

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 September 2011 (09.09.2011)

PCT

(10) International Publication Number
WO 2011/109331 A3

(51) International Patent Classification:

A61K 8/73 (2006.01) *A61Q 5/06* (2006.01)
A61K 8/72 (2006.01) *A61Q 5/00* (2006.01)
A61K 8/02 (2006.01)

(21) International Application Number:

PCT/US2011/026588

(22) International Filing Date:

1 March 2011 (01.03.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/309,145 1 March 2010 (01.03.2010) US
61/391,858 11 October 2010 (11.10.2010) US
13/036,104 28 February 2011 (28.02.2011) US

(71) Applicant (for all designated States except US): **HONEYWELL INTERNATIONAL INC.** [US/US]; Patent Services M/S AB/2B, 101 Columbia Road, P.O. Box 2245, Morristown, NJ 07962-2245 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WHEELER, Mark, Richard** [GB/US]; Honeywell International Inc., Patent Services M/S AB/2B, 101 Columbia Road, Morristown, New Jersey 07962-2245 (US). **ORAWSKI, Philip** [US/US]; Honeywell International Inc., Patent Services M/S AB/2B, 101 Columbia Road, P.O. Box 2245, Morristown, NJ 07962-2245 (US). **HIGUERA, Malena** [US/US]; Honeywell International Inc., Patent Services M/S AB/2B, 101 Columbia Road, P.O. Box 2245, Morristown, NJ 07962-2245 (US). **MORES, Lee** [US/US]; Honeywell International Inc., Patent Services M/S AB/2B, 101 Columbia Road, P.O. Box 2245, Morristown, NJ 07962-2245 (US).

(74) Agent: **BEATUS, Carrie**; Honeywell International Inc., Law Department AB/2B, 101 Columbia Road, P.O. Box 2245, Morristown, NJ 07962-2245 (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, RS, 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:

19 January 2012

(54) Title: HAIR FIXATIVES COMPRISING CROSS LINKED STARCHES

(57) Abstract: Hair fixatives such as styling mousse and gel may include biopolymers derived from natural renewable resources. The biopolymer may be cross linked to form a biopolymer latex that may be incorporated into the hair fixatives.



WO 2011/109331 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/026588**A. CLASSIFICATION OF SUBJECT MATTER***A61K 8/73(2006.01)i, A61K 8/72(2006.01)i, A61K 8/02(2006.01)i, A61Q 5/06(2006.01)i, A61Q 5/00(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)

A61K 8/73; A61Q 5/12; A61K 4/06; A61K 7/11; C08L 51/08; A61K 7/06; A61K 8/72

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: hair fixative, biopolymer latex, starch, gel, spray**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,985,239 A (KAZUYUKI YAHAGI and TOSHIO SUZUKI) 15 January 1991 see abstract; claims 1, 5, and 7; column 1, lines 9-13; column 8, lines 17-35.	1-10
A	US 5,441,728 A (LIANG S. TSAUR et al.) 15 August 1995 see abstract; claims 1 and 12; column 1, lines 6-8; column 4, lines 61-66; column 5, lines 12-14.	1-10
A	US 6,136,884 A (ROBERT GOW-SHENG CHEN and PHILLIP MICHAEL COOK) 24 October 2000 see abstract; claim 1; column 1, lines 10-16; column 8, lines 14-19.	1-10
A	US 2010/0047202 A1 (DIETER GODDINGER et al.) 25 February 2010 see abstract; claims 1-4; paragraphs [0391], [0393], and [0398].	1-10

☐ 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

24 NOVEMBER 2011 (24.11.2011)

Date of mailing of the international search report

25 NOVEMBER 2011 (25.11.2011)

Name and mailing address of the ISA/KR

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

Facsimile No. 82-42-472-7140

Authorized officer

Choi Sung Hee

Telephone No. 82-42-481-8740



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2011/026588

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4,985,239 A	15.01.1991	EP 0214626 A2	18.03.1987
		EP 0214626 B1	16.12.1992
		JP 1599065 C	31.01.1991
		JP 62-063508 A	20.03.1987
		JP 63-060002 B	22.11.1988
		US 4798721 A	17.01.1989
US 5,441,728 A	15.08.1995	EP 0688557 A2	27.12.1995
		EP 0688557 A3	23.10.1996
		EP 0688557 B1	08.01.2003
US 6,136,884 A	24.10.2000	US 6299864 B1	09.10.2001
		US 6638992 B1	28.10.2003
		US 6749836 B1	15.06.2004
US 2010/0047202 A1	25.02.2010	AU 2007-338275 A1	03.07.2008
		DE 102006061863 A1	26.06.2008
		EP 2056785 A2	13.05.2009
		WO 2008-077683 A2	03.07.2008
		WO 2008-077683 A3	10.12.2009