

Salgenx Unveils Demonstration Saltwater Redox Flow Cell for Educational and Experimental Use

Saltwater demo redox flow cell highlights educational value, capabilities, and opportunities for experimentation, while emphasizing energy storage.

MADISON, WI, UNITED STATES, March 20, 2025 /EINPresswire.com/ -- Salgenx, a leading innovator in energy storage technologies, is excited to announce the release of its demonstration redox flow cell, designed to showcase the principles of saltwater battery technology. This demonstration platform, made with parts readily available from common retailers such as Amazon and Home Depot, offers a hands-on educational experience in understanding the electrochemical process behind saltwater batteries.

The Salgenx Demonstration Redox Flow Cell is a functional prototype intended to illustrate how salt in water is split by electrolysis, stored, and recombined as a battery. This process is fundamental to the operation of redox flow batteries, which use electrochemical reactions to store and discharge energy using liquid electrolytes. The system is designed to demonstrate these principles in a simple, visual way — offering valuable insight into the mechanisms of energy storage at the molecular level.

Key Features of the Demonstration Redox Flow Cell:

- **Electrochemical Process:** The cell demonstrates the splitting of salt in water through electrolysis, showcasing the redox reaction in a clear and educational manner.
- **Voltage Production:** The demonstration cell produces up to 2.2 volts, simulating basic battery functionality. The voltage will depend on the electrolyzer material and type of salt.
- **Adjustable System:** The input charging voltage and current is adjustable, enabling users to



Salgenx Saltwater Redox Flow Battery Demo Cell

observe different electrochemical reactions, such as hydrogen evolution reaction (HER) and the formation of dendrites, which highlight the challenges of saltwater redox flow battery technology. Sometimes these adjustable byproducts can be used as separate revenue sources, in commercial versions.

- Educational Value: This demonstration platform serves as an invaluable educational tool for understanding battery chemistry, electrolysis, and the potential for saltwater-based energy storage solutions.

Not a Home Battery Storage System

It is important to note that this demonstration redox flow cell is not intended to function as a home energy storage unit, nor is it suitable for grid-scale applications. Commercial-scale systems require more advanced anode and cathode configurations and the integration of a battery management system (BMS) to manage performance, efficiency, and safety. This demonstration unit, however, provides a valuable first step for learning about the underlying principles of redox flow batteries.



Saltwater Redox Flow Demonstration Cell

Available Educational Platforms

Salgenx is offering a range of educational options to facilitate hands-on learning with the saltwater redox flow battery system:

- Plans and Parts List: Access to detailed plans and a parts list for building the saltwater redox flow battery cell, alongside the original scientific paper from nationally recognized labs in the United States.
- Saltwater Demonstration Redox Flow Battery Cell Kit: A kit containing parts for assembly and testing of the demonstration redox flow battery cell.
- Completed Demonstration Cell: A fully assembled version of the saltwater redox flow battery cell for immediate use.

Opportunities for Further Experimentation

Salgenx is also making advanced versions of the redox flow cell available via licensing for specialized applications, such as:

- Desalination Experiments: Upgrades allow for the cell to be used in water desalination projects, helping to purify water for various uses.
- Graphene Production: The cell can be integrated into processes for producing graphene and

other novel materials.

- Alternative Electrodes: Innovative experiments using ferro-fluids, bamboo, biochar, or other renewable materials as electrodes are available for testing.
- Energy Applications: The upgraded system can be used to demonstrate electrocatalytic hydrogen production, charging with renewable energy sources like solar or wind, and testing of battery management systems (BMS) to optimize round-trip efficiency.
- Advanced Features: The system also supports experimenting with various salts and nanoparticles to improve efficiency, voltage, or energy density.

About Salgenx

Salgenx is at the forefront of developing innovative energy storage solutions, with a focus on sustainability and advancing renewable energy technologies. The company's mission is to provide accessible, scalable, and environmentally friendly energy storage options, fostering the global transition toward cleaner, more efficient energy systems.

For more information on the Salgenx Demonstration Redox Flow Cell and other products, visit <https://salgenx.com>

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