

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
25 October 2007 (25.10.2007)

PCT

(10) International Publication Number
WO 2007/120381 A3

- (51) International Patent Classification:
A61B 5/05 (2006.01)
- (21) International Application Number:
PCT/US2007/003881
- (22) International Filing Date:
14 February 2007 (14.02.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
11/404,417 14 April 2006 (14.04.2006) US
11/439,630 23 May 2006 (23.05.2006) US
11/503,367 10 August 2006 (10.08.2006) US

(71) Applicant (for all designated States except US): **DEX-COM, INC.** [US/US]; 5555 Oberlin Drive, San Diego, California 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BOOCK, Robert** [US/US]; 15614 Bernardo Center Drive, No.3008, San Diego, California 92127-1860 (US). **RIXMAN, Monica** [US/US]; 2442 Fenton Pkwy. No. 113, San Diego, California 92108 (US). **BRAUKER, James, H.** [US/US]; 10831 Riesling Drive, San Diego, CA 92131 (US).

PETISCE, James, R. [US/US]; 3789 Torrey View Court, San Diego, California 92130 (US). **SIMPSON, Peter** [US/US]; 227 N. Vulcan Avenue, Encinitas, California 92024 (US). **BRISTER, Mark** [US/US]; 1055 Valley Side Lane, Encinitas, California 92024 (US). **TAPSAK, Mark, A.** [US/US]; 247 Asbury Road, Orangeville, Pennsylvania 17859 (US). **CARR-BRENDEL, Victoria** [US/US]; 3735 Grillo Court, Pleasanton, California 94566 (US).

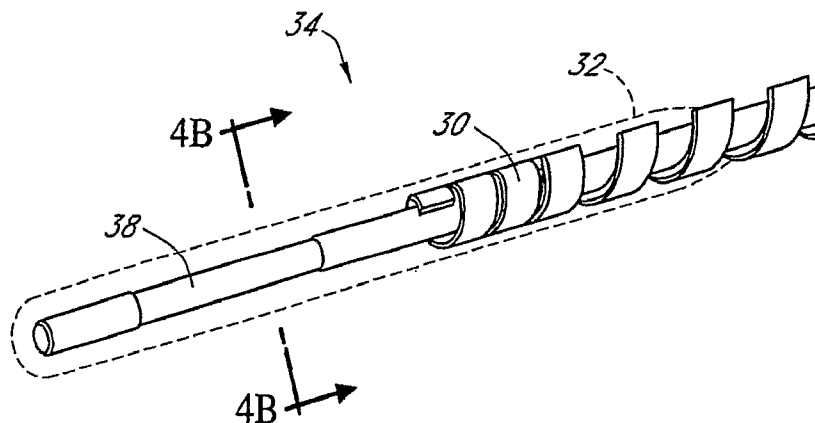
(74) Agent: **HART, Daniel**; Knobbe Martens Olson & Bear LLP, 2040 Main Street, 14th Floor, Irvine, California 92614 (US).

(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, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, 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.

(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,

[Continued on next page]

(54) Title: ANALYTE SENSOR



(57) Abstract: The present invention relates generally to membranes utilized with implantable devices, such as devices for the detection of analyte concentrations in a biological sample. More particularly, the invention relates to novel silicone-hydrophilic polymer blend membranes, and to devices and implantable devices including these membranes, for example, a continuous analyte needle-type sensor (34) including a reference electrode (30) helically wound around the working electrode (38), and covered by a membrane system (32) including a silicone-hydrophilic polymer blend membrane.



WO 2007/120381 A3



FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, 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).

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

Published:

— *with international search report*

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/03881

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 5/05 (2007.10)

USPC - 600/345

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(8) - A61B 5/05 (2007.10)

USPC - 600/345

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)

MicroPatent

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0054909 A1 (PETISCE et al) 10 March 2005 (10.03.2005) entire document	1-17, 20-21, 24, 28, 30-35
--		-----
Y		18-19, 22-23, 25-27, 29
Y	US 2005/0090607 A1 (TAPSAK et al) 28 April 2005 (28.04.2005) entire document	18-19
Y	US 2006/0036143 A1 (BRISTER et al) 16 February 2006 (16.02.2006) entire document	22, 27, 29
Y	WO 2005/044088 A2 (AGUS) 19 May 2005 (19.05.2005) entire document	23, 25
Y	US 6,973,706 B2 (SAY et al) 13 December 2005 (13.12.2005) entire document	26

Further documents are listed in the continuation of Box C.

* 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

30 October 2007

Date of mailing of the international search report

04 JAN 2008

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774