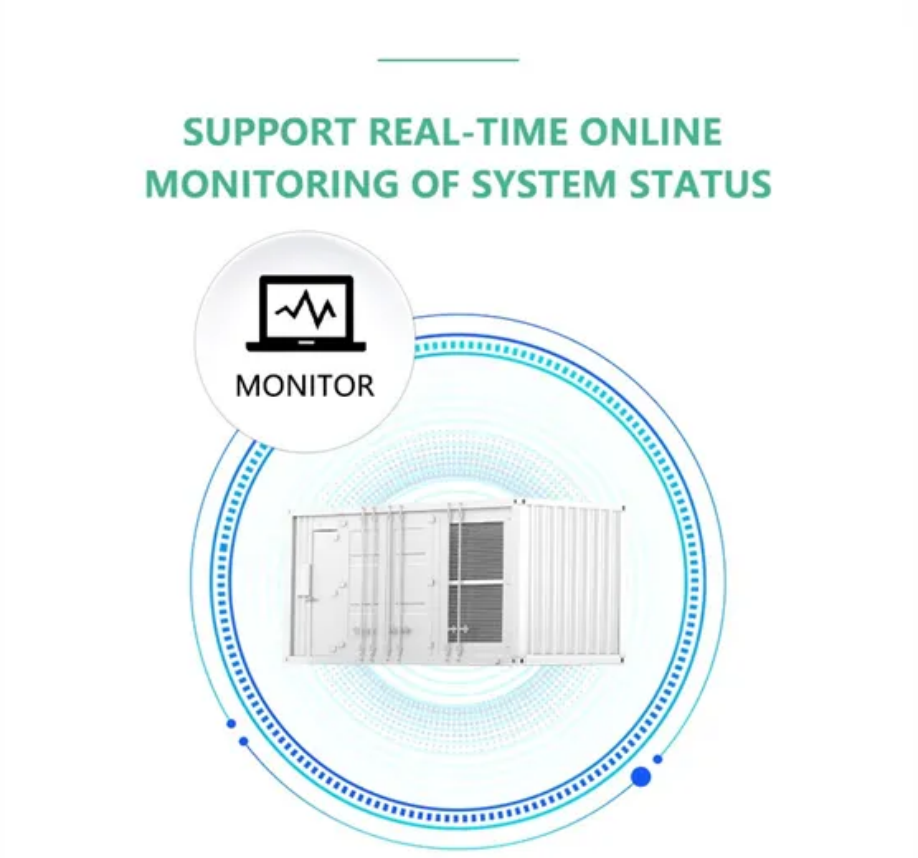
Cobalt-sulfur flow battery



Overview

Here, we demonstrate that we can prepare an atomically precise cobalt sulfide cluster in a single step using low-cost precursors and water solubilizing phosphine ligands. The resulting cluster undergoes two electrochemically reversible oxidations in aqueous solutions and is stable. Metal sulfide clusters are attractive components for flow batteries owing to the abundance of their constituent atoms and their tunable size, solubility, and redox properties. Herein, a cobalt single-atom.

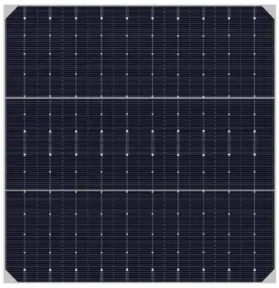
Cobalt-sulfur flow battery

[MOF-derived nitrogen, sulfur, cobalt, and copper co-doped]

Here, Metal-organic frameworks (MOFs) containing Cu, Co, N, and S are proposed as precursors for the construction of metal and nonmetal co-doped GF electrodes, which exhibit enhanced catalytic activity ...

[All-in-One Homogenized Sulfur/Cobalt Disulfide Composite Cathodes ...]

In this work, an all-in-one sulfur/cobalt disulfide (S/CoS 2) composite cathode is proposed by integrating sulfur and homogenized cobalt disulfide (CoS 2) as the sulfur-based cathode materials with the ...



[Understanding the role of cobalt sulfide catalysts for high sulfur]

Our work provides new insights for understanding about the catalytic activity of cobalt sulfides and designing advanced catalysts for the high utilization of sulfur in Li-S batteries.

[An acid-free process to prepare battery grade nickel and cobalt]

In this work, undercoordinated sulfur was identified as an active acid-producing sulfur species, leading to the proposal of an acid-free and selective NSC atmospheric leaching process.

[MOF-derived nitrogen, sulfur, cobalt, and copper co-doped graphite felt]

This study investigated the performance of GF co-doped with nitrogen, sulfur, cobalt, and copper (N,S/Co,Cu@GF), as well as graphite felts with different combinations of doping elements (N/Co,Cu@GF; ...

[Promoting polysulfide conversions via cobalt single-atom]

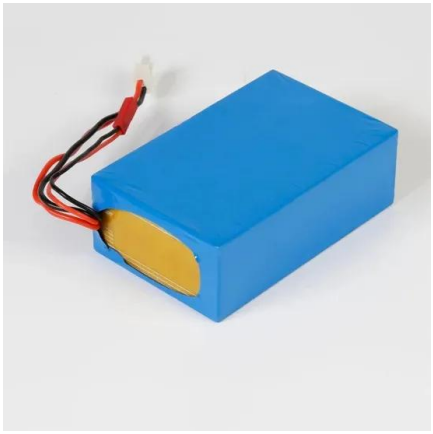
Herein, a cobalt single-atom (CoSA) catalyst comprising of atomic Co distributed homogeneously within nitrogen (N)-doped porous carbon (Co-NPC) nanosphere is constructed and utilized ...

[A WATER-SOLUBLE COBALT SULFIDE SUPERATOM FOR FLOW BATTERY ...]

We prepared an atomically precise cobalt sulfide cluster, Co6S8 (PTA)6o4HCl (PTA = 1,3,5-triaza-7-phosphaadamantane) (1), in a single step using low-cost precursors and water solubilizing phosphine ligands.

[Synergy of single atoms and sulfur vacancies for advanced]

Aqueous redox flow batteries (RFBs) incorporating polysulfide/iodide chemistries have received considerable attention due to their safety, high scalability, and cost-effectiveness.



[A cobalt sulfide cluster-based catholyte for aqueous flow battery]

Here, we demonstrate that we can prepare an atomically precise cobalt sulfide cluster in a single step using low-cost precursors and water solubilizing phosphine ligands. The resulting cluster undergoes two ...

[Functionless cobalt toward functional cobalt nitride: Catalytic sulfur]

In this paper, we report a metal-organic framework (MOF)-derived composite, Co 4 N& CoN x @Ti 3 C 2, as a catalytic sulfur carrier to moderate the interconversion of S species to achieve a high ...

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