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Salgenx

SaltWater Flow Battery Applications

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Salgenx SaltWater Flow Battery Applications.

PDF Version of the webpage (first pages)

Salgenx Salt Water Flow Battery

The salt water flow battery is designed for large commercial and utility projects. The low cost makes it affordable for many smaller business applications including charge stations, remote power, and grid energy arbitrage.

Demand Support or Grid Arbitrage

Charge during off-peak periods and use during on-peak demand to support distribution infrastructure. This includes the optional thermal storage capacity which allows you to use high COP (coefficient of performance) heat pumps to make hot or cold water.

Electrolytic Gold Recovery

Electrolysis can be used in the process of extracting gold from a slurry through a method known as the electrolytic recovery of gold. This process involves the use of electrical energy to drive a chemical reaction that separates gold from other materials in the slurry. Electrolysis is an effective method for harvesting gold from a slurry. By using electrical energy to drive the deposition of gold onto a cathode, the process can efficiently recover gold with high purity.

Gold recovery can be part of the charging process of the battery.

Microgrid

For remote or localized grid which allows power supply without the grid.

Graphene Coated Sand Aggregate Kiln For use to make coated aggregate for concrete with higher strength and lower weight in non-structural applications.

A modular container mounted kiln for heat treating sand with a coating of graphene for use in the construction industry when used for aggregate and cement to make concrete.

Uses: Non-structural concrete for ornamental, siding, containers, troughs, thermal or sound insulation works, fillings, small walls or fences, insulating sub-floors, construction of ditches, sidewalks, and other similar civil works. Aggregate: Sand, Perlite, vermiculite, and more.

Ingredients: Aggregate (sand or other materials), activated carbon, and a inexpensive precursor (proprietary - but commonly available).

Heat Sources: Wood waste, sawdust, gas, electricity, and hydrogen.

Batch Process: This process is for making batch quantities. A continuous kiln process is under development and will be available for licensing at a later date.

Time: The processing time to heat treat and coat the aggregate is a matter of hours. Rate at which kiln heats to starting temperature is a big factor.

Samples and basic recipe: \$10,000. Amount can be deducted if a Licensing Package is purchased below. Licensing Package: Modular container mounted kiln design and plans, heating source plans, graphene batch formula and recipes. Please email for pricing.

Note: It is your responsibility to check for codes specific to your state, region or country to determine where and in what applications this can be used according to codes and zoning.

More information will be available soon.

Building Products Using EDM Electrical Discharge in a Saltwater Battery

Explores the innovative use of Salgenx saltwater batteries in Electrical Discharge Machining (EDM) manufacturing. Salgenx saltwater batteries, known for their eco-friendly and cost-effective properties, offer a sustainable energy source by leveraging saltwater's electrolytic properties. The dual role of saltwater as both a dielectric fluid for the EDM process and an integral part of the battery's charging cycle presents numerous advantages, including enhanced safety, reduced operational costs, and streamlined maintenance. Practical considerations for system design, control mechanisms, and maintenance protocols are discussed. This integration marks a significant step towards greener, more efficient manufacturing processes and the advancement of EDM technology.

Wind and Solar Renewable Smoothing

Wind turbines and solar PV need flow balancing to the grid by storing production and discharging energy when needed.

Rocket Fuel From PV and Wind Energy Using the Salgenx Saltwater Battery

Saltwater finds its utility in a variety of applications, with its role in flow batteries being merely one example. By employing sodium perchlorate (NaClO4) as its foundational ingredient, the Salgenx saltwater battery also serves as a precursor in the production of solid rocket fuel.

Market Penetration

Response to system operator alerts by providing energy support in grid systems.

Infrastructure Investment

Storing power in a single location is more affordable than expensive grid infrastructure upgrades. May also use for high energy demand peaks.

Voltage and Frequency Regulation

Absorb reactive power and adjust output resulting in stabilizing voltage levels.

Cogeneration

Use waste heat to thermally store in saltwater for use at a later time. This use of simultaneous power and thermal allow for cogeneration of energy which substantially reduces investment payback.

Desalination

A breakthrough in desalination technology has been announced today with the unveiling of a new system that uses a saltwater flow battery cycle to produce clean drinking water from seawater. This innovative solution has been developed by a team of scientists and engineers who have been working tirelessly to create a sustainable and cost-effective way of storing energy while simultaneously producing fresh water.

The desalination system operates by using a saltwater flow battery cycle, which involves the movement of ions between two electrodes to store or discharge electricity without a membrane (which is typical with Vanadium or Bromine flow batteries). In this case, the process is used to remove salt from brine or seawater. The system can use a renewable energy source, such as solar power or large wind turbine, to charge the battery, making it both environmentally friendly and cost-effective.

Revolutionizing the EV Battery Landscape: The Emergence of Grid-Scale Saltwater Flow Batteries for Lithium Direct Lithium Extraction (DLE)

Unlocking a Sustainable Future in Lithium Production

In a remarkable leap forward for electric vehicle (EV) technology, a new grid-scale saltwater flow battery system has emerged, promising to revolutionize the EV battery materials supply chain. This innovative system stands out for its ability to extract lithium during its charging process, a breakthrough that could redefine how we approach lithium production for EV batteries.

