

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
3 September 2009 (03.09.2009)

(10) International Publication Number  
**WO 2009/108386 A3**

(51) International Patent Classification:  
C08K 3/34 (2006.01)

(21) International Application Number:  
PCT/US2009/001319

(22) International Filing Date:  
2 March 2009 (02.03.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
12/074,253 29 February 2008 (29.02.2008) US

(71) Applicant: ENVIRONMENTAL INKS AND COATINGS CORPORATION [US/US]; #1 Quality Products Road, Morganton, NC 28655 (US).

(72) Inventor: McCURRY, Charles, Douglas; 3775 Enola Road, Morganton, NC 28680 (US).

(74) Agent: RILEE, Edward, W.; MacCord Mason PLLC., P.O. Box 2974, Greensboro, NC 27402 (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, 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:  
24 February 2011

(54) Title: WATER-BASED INK COMPOSITION FOR IMPROVED CROCKFASTNESS

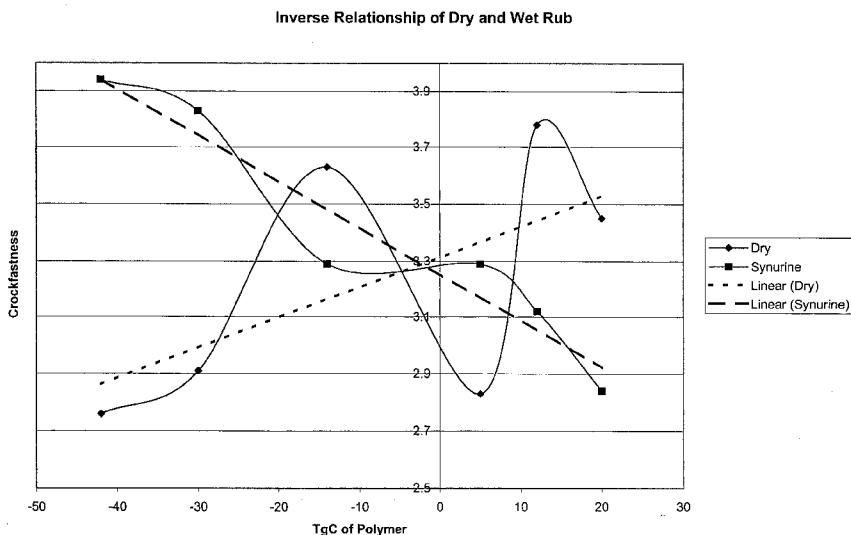


Fig. 1

(57) Abstract: A the water-based ink composition. The ink composition preferably includes a very low Tg°C polymer component for providing adhesion to the substrate and wet rub resistance; a polyurethane dispersion for providing dry rub resistance; and a detackifier component for providing dry rub resistance.

WO 2009/108386 A3

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/01319

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C08K 3/34 (2010.01)

USPC - 524/451; 523/160; 523/161

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)

IPC: C08K 3/34 (2010.01)

USPC: 524/451; 523/160; 523/161

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

IPC: C08K 3/34 (2010.01) (text search only)

USPC: 524/451; 523/160; 523/161 (text search only)

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

(USPT, PGPB, EPAB, JPAB); Google Patent, Google Scholar

Search terms on extra sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/0086908 A1(Chou et al.) 04 Jul 2002 (04.07.2002) (para [0037], [0038], [0061], [0062], [0074], [0100], [0101], [0103], [0105], [0111], [0116]).	1-44
Y	US 2007/0269740 A1 (Blank et al.) 22 Nov 2007 (22.11.2007) (para [0019], [0093]).	1-44
Y	US 3,950,290 A (Drury et al.) 13 Apr 1976 (13.04.1976) (Col. 14, ln 58 - Col. 15, ln 7).	9-10, 31-32
Y	US 2005/0087104 A1 (Nguyen) 28 Apr 2005 (28.04.2005) (para [0017], [0038], [0044], [0045], [0046]).	20-23, 41-44
Y	US 4,173,554 A (Sulzberg) 06 Nov 1979 (06.11.1979) (Col. 2, ln 39-59).	10, 32

 Further documents are listed in the continuation of Box C.


## \* 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

07 Dec 2010 (07.12.2010)

Date of mailing of the international search report

16 DEC 2010

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/01319

continued from box B

Search terms:

ink, low, tg, glass transition, transition glass, aqueous, water based, waterborne, latex, acrylic, acrylate, polyacrylate, polyacrylic, surfactant, pigment, print, printing, urethane, polyurethane, NeoRez, R9621, R-9621, Bt-24, Bt24, dispersant, de-tackifier, emulsion, camuba, camauba, wax, silicone oil, rub, lubricant, slip, neocryl, talc, magnesium silicate, inorganic, molecular weight, mol. wt, MW, elongation, tensile strength, hardness, resolubility, acid number