



- (51) **International Patent Classification:**
C09B 67/20 (2006.01) *C09D 11/00* (2006.01)
C09C 3/10 (2006.01)
- (21) **International Application Number:**
PCT/US2012/035901
- (22) **International Filing Date:**
30 April 2012 (30.04.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/480,612 29 April 2011 (29.04.2011) US
- (71) **Applicant (for all designated States except US):** **E. I. DU PONT DE NEMOURS AND COMPANY** [US/US]; 1007 Market Street, Wilmington, Delaware 19898 (US).
- (72) **Inventors; and**
- (71) **Applicants :** **KLUTH, Anthony W.** [US/US]; 1549 Willowbrook Lane, Villanova, Pennsylvania 29085 (US). **SONNTAG, Richard C.** [US/US]; 140 Columbia Avenue, Swarthmore, Pennsylvania 19801 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **SILVER, James A.** [US/US]; 125 Hadley's Mill Run, Kennett Square, Pennsylvania 19348 (US). **JACKSON, Christian** [US/US]; 27 Ball Farm Way, Wilmington, Connecticut 19808 (US). **LI, Xiaoqing** [US/US]; 23 East Periwinkle Lane, Newark, Delaware 19711 (US).
- (74) **Agent:** **XU, Simon L.**; E. I. DU PONT DE NEMOURS AND COMPANY, Legal Patent Records Center, 4417 Lancaster Pike, Wilmington, Delaware 19805 (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).
- 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:**
27 December 2012



(54) **Title:** METHOD OF PREPARING CROSS-LINKED COLORANT DISPERSIONS

(57) **Abstract:** A process for preparing a crossed-linked colorant dispersion is provided in which a pigment and a dispersant polymer having a cross-linkable moiety are subjected to micromedia milling followed by a purification step to remove small pigment particles before reacting the cross-linkable moiety on the dispersant polymer with a cross-linking agent. Also disclosed is the use of dispersions made from this process in ink-jet inks.

INTERNATIONAL SEARCH REPORT

International application No PCT/US2012/035901

A. CLASSIFICATION OF SUBJECT MATTER INV. C09B67/08 C09C3/10 C09D11/00 ADD.		
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) C09B C09C		
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) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/092637 A1 (TANAKA NOBUSHIGE [JP] ET AL) 21 April 2011 (2011-04-21) page 1, paragraph 0002 page 13; example 2 -----	1-3,5,6, 17-20
X	WO 2010/038071 A1 (FUJIFILM IMAGING COLORANTS LTD [GB]; ANNABLE TOM [GB]; O'DONNELL JOHN) 8 April 2010 (2010-04-08) page 1, lines 1-2 page 18; example 3.4 page 15 page 19 page 21; example 4.1 the whole document -----	1-3,5,6, 17-20
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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 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	Date of mailing of the international search report	
11 October 2012	23/10/2012	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Durand-Oral, Ilknur	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2012/035901

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 2011092637	A1	21-04-2011	CN 101139444 A	12-03-2008
			EP 1897919 A1	12-03-2008
			US 2008064786 A1	13-03-2008
			US 2011092637 A1	21-04-2011

WO 2010038071	A1	08-04-2010	CN 102227253 A	26-10-2011
			EP 2342005 A1	13-07-2011
			JP 2012504675 A	23-02-2012
			KR 20110079699 A	07-07-2011
			US 2011169900 A1	14-07-2011
			WO 2010038071 A1	08-04-2010
