		EP 0980880 A1 23-02-2000	
		EP 0980881 A1 23-02-2000	
		ES 2234189 T3 16-06-2005	
		ES 2234190 T3 16-06-2005	
		JP 4579359 B2 10-11-2010	
		JP 2000063482 A 29-02-2000	
		JP 2000080328 A 21-03-2000	
		KR 20000017315 A 25-03-2000	
		KR 20000017316 A 25-03-2000	
		PL 334913 A1 28-02-2000	
		PT 980880 E 31-03-2005	
		PT 980881 E 31-03-2005	
		US 6139918 A 31-10-2000	
		US 2002002237 A1 03-01-2002	
WO 2015153844	A1	08-10-2015	CA 2944749 A1 08-10-2015
		CN 106414530 A 15-02-2017	
		EP 3126427 A1 08-02-2017	
		JP 2017517591 A 29-06-2017	
		KR 20160141820 A 09-12-2016	
		SG 11201608263P A 28-10-2016	
		TW 201546111 A 16-12-2015	
		WO 2015153844 A1 08-10-2015	
US 2011021694	A1	27-01-2011	NONE
US 2015064476	A1	05-03-2015	CN 104321395 A 28-01-2015
		EP 2835404 A1 11-02-2015	
		US 2015064476 A1 05-03-2015	
		WO 2013151050 A1 10-10-2013	