



(43) International Publication Date
29 November 2012 (29.11.2012)

(51) International Patent Classification:

C08L 71/12 (2006.01) *C08K 3/04* (2006.01)
C08L 25/04 (2006.01) *B29C 45/00* (2006.01)
C08K 5/521 (2006.01)

(21) International Application Number:

PCT/US2012/037875

(22) International Filing Date:

15 May 2012 (15.05.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

13/116,324 26 May 2011 (26.05.2011) US

(71) Applicant (for all designated States except US): **SABIC INNOVATIVE PLASTICS IP B.V.** [NL/NL]; Plastics-laan 1, NL-4612PX Bergen op Zoom (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **RIDING, Geoffrey Henry** [US/US]; 21 Bellwood Lane, Castleton, New York 12033 (US).

(74) Agent: **BUCHANAN, J. Michael**; Cantor Colburn LLP, 20 Church Street, 22nd Floor, Hartford, Connecticut 06103 (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, 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).

[Continued on next page]

(54) Title: INJECTION MOLDED ARTICLE AND METHOD FOR THE MANUFACTURE THEREOF

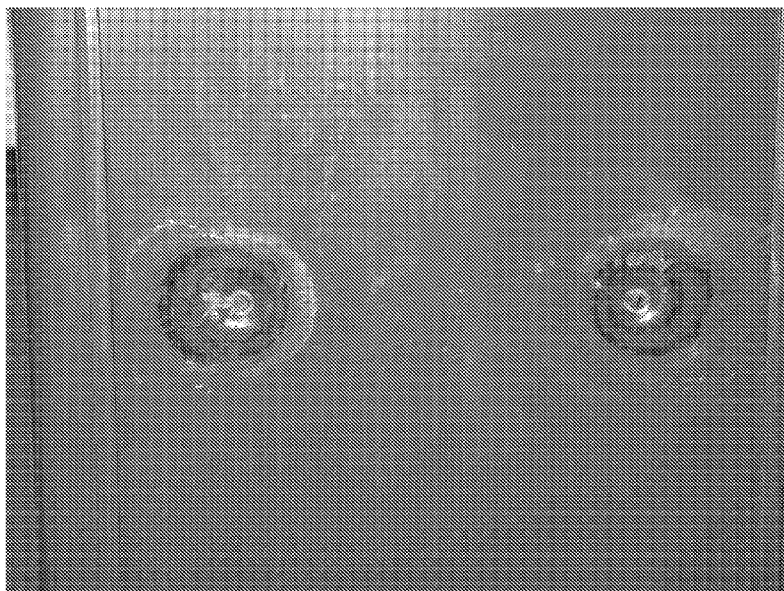


FIG. 1

(57) Abstract: Articles injection molded from colored poly(arylene ether) compositions can exhibit an esthetic defect known as black rings. The black rings can be reduced or eliminated when the poly(arylene ether) composition includes about 50 to about 70 weight percent of a poly(arylene ether), about 12 to about 30 weight percent of a rubber-modified polystyrene, about 5 to about 25 weight percent of an organophosphate ester flame retardant, and a first colorant and a second colorant, wherein the total amount of all colorants is about 0.3 to about 1 weight percent.



WO 2012/162017 A3

Published:

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

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

21 March 2013

A. CLASSIFICATION OF SUBJECT MATTER*C08L 71/12(2006.01)i, C08L 25/04(2006.01)i, C08K 5/521(2006.01)i, C08K 3/04(2006.01)i, B29C 45/00(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)

C08L 71/12; C08L 25/04; C08L 53/00; C08K 5/49; C08K 5/524; B29C 45/00; H01M 2/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: esthetic defect, black rings, poly(arylene ether), polystyrene, flame retardant, colorant, lead acid battery, injection molding

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009-0269659 A1 (LEVASALMI, JUHA-MATTI) 29 October 2009 See claims 34, 35, 41; paragraphs [0019], [0025], [0029]; tables 1,2,4.	1-14
X	US 2010-0249294 A1 (CULLIGAN, SEAN W.) 30 September 2010 See claims 1, 7, 20; paragraph [0026]; table 2.	1-14
A	US 2007-0060677 A1 (YOSHIDA, KAZUO et al.) 15 March 2007 See claims 1, 4, 5; paragraphs [0022], [0143]; table 2.	1-14
A	JP 2008-214410 A (ASAHI KASEI CHEMICALS CORP.) 18 September 2008 See abstract: paragraphs [0010], [0061].	1-14
A	US 7056980 B2 (ADEDEJI, ADEYINKA et al.) 06 June 2006 See claims 1, 3, 4, 7, 9, 34; column 4, lines 44-49; column 8, lines 15-16.	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 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

26 NOVEMBER 2012 (26.11.2012)

Date of mailing of the international search report

28 NOVEMBER 2012 (28.11.2012)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

HONG, SUNG RAN

Telephone No. 82-42-481-5405



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/037875

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009-0269659 A1	29.10.2009	CN 102066078 A	18.05.2011
		DE 09739356 T1	08.03.2012
		EP 2285545 A2	23.02.2011
		JP 2011-522904 A	04.08.2011
		US 8057873 B2	15.11.2011
		WO 2009-134554 A2	05.11.2009
		WO 2009-134554 A3	07.01.2010
		US 2010-0249294 A1	30.09.2010
EP 2346942 A2	27.07.2011		
KR 10-2011-0089127 A	04.08.2011		
US 2010-0099801 A1	22.04.2010		
US 7790791 B2	07.09.2010		
US 7833470 B2	16.11.2010		
WO 2010-048075 A2	29.04.2010		
WO 2010-048075 A3	22.07.2010		
US 2007-0060677 A1	15.03.2007	AT 415455 T	15.12.2008
		CN 1860179 A	08.11.2006
		CN 1860179 B	10.11.2010
		CN 1860179 C0	08.11.2006
		DE 602004018017 D1	08.01.2009
		EP 1676886 A1	05.07.2006
		EP 1676886 A4	19.12.2007
		EP 1676886 B1	26.11.2008
		JP 4794302 B2	19.10.2011
		US 7541399 B2	02.06.2009
		WO 2005-030872 A1	07.04.2005
		JP 2008-214410 A	18.09.2008
US 7056980 B2	06.06.2006	AU 2002-332401 A1	08.01.2003
		AU 2002-332401 A8	08.01.2003
		CN 1520444 A	11.08.2004
		CN 1520444 C0	09.05.2007
		DE 60208373 D1	02.02.2006
		DE 60208373 T2	17.08.2006
		EP 1404761 A2	07.04.2004
		EP 1404761 B1	28.12.2005
		ES 2254757 T3	16.06.2006
		JP 2004-531630 A	14.10.2004
		KR 10-0776935 B1	27.11.2007
		US 2003-0036602 A1	20.02.2003
		US 2004-0068053 A1	08.04.2004
		US 6872777 B2	29.03.2005
		WO 03-000797 A2	03.01.2003
		WO 0300-0797A3	01.05.2003