

**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**

Kumloher Uwe; Chen Guangsen; Lindner Jürgen 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