T18-019

Tohoku University's Invention

Battery & anode for stable and long time electricity generation

Limit hydrogen generation of stomach acid battery by using conductive polymer

Summary

A battery using stomach acid as electrolyte solution has been developed in the recent years. However, the conventional stomach acid battery generates hydrogen at electrolyzation since the standard electrode potential of the anode material, such as zinc, is lower than the standard hydrogen electrode potential. Moreover, the generated hydrogen adsorbs on the anode surface and reduces the battery efficiency such as electric potential or capacity in a short time.

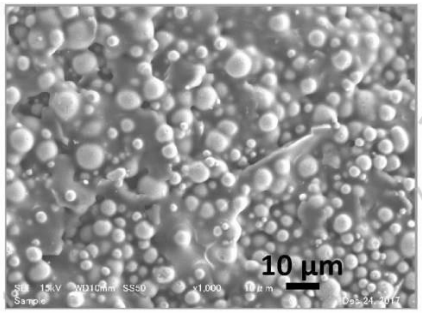
This invention can provide a battery and anode able to generate electricity stably for a long time by limiting the hydrogen generation. The anode of this invention contains a conductive polymer, and an anode powder made of metal, alloy or compound in which the standard electrode potential is less important than the standard hydrogen electrode potential. The conventional anode forms hydrogen radicals after electrode reaction but the conductive polymer located around this invention's anode absorbs the hydrogen radicals and limits hydrogen generation.

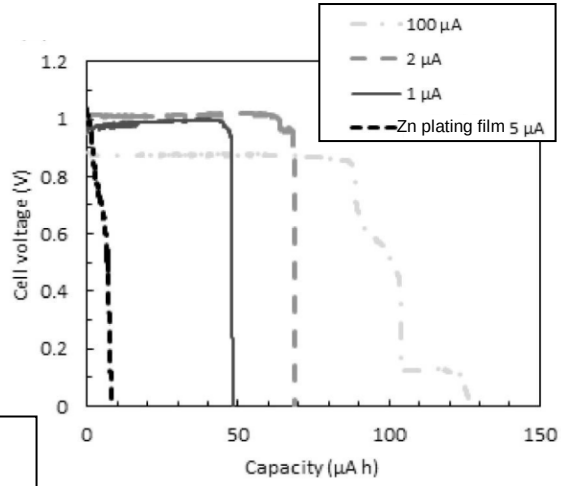
Effect

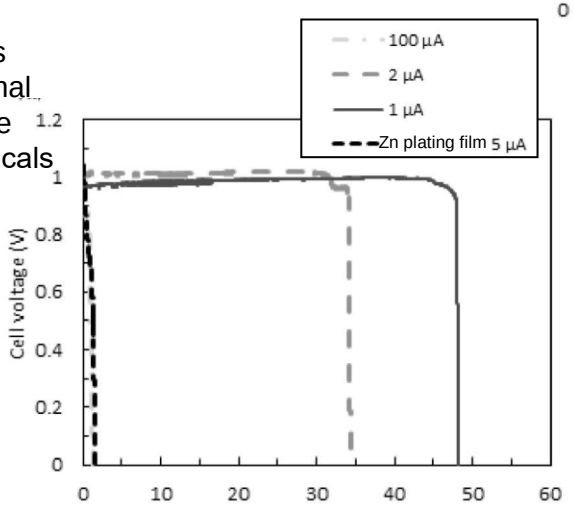
Limit hydrogen generation
Stable and long term electricity generation

Application

- Swallow type battery
- Low cost anode for high capacity rechargeable battery
- Replacement of the lithium-ion battery







【Up left】SEM picture of this invention's anode material using Zn powder and conductive acrylic resin
【Up right】Capacity and voltage of constant current discharge experiment of the anode
【Down left】Voltage change over time of constant current discharge experiment of the anode

Patent Data Sheet

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