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**METHOD FOR FORMING A LAMINATE  
HAVING A SMOOTH SURFACE FOR USE  
IN POLYMER ELECTROLYTE  
BATTERIES**

McAlevey Michael E San Jose, CA, UNITED STATES assigned to Valence Technology Inc

An apparatus for forming a laminate having a smooth surface includes a planar member having, on at least one side thereof, desired surface roughness characteristics, is forced against the material layer on the substrate such that the material layer attains substantially the same surface roughness characteristics as the one side of the planar member.

5482796

**ELECTROCHEMICAL CELL  
COMPRISING GAMMA MNO<sub>2</sub> CATHODE  
HAVING FILAMENTARY PROTRUSIONS**

Wang Enoch I; Lin Lifu; Bowden William L Attleboro, MA, UNITED STATES assigned to Duracell Inc

The invention relates to the manufacture of manganese dioxide by a chemical process. The resulting manganese dioxide product takes the form of particles characterized by filament-like protrusions jutting out from its surface. The manganese dioxide particles having such surface features can be manufactured by reacting manganese sulfate with sodium peroxodisulfate in an aqueous solution. The process can be controlled to yield high density manganese dioxide. The manganese dioxide formed in the process can be deposited directly onto the surface of electrolytic manganese dioxide (EMD). The manganese dioxide product is particularly suitable for use as a cathode active material in electrochemical cells.

5482797

**NONAQUEOUS SECONDARY BATTERY**

Yamada Kazuo; Tanaka Hideaki; Yoneda Tetsuya; Mitate Takehit; Kitayama Hiroyuki Nara, JAPAN assigned to Sharp Kabushiki Kaisha

A nonaqueous secondary battery comprising a cathode, an anode and a nonaqueous electrolyte disposed and sealed between the cathode and the anode wherein the anode is made of a carbon material as its active material, in which the carbon material comprises a fine core particle of a metal or an alloy thereof, and a carbon layer which is arranged and stacked in an onion-like shell configuration centering on the fine core particle, at least part of the carbon layer having a crystal structure in which graphite-like layers are stacked and the fine core particle having an average diameter of about 10 to 150nm.

**NICKEL METAL HYDRIDE BATTERY**

5478594

**ELECTRODE STRUCTURE FOR NICKEL  
METAL HYDRIDE CELLS**

Frye Blake; Pensabene Sa; Puglisi Vinc Gainesville, FL, UNITED STATES assigned to Eveready Battery Company Inc

An electrode is disclosed for use in a wound nickel metal hydride electrochemical cell. The electrode has an electrochemically active material carried on the substrate. The electrode includes the improvement of an effective amount of an elastic binder coating the outer surface of the active material to enhance the integrity of the electrode and to substantially inhibit infantile shorting during operation thereof.

5478664

**METHOD OF RECOVERING REUSABLE  
METALS FROM NICKEL-HYDROGEN  
RECHARGEABLE BATTERY**

Kaneko Akihito; Kitazume Nobuyuki; Okada Chikara Sendai, JAPAN assigned to Santoku Metal Industry Co Ltd

PCT No. PCT/JP94/00560 Sec. 371 Date Nov. 30, 1994 Sec. 102(e) Date Nov. 30, 1994 PCT Filed Apr. 5, 1994 PCT Pub. No. WO94/23073 PCT Pub. Date Oct. 13, 1994. A method of recovering a reusable metal from a nickel-hydrogen rechargeable battery characterized in