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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
1 October 2009 (01.10.2009)

PCT

(10) International Publication Number
WO 2009/120875 A3

(51) International Patent Classification:
C09K 8/22 (2006.01)

(21) International Application Number:
PCT/US2009/038420

(22) International Filing Date:
26 March 2009 (26.03.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

61/039,673	26 March 2008 (26.03.2008)	US
61/103,450	7 October 2008 (07.10.2008)	US
61/103,471	7 October 2008 (07.10.2008)	US

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(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, MK, 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 (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:
23 December 2009

(54) Title: SHALE HYDRATION INHIBITION AGENT(S) AND METHOD OF USE

(57) Abstract: A water-based drilling fluid and method of using same are presented in this disclosure, which fluid is used in drilling wells through a formation containing a shale that swells in the presence of water. The drilling fluid comprises an aqueous based continuous phase; a weighting material; and a shale hydration inhibition agent (SHIA) selected from the group consisting of propylamine derivatives, hydrogenated poly(propyleneimine) dendrimers (HPPID), and polyamine twin dendrimers (PTD). In some embodiments, the SHIA of this disclosure is not hydrolyzed at a temperature in the range of from about 100°F to about 500°F. The drilling fluid may further comprise a fluid loss control agent, an encapsulating agent, other additives, and combinations thereof. A method of reducing shale swelling during wellbore drilling is also described. The method comprises circulating in the subterranean well a water-based drilling fluid comprising an aqueous based continuous phase, a weighting material, and a SHIA.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/038420

A. CLASSIFICATION OF SUBJECT MATTER

C09K 8/22(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 C09K 8/22

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 since 1975
Japanese Utility models and applications for Utility models since 1975

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

KOMPASS (KIPO Internal) "shale hydration inhibition agent" "propylamine" "polyamine" "dendrimer"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6484821 B1, (M-I L.L.C.), 26 Nov. 2002 (26.11.2002) see columns 8 to 14	1-20
A	US 7084092 B2, (M-I L.L.C.), 01 Aug. 2006 (01.08.2006) see columns 10 to 13	1-20
A	US 4631337 A1, (The Dow Chemical Company), 23 Dec. 1986 (23.12.1986) see columns 13 to 15	1-20

☐ 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
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"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	Date of mailing of the international search report
04 NOVEMBER 2009 (04.11.2009)	**05 NOVEMBER 2009 (05.11.2009)**

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Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2009/038420

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