Energy Savings

The integration of lithium extraction into the charging process of these batteries leads to more than 50 percent energy savings compared to standard lithium extraction methods. This efficiency is particularly noteworthy when paired with renewable energy sources like solar PV systems. When deployed with solar PV, the power can be stored during the day, then used for post-processing (refining) at night with the power already stored, resulting in huge energy savings.

Harnessing Magnetohydrodynamic Drive in Saltwater Flow Batteries for In-Situ Flow Enhancement

The world's growing energy demands and the imperative shift towards cleaner, more sustainable technologies have spurred intensive research into innovative energy storage solutions. Among these, flow batteries have gained attention for their potential to offer scalable, long-duration energy storage. One intriguing development in this realm is the incorporation of magnetohydrodynamic (MHD) drives into saltwater flow batteries. This integration presents a fascinating approach to enhancing in-situ flow and improving the overall efficiency of these energy storage systems.

Producer Water Conditioning for Oil and Gas Industry

The technology of the salt water flow battery will allow oil and gas wells to use their well as a battery, while simultaneously perform water conditioning. Imagine pumping oil and gas, while simultaneously storing power in the same well to power pumps. The concept of stranded oil and gas will now morp into any well becoming a battery or recharging station. Adding a Organic Rankine Cycle generator to utilizing well geothermal heat to make power allows complete separation from the grid, or IC engine generators, which need constant maintenance.

Charge Stations for EV Cars Vans and Tesla Semi

Charge stations are starting to integrate battery packs for their charging stations.

Applications of Flow Batteries based on Open A I

Grid-scale energy storage: Flow batteries can be used to provide grid-scale energy storage in Ukraine, helping to balance the grid and improve the reliability of the power supply.

Renewable energy integration: Flow batteries can be used to store energy generated by renewable sources such as wind and solar, helping to increase the penetration of renewables in the country.

Microgrids: Flow batteries can be used to provide power for microgrids, particularly in remote and rural areas, where access to the grid is limited.

Backup power: Flow batteries can be used as backup power for critical infrastructure, such as hospitals and emergency services, in case of power outages.

Electric vehicles: Flow batteries can be used to power electric vehicles, helping to reduce dependence on fossil fuels and improve air quality.

Industrial applications: Flow batteries can be used to provide power for industrial applications, such as manufacturing and mining, where a reliable and long-duration energy source is needed.

Agriculture and irrigation: Flow batteries can be used to provide power for irrigation systems, helping to improve crop yields and reduce dependence on fossil fuels.

Telecommunications: Flow batteries can be used to power telecommunications systems, such as base stations and cell towers, providing a reliable and long-duration energy source in remote locations. It's worth noting that some of these applications may still be in the early stages of development and implementation.

Grid-scale energy storage: Flow batteries can be used for grid-scale energy storage, particularly for storing excess energy generated from renewable sources such as wind and solar. This can help to balance the grid and provide a reliable source of energy during periods of low renewable energy generation.

Transportation: Flow batteries can be used to power electric vehicles, such as buses, trucks, and trains, helping to reduce dependence on fossil fuels and improve air quality in urban areas.

Energy management: Flow batteries can be used to store energy during off-peak hours, and to release it during peak hours, reducing the burden on the grid and helping to improve energy efficiency.

Military applications: Flow batteries can be used for military applications, such as powering communication systems, unmanned systems, vehicles and backup power for critical systems.

Remote Sensing: Flow batteries can be used to power remote sensing equipment, such as cameras and radar systems, providing a reliable and long-duration energy source for use in remote locations.

The Hidden Cost of AI: How Every Query Contributes to Water Scarcity

Note: The Cavgenx system is designed to be integrated into the Salgenx battery, which can be used as a heat sink for AI data center cooling and battery backup.

In our digitally-driven world, artificial intelligence (AI) has become an integral part of our daily lives, from voice assistants and recommendation algorithms to chatbots and language models. We often use AI systems without realizing the environmental impact they may have. A recent study conducted by the University of California, Riverside, sheds light on a concerning aspect of AI technology: its hidden water footprint. Each time you run a ChatGPT artificial intelligence query, you unknowingly contribute to the depletion of our already overstressed freshwater resources.

The Water Footprint of AI

The research from the University of California, Riverside, has revealed a startling fact: running AI queries that rely on cloud computations in data processing centers consumes significant amounts of freshwater resources. With every 20 to 50 queries, approximately half a liter (around 17 ounces) of fresh water is lost in the form of steam emissions. This might not seem like much on an individual basis, but the cumulative impact of billions of AI queries worldwide is a cause for concern...

Cavgenx Heat Pump Turbine

The heat pump turbine is a product which has been in development for some time. It is a hybrid between the Brayton Cycle and Organic Rankine Cycle.

This amazing device can also be used simultaneously as a heat pump, which only leverages its use in range extending for electric cars.

The unique part of this turbine is that it can be closed-loop using CO2 as the working fluid taking advantage of sonochemistry (cavitation). Most refrigerants can be used as the working fluid for the Cavgenx heat pump turbine. The benefit is the ability to perform work using hydraulics and simultaneous cooling of the refrigerant.

Ideal for industries leveraging both hydraulic and refrigeration systems, this approach promises enhanced efficiency and compact design.