(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 3 July 2008 (03.07.2008)

(10) International Publication Number WO 2008/079440 A3

(51) International Patent Classification: C08K 3/20 (2006.01) C08L 63/00 (2006.01)

(21) International Application Number:

PCT/US2007/073188

(22) International Filing Date: 10 July 2007 (10.07.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/806,918 10 July 2006 (10.07.2006)

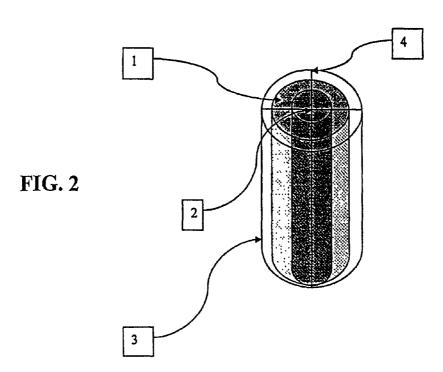
(71) Applicant (for all designated States except US): MEDI-PACS, INC. [US/US]; 9040 S. Rita Road, Suite 2250, Tucson, Arizona 85747 (US).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BANISTER, Mark [US/US]; 6550 E. Miramar Drive, Tucson, Arizona 85713 (US). MCGRATH, Dominic [US/US]; 2328 E. 2nd Street, Tucson, Arizona 85719 (US).

- (74) Agents: SOLOWAY, Norman, P. et al.; Hayes Soloway RC, 3450 E. Sunrise Drive, Suite 140, Tucson, Arizona 85718 (US).
- (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, 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, SV, SY, 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, 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).

[Continued on next page]

(54) Title: SUPER ELASTIC EPOXY HYDROGEL



(57) Abstract: Described is a super elastic epoxy hydrogel that is easy to manufacture and can be engineered for various performance enhancements of the polymer. Also described are methods of enhancing the performance of this hydrogel and other hydrogels. Various polymer hydrogel composites, structures, and their uses are included, such as the actuator element comprising the hydrogel of the invention depicted in Figure 2.



WO 2008/079440 A3



Published:

 $\textbf{(88)} \ \ \textbf{Date of publication of the international search report:}$

4 September 2008

- 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

INTERNATIONAL SEARCH REPORT

International application No.
.
PCT/US07/731 88

	FC1/US0///31 00
A. CLASSIFICATION OF SUBJECT MATTER IPC: C08K 3/20(2006.01);C08L 63/00(2006.01)	
USPC. 523/403 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) U.S. 523/403	
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) EAST, SPRINGERLINK	
C. DOCUMENTS CONSIDERED TO BE RELEVANT	
	ppropriate, of the relevant passages Relevant to claim No.
YOSHIOKA, YUKA and CALVERT, PAUL "Epoxy-Based Electroactive Polymer Gels," Experimental Mechanics. December 2002, Vol. 42 No 5 (see Entire Document, especially "Materials and Preparation" section)	
Further documents are listed in the continuation of Box C.	See patent family annex.
Special categories of cited documents "A" document defining the genera] state of the art which is not considered to be of particular relevance	T" later document published after the international filing date or priority date and not m conflict with the application but αted to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step
"L" document which may throw doubts on priority daim(s) or which is C (ted to establish the publication date of another citation or other special reason (as specified)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	to a person skilled in the art
"P" document published p π or to the international filing date but later than the p π onty date claimed	"&" document member of the same patent family
Date of the actual completion of the international search	Date of mailing 3 off three innteerranaattioonnaal sceaarrech report
20 June 2008 (20 06.2008) Name and mailing address of the ISA/US	Muthorized off
Mail Stop PCT, AUn: ISA/US Commissions for Patents P.O. Box 1450	Mark Eashoo Mark
Alexandria, Virginia 223 13-1450 Facsimile No. (571) 273-3201	Telephone No. (571)272-1700

Form PCT/ISA/210 (second sheet) (April 2007)