THIS SHEET HAS BEEN REPLACED
WIPO COPY

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 :
C25B 11/04, B05D 3/00, 3/10, 3/14, 5/12 — A1

(11) International Publication Number: WO 94/17224

(43) International Publication Date: 4 August 1994 (04.08.94)

(21) International Application Number: PCT/US94/00274

(22) International Filing Date: 10 January 1994 (10.01.94)

(30) Priority Data:
009,905 27 January 1993 (27.01.93) US

(71) Applicant: OLIN CORPORATION [US/US]; 350 Knotter Drive, P.O. Box 586, Cheshire, CT 06410-0586 (US).

(72) Inventors: KACZUR, Jerry, L.; 3267 Terrace Avenue, Cleveland, TN 37312 (US). CAWLFIELD, David, W.; 226 Westbrook Circle, Cleveland, TN 37312 (US).

(74) Agents: SIMONS, William, A. et al.; Wiggin & Dana, One Century Tower, New Haven, CT 06508-1832 (US).

(81) Designated States: AU, BB, BG, BR, BY, CA, CN, CZ, FI, HU, JP, KP, KR, KZ, LK, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: HIGH SURFACE AREA ELECTRODE STRUCTURES FOR ELECTROCHEMICAL PROCESSES

(57) Abstract

A porous, high surface area electrode comprising a fine fibrous conductive substrate having a density less than about 50 % and a specific surface area to volume ratio of greater than about 30 cm^2/cm^3. The individual fibers of the substrate have a length to diameter aspect ratio greater than 1000 : 1. An electrocatalyst covers at least a portion of the substrate. A current distributor is electrically connected to the coated substrate. The method of fabricating the electrode includes fabricating a fine fibrous conductive substrate, preparing the surface of the substrate for receiving an electrocatalyst covering thereon, preparing the electrocatalyst for application to the substrate and applying the electrocatalyst to the substrate. Optionally, the electrode may be further treated to promote adhesion of the electrocatalyst to the substrate or to form an intermetallic or alloy with the substrate.

This Sheet Has Been Replaced