5639573

POLYMER GEL ELECTROLYTE

Oliver Manuel; Gies Paul J; Pendalwar Shekhar L; Coalson Christen E; Eschbach Florence O Norcross, GA, UNITED STATES assigned to Motorola Inc

An electrolyte system for use in connection with an electrochemical cell. The cell includes a positive electrode and a negative electrode with the electrolyte system disposed therebetween. The electrolyte system is a polymer gel electrolyte system including an electrolyte active species which may be either aqueous or non-aqueous and a polymer gel electrolyte support structure. The blended polymer gel electrolyte support structure includes at least a first phase adapted to absorb or otherwise engage the electrolyte active species disposed on and through the pores of a second phase which is substantially inert and does not absorb the electrolyte active species.

5639574

IONICALLY CONDUCTIVE POLYMER GELS

Hubbard Hugh Vyvyan St Aubyn; McIntyre James Eric; Rogers Victo; Ward Ian MacMillan Leeds, UNITED KINGDOM assigned to British Technology Group Limited

A bulk ionically conductive polymer gel is prepared by dissolving a salt such as lithium trifluoromethanesulphonate (which would provide lithium ion conductors) in an organic compound such as N-formylpiperidine. The organic compound dissolves the salt at 20°C but is not a solvent at 20°C (though it is at 215°C) for polyethylene terephthalate. The last-named is a crystallizable polymer which is added in a minor amount at a high temperature to the other components and provides the required mechanical rigidity for the product at lower temperatures.

5639576

HETEROATOM INCORPORATED COKE FOR ELECTROCHEMICAL CELL ELECTRODE

Lewis Irwin Charles; Greinke Ronald Alfre Strongsville, OH, UNITED STATES assigned to UCAR Carbon Technology Corporation

This invention relates to an electrode for a coke/alkali metal electrochemical cell comprising: (a) calcined coke particles: (i) that contain at least 0.5 weight percent of nitrogen heteroatoms and at least 1.0 weight percent sulfur heteroatoms, and (ii) that have an average particle size from 2 microns to 40 microns with essentially no particles being greater than 50 microns. (b) a binder, this invention also relates to a coke/alkali metal electrochemical cell comprising: (a) an electrode as described above, (b) a non-aqueous electrolytic solution comprising an organic aprotic solvent and an electrically conductive salt, and (c) a counterelectrode.

5641367

PROCESS FOR ULTRASONIC SEALING AN ANODE CUP INTO A GASKET FOR ELECTROCHEMICAL CELLS

Tatsumi James George North Ridgeville, OH, UNITED STATES assigned to Eveready Battery Company

A gasket-cover assembly for use as a closure for an electrochemical cell which is produced by a process in which an extended wall of the cover is ultrasonically forced into a flange of a gasket such that the flange of the gasket makes a U shaped enclosure about the bottom wall of the cover.

5641565

SEPARATOR FOR A BATTERY USING AN ORGANIC ELECTROLYTIC SOLUTION AND METHOD FOR PREPARING THE SAME

Sogo Hiroshi Moriyama, JAPAN assigned to Asahi Kasei Kogyo Kabushiki Kaisha

A separator for a battery using an organic electrolytic solution, which comprises a microporous film comprising a matrix comprised of a polyethylene and a propylene polymer having a weight average molecular weight of from 10,000 to 1,000,000, the propylene polymer being present in a proportion of from 5 to 45% by weight, based on the total weight of the polyethylene and the propylene polymer, the polyethylene containing a fraction having a molecular weight of not smaller than 1,000,000 in a proportion of at least 10% by weight and a fraction having a molecular weight of not greater than 100,000 in a proportion of at least 5% by weight, and wherein the microporous film has a thickness of from 10 to 500 mum, a porosity of from 40 to 85% and a maximum pore diameter of from 0.05 to 5 mum.

5645956

RESILIENT BATTERY SEPARATOR

Degen Peter John; Lee Joseph Yuen; Sipsas Ioannis P Huntington, NY, UNITED STATES assigned to Pall Corporation

The present invention provides a battery separator comprising a nonwoven web of first and second fibers having a mean diameter of about 15 mum or less, wherein the first fibers comprise at least about 60 wt. % of a first polyolefin having a first melting temperature and no more than about 40 wt. % of a second polyolefin having a second melting temperature which is lower than the first melting temperature, the second fibers comprise a third polyolefin having a third melting temperature which is higher than the second melting temperature, the nonwoven web has two sides, one of which sides has been contacted with a heated surface such that the nonwoven web has been subjected to a temperature higher than the second melting temperature and lower than the first and third melting temperatures so as to render the contacted side more smooth than the other side, the battery separator is spontaneously wettable by an electrolyte, the battery separator has a thickness of at least about 50 mum, and the battery separator has a percent rebound thickness of at least about 92% after the application of pressure up to 80 kPa. The present inventive battery separator preferably comprises two such nonwoven webs mated to each other nonsmooth side-to-nonsmooth side. The present invention also provides a method of preparing such a battery separator, as well as a battery incorporating such a battery separator.

5645958

SUPERABSORBENT POLYMER ELECTROLYTES FOR ELECTROCHEMICAL CELLS AND ELECTROCHEMICAL CELLS USING SAME

Zhang Jinshan; Venugopal Ganesh Coral Springs, FL, UNITED STATES assigned to Motorola Inc

An electrolyte system 40 for use in connection with an electrochemical cell. The cell includes a positive and a negative electrode, and the electrolyte system disposed there between. The electrolyte system includes a liquid electrolyte adapted to provide ion transport between the positive and negative electrodes and a polymeric support structure for engaging the liquid electrolyte.

5647963

ELECTRODE MATERIALS FOR ELECTROCHEMICAL CELLS AND METHOD OF MAKING SAME

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

A method for preparing a carbon material for use as an electrode, such as the anode of an electrochemical cell. The carbon is fabricated in a heating process from a plurality multifunctional organic monomers selected from first and second groups of monomers. Electrodes so fabricated may be incorporated into electrochemical cells as the anode thereof.

5648011

STRUCTURALLY STABLE GELLED ELECTROLYTES

Blonsky Peter Miller Meridian, ID, UNITED STATES assigned to Micron Communications Inc

The structurally stable gelled electrolyte of the present invention includes a base electrolyte, a three-dimensional polymer precursor that is radiation curable and an electrically non-conducting solvent