

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 February 2008 (28.02.2008)

PCT

(10) International Publication Number
WO 2008/024309 A3

(51) International Patent Classification:

C10G 31/00 (2006.01) **C10G 75/04** (2006.01)
C10G 17/02 (2006.01)

(74) Agents: **BARRETT, Glen, T.** et al.; Exxonmobil Research And Engineering Company, 1545 Route 22 East, P.O. Box 900, Annandale, NJ 08801-0900 (US).

(21) International Application Number:

PCT/US2007/018403

(22) International Filing Date: 20 August 2007 (20.08.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/506,901 21 August 2006 (21.08.2006) US

(71) Applicant (for all designated States except US): **EXXON-MOBIL RESEARCH AND ENGINEERING COMPANY** [US/US]; 1545 Route 22 East, P.O. Box 900, Annandale, NJ 08801-0900 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BRONS, Glen, Barry** [US/US]; 43 Harwich Road, Phillipsburg, NJ 088656 (US). **WRIGHT, Chris, Aaron** [US/US]; 30 Sagamore Lane, Bordentown, NJ 08505 (US). **LUTZ, II, George, A.** [US/US]; 89 Nottingham Drive, Brick, NJ 08724 (US). **LETA, Daniel, P.** [US/US]; 15 Rustic Trail, Flemington, NJ 08822 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, 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, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

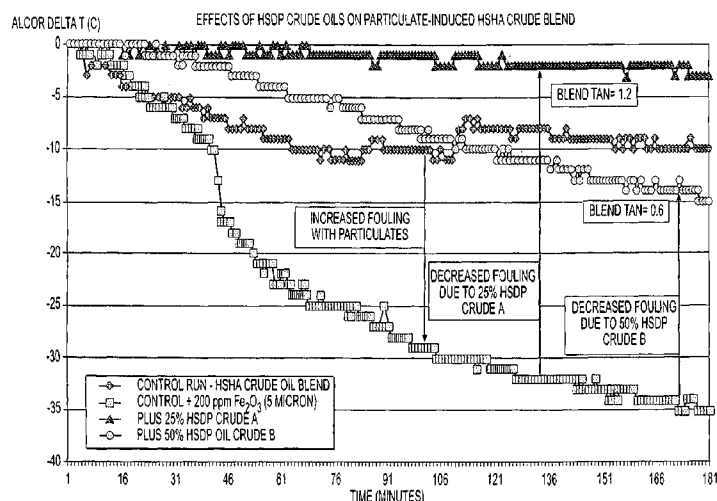
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT,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

— with international search report

[Continued on next page]

(54) Title: METHOD OF BLENDING HIGH TAN AND HIGH S_{BN} CRUDE OILS AND METHOD OF REDUCING PARTICULATE INDUCED WHOLE CRUDE OIL FOULING AND ASPHALTENE INDUCED WHOLE CRUDE OIL FOULING



(57) Abstract: A high solvency dispersive power (HSDP) crude oil is added to a base crude oil to proactively address the potential for fouling heat exchange equipment. The HSDP component dissolves asphaltene precipitates and maintains suspension of inorganic particulates before coking affects heat exchange surfaces.



— *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:**

13 November 2008

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/018403

A. CLASSIFICATION OF SUBJECT MATTER

INV. C10G31/00 C10G17/02 C10G75/04

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)

C10G

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, API Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/042661 A1 (MEYER DOUGLAS S [US] ET AL) 2 March 2006 (2006-03-02) claim 1	1-22
P, X	US 2006/219266 A1 (MEYER DOUGLAS S [US] ET AL) 5 October 2006 (2006-10-05) claim 1	1-22
A	US 4 853 337 A (DICKAKIAN GHAZI B [US]) 1 August 1989 (1989-08-01) claim 1 column 1, lines 25-40 column 2, lines 6-23 column 3, lines 60-66	1-22
A	US 2004/121472 A1 (NEMANA SAIENDRA [US] ET AL) 24 June 2004 (2004-06-24) claim 1	1-22

☐ 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 document 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

G document member of the same patent family

Date of the actual completion of the international search

15 September 2008

Date of mailing of the international search report

25/09/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Harf, Julien

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/018403

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006042661 A1	02-03-2006	NONE	
US 2006219266 A1	05-10-2006	AU 2006252956 A1 CA 2602856 A1 EP 1866592 A1 WO 2006130220 A1	07-12-2006 07-12-2006 19-12-2007 07-12-2006
US 4853337 A	01-08-1989	NONE	
US 2004121472 A1	24-06-2004	AU 2003291573 A1 EP 1573315 A1 RU 2327158 C2 UA 80849 C2 WO 2004061450 A1	29-07-2004 14-09-2005 20-06-2008 12-11-2007 22-07-2004