ŁOTWA SYSTEM

Cerium-zinc flow battery

Overview

What are zinc–cerium redox flow batteries (ZCBs)?

Zinc–cerium redox flow batteries (ZCBs) are emerging as a very promising new technology with the potential to store a large amount of energy economically and efficiently, thanking to its highest thermodynamic open-circuit cell voltage among all the currently studied aqueous redox flow batteries.

What is a zinc-cerium battery?

Zinc-cerium batteries are a type of redox flow battery that utilizes zinc and cerium ions. These ions undergo reversible electrochemical reactions to store and discharge energy efficiently. This unique chemistry allows Zn-Ce batteries to offer significant advantages over traditional batteries.

Why is zinc-cerium flow battery a good choice?

While the zinc–cerium flow battery has the merits of low cost, fast reaction kinetics, and high cell voltage, its potential has been restricted due to unacceptable charge loss and unstable cycling performance, which stem from the incompatibility of the Ce and Zn electrolytes.

What are the coulombic and voltage efficiencies of zinc–cerium redox flow batteries?

During charge/discharge cycles at 50 mA cm −2, the coulombic and voltage efficiencies of the zinc–cerium redox flow battery are reported to be 92 and 68%, respectively .

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