

Positive electrode material for magnesium storage battery

Realization of over 2x high potential characteristic than conventional one!

Overview

Magnesium battery has been researched and developed as a promising candidate for post-lithium ion battery due to its abundant reserve and high capacity per volume. Up to now, a material with chevreol structure was almost the only known positive electrode material for practical magnesium battery. However, the electromotive force is about 1 V which is low, and a material that can generate high electromotive force has been searched.

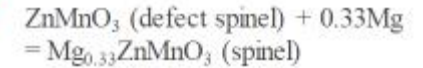
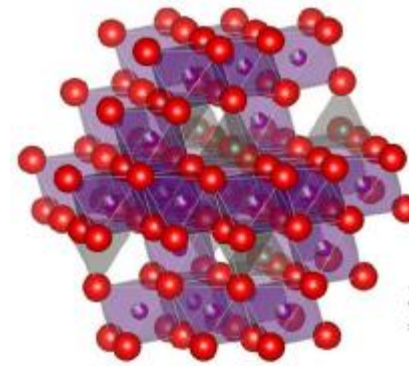
This invention is about a material based on a spinel structure that solves above issues. By employing a defective spinel type oxide that contains defect in the cation site, this invention has succeeded to suppress the crystal structure change due to insertion and desorption of magnesium. As a result, it offers a positive electrode material with higher working potential and improved cycle characteristic than conventional material.

Product Application

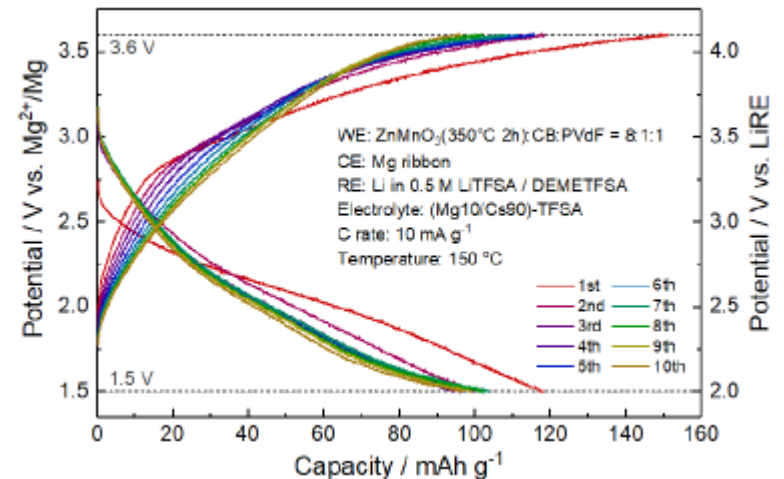
- Magnesium storage battery
- Expected to be applied to multivalent cation storage battery

IP Data

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 Admin No. : T18-490



Features·Outstandings



Stable operation even after the 10 cycles!

Related Works

[1] Kohei Shimokawa, Tetsu Ichitsubo et al. , Structure Design of Long-Life Spinel-Oxide Cathode Materials for Magnesium Rechargeable Batteries, Adv Mater 33, 2007539 (2021).

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