

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 March 2001 (08.03.2001)

PCT

(10) International Publication Number
WO 01/16256 A1

(51) International Patent Classification²: C10G 25/00,
45/00, 45/04, 45/60

(74) Agents: HUGHES, Gerard, J. et al.; Exxon Research
and Engineering Company, P.O. Box 900, Annandale, NJ
08801 (US).

(21) International Application Number: PCT/US00/23470

(22) International Filing Date: 25 August 2000 (25.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/385,644 27 August 1999 (27.08.1999) US

(71) Applicant: EXXON RESEARCH AND ENGINEER-
ING COMPANY [US/US]; 1545 Route 22 East, P.O. Box
900, Annandale, New Jersey 08801 (US).

(81) Designated States (*national*): AE, AL, AM, AT, AU, AZ,
BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE,
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD,
MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD,
SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN,
YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors: SCHORFHEIDE, James, John; 1534
Stoneleigh Drive, Baton Rouge, LA 70808 (US). ELLIS,
Edward, Stanley; 9295 Tower Side Drive #224, Fairfax,
VA 22031 (US). TOUVELLE, Michele, Sue; 7222 Wick-
ham, Baton Rouge, LA 70808 (US). GUPTA, Ramesh;
57 Lawrence Drive, Berkeley Heights, NJ 07922 (US).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: COUNTERCURRENT DESULFURIZATION PROCESS FOR REFRACTORY ORGANOSULFUR HETEROCY-
CLES

(57) Abstract: A process for the hydrodesulfurization (HDS) of the multiple condensed ring heterocyclic organosulfur compounds present in petroleum and chemical streams. The stream is passed through at least one reaction zone countercurrent to the flow of a hydrogen-containing treat gas, and through at least one sorbent zone. The reaction zone contains a bed of Group VIII metal-containing hydrodesulfurization catalyst and the sorbent zone contains a bed of hydrogen sulfide sorbent material.

WO 01/16256 A1