ŁOTWA SYSTEM

Tin flow battery

Overview

What are tin-based redox flow batteries?

High-capacity, low-cost alkaline metal aqueous redox flow batteries (ARFBs) are of great significance for large-scale energy storage. Among them, tin-based flow batteries have attracted increasing interest in recent years due to their high solubility of active materials and the advantages of less dendrite formation.

What is a neutral aqueous tin-based flow battery?

A neutral aqueous tin-based flow battery is proposed by employing Sn 2+ /Sn as active materials for the negative side, [Fe (CN) 6] 3− / Fe (CN) 6] 4− as active materials for the positive side, and potassium chloride as the supporting electrolyte, and its overall performances and cost for capacity unit are investigated.

Are tin-iron flow batteries competitive?

Lastly, the cost investigation illustrates the great competitiveness of the tin-iron flow battery in capital cost. Hence, this work not only extends the tin-based flow battery into neutral system, but provides a favorable alternative for large-scale energy storage utilizations as well.

Why are tin-based flow batteries so popular?

Given that the dendrite is mainly cause by the high surface anisotropy of metal, another cheap metal tin, with a more isotropic morphology during electrodeposition in comparison with the zinc metal that can theoretically avoid dendrite has attracted more attention. Till now, a series of dendrite-free tin-based flow batteries have been pioneered.

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