



# Demonstration Redox Flow Cell for Exploring Saltwater Battery Principles with Easy-to- Source Components by Salgenx

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<https://salgenx.com/saltwater-redox-flow-battery-demo-system-by-salgenx.html>

Discover the principles of saltwater batteries with the Salgenx demonstration redox flow cell. Learn how to build a working model using easily sourced components from Amazon and Home Depot.



This webpage QR code

PDF Version of the webpage (maximum 10 pages)

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**Make a demonstration redox flow cell to show the principles of the saltwater battery using parts readily available from Amazon and Home Depot.**

Salgenx is making available several educational demonstration platform options including:

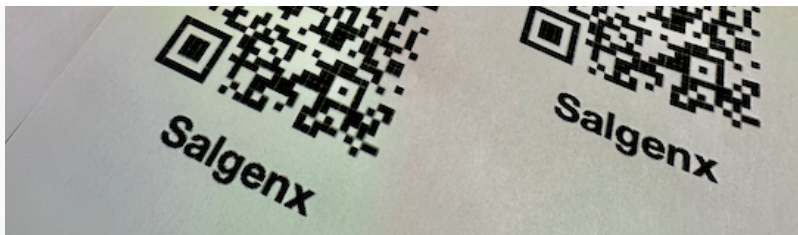
- Plans and parts list to build the saltwater redox flow battery cell, including the original scientific paper from major research labs in the USA.
- Saltwater Demonstration Redox Flow Battery Cell Kit (parts available for assembly and testing). Price: Email for pricing.
- Completed Saltwater Demonstration Redox Flow Battery Cell. Price: Email for pricing and availability



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## Purpose of Demonstration Cell

The purpose of the demonstration cell is to show the electrochemical process where a redox reaction takes place - how salt in water is split by electrolysis, stored, and then recombined to make a working battery.

This is not a home battery storage unit, nor a cell which can be replicated for a grid-scale battery. Those versions use a more complex anode and cathode recipes, along with a battery management system.

As a battery cell, this unit may produce voltage up to 2.2 Volts.

Since the input charging voltage can be adjusted, the system can be adjusted to show hydrogen evolution reaction (HER). The system can also be adjusted to produce dendrites. These byproducts of the redox reaction show the challenges of the saltwater redox flow battery.



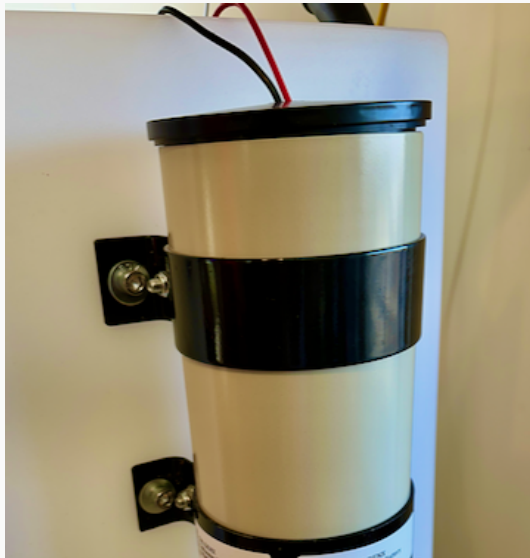


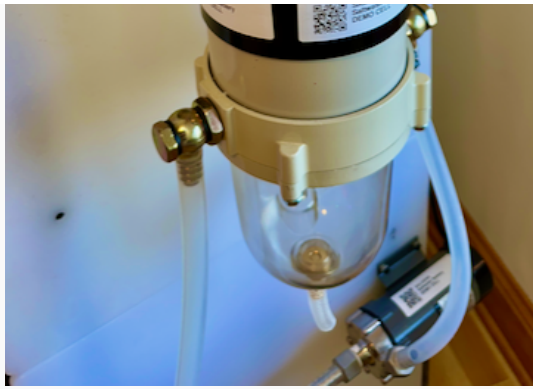
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## Other Applications for the Saltwater Redox Flow Cell

