

electrolyte selected from the group consisting of perfluorocarbon sulfonic acid, polysulfones, perfluorocarbonic acid, styrene-divinylbenzene sulfonic acid cation-exchange resins and styrene-butadiene anion-exchange resins, and 0.01-50% by weight of fine particle silica and/or fibrous silica fiber relative to the weight of the polymer solid electrolyte.

5523183

APPARATUS FOR USE IN A BATTERY

Koehler Paul C; Geibel Stephen; Di Palma Ralph
Cortland, NY, UNITED STATES assigned to Pall
Corporation

A battery electrode is provided comprising a porous, pleated metal structure, preferably comprising nickel as its substrate.

5525435

HYDROGEN STORAGE MATERIALS

Pourarian Faiz Verona, PA, UNITED STATES
assigned to Eveready Battery Company Inc

A hydrogen storage material for use in various hydrogen absorber devices such as electrochemical cells, hydrogen separator devices, temperature sensors and the like, having the formula: (*See Patent for Tabular Presentation*) PS where R and R' are a rare earth metal; T is cobalt; T' is Ni, Fe, Mn or Cr; X is Ga; X' is Al, Si, Sn, Ge, Cr, In or Mo; x is from 0.0 to 3.6; y is from 0.0 to 9.0; and z is from 0 to 2.

5525436

PROTON CONDUCTING POLYMERS USED AS MEMBRANES

Savinell Robert F; Litt Morton Solon, OH, UNITED
STATES assigned to Case Western Reserve University

The subject invention relates to solid polymer electrolyte membranes comprising proton conducting polymers stable at temperatures in excess of 100°C, the polymer

being basic polymer complexed with a strong acid or an acid polymer. The invention further relates to the use of such membranes in electrolytic cells and acid fuel cells. Particularly, the invention relates to the use of polybenzimidazole as a suitable polymer electrolyte membrane.

5527643

CARBONACEOUS ELECTRODE MATERIAL FOR SECONDARY BATTERY AND PROCESS FOR PRODUCTION THEREOF

Sonobe Naohir; Iwasaki Takao; Masuko Jiro Iwaki,
JAPAN assigned to Kureha Kagaku Kogyo Kabushiki
Kaisha

A non-aqueous solvent-type secondary battery having a large charge-discharge capacity and exhibiting a high utilization rate of an active substance, such as lithium, and an excellent charge-discharge cycle characteristic, can be constituted by using a carbonaceous electrode material having a specific microtexture. The carbonaceous electrode material is characterized by having an average (002)-plane spacing d_{002} of 0.336-0.375 nm and a crystallite size in c-axis direction $L_c(002)$ of at most 50 nm, respectively, as measured by X-ray diffraction method, and an optically anisotropic texture showing a fine mosaic texture when observed through a polarizing microscope. The carbonaceous material may suitably be produced through a process including the steps of: crosslinking a tar or pitch of a petroleum or coal origin, and carbonizing the crosslinked tar or pitch at a temperature of at least 800°C under a reduced pressure or in an inert gas atmosphere.

5529707

LIGHTWEIGHT COMPOSITE POLYMERIC ELECTROLYTES FOR ELECTROCHEMICAL DEVICES

Kejha Joseph Willow Grove, PA, UNITED STATES

Lightweight composite polymeric electrolytes which contain a lightweight inorganic filler, such as oxides of

lithium, magnesium and sodium and which is formed by complexing an alkaline metal triflate salt, polyethylene oxide and fillers, with at least one ester, and an ether, or plurality of ethers or esters of different boiling points as co-solvents to form an electrolyte.

5529859

ELECTROLYTE FOR A SECONDARY CELL

Shu Zhi X; McMillan Roderick; Murray John J Nepean, CANADA assigned to National Research Council of Canada

A conventional electrolyte for a secondary cell having a carbonaceous anode is comprised of an alkali metal salt dissolved in an organic electrolyte solvent. Intercalation and de-intercalation during repeated discharge/charge cycles of the secondary cell using a conventional electrolyte solvent causes continual exposure of bare surfaces of the carbonaceous material to the electrolyte, resulting in continual consumption of electrolyte in the formation of new passivation films on the bared or partially covered surfaces, adversely affecting the performance and capacity of the cell. In accordance with the present invention, at least a portion of the organic electrolyte solvent is replaced with a chloroethylene carbonate solvent capable of forming a very stable passivation film. The performance and capacity of the secondary cell is improved substantially by the addition of the halogenated organic solvent to propylene carbonate.

5529860

ELECTROACTIVE HIGH STORAGE CAPACITY POLYACETYLENE-CO-POLYSULFUR MATERIALS AND ELECTROLYTIC CELLS CONTAINING SAME

Skotheim Terje A; Trofimov Boris; Grigorevna Malkina A; Koralev Igor P Shoreham, NY, UNITED STATES assigned to Moltech Corporation

The present invention relates to novel electroactive energy storing polyacetylene-copolysulfur (PAS)

materials of general formula $(C_2S_x)_n$ wherein x is greater than 1 to about 100, and n is equal to or greater than 2. This invention also relates to novel rechargeable electrochemical cells containing positive electrode materials comprised of said polyacetylene-co-polysulfur materials with improved storage capacity and cycle life at ambient and sub-ambient temperatures.

5531871

MOLECULAR COMPLEXES FOR USE AS ELECTROLYTE COMPONENTS

Fauteux Denis; van Buren Marti; Powell John Acton, MA, UNITED STATES assigned to Arthur D Little Inc

An molecular complex is provided which includes a linear polymer associated with a cyclic molecule to form a rotaxane of the general formula, (*See Patent for Chemical Structure*) where R1 and R2 are blocking end groups of size and character sufficient to prevent dethreading of the rotaxane and said R1 and R2 the same or different; where the cyclic molecule comprises a cyclic skeleton and at least one A functional group, said functional group attached to the cyclic skeleton; where A is selected from the group consisting of polymerizable functional groups, cation complexing groups, anion complexing groups and ionic species; and wherein at least one of R1, R2 and A are selected from the group consisting of cation complexing groups, anion complexing groups and ionic species. The molecular complex may used in an electrolyte.

5531920

METHOD OF SYNTHESIZING ALKALINE METAL INTERCALATION MATERIALS FOR ELECTROCHEMICAL CELLS

Mao Zhenhau; Newton Dee Coral Springs, FL, UNITED STATES assigned to Motorola Inc

A method for preparing an alkaline metal transition metal oxide charge storage material for electrochemical cells. The material may be used in a lithium rechargeable electrochemical cell along with a conventional lithium intercalation electrode. The material may be prepared by providing a transition metal hydroxide and reacting it