

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 November 2007 (08.11.2007)

PCT

(10) International Publication Number
WO 2007/126145 A3

(51) International Patent Classification:

C09D 11/00 (2006.01) *C08K 9/08* (2006.01)
C08J 3/20 (2006.01) *C08K 9/10* (2006.01)
C08J 3/21 (2006.01) *C08K 9/12* (2006.01)
C08K 3/00 (2006.01) *C09B 67/00* (2006.01)
C08K 5/00 (2006.01) *C09D 11/10* (2006.01)
C08K 9/04 (2006.01) *C09D 17/00* (2006.01)

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(21) International Application Number:

PCT/JP2007/059537

(22) International Filing Date: 26 April 2007 (26.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,
FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN,
IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS,
LT, LU, LY, MA, MD, 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, SV, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(30) Priority Data:

2006-125822 28 April 2006 (28.04.2006) JP

(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, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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Published:

— *with international search report*

(88) Date of publication of the international search report:
27 March 2008

(54) Title: WATER-BASED INKS FOR INK-JET PRINTING

(57) Abstract: The present invention relates to (A) a water dispersion for ink-jet printing including particles of a water-insoluble crosslinked polymer which contain a colorant, and a water-insoluble organic compound, wherein the water-insoluble crosslinked polymer is (1) a polymer produced by crosslinking a water-insoluble polymer with a crosslinking agent; (2) a polymer produced by crosslinking 100 parts by weight of the water-insoluble polymer with 0.5 to 9.5 parts by weight of the crosslinking agent; or (3) a polymer having a weight-average segment molecular weight of from 1,400 to 20,000 as calculated from [(weight-average molecular weight of the water-insoluble polymer)/(number of molar equivalents of the crosslinking agent to be reacted with 1 mol of the water-insoluble polymer + 1)]; (B) an ink for ink-jet printing containing the above water dispersion which is excellent in gloss and storage stability; and (C) particles of the water-insoluble crosslinked polymer.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/JP2007/059537

A. CLASSIFICATION OF SUBJECT MATTER
 INV. C09D11/00 C08J3/20 C08J3/21 C08K3/00 C08K5/00
 C08K9/04 C08K9/08 C08K9/10 C08K9/12 C09B67/00
 C09D11/10 C09D17/00

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)
 C09D C08J C08K C09B

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 practical, 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	EP 0 673 969 A1 (ASAHI CHEMICAL IND [JP]) 27 September 1995 (1995-09-27)	1-6
X	page 5, lines 30-54; examples 1-8; table 1	1-6
X	page 9, line 49 - page 10, line 55	1-6
X	page 14, line 30 - page 15, line 53	1-6
A	EP 1 059 341 A1 (KAO CORP [JP]) 13 December 2000 (2000-12-13)	7
A	paragraphs [0001], [0006], [0008] - [0019], [0049] - [0061], [0073], [0077]; table 3	7
X	US 2004/176498 A1 (ANDO HIROAKI [JP] ET AL) 9 September 2004 (2004-09-09)	8, 9, 12, 13
X	paragraph [0103]; claims 1-8; examples 1-4	8, 9, 12, 13
A		1-13

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 document but published on or after the international filing date
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- *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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

6 December 2007

Date of mailing of the international search report

13/12/2007

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2007/059537

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-7

Polymeric particles containing a colorant obtained by crosslinking a water-insoluble polymer with a specified amount of a crosslinking agent

2. claims: 8-13

Water dispersions for ink-jet printing comprising polymeric crosslinked particles containing a colorant and being obtained by crosslinking a water-insoluble polymer with a crosslinking agent.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/JP2007/059537

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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