5637422

NICKEL HYDRIDE SECONDARY CELL

Edamoto Toshiyuki; Wada Shuichi Otokuni gun, JAPAN assigned to Hitachi Maxell Ltd

A nickel hydride secondary cell having a positive electrode which contains nickel oxide or nickel hydroxide, a negative electrode which contains a hydrogen occlusion alloy, and an electrolytic solution containing an alkali metal salt as a corrosion inhibitor, which cell has an increased maintenance rate of charge after storage.

5637423

COMPOSITIONALLY AND STRUCTURALLY DISORDERED MULTIPHASE NICKEL HYDROXIDE POSITIVE ELECTRODE FOR ALKALINE RECHARGEABLE ELECTROCHEMICAL CELLS

Ovshinsky Stanford R; Fetcenko Michael; Venkatesan Srinivasan; Holland Arthur Bloomfield Hills, MI, UNITED STATES assigned to Ovonic Battery Company Inc

A positive electrode for use in alkaline rechargeable electrochemical cells comprising: a material comprising a compositionally and structurally disordered multiphase nickel hydroxide host matrix which includes at least one modifier. A process for forming a high loading uniformly distributed multiphase substantially nitrate free sintered positive electrode for use in an alkaline rechargeable electrochemical cell, the process comprising: (1) fabricating sintered electrode material by forming a slurry of nickel powder, water, carboxy methyl cellulose binder, methyl cellulose binder, and a poly(ethylene oxide) polymer; spreading the slurry on a preoxidized perforated nickel substrate; drying the slurry; and sintering the slurry; (2) impregnating the sintered electrode material using multiple impregnation cycles to attain high loading; and (3) forming the impregnated sinter into positive electrode material by presoaking the impregnated sinter in NaOH presoak tanks to substantially eliminate nitrates; brushing the presoaked impregnated sinter in a surface brushing station; charging the brushed impregnated sinter; discharging the charged impregnated sinter; rinsing the discharged impregnated sinter; and drying the rinsed impregnated sinter to complete the formation of positive electrode material.

5639569

GASTIGHT, SEALED METAL OXIDE/METAL HYDRIDE STORAGE BATTERY

Kuml ohler Uwe; Chen Guangsen; Lindner Juml urgen Kelkheim, GERMANY assigned to Varta Batterie Aktiengesellschaft

A gastight, sealed metal oxide/metal hydride storage battery, in particular, a nickel/metal hydride button cell, includes an auxiliary electrode with an active material composed of the same hydrogen storage alloy as that of the negative electrode with which the auxiliary electrode is electrically associated. As a result, the auxiliary electrode can maintain both oxygen consumption as well as hydrogen consumption (in the event of overcharging or polarity reversal of the cell). High gas consumption rates in the event of overcharging and polarity reversal are achieved with a strongly hydrophobic adjustment of the auxiliary electrode and a relatively weakly hydrophobic or hydrophilic adjustment of the negative electrode (by means of hydrophobic or hydrophilic binder additions, respectively), and by adding a highly conductive metal powder (Cu or Ni) to the mass of the negative electrode. Also achieved is a good discharge capacity, even at high currents of up to 2 CA.

5645953

SECONDARY BATTERY AND METHOD FOR CONTROLLING THE SELF-DISCHARGE OF A NICKEL/METAL HYDRIDE SECONDARY BATTERY

Kim Young-Woo; Lee Sung-Keun; Lee Jai-Young; Lee Jon-Ha; Lee Han-Ho Seoul, KOREA assigned to Hyundai Motor Company Ltd

A nickel/metal hydride secondary battery which exhibits a minimal amount of self-discharge, the secondary

battery having battery cells in which the environment thereof is a gas environment of hydrogen gas or a hydrogen-inert gas mixture.

COMPONENTS AND/OR CHARGERS

5633573

BATTERY PACK HAVING A PROCESSOR CONTROLLED BATTERY OPERATING SYSTEM

van Phuoc Duong; Wieczorek Rudi; Zeising Elmar; Hruska Louis W; Hull Matthew P; Taylor Alwyn H; Friel Daniel D Eching, GERMANY assigned to Duracell Inc

A battery pack and a method of operating a battery system. The battery pack includes a rechargeable battery and a processor for monitoring the battery during charging and discharging. The processor receives data values representing the battery voltage, temperature and current, and the processor performs a series of calculations using those data values. The processor has normal, standby and sleep modes. In the normal mode, the processor performs the series of calculations at first regular cycles, and in the standby mode, the processor performs the series of calculations at second regular cycles, which are longer than the first cycles. Preferably, the processor enters the standby mode when the battery current falls below a predetermined current level, and the processor enters the sleep mode when the battery voltage falls below a first predetermined voltage level. Also, the processor exits the sleep mode when the battery voltage rises above a second predetermined voltage level higher than the first predetermined voltage level.

5633574

PULSE-CHARGE BATTERY CHARGER

Sage George E Redmond, WA, UNITED STATES

This pulse-charge battery charger charges Nickel-Cadmium and Nickel-metal hydride batteries having one or more cells and used with cellular telephones and camcorders. A battery is lowered into a finger accessible receiving volume and held by a magnetic force. Charging automatically commences and automatically stops, as controlled by utilizing a U1 controller and other combined circuits. Charging status is indicated by colored lights: yellow-charging; green-battery is charged; orange-battery is overheated and cooling; and red-battery is defective. Other combined circuits are: power supply circuit to receive either 12.6 volt AC or DC voltage power, and to produce both a full wave rectified unregulated DC volt power source, and a regulated 5 DC volt power source; battery installed detector circuit; a reset circuit; a timing control circuit; ready light circuit; no battery then no light circuit; over temperature detection circuit; normalize circuit to accommodate battery cell arrangements; constant current source circuit; discharge control circuit; thermistor sensor control circuit; battery being charged circuit operating when a battery has an internal temperature sensor; and a battery being charged circuit operating when a battery has no temperature sensor, and the charger's external temperature sensor is relied upon. The following cycle, for example, is repeated until a battery is fully charged: 1000 milliseconds of charging; 2 milliseconds of no charging; 5 milliseconds of discharging; 10 milliseconds for a second no charging period.

5633575

BATTERY RECLAIMER AND CHARGER

Gali Carl Tucson, AZ, UNITED STATES

The invention is to a battery reclaimer, charger and maintainer circuit for removing current blocking deposits from plates of batteries utilizing liquid and jell electrolytes. The circuit includes an output circuit including at least one battery. A D.C. voltage source providing a D.C. voltage for charging said battery connected to said output circuit. An oscillator circuit for producing fast rise time voltage pulses is close coupled to an rf transformer, connecting the oscillator circuit to the output circuit in parallel with the D.C. voltage