



(43) International Publication Date
3 July 2014 (03.07.2014)

(10) International Publication Number
WO 2014/105466 A3

- (51) **International Patent Classification:**
C09D 123/02 (2006.01) *C08L 23/10* (2006.01)
C08L 23/04 (2006.01)
- (21) **International Application Number:**
PCT/US2013/075071
- (22) **International Filing Date:**
13 December 2013 (13.12.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
13/729,073 28 December 2012 (28.12.2012) US
- (71) **Applicant:** DOW GLOBAL TECHNOLOGIES LLC
[US/US]; 2040 Dow Center, Midland, Michigan 48674
(US).
- (72) **Inventors:** ROMICK, Jay D.; 1578 Ford Court, Midland,
Michigan 48640 (US). ZHANG, Qing; 2002 Braeburn
Terrace, Lansdale, Pennsylvania 19446 (US).
MALOTKY, David L.; 3805 Wintergreen Drive, Mid-
land, Michigan 48640 (US). LUNDGARD, Richard A.;
919 Whispering Oak Drive, Midland, Michigan 48642
(US). MECCA, Jodi M.; 3211 Mount Vernon Ct., Mid-
land, Michigan 48642 (US).
- (74) **Agent:** HUEBSCH, Joseph C.; Brooks, Cameron &
Huebsch, PLLC, 1221 Nicollet Avenue, Suite 500, Min-
neapolis, Minnesota 55403 (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, 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, 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, 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, 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).

Published:

— with international search report (Art. 21(3))

(88) **Date of publication of the international search report:**
9 October 2014

(54) **Title:** A COATING COMPOSITION AND ARTICLES MADE THEREFROM

(57) **Abstract:** The present disclosure includes a waterborne polyolefin based coating layer that has improved features as compared to epoxy coatings. The coating composition of the present disclosure include 40 to 80 weight percent (wt.%) of a base polymer; 10 to 30 wt.% of a polymeric stabilizing agent; 5 to 15 wt.% of a polymeric coupling agent; 0 to 35 wt.% of a polymeric performance improving agent; a neutralizing agent that partially or fully neutralize the polymeric stabilizing agent; and a fluid medium, where the wt.% values are based on the total weight of the base polymer, the polymeric coupling agent, the polymeric stabilizing agent and, when present, the polymeric performance improving agent (as used herein, this total weight of the base polymer, the polymeric coupling agent, the polymeric stabilizing agent and, when present, the polymeric performance improving agent may be referred to as the "solid content" of the coating composition).



WO 2014/105466 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/075071

A. CLASSIFICATION OF SUBJECT MATTER
INV. C09D123/02 C08L23/04 C08L23/10
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)
C09D C08L

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 2011/142949 A1 (DOW GLOBAL TECHNOLOGIES LLC [US]; HOFMANN SANDRA [CH]; DIEHL CHARLES F) 17 November 2011 (2011-11-17) example 6; table I -----	1,2,5-7, 9-16



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

14 March 2014

Date of mailing of the international search report

22/07/2014

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

Rouault, Yannick

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/075071

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 all searchable 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.:

1, 2, 5-16(all partially)

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, 2, 5-16(all partially)

A coating composition, comprising:40 to 80 weight percent (wt.%) of a base polymer being a propylene (co)polymer; 5 to 1 wt.% of a polymeric coupling agent; 10 to 30 wt.% of a polymeric stabilizing agent; a neutralizing agent; and a fluid medium

2. claims: 1-16(partially)

A coating composition, comprising:40 to 80 weight percent (wt.%) of a base polymer not being a propylene (co)polymer; 5 to 1 wt.% of a polymeric coupling agent; 10 to 30 wt.% of a polymeric stabilizing agent; a neutralizing agent; and a fluid medium

3. claims: 1-16(partially)

The composition of claim 1 comprising a polymeric performance improving agent

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/075071

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2011142949 A1	17-11-2011	CA 2798358 A1	17-11-2011
		CN 103003352 A	27-03-2013
		EP 2569368 A1	20-03-2013
		JP 2013532198 A	15-08-2013
		KR 20130062944 A	13-06-2013
		US 2013059164 A1	07-03-2013
		WO 2011142949 A1	17-11-2011
