



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C25B 11/00	A1	(11) International Publication Number: WO 99/04063 (43) International Publication Date: 28 January 1999 (28.01.99)
(21) International Application Number: PCT/US98/14524 (22) International Filing Date: 14 July 1998 (14.07.98) (30) Priority Data: 08/900,390 15 July 1997 (15.07.97) US (71) Applicant: EXXON RESEARCH AND ENGINEERING COMPANY [US/US]; 180 Park Avenue, P.O. Box 390, Florham Park, NJ 07932-0390 (US). (72) Inventors: GREANEY, Mark, A.; 1265 River Road, Upper Black Eddy, PA 18972 (US). POLINI, Paul, J.; 530 Jefferson Avenue, Rahway, NJ 07065 (US). (74) Agents: SCUORZO, Linda, M. et al.; Exxon Research and Engineering Company, P.O. Box 390, Florham Park, NJ 07932-0390 (US).	(81) Designated States: CA, JP, MX, NO, SG, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report.	

(54) Title: NOVEL THREE-DIMENSIONAL ELECTRODE

(57) Abstract

The invention provides a working electrode for use in an undivided electrochemical cell that is composed of at least one three-dimensional accordion pleated sheet member (C) having an open surface area of from zero to 50 %. Typically suitable materials include metal mesh and woven fibers. The invention also includes an undivided electrochemical cell, containing the novel working electrode. Finally, the invention includes a method for electrochemically treating a metals-containing hydrocarbon stream in an undivided electrochemical cell by contacting a metals-containing hydrocarbon stream with the novel pleated electrode. The invention has broad applicability for treating starting materials that produce electrochemically reversible (redox active) intermediates.

