

the group consisting of Co, Mn, Al, Fe, Cu, Mo, W, Cr, V, Ti, Zr, Sn, Th, Si, Zn, Li, Cd, Na, Pb, La, Mm, and Ca; b is greater than 0.5, preferably 2.5, atomic percent and less than 30 atomic percent; and $a+b=100$ atomic percent. Preferably, the at least one modifier is chosen from the group consisting of Co, Mn, Al, Fe, and Cu and the total mass of the at least one modifier element is less than 25 atomic percent of the final composition. Most preferably, the total mass of said at least one modifier element is less than 20 atomic percent of the final composition.

5506070

METAL HYDRIDE ELECTRODE, NICKEL ELECTRODE AND NICKEL-HYDROGEN BATTERY

Mori Hiroyuki; Hasegawa Keiichi; Watada Masaharu; Oshitani Masahiko Takatsuki, JAPAN assigned to Yuasa Corporation

A metal hydride electrode, in which a metallic cobalt powder is mixed, within a mixing range of 3 to 20 weight percents, with a hydrogen absorbing alloy powder formed by substituting a part of Ni of alloy expressed by a rational formula of $MmNi_5$ with Al and at least one kind of Fe, Cu, Co, Mn, and the mixed powder is loaded in a porous alkaline-proof metal body. An nickel electrode, in which a cobalt monoxide powder is mixed with an active material powder within a mixing range of 5 to 15 weight percents, the active material powder comprising zinc existing within a range of 2 to 8 weight percents, under a solid solution state in a crystal of nickel hydroxide powder assuming a spherical shape including an inner pore volume of 0.14 ml/g or less, and the mixed powder is loaded in a porous alkaline-proof metal body. A nickel-hydrogen battery, in-which the foregoing metal hydride electrode and the foregoing nickel electrode are wound with a separator put between them, aqueous solution of potassium hydroxide is filled therein and sealed, and they are maintained under standing condition for 5 hours or more.

5506074

METAL HYDRIDE ELECTRODE AND NICKEL-HYDROGEN ALKALINE STORAGE CELL

Tadokoro Motoo; Mizutaki Fusago; Ishimaru Nobuyasu Tokushima, JAPAN assigned to Sanyo Electric Co Ltd

A metal hydride electrode is mainly composed of a hydrogen-absorbing alloy and provided with carbon powder which is selected from acetylene black, carbon black, ketjen black, and active carbon. The metal hydride electrode is further provided with an additive including an oxide and/or a hydroxide of a metal having oxidation-reduction potential nobler than an operational potential of the hydrogen-absorbing alloy. The metal hydride electrode has excellent oxygen gas absorption ability and easy detection of ΔV , thereby realizing to produce a nickel-hydrogen alkaline storage cell with excellent charge/discharge cycle life.

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NICKEL HYDROXIDE ELECTRODE FOR USE IN AN ALKALINE SECONDARY BATTERY

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A nickel hydroxide electrode useful in an alkaline secondary battery containing at least one of a copper-based additive or a manganese-based additive in either a nickel hydrogen active material as applied to a porous metal substrate, in a porous metal substrate itself, or both. The copper-based additive is at least member of the group consisting of copper, cuprous oxide and cupric oxide. The manganese-based additive is at least member of the group consisting of metal manganese, MnO, Mn₂O₃, Mn₃O₄, MnO₂, MnO₃, Mn₂O₇, Mn(OH)₂, MnCO₃, K₂MnO₂, and KMnO₄. When the additive is used in a positive electrode for an alkaline secondary battery, the rate of absorption of