Redox flow batteries

Based on organic redox-active species in organic solvents

Positive Impact

- Cost effective stationary energy storage
- Independent scaling of energy and energy capacity
- Safe and reliable

Initial Validation

Initial experiments have been performed, and the organic redox-active species in organic solvents are synthesised and tested.

Problem

The transition to renewable energy sources like solar, wind, and hydro energy is crucial for combating global climate change.

Although the generation of electric energy from renewable resource is highly scalable, the primary challenge remains in finding scalable solutions for efficient long-term energy storage.

Solution

Redox flow batteries (RFBs) offer a promising solution by decoupling energy storage and power conversion, being therefore easily scalable. These batteries represent a potential alternative with lower costs and improved sustainability. The here introduced redox-active species are characterized by stable non-radical compounds in multiple oxidation states, an enlarged voltage window and improved solubility. This could also be attractive for delivering solutions to alleviate grid congestion.

Technology

→ New type of patented redox-active species based on Ketazine derivatives

→ Material with simple synthesis and cheap raw materials (cost-efficient production) are leading to high redox potentials (high cell voltage), high redox reversibility and low crossover tendency (high long-term stability), and relative high solubilities (high capacity).

Call to Action !!!

We are looking for individuals with a passion for sustainable battery solutions. If you have a background in chemistry, mechanical or (electro)chemical engineering, do not hesitate to contact us and reach out at:

entrepreneur@hightechxl.com

Potential Markets

There are several potential markets where this problem is an issue.

- Solar farms
- Industrial zones
- Built environment

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