The Salgenx saltwater redox flow cell can be used for the following demonstrations:

- Electrocatalytic hydrogen production, while simultaneously charging the battery.
- Charging and discharging a simple saltwater redox flow battery using solar PV panel, wind, or other renewables.
- Experimenting with Battery Management Systems (BMS) to attenuate the round trip efficiency of the flow battery charging, storage, and discharge.
- Using grid based power to charge during off-peak utility rates, to take advantage of grid-based arbitrage.
- Using a saltwater redox cell to produce solid-state heating or cooling using a Peltier cell.
- Using the saltwater redox cell to help desalinate water for input into a RO system for water polishing, or using the effluent of a RO freshwater system (brine) as the input for the saltwater redox cell electrolyte.
- Experimenting with different anode and cathode materials which provide lower cost and renewable materials sourcing, such as biochar (wood, bamboo, and more).
- Experimenting with nanoparticles as an additive to the liquid electrolyte to make system or cycle more efficient.
- Using different salts as additives to increase redox efficiency, voltage, or energy density.



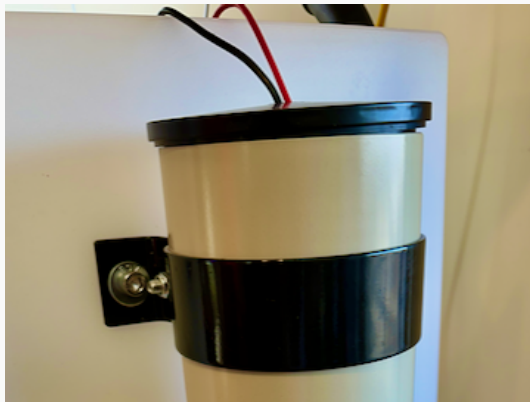


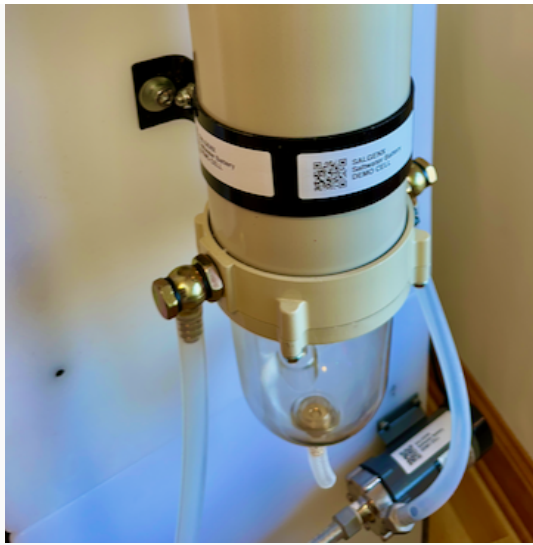
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## Upgrades for the Saltwater Redox Flow Cell

With extensive upgrades, the demonstration redox flow cell can be used for desalination experiments, graphene production, novel electrode design like using ferro-fluids as a fluid electrode, and using bamboo or other biochar to make electrodes. These upgrades are typically made available for license holders and the grid-scale versions.





