

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 January 2011 (20.01.2011)

PCT

(10) International Publication Number
WO 2011/007285 A3

(51) International Patent Classification:

B32B 27/20 (2006.01) *B32B 27/12* (2006.01)
B32B 27/08 (2006.01) *C08J 5/18* (2006.01)

(21) International Application Number:

PCT/IB2010/053007

(22) International Filing Date:

30 June 2010 (30.06.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/503,364 15 July 2009 (15.07.2009) US

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(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).

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:

30 June 2011

(54) Title: MULTIPLE COMPONENT MATERIALS HAVING A COLOR-CHANGING COMPOSITION

(57) Abstract: The present invention relates to a multiple-component material including a substrate and a film layer on the substrate. The film layer includes a color-changing composition to indicate a change in condition, such as a change in pH. The color-changing composition includes a water-insoluble, film-forming polymer, a pH adjuster and a water-insoluble particle. The water-insoluble particle has a charged colorant immobilized on it.



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A. CLASSIFICATION OF SUBJECT MATTER*B32B 27/20(2006.01)i, B32B 27/08(2006.01)i, B32B 27/12(2006.01)i, C08J 5/18(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)

B32B 27/20; C09D 11/02; C09D 11/12; C09D 17/00; A61F 13/42; C08F 2/22

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: a multiple-component material, film layer, color-changing composition, a water-insoluble, film-forming polymer, pH adjuster, water-insoluble particle and charged colorant immobilized

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-1996-0014278 A (비니엔트스미스인코퍼레이티드) 22 May 1996 See abstract and claims 1-10	1-20
A	US 05302654A A (ISHII; KEIZO et al.) 12 April 1994 See abstract; column 1, line 46 - column 2, line 2; column 2, line 4 - column 4, line 57; example 1-5 and claims 1-10	19,20
A	US 05464470A A (BRACHMAN; ARMAND et al.) 07 November 1995 See whole document and claims 1-32	1-20
A	US 7159532 B2 (The Procter & Gamble Company) 09 January 2007 See abstract; column 2, line 6 - column 2, line 54; column 2, line 59 - column 10, line 26; example 1-5 and claims 1-15	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

28 APRIL 2011 (28.04.2011)

Date of mailing of the international search report

29 APRIL 2011 (29.04.2011)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 189 Cheongsa-ro,
Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

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Telephone No. 82-42-481-5573



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IB2010/053007

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