

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number
WO 2004/108832 A3

(51) International Patent Classification⁷: **C08L 101/06**,
C08K 5/00, 5/092, C08L 29/04

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(21) International Application Number:
PCT/US2004/017976

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, 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, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(22) International Filing Date: 7 June 2004 (07.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/476,601 6 June 2003 (06.06.2003) US
60/530,692 17 December 2003 (17.12.2003) US

(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, IT, LU, MC, 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
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
3 March 2005

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: **CROSSLINKING SYSTEMS FOR HYDROXYL POLYMERS**

(57) Abstract: Crosslinking systems suitable for use in a polymer melt composition wherein the polymer melt composition comprises a hydroxyl polymer; polymeric structures made from such polymer melt compositions; and processes/methods related thereto are provided.



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/017976

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08L101/06 C08K5/00 C08K5/092 C08L29/04

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 7 C08L C08K

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GIMENEZ V ET AL: "CROSSLINKING OF POLY(VINYL ALCOHOL) USING DIANHYDRIDES AS HARDENERS" JOURNAL OF APPLIED POLYMER SCIENCE, JOHN WILEY AND SONS INC. NEW YORK, US, vol. 59, no. 3, 18 January 1996 (1996-01-18), pages 425-431, XP000556506 ISSN: 0021-8995 Synopsis	1-4,6-10
X	US 3 220 991 A (MARTINS JOSEPH G) 30 November 1965 (1965-11-30) column 1, line 12 - line 13 column 4, line 22 - line 25 ----- -/--	1-4,6-10

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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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

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"&" document member of the same patent family

Date of the actual completion of the international search

7 October 2004

Date of mailing of the international search report

14.01.2005

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/017976

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 422 185 A (DU PONT) 21 January 1976 (1976-01-21) example 1 -----	1-4,6-10
X	US 2 169 250 A (IZARD EMMETTE F) 15 August 1939 (1939-08-15) column 1, line 1 - line 5 column 1, line 40 - line 42 column 2, line 2 - line 8 -----	1-4,6-10
X	JI-WON RHIM AND AL: "Modification of poly(vinyl alcohol) membranes using sulfur-succinic acid and its application to pervaporation separation of water-alcohol mixtures" JOURNAL OF APPLIED POLYMER SCIENCE, JOHN WILEY AND SONS INC. NEW YORK, US, vol. 68, 1998, pages 1717-1723, XP002157208 ISSN: 0021-8995 page 1719, chapter "Membrane Preparation" -----	1-4,6-10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/017976

Box 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 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 all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
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.:

1-4 (in part), 6-10 (in part)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ 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: 1-4 (in part) and 6 - 10 (in part)

A polymer melt composition comprising
(a) a polyvinyl alcohol as hydroxyl polymer and
(b) polycarboxylic acid as crosslinking agent.

2. claims: 1-10 (in part)

A polymer melt composition comprising
(a) a polyvinyl alcohol as hydroxyl polymer and
(b) an imidazolidinone as crosslinking agent.

3. claims: 1 - 4 (in part) and 6 - 10 (in part)

A polymer melt composition comprising
(a) starch, starch derivatives, chitosan, chitosan derivatives, cellulose derivatives, gums, arabinans or galactans as hydroxyl polymer and
(b) polycarboxylic acid as crosslinking agent.

4. claims: 1 - 10 (in part)

A polymer melt composition comprising
(a) starch, starch derivatives, chitosan, chitosan derivatives, cellulose derivatives, gums, arabinans or galactans as hydroxyl polymer and
(b) imidazolidinons as crosslinking agent.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/017976

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