

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 June 2009 (11.06.2009)

PCT

(10) International Publication Number
WO 2009/073438 A3

(51) International Patent Classification:
E21B 21/00 (2006.01) *E21B 37/00* (2006.01)

(21) International Application Number:
PCT/US2008/084521

(22) International Filing Date:
24 November 2008 (24.11.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/991,362 30 November 2007 (30.11.2007) US
61/088,878 14 August 2008 (14.08.2008) US

(71) Applicant (for all designated States except US): **M-ILLC**
[US/US]; 5950 North Course Drive, Houston, TX 77072
(US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DAKIN, Eugene**
[CA/US]; 20847 Cottage Cove Lane, Katy, TX 77450
(US). **REZNICHENKO, Andrey** [KZ/US]; 2323 El-
dridge Pkwy. Apt. 133, Houston, TX 77077 (US).
ZHANG, Hui [CN/US]; 14927 Moss Bridge Lane, Sugar
Land, TX 77478 (US).

(74) Agent: **BERGMAN, Jeffrey, S.**; Osha . Liang LLP, 909
Fannin Street, Suite 3500, Houston, TX 77010 (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, 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, ST, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,
NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG,
CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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:
6 August 2009

(54) Title: BREAKER FLUIDS AND METHODS OF USING THE SAME

(57) Abstract: A method of cleaning a wellbore drilled with a drilling fluid that forms a filter cake that includes emplacing a breaker fluid into the wellbore, the breaker fluid comprising: an aqueous fluid; a fragmentation agent; and an amphoteric chemotrope; and shutting in the well for a period of time sufficient to initiate breaking of the filter cake is disclosed.



WO 2009/073438 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/084521**A. CLASSIFICATION OF SUBJECT MATTER***E21B 21/00(2006.01)i, E21B 37/00(2006.01)i*

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:E21B 37/06, C09K 8/00

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)

eKIPASS(KIPO internal) & keywords: breake fluid, filter cake, removal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0223714 A1 (SVOBODA, CHARLESet al) 5 OCTOBER 2006 See Paragraph 24 - Paragraph 26; Claim 1,7, 16.	1-33
A	US 6,422,314 B1 (TODD, BRADLEY L. et al) 23 JULY 2002 See Abstract	1-33
A	US 6,886,635 B2 (HOSSAINI, MOHAMMAD et al) 3 MAY 2005 See ABstract	1-33
A	US 2006-0283597 A1 (SCHRIENER, KIRK et al) 21 DECEMBER 2006 See ABstract	1-33

 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 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 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

22 JUNE 2009 (22.06.2009)

Date of mailing of the international search report

23 JUNE 2009 (23.06.2009)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

SONG, Jay Wook

Telephone No. 82-42-481-5520



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2008/084521

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006-0223714 A1	05.10.2006	US 2006-223714 A1	05.10.2006
US 6422314 B1	23.07.2002	BR 0103170 A	26.03.2002
		EP 1178099 A2	06.02.2002
		EP 1178099 A3	17.07.2002
		EP 1178099 A2	06.02.2002
		EP 1178099 A3	17.07.2002
		EP 1178099 B1	26.12.2007
		PA 01007767 A	16.07.2004
		NO 20013746 D0	31.07.2001
		NO 20013746 A	04.02.2002
		US 6494263	17.12.2002
		US 6737385	18.05.2004
		US 2002-0139532 A1	03.10.2002
		US 6422314 B1	23.07.2002
		US 6494263 B2	17.12.2002
		US 6737385 B2	18.05.2004
US 6886635 B2	03.05.2005	AU 2003-262903 A1	19.03.2004
		AU 2003-262903 A8	19.03.2004
		AU 2003-262903 A1	19.03.2004
		US 2004-0040706 A1	04.03.2004
		US 2004-040706 A1	04.03.2004
		US 6886635 B2	03.05.2005
		WO 2004-020786 A2	11.03.2004
US 2006-0283597 A1	21.12.2006	US 7497278	03.03.2009
		US 2006-283597 A1	21.12.2006