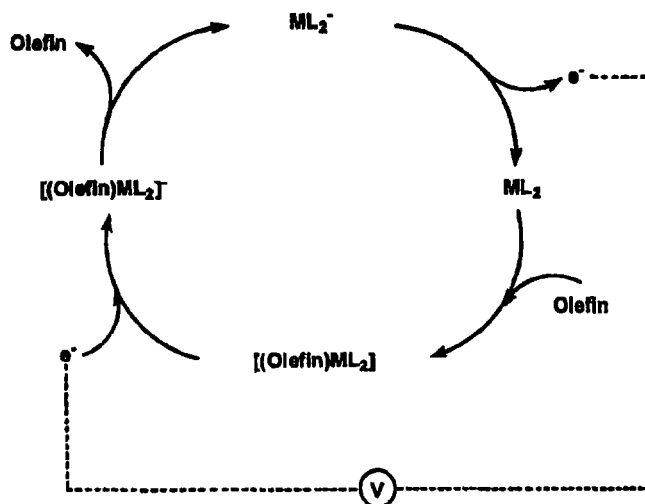




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : C07C 7/152, C10G 70/00	A1	(11) International Publication Number: WO 00/61528 (43) International Publication Date: 19 October 2000 (19.10.00)
(21) International Application Number: PCT/US00/09454 (22) International Filing Date: 7 April 2000 (07.04.00) (30) Priority Data: 09/290,626 13 April 1999 (13.04.99) US (71) Applicant: EXXONMOBIL RESEARCH AND ENGINEERING COMPANY [US/US]; P.O. Box 390, 180 Park Avenue, Florham Park, NJ 07932-0390 (US). (72) Inventors: WANG, Kun; 66 Park Avenue, Washington, NJ 07882 (US). STIEFEL, Edward, Ira; 3 Glen Eagles Drive, Bridgewater, NJ 08807 (US). (74) Agents: SCUORZO, Linda, M. et al.; ExxonMobil Research and Engineering Company, P.O. Box 390, Florham Park, NJ 07932-0390 (US).		(81) Designated States: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, SL, TR, TT, UA, UZ, VN, YU, ZA, ARIPO patent (GH, GM, KE, LS, MW, 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). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments</i>  *G00001*

(54) Title: ELECTROCHEMICAL PROCESS FOR OLEFIN RECOVERY USING TRANSITION METAL DITHIOLENE COMPLEXES**(57) Abstract**

A novel scheme for olefin recovery/separation based on the redox properties of metal dithiolene complexes is described. The complex, [1,2-bis(cyano)ethylene-1,2-dithiolato]nickel, $[Ni(S_2C_2(CN)_2)_2]$, when generated electrochemically, binds olefin to form an adduct. The olefin is released when the olefin adduct is reduced electrochemically. The reduced form of the metal dithiolene complex can then be re-oxidized to complete the cycle. For olefins such as 1-hexene, propylene, and ethylene, fast olefin binding and release is observed when modulated electrochemically. Olefin binding/release rates are fast as compared to the electrochemistry experiment (second or sub-second timescale).



162162