



Lithium Refining Systems

Modular, Complete, Intelligent Solutions



WWW.SALTWORKSTECH.COM

SALTWORKS OFFERINGS

Saltworks delivers proven technologies and expert engineering to support your lithium project from pilot to production.

Whether you need a full turnkey system, select unit operations, or digital and engineering support, our modular solutions are engineered for performance, cost-efficiency, and flexibility.

OFFERINGS

TURNKEY SYSTEMS

- › Brine-to-battery chemical complete systems
- › Full package inclusive of all unit operations, interconnections, & advanced process control
- › DLE agnostic & open source approaches

SINGULAR UNIT OPERATIONS

- › Robust, modular, factory-commissioned skids
- › Built-in intelligent controls
- › Integrate with your process plans & plants

DIGITAL TWIN 'Q' & OPTIONAL PREDICTIVE AI

- › Available with Saltworks' turnkey systems
- › Consideration for select projects
- › Operate, train, & optimize a virtual plant
- › Secure data management & reporting

PILOT TESTING & ENGINEERING SERVICES

- › Extensive fleet of on- & off-site pilots
- › Early contractor involvement (ECI)
- › Front-end engineering design (FEED)
- › Collaborate & accelerate with EPCs

ADVANTAGES

- › Off-site constructed modular plants offering lowest total installed cost: Lang Factor 1.2-1.5
- › Performance optimized: Improve efficiency by 20%
- › Smart automation, digital twins, & remote support

- › Select à la carte high-performing unit operations
- › Engineer into your process flow sheet
- › Achieve lower total installed cost
- › Self-diagnose and self-maintain for higher uptime

- › Process modelling for testing & optimization
- › Input cost & market sensitivity analysis
- › Virtual commissioning and training tools
- › Plant performance reports & recommendations

- › Pilot plants with full-scale process control
- › Produce battery chemicals
- › Detailed process flows & mass balances
- › Advance ECI and FEED with a proven partner

Saltworks delivers modular, intelligent, and built-for-performance lithium solutions.

Contact our expert engineers today.

Let's Talk Lithium



+1 604-628-6508



info@saltworkstech.com



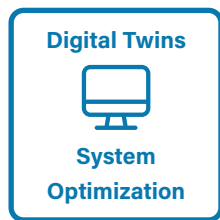
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Our off-site constructed and factory-commissioned lithium plants are cost-effective, high-performing, modular, and scalable.

Customers benefit from lower total installed costs, de-risked delivery models, and proven, repeatable designs trusted by the mining, semiconductor, and automotive industries.

With deep expertise in industrial water treatment and critical mineral recovery, Saltworks supports the full lithium lifecycle—from extraction to battery chemical production, CAM and battery manufacturing and recycling.

Whether you're seeking complete refining systems, intelligent unit operations, engineering and pilot services, or a digital twin platform to optimize performance, we're ready to support.

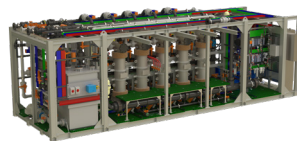


Process Step

Pre-conditioning System (PCS)

Direct Lithium Extraction (DLE)

Refine & Recover Water



Saltworks Product

BrineRefine Filtration

*Best for Customer Adsorption rec'd

XtremeRO / BrineRefine

Technology

Oxidation & filtration

Water elution lithium selective adsorbent

Nanofiltration (NF), RO and/or chemical softening

Objective

Protect DLE by oxidizing Fe, Mn, & removing TSS

Extract & concentrate lithium; reject salinity

Refine & concentrate lithium + recover water

% Li vs total cations

0.1%

60%

90%

Li⁺ (aq.) mg/L

100-800

400-1,300

10,000

Notes

Lithium source waters vary. A cost-effective PCS system should maximize uptime while protecting the DLE unit from fouling. Low Fe: air oxidation High Fe: chem oxidation

Saltworks supports DLE & adsorbent selection + system configuration to differentiate performance & lower cost. Maintain flexibility to swap adsorbent as supply & technology evolve.

Saltworks' bespoke NF configuration & staging with RO enhances performance & cost. Silica alters flow sheets (chemical softening).

Turnkey Plants or Unit Operations

Saltworks' technologies plug into every major step of the lithium refining process—from raw brine to battery-grade lithium carbonate. Our modular, scalable systems are engineered to maximize lithium recovery, minimize installed cost, employ advanced automation and enhanced apparatus.

Below is a simplified flow sheet with representative technologies at each stage. Whether you need a full system or just a few key unit operations, Saltworks delivers leading process solutions for lithium refining.

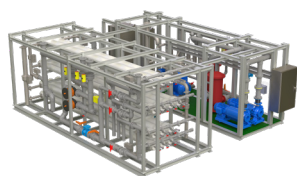


Boost Concentration

Polish Impurities

Produce Li_2CO_3 or LiOH

Package for Shipment



FusionRO

Xtract

Li-Refine

***Best for Customer**

Ultra-high pressure hybridized RO/NF

Chelating ion exchange

Soda ash carbonation

Drying & bagging

Concentrate lithium chloride & recover additional water

Polish boron & hardness impurities

Produce & wash high purity lithium carbonate crystals

Remove residual moisture and prepare for shipping

90%

90%

100%

100%

>20,000

>20,000

Li_2CO_3

Li_2CO_3

MVR evaporators are an option, but at a higher cost and OpEx. Saltworks' FusionRO is a proprietary, simplified, intelligent, & proven ultra-high pressure hybrid RO/NF system.

Saltworks' Xtract is a flexible, modular ion exchange system. We've tested and selected the best chelating resins to develop an efficient high TDS ion exchange polish.

Saltworks' Li-Refine is a cousin of our BrineRefine technology, based on vast large crystallization experience. Modular Li-Refine produces, washes, and extracts high-purity crystals.

Saltworks integrates drying & bagging into our complete systems. Selection will vary based on customer utilities and wishes.