

gelling agent. The base electrolytes of this invention are comprised of an aprotic liquid and a dissolved ionizable alkaline metal salt. The preferred radiation curable polymer pre-cursors of this invention include trimethylol propane ethoxy triacrylate (TMPEOTA) and poly(ethylene glycol) diacrylate (PEGDA). The solvent gelling agent should be a solid powder or polymer with high surface area to adsorb the liquid electrolyte. Solid powders that can be used in the gelling agent include inorganic oxygen compounds such as silica (SiO₂), titania (TiO₂), alumina (Al₂O₃), magnesium oxide (MgO), barium oxide (BaO) and the like. Other compounds that can be used in the gelling agent include super absorbent polymers, clays, zeolite and such. The structurally stable gelled electrolyte of this invention is coated onto a suitable substrate, for example a glass plate, metal foil, a battery electrode web and cured, either in place, or can be used as a free standing film for cell assembly.

5648185

ALLYL SILANE MONOMERS AND SOLID ELECTROLYTES DERIVED BY POLYMERIZATION THEREOF

Chaloner-Gill Benjamin; Golovin Nea Santa Clara, CA, UNITED STATES assigned to Valence Technology Inc

This invention is directed to novel allyl silane monomers and to solid electrolytes containing a solid polymeric matrix having incorporated therein allyl silane monomers. The solid electrolytes are used in electrolytic cells.

5648186

POLYMER ELECTROLYTES HAVING A DENDRIMER STRUCTURE

Daroux Mark L; Kurz David W; Litt Morto; Melissaris Anastasios; Pucci Donald G Cleveland Heights, OH, UNITED STATES assigned to Gould Electronics Inc

Polymers, oligomers or copolymers, having a dendrimer structure and containing electronegative heteroatoms, such as etheric oxygens, capable of complexing with

cationic species, for use in ionically-conductive polymeric electrolytes, Relatively high ambient conductivity is a feature of such electrolytes.

LITHIUM BATTERIES

5632784

METHOD OF MANUFACTURING A LITHIUM BATTERY

Yoon Jae-G Seoul, KOREA assigned to Daewoo Electronics Co Ltd

A method of predischarging a novel battery wherein a stable lithiated film is formed at an anode by a small amount of the discharged capacity in order to rapidly recover the open circuit voltage of the battery, is disclosed. The battery includes a cathode using lithium metal as an active material, an anode using manganese dioxide as a main component of an active material, and an electrolyte including an inorganic electrolyte dissolved in a nonaqueous solvent containing at least propylene carbonate. The battery is predischarged by using a pulse current. The amount of discharge is not more than about 2% of the total discharge capacity. A lithiated film which is formed at the anode portion while being partially oxidized to lithium ions, is uniformed. By a small amount of the discharged capacity, a high potential portion can be removed and the gas generation reaction can be suppressed. In addition, the life of the battery is lengthened and the flatness of the battery's voltage is improved.

5635151

CARBON ELECTRODE MATERIALS FOR LITHIUM BATTERY CELLS AND METHOD OF MAKING SAME

Zhang Jinshan; Anani Anaba Duluth, GA, UNITED STATES assigned to Motorola Inc

A method for preparing an amorphous carbon material for use as an electrode, such as the anode of an electrochemical cell. The amorphous carbon is

fabricated in a one heating step process from multi-functional organic monomers. The material is then reheated in the presence of a lithium salt such as LiNO_3 , Li_3PO_4 or LiOH . Electrodes so fabricated may be incorporated into electrochemical cells as the anode thereof.

5637413

**OVERVOLTAGE DISCONNECT CIRCUIT
FOR LITHIUM ION BATTERIES**

Fernandez Josacu e Mack Erika D Lawrenceville, GA, UNITED STATES assigned to Motorola Inc

A lithium ion or similar lithium secondary battery pack includes an overvoltage disconnect circuit having an overvoltage disconnect switch, a voltage detector, and a delay circuit. The battery pack is connectable to a recharger which was not designed to accommodate the charge regime of the lithium ion cell or cells, such as a nickel system recharger. The voltage detector samples the battery voltage and changes its output signal if the battery voltage reaches an upper voltage threshold. The output of the voltage detector will not revert back until the battery voltage drops to a lower voltage threshold, which is below the upper voltage threshold.

5639575

**NON-AQUEOUS LIQUID ELECTROLYTE
SECONDARY BATTERY**

Omaru Atsuo; Nagamine Masayuki; Date Naoyuki Kanagawa, JAPAN assigned to Sony Corporation

A non-aqueous liquid electrolyte secondary battery using a carbon material satisfying predetermined conditions of true density and parameters of crystalline structure as an anode material, a transition metal composite oxide having predetermined ion supply capability as a cathode material, and ethylene carbonate as a non-aqueous solvent, is disclosed. The carbon material has a true density of 2.2 g/cm^3 and greater, an interplanar distance of (002) plane of between 0.375 and 0.338 nm, inclusive a C-axis crystallite size of the (002) plane of 20.0 nm and greater and a G value in Raman spectrum of 2.5 and greater. The transition metal composite oxide contains lithium of an amount equivalent to a charge/discharge

capacity of 300 mAh and greater per unit weight of the carbon material. The carbon material forming the anode has a grain diameter of 1 μm and greater. The non-aqueous solvent is a mixed solvent of ethylene carbonate and chain carbonic ester. As the chain carbonic ester, diethyl carbonate, dimethyl carbonate or methylethyl carbonate is employed.

5641465

**LITHIUM MAGANESE OXIDE
COMPOUND AND METHOD OF
PREPARATION**

Ellgen Paul C; Andersen Terrell Oklahoma City, OK, UNITED STATES assigned to Kerr-McGee Chemical Corporation

A method for manufacturing $\text{Li}_2\text{Mn}_2\text{O}_4$ comprising the steps of providing beta- MnO_2 or lambda- MnO_2 ; providing a source of lithium; dissolving lithium from the lithium source in a liquid medium in which lithium generates solvated electrons or the reduced form of an electron-transfer catalyst; and contacting the beta- MnO_2 or lambda- MnO_2 with the liquid medium containing the dissolved lithium and the solvated electrons or the reduced form of the electron-transfer catalyst.

5641468

**LITHIUM MANGANESE OXIDE
COMPOUND AND METHOD OF
PREPARATION**

Ellgen Paul C Oklahoma City, OK, UNITED STATES assigned to Kerr-McGee Chemical Corporation

A method for manufacturing $\text{Li}_2\text{Mn}_2\text{O}_4$ comprising the steps of providing LiMn_2O_4 ; providing a source of lithium; dissolving lithium from the lithium source in a liquid medium in which lithium generates solvated electrons or the reduced form of an electron-transfer catalyst; and contacting the LiMn_2O_4 with the liquid medium containing the dissolved lithium and the solvated electrons or the reduced form of the electron-transfer catalyst.