#### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau



# 

### (10) International Publication Number WO 2010/121027 A3

(43) International Publication Date 21 October 2010 (21.10.2010)

(51) International Patent Classification: C09K 8/14 (2006.01)

(21) International Application Number:

PCT/US2010/031241

(22) International Filing Date:

15 April 2010 (15.04.2010)

(25) Filing Language:

**English** 

(26) Publication Language:

English

US

(30) Priority Data:

61/169,607

15 April 2009 (15.04.2009)

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

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): DAKIN, Eugene [CA/US]; 20847 Cottage Cove Lane, Katy, TX 77450
- (74) Agents: BERGMAN, Jeffrey, S. et al.; Osha Liang LLP, 909 Fannin Street, Suite 3500, Houston, TX 77010
- (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.

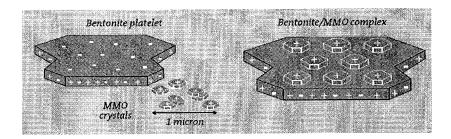
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, 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))
- 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:

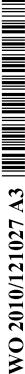
20 January 2011

(54) Title: LUBRICANT FOR WATER-BASED MUDS AND METHODS OF USE THEREOF



#### Figure 1

(57) Abstract: A water-based wellbore fluid including an aqueous fluid, a mixed metal oxide- clay complex, and an anionic suppressant, where the anionic suppressant includes a Lewis acid and a lubricant and where the lubricant includes a sulfur containing compound and at least one pH agent, where the at least one pH agent is in an amount sufficient to obtain a pH ranging from about 9 to 13 is disclosed.



International application No. **PCT/US2010/031241** 

#### A. CLASSIFICATION OF SUBJECT MATTER

#### C09K 8/14(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)

C09K 8/14; C09K 8/04; C09K 7/02; C01B 33/22

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: drilling fluids, aqueous, clay, Lewis acid, lubricant, sulfur.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

### Category\* Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages 1 - 13EP 0770661 A1 (B W MUD LIMITED) 02 May 1997 Α See abstract and claims. US 4802998 A (MUELLER; HEINZ et al.) 07 February 1989 1 - 13Α See abstract and claims. US 3219580 A (Stratton, C. A. et al.) 23 November 1965 1 - 13Α See abstract and claims. WO 2008-118748 A1 (M-I L.L.C. et al.) 02 October 2008 1 - 13Α See See abstract and claims.

	1			
l	Further documents are	11-4-11-4	1	- f D O
	i Furiner documents are	nsiea in i	ne confinuation	OLBOX U.

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
- '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
- "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 mailing of the international search report

Date of the actual completion of the international search

08 NOVEMBER 2010 (08.11.2010)

00 NOVELEDED 4040 (00 44

09 NOVEMBER 2010 (09.11.2010)

Name and mailing address of the ISA/KR



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

Facsimile No. 82-42-472-7140

Authorized officer

Lee, Ok Joo

Telephone No. 82-42-481-8450



#### INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

# PCT/US2010/031241

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0770661 A1	02.05.1997	None	
US 4802998 A	07.02.1989	EP 0255605 A2 EP 0255605 A3 EP 0255605 B1	10.02.1988 02.11.1989 07.04.1993
US 3219580 A	23.11.1965	None	
WO 2008-118748 A1	02.10.2008	CA 2681235-A1 EP 2132277 A1 MX 2009010206 A US 2010-099585 A1 WO 2008-118748 A1	02.10.2008 16.12.2009 18.11.2009 22.04.2010 02.10.2008