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

## (19) World Intellectual Property Organization

International Bureau





# (10) International Publication Number WO 2010/148188 A3

(43) International Publication Date 23 December 2010 (23.12.2010)

(51) International Patent Classification:

**C08G 63/91** (2006.01) **C08G 63/183** (2006.01) **C08F 299/04** (2006.01) **B29C 49/00** (2006.01)

C08F 236/06 (2006.01) B29C 49/00 (2006.01) C08F 236/06 (2006.01) C09K 15/04 (2006.01)

C08F 220/32 (2006.01)

(21) International Application Number:

PCT/US2010/038977

(22) International Filing Date:

(26) Publication Language:

17 June 2010 (17.06.2010)

(25) Filing Language:

English English

(30) Priority Data:

61/218,637 19 June 2009 (19.06.2009) US

(71) Applicant (for all designated States except US): POLY-ONE CORPORATION [US/US]; 33587 Walker Road, Avon Lake, Ohio 44012 (US).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): HU, Ling [CN/US]; 28730 Laughlin Lane, Westlake, Ohio 44145 (US). AVAKIAN, Roger W. [US/US]; 6611 Duneden Avenue, Solon, Ohio 44139-4047 (US).
- (74) Agents: HORNICKEL, John H. et al.; Polyone Corporation, 33587 Walker Road, Avon Lake, Ohio 44012 (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, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, 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))
- of inventorship (Rule 4.17(iv))

#### 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:

28 April 2011



International application No. PCT/US2010/038977

#### A. CLASSIFICATION OF SUBJECT MATTER

C08G 63/91(2006.01)i, C08F 299/04(2006.01)i, C08F 236/06(2006.01)i, C08F 220/32(2006.01)i, C08G 63/183(2006.01)i, B29C 49/00(2006.01)i, C09K 15/04(2006.01)i

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 63/91; C08F 24/00; B29D 22/00; C08G 63/00

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) eKOMPASS(KIPO internal) & Keywords: oxygen scavenger, polyester polyolefin copolymer

#### C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6083585 A1 (CAHILL; PAUL J. et al.) 04 July 2000 See Abstract, column 1, column 4 line 24 - column 5 line 64, column 9 line 57 - column 16 line 10.	1-9
Y	WO 2007-089779 A2 (CYCLICS CORPORATION et al.) 09 August 2007 See Abstract, paragraphs [0002] - [0007], paragrphs [0011] - [0013].	1-9
Y	US 6984694 B2 (BLASIUS, JR.; WILLIAM G. et al.) 10 January 2006 See Abstract, column 1 line 27 - column 3 line 59, column 11 line 24 - column 12 line 10.	1-9

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

- See pat
- 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 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

24 FEBRUARY 2011 (24.02.2011)

Date of mailing of the international search report

25 FEBRUARY 2011 (25.02.2011)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seogu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Jung Doo Young

Telephone No. 82-42-481-8699



### INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2010/038977

Box No. II Obs	servations 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 because	Nos.: they relate to subject matter not required to be searched by this Authority, namely:
because	Nos.: 11-13, 15-17, 19 they relate to parts of the international application that do not comply with the prescribed requirements to such an nat no meaningful international search can be carried out, specifically:
	s 11to 13, 15 to 17, 19 are indicated as dependant claims of claims 10, 14, 18, respectively. However, the claims 10, 14, not comply with PCT Rule 6.4(a), and thus they are not searchable, nor are their dependent claims 11to 13, 15 to 17, 19.
	Nos.: 10, 14, 18, 20 they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box No. III Ob	servations 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:
1. As all reclaims.	equired additional search fees were timely paid by the applicant, this international search report covers all searchable
	carchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment dditional fee.
	some of the required additional search fees were timely paid by the applicant, this international search report covers se claims for which fees were paid, specifically claims Nos.:
	ired additional search fees were timely paid by the applicant. Consequently, this international search report is d to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark on Pro	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.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

