Title: FLUID LOSS CONTROL AND WELL CLEANUP METHODS

Abstract: A method for removing preexisting filtercake from a portion of a subterranean formation penetrated by a wellbore is carried out by providing water-degradable particles formed from a solid polymeric precursor material that is capable of degrading to acid for reacting with materials of the filtercake. A slurry is formed from the particles with a carrier fluid. The slurry of particles is introduced into the formation through the wellbore and allowed to degrade to form acid, whereby the formed acid facilitates decomposition of preexisting filtercake materials. In certain applications, the water-degradable particles may also be used in combination with non-water-degradable particles, which may be used for forming a gravel pack. The water-degradable particles may also be used to reduce fluid loss temporarily to areas of the formation immediately surrounding the wellbore.
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).

Published:
— 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: 14 August 2008
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. C09K8/508 C09K8/528 E21B43/04

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 E21B

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 practical search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>WO 2005/095755 A (CLEANSORB LTD [GB]; HARRIS RALPH EDMUND [GB]; MCKAY IAN DONALD [GB]) 13 October 2005 (2005-10-13) page 8, line 30 - page 9, line 2; claims 1,16 page 1, line 3 - line 7 page 4, line 3 - line 9 page 5, line 18 - line 25; examples 1,2</td>
<td>1-9</td>
</tr>
<tr>
<td>A</td>
<td>US 2006/185847 AL (SAINI RAJESH K [US] ET AL) 24 August 2006 (2006-08-24) paragraphs [0005], [0017], [0019], [0020]; example 1</td>
<td>1-9</td>
</tr>
</tbody>
</table>

X See patent family annex

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 document but published on or after the international filing date

**L** document which may throw doubt on priority claims or which is cited to establish the publication date of another document 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

**S** document member of the same patent family

Date of the actual completion of the international search 18 March 2008

Date of mailing of the international search report 19/06/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan

NL-2280 HV Rijswijk

Tel: (+31-70) 340-2040, Tx: 31 051 eep nl

Fax: (+31-70) 340-2016

Authorized officer

Redecker, Michael
INTERNATIONAL SEARCH REPORT

Box No. II  Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  □ Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2.  □ Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3.  □ Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III  Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  □ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2.  □ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of additional fees.

3.  □ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4.  □ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

   1–9

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2005)
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9

   A method for removing filtercake, using a composition comprising a carrier fluid and particles formed from a solid polymeric acid precursor.

2. claims: 10-16

   A method for temporarily reducing fluid loss, using a composition comprising a carrier fluid and particles formed from a solid polymeric acid precursor.
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO 2005095755 A</td>
<td>13-10-2005</td>
<td>BR PI0509306 A</td>
<td>04-09-2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA 2560938 AI</td>
<td>13-10-2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GB 2412389 A</td>
<td>28-09-2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GB 2429734 A</td>
<td>07-03-2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NO 20064847 B</td>
<td>22-12-2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 2008017382 A1</td>
<td>24-01-2008</td>
</tr>
</tbody>
</table>

US 2006185847 A1 24-08-2006 NONE