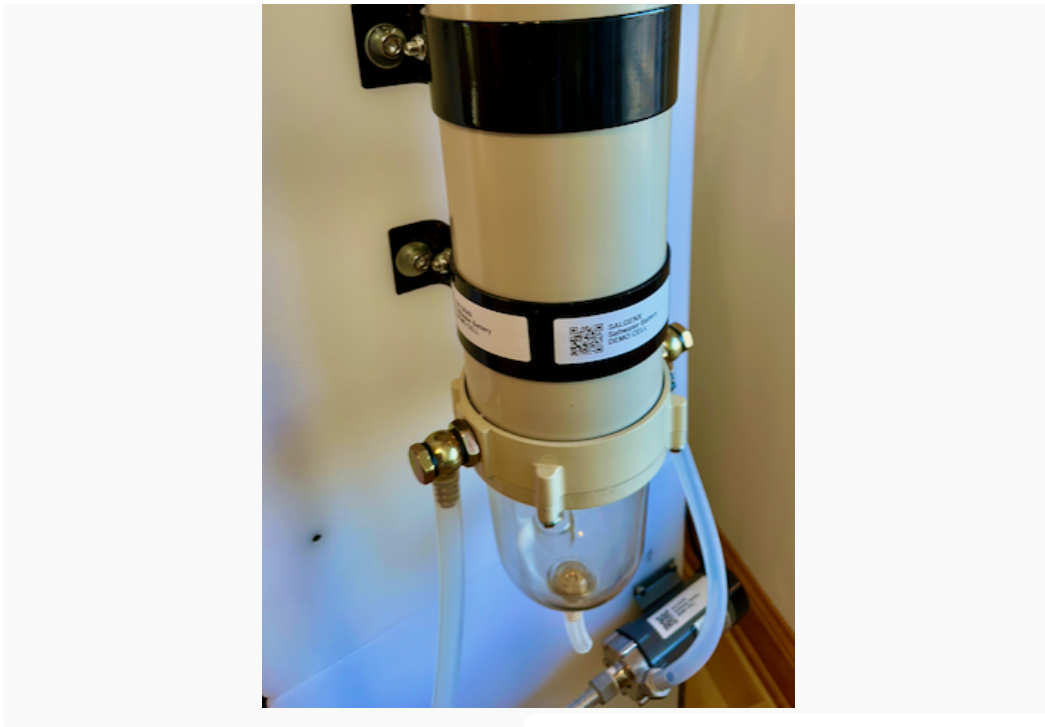
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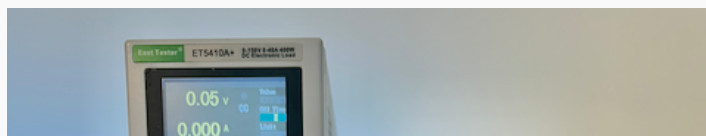


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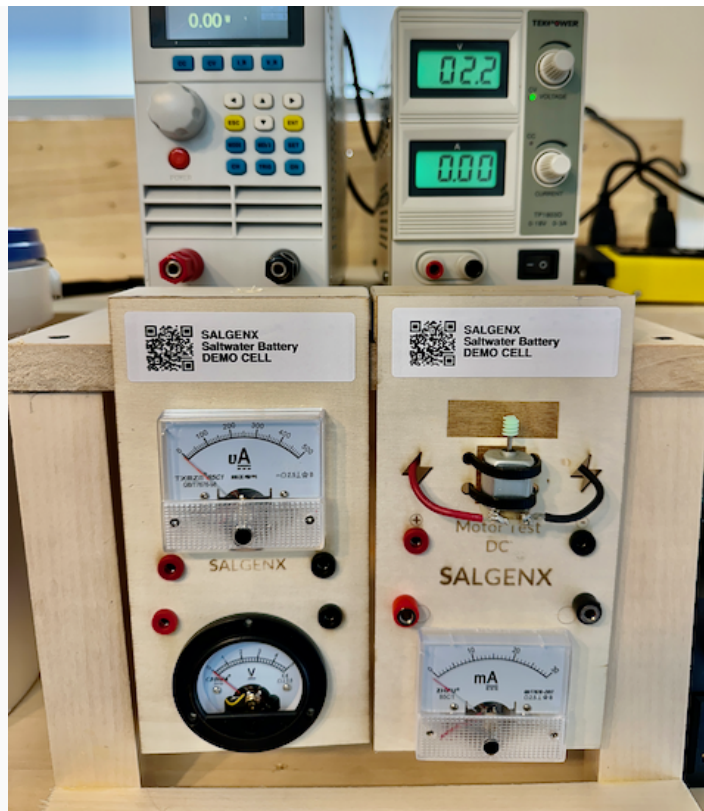




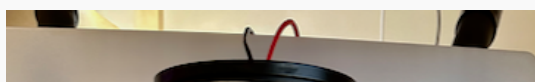
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