## PCT/US2010/038977

	Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6083585 A1 04.07.2000 AU 1997-43564 B2 13.04.2000 AU 1998-461687 B2 25.05.2000 AU 1998-61687 B2 18.10.2001 AU 1998-61687 B2 18.10.2001 AU 1998-64700 A1 12.04.1998 AU 1998-64700 B2 21.02.2002 AU 2000-31001 A1 12.07.2000 AU 2000-31001 A1 12.07.2000 AU 2000-31001 B2 61.10.2003 AU 2000-31001 B2 61.10.2003 AU 2000-31001 B2 61.10.2003 AU 2000-31001 B2 61.10.2003 AU 2000-33056 A1 20.2005 AU 2000-33056 A1 20.00.3.1998 AU 1998-64700 AU 2000-33056 AU 20.00.3.1998 AU 2000-33056 AU 20.00.3.1999 AU 2000-33056 AU 20.00.3.	US 6083585 A1	04.07.2000	AU 1997-44885 B2 AU 1998-61687 A1 AU 1998-64700 A1 AU 1998-64700 B2 AU 2000-31001 A1 AU 2000-31001 B2 CA 2266402 A1 CA 2266402 C CA 2266634 C CA 2303356 A1 CA 2306038 C CA 2356355 A1 CA 2356355 C CA 2463079 A1 CN 1085604 C CN 1097067 C CN 1163384 C0 CN 1231642 A CN 1231642 A CN 1231681 C0 CN 1231681 A CN 1231681 C0 CN 1332688 A0 CN 1575243 A CN 1575243 A CN 1575243 C0 EP 0927218 B1 EP 0932561 B1 EP 0932561 B1 EP 0932561 B1 EP 1045801 B1 EP 104580	25.05.2000 12.04.1999 18.10.2001 12.04.1999 21.02.2002 12.07.2000 16.10.2003 26.03.1998 21.11.2006 26.03.1998 19.04.2005 01.04.1999 12.06.2007 01.04.1999 31.10.2006 29.06.2000 18.08.2009 01.05.2003 29.05.2002 25.12.2002 25.12.2002 25.08.2004 13.10.1999 13.10.1999 13.10.1999 13.10.1999 13.10.1999 13.10.1999 23.01.2002 02.02.2005 02.02.2005 02.02.2005 02.02.2005 02.02.2000 26.04.2000 05.04.2000 05.04.2000 05.04.2000 16.01.2002 28.03.2001 12.06.2002 17.10.2001 06.05.2004 09.04.2004 09.04.2004 09.04.2004 09.04.2004 09.04.2006 24.12.2008 19.02.2010 23.01.2001

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/038977

		JP 2001-517568 A JP 2002-528289 A JP 2002-532354 A JP 2004-197105 A JP 2005-506934 A KR 10-0495207 B1 KR 10-0516550 B1	09.10.2001 03.09.2002 02.10.2002 15.07.2004 10.03.2005 14.06.2005
		JP 2002-532354 A JP 2004-197105 A JP 2005-506934 A KR 10-0495207 B1	02.10.2002 15.07.2004 10.03.2005
		JP 2004-197105 A JP 2005-506934 A KR 10-0495207 B1	15.07.2004 10.03.2005
		JP 2005-506934 A KR 10-0495207 B1	10.03.2005
		KR 10-0495207 B1	
			14.00.700.
		THE TO GO TOGGO DT	22.09.2005
		KR 10-0553503 B1	20.02.2006
		KR 10-0591503 B1	19.06.2006
		KR 10-2004-0051616 A	18.06.2004
		TW 489110 A	01.06.2002
		US 2002-0155236 A1	24.10.2002
		US 2002-0183448 A1	05. 12. 2002
		US 2005-0170115 A1	04.08.2005
		US 6346308 B1	12.02.2002
		US 6365247 B1	02.04.2002
		US 6406766 B1 US 6506463 B1	18.06.2002 14.01.2003
		US 6509436 B1	21.01.2003
		US 6558762 B2	06.05.2003
		US 6863988 B2	08.03.2005
		US 7214415 B2	08.05.2007
		W0 00-37321 A2	29.06.2000
		WO 00-37321 A3	29.06.2000
		WO 03-035486 A1	01.05.2003
		WO 98-12127 A1	26.03.1998
		WO 98-12244 A1	26.03.1998
		WO 99-15432 A1	01.04.1999
		WO 99-15433 A1	01.04.1999
WO 2007-089779 A2	09.08.2007	CN 101415747 A	22.04.2009
		CN 101415747 A	22.04.2009
		EP 1984419 A2	29.10.2008
		JP 2009-525390 A	09.07.2009
		JP 2009-525390 T	09.07.2009
		US 2010-0120957 A1	13.05.2010
		US 2010-120957 A1 US 7745561 B2	13.05.2010 29.06.2010
		WO 2007-089779 A3	29.06.2010
		WO 2007-089779 A3	09.08.2007
US 6984694 B2	10.01.2006	TW 277624 A	01.04.2007
			01.04.2007
		TW 277624 B	01.04.2007