

9/8/2023

608-238-6001 [TEL]

greg@infinityturbine.com [Email]



lithium-mining- from-brine

Infinity Turbine
LLC

Lithium Mining from Brine



This webpage QR code

Structured Data

```

<script type="application/ld+json">
  {
    "@context": "http://schema.org",
    "@graph": [
      {
        "@type": "Organization",
        "@id": "https://infinityturbine.com/#organization",
        "name": "Infinity Turbine LLC",
        "url": "https://infinityturbine.com",
        "sameAs": [
          "https://www.youtube.com/channel/UCsobpvy0xqc13uvhA71Cv4w",
          "https://www.instagram.com/infinityturbine/"
        ],
        "telephone": "608-238-6001",
        "email": "greg@infinityturbine.com",
        "logo": "https://infinityturbine.com/logo.png"
      },
      {
        "@type": "WebSite",
        "@id": "https://infinityturbine.com",
        "url": "https://infinityturbine.com",
        "name": "Lithium Mining from Brine",
        "description": "Lithium Mining from Brine and seawater"
      },
      {
        "@type": "NewsArticle",
        "mainEntityOfPage": {
          "@type": "WebPage",
          "@id": "https://infinityturbine.com/lithium-mining-from-brine.html"
        },
        "headline": "Lithium Mining from Brine",
        "image": "https://infinityturbine.com/images/20221003-water-conditioning-salt-system.png",
        "datePublished": "2023-09-08T08:00:00+08:00",
        "dateModified": "2023-09-08T09:20:00+08:00",
        "author": {
          "@type": "Organization",
          "name": "Infinity Turbine LLC",
          "url": "https://infinityturbine.com"
        },
        "publisher": {
          "@type": "Organization",
          "name": "Infinity Turbine LLC",
          "logo": {
            "@type": "ImageObject",
            "url": "https://infinityturbine.com/logo.png"
          }
        }
      }
    ]
  }
</script>

```

Lithium Mining from Brine and seawater

PDF Version of the webpage (first pages)

<https://infinityturbine.com/lithium-mining-from-brine.html>

Simultaneously produce soft water and power from brine

We are currently developing our Salt Battery technology to help harvest Lithium from brine.

Brines from salars and salt lakes, as well as spodumene ores, are the primary source of lithium, while geothermal brines represent secondary sources.

Produced water from oil and gas operations is an untapped source of lithium that may be more important in the future.

Chemical precipitation, adsorption with inorganic ion exchange sorbents, solvent extraction and concentration with membrane technologies are the primary means of lithium recovery from brines.

Each lithium extraction and recovery process has unique advantages and challenges that need to be considered when determining the best fit for any project.

New advances in water treatment offer exciting improvements on the economics of using membrane technologies for lithium recovery. (see link below)

9/8/2023

Amount of Lithium Available from Brine Sources

A. Salt in Lakes (Brine): 200-7,000 mg/L. The process to harvest is staged evaporation, concentrating, and then producing lithium. Traditionally large areas are needed for Sun powered evaporation (and around 18 months or longer). On the plus side, it's a massive resource with natural evaporation energy. Our twist is to use geothermal or waste heat to speed up the process.

B. Groundwater Brines: 20-200 mg/L. The process to harvest is Lithium absorption and deabsorption on a metal oxide and then refining. There are vast resources in the USA close to lithium utilization plants.

C. Oil and Gas Brines: 50-100 mg/L. No major process established. Low concentration and large volumes needed, while wells are spread out over vast territories. Bonus as value added for oil and gas wastewater treatment.

The process we're looking into uses CO₂ and produces a lithium extraction as part of our salt battery technology and a spinning disc reactor (to speed up the process).

From the reference below:

A novel technique based on an electrolytic cell that contains LiFePO₄/FePO₄ as an electrode material has been studied to selectively recover lithium. Under an electrochemical process, lithium ions from a lithium-bearing brine are selectively intercalated into a cathode made from FePO₄ to form a lithium-saturated LiFePO₄. Then, the current is reversed, turning the LiFePO₄ into an anode that can be used to recover lithium.

Other Applications for our Salt Battery

Cooling tower blow down brine.

RO Brine treatment.

MLD RO membrane systems.

Disposal wells and cost reduction.



