

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 January 2008 (24.01.2008)

PCT

(10) International Publication Number
WO 2008/011291 A3

(51) International Patent Classification:
C10G 47/02 (2006.01)

(21) International Application Number:
PCT/US2007/073051

(22) International Filing Date: 9 July 2007 (09.07.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/457,833 17 July 2006 (17.07.2006) US

(71) Applicant (for all designated States except US): UOP LLC [US/US]; James C. Paschall, 25 East Algonquin Road, P.O. Box 5017, Des Plaines, IL 60017-5017 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): WANG, Li [US/US]; UOP LLC, 25 East Algonquin Road, P.O. Box 5017, Des Plaines, IL 60017-5017 (US).

(74) Common Representative: PASCHALL, James, C.; UOP LLC, 25 East Algonquin Road, P.O. Box 5017, Des Plaines, IL 60017-5017 (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

(88) Date of publication of the international search report:
20 March 2008



WO 2008/011291 A3

(54) Title: HYDROCRACKING CATALYST CONTAINING BETA AND Y ZEOLITES, AND PROCESS FOR ITS USE TO MAKE DISTILLATE

(57) Abstract: Increased selectivity of middle distillate and increased catalyst activity are obtained in a hydrocracking process by the use of a catalyst containing a hydrogenation component, a beta zeolite having an overall silica to alumina mole ratio of less than 30 and a SF₆ adsorption capacity of at least 28 wt-%, a Y zeolite having a unit cell size of from 24.25 to 24.32 angstrom, and a support.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/73051

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - C10G 47/02 (2007.10)
USPC - 208/111.01; 423/328.1
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)
USPC -208/111.01; 423/328.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC -208/111.01; 423/326; 423/327.1; 423/328.1; 423/DIG21; 423/DIG27; 502/64; 502/332 (text search - see terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WEST (PGPB,USPT,USOC,EPAB,JPAB); Google
Search Terms: catalyst, beta zeolite, Y zeolite, adsorption capacity, alumina, ammonium

C. DOCUMENTS CONSIDERED TO BE RELEVANT


Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,536,687 A (Ward) 16 July 1996 (16.07.1996) col 3, ln 3-67; col 5, ln 1-53; col 8, ln 30-34; col 19 Table IV	1-10
Y	US 7,048,845 B2 (Bauer) 23 May 2006 (23.05.2006) col 5, ln 62-65; col 6, ln 55-57; col 7, ln 9-12	1-10
Y	US 4,604,373 A (Clark) 5 August 1986 (05.08.1986) col 4, ln 40-55	5, 6 and 10

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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 17 October 2007 (17.10.2007)	Date of mailing of the international search report 14 DEC 2007
---	--

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774 
---	---