



# Suriname Institute of Chemical Physics Flow Battery





## Overview

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Could a new chemical approach be used for bromine-based flow batteries?

In a study published today (December 19) in *Nature Energy*, a research team led by Prof. Xianfeng Li at the Dalian Institute of Chemical Physics (DICP) of the Chinese Academy of Sciences (CAS) introduced a new chemical approach for bromine-based flow batteries.

What are lithium-ion semi-solid flow batteries (Li-ssfbs)?

As a new type of high energy density flow battery system, lithium-ion semi-solid flow batteries (Li-SSFBS) combine the features of both flow batteries and lithium-ion batteries and show the advantages of decoupling power and capacity. Moreover, Li-SSFBS typically can achieve much higher energy density while maintaining a lower cost.

What is a flow-type battery?

Other flow-type batteries include the zinc-cerium battery, the zinc-bromine battery, and the hydrogen-bromine battery. A membraneless battery relies on laminar flow in which two liquids are pumped through a channel, where they undergo electrochemical reactions to store or release energy. The solutions pass in parallel, with little mixing.

Why are flow battery chemistries so expensive?

Load balancing: the battery is attached to the grid to store power during off-peak hours and release it during peak demand periods. The common problem limiting this use of most flow battery chemistries is their low areal power (operating current density) which translates into high cost.



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### Latest progress and challenges associated with lithium-ion semi ...

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### [Vanadium flow batteries get a boost from a new ...](#)

Vanadium flow batteries are a promising technology for storing renewable energy, as they have long lifespans, high safety, and ...



### [Vanadium flow batteries get a boost from a new stack design](#)

Vanadium flow batteries are a promising technology for storing renewable energy, as they have long lifespans, high safety, and scalability. However, they also have a high initial ...

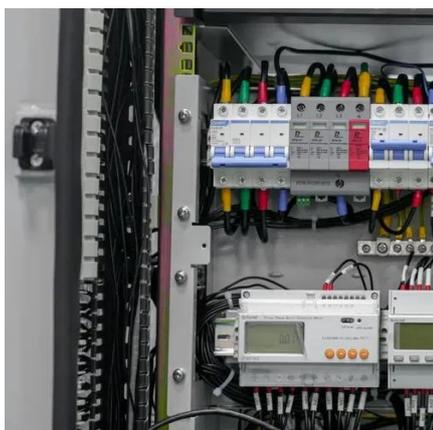


### [This small chemistry tweak could help make green energy ...](#)

And in a sector where progress often comes through small, cumulative gains, that kind of chemistry change could quietly make a big



difference. Reference of the news: "This tiny ...



### **This Simple Chemistry Fix Could Revolutionize Flow Batteries**

The researchers designed a two-electron transfer reaction involving bromine and successfully integrated it into a zinc-bromine flow battery. The work demonstrates both a ...

### [China's Leading Scientist Predicts Vanadium Flow Batteries](#)

He predicts that in the next 5 to 10 years, the installed capacity of vanadium flow batteries could exceed that of lithium-ion batteries. This announcement aligns with the recent ...



### [Researchers Develop 70kW-level High Power ...](#)

Based on self-developed highly selective weldable porous composite membranes and weldable highly conductive bipolar plates, ...



## This tiny chemistry change makes flow batteries last far longer

This tiny chemistry change makes flow batteries last far longer Date: January 1, 2026 Source: Dalian Institute of Chemical Physics, Chinese Academy Sciences Summary: A ...



## Bromine-based flow batteries last longer with new chemistry shift

China: Bromine-based flow batteries have been advanced through research conducted by scientists at the Dalian Institute of Chemical Physics (DICP) under the Chinese ...

## Flow battery

A flow battery, or redox flow battery (after reduction-oxidation), is a type of electrochemical cell where chemical energy is provided by two chemical components dissolved in liquids that are ...



## [Flow Battery Lifespan Boost: Chemistry Breakthrough!](#)

A Two-Electron Leap: The New Chemistry from DICP Researchers at the Dalian Institute of Chemical Physics (DICP) in China have sidestepped this problem with an elegant ...



## Researchers Develop 70kW-level High Power Density Vanadium Flow Battery

Based on self-developed highly selective weldable porous composite membranes and weldable highly conductive bipolar plates, Prof. LI's team developed a 70kW-level stack, ...



### Flow battery

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