

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 August 2010 (19.08.2010)

PCT

(10) International Publication Number
WO 2010/093823 A3

- (51) International Patent Classification:
C08F 220/18 (2006.01)
- (21) International Application Number:
PCT/US2010/023946
- (22) International Filing Date:
11 February 2010 (11.02.2010)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/152,496 13 February 2009 (13.02.2009) US
12/574,498 6 October 2009 (06.10.2009) US
- (71) Applicant (for all designated States except US): **VISIO-GEN, INC.** [US/US]; 2 Goodyear, Suite B, Irvine, CA 92618 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **LIAO, Xiugao** [US/US]; 16 Trinity, Irvine, CA 92612 (US).
- (74) Agent: **DELANEY, Karoline A.**; Knobbe, Martens, Olson & Bear, LLP, 2040 Main Street, 14th Floor, Irvine, CA 92614 (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, 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, 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))

[Continued on next page]

(54) Title: COPOLYMERS FOR INTRAOCULAR LENS SYSTEMS

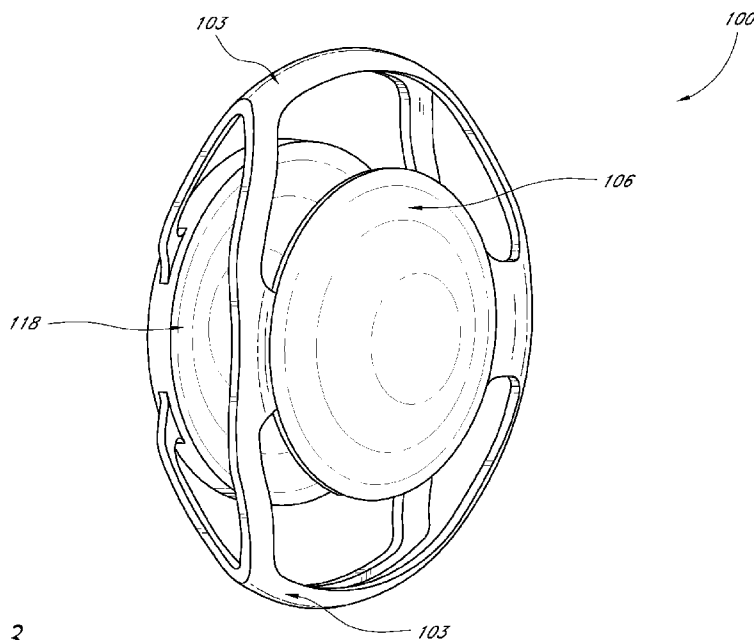


FIG. 3

(57) Abstract: Some embodiments provide a copolymer comprising: an acrylate recurring unit and an optionally substituted vinylaryl recurring unit, wherein a portion of at least one of the recurring units comprises a vinyl-dialkylsiloxy pendant group. The copolymers may be useful as soft acrylic haptics for intraocular lenses. Some embodiments further relate to intraocular lenses having a hydrophobic soft acrylic optic and a silicone haptic, such as a dual optic accommodative lens having hydrophobic soft acrylic anterior and posterior optic bodies and a silicone haptic. Related copolymeric composite materials as well as additional embodiments of intraocular lenses, are also described herein.

WO 2010/093823 A3



— *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:
7 April 2011

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/023946

A. CLASSIFICATION OF SUBJECT MATTER
INV. C08F220/18
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)
C08F G02C

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, CHEM ABS Data, 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 5 002 979 A (STOYAN NICK [US]) 26 March 1991 (1991-03-26)	8
A	example E; table 1 -----	9-15
X	US 2004/020597 A1 (HASHIGUCHI MASANAO [JP] ET AL) 5 February 2004 (2004-02-05)	8
A	paragraph [0145] - paragraph [0147] -----	9-15
A	US 2002/107568 A1 (ZADNO-AZIZI GHOLAM-REZA [US] ET AL) 8 August 2002 (2002-08-08) the whole document -----	1-7, 16-47

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
- "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

15 February 2011

Date of mailing of the international search report

22/02/2011

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

Friederich, Pierre

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2010/023946

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5002979	A	26-03-1991	NONE
US 2004020597	A1	05-02-2004	WO 03013443 A1 20-02-2003
			JP 4398243 B2 13-01-2010
US 2002107568	A1	08-08-2002	US 2002116058 A1 22-08-2002
			US 2002116059 A1 22-08-2002
			US 2002111678 A1 15-08-2002
			US 2002116057 A1 22-08-2002
			US 2002173847 A1 21-11-2002
			US 2002138141 A1 26-09-2002
			US 2002116060 A1 22-08-2002
			US 2002116061 A1 22-08-2002
			US 2003074061 A1 17-04-2003
			US 2003078656 A1 24-04-2003
			US 2003074060 A1 17-04-2003
			US 2003078657 A1 24-04-2003
			US 2003078658 A1 24-04-2003
			US 2006178741 A1 10-08-2006
			US 2007050025 A1 01-03-2007
			US 2007027540 A1 01-02-2007
			US 2006259139 A1 16-11-2006
			US 2005055092 A1 10-03-2005
			US 2005049700 A1 03-03-2005
			US 2005165410 A1 28-07-2005