

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



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Lithium Refining Systems

Modular, Complete, Intelligent Solutions



WWW.SALTWORKSTECH.COM

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.

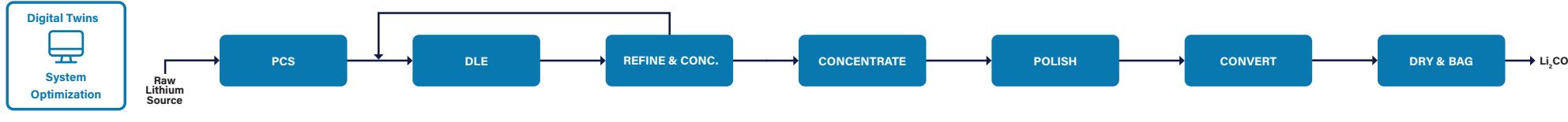
With deep expertise in industrial water treatment and critical mineral recovery, Saltworks supports the full lithium lifecycle—from extraction to battery chemical production, CAM and battery manufacturing and recycling.

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.

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.



Process Step	Pre-conditioning System (PCS)	Direct Lithium Extraction (DLE)	Refine & Recover Water	Boost Concentration	Polish Impurities	Produce Li ₂ CO ₃ or LiOH	Package for Shipment

Saltworks Product	BrineRefine Filtration	*Best for Customer Adsorption rec'd	XtremeRO / BrineRefine	FusionRO	Xtract	Li-Refine	*Best for Customer
Technology	Oxidation & filtration	Water elution lithium selective adsorbent	Nanofiltration (NF), RO and/or chemical softening	Ultra-high pressure hybridized RO/NF	Chelating ion exchange	Soda ash carbonation	Drying & bagging
Objective	Protect DLE by oxidizing Fe, Mn, & removing TSS	Extract & concentrate lithium; reject salinity	Refine & concentrate lithium + recover water	Concentrate lithium chloride & recover additional water	Polish boron & hardness impurities	Produce & wash high purity lithium carbonate crystals	Remove residual moisture and prepare for shipping
% Li vs total cations	0.1%	60%	90%	90%	90%	100%	100%
Li ⁺ (aq.) mg/L	100-800	400-1,300	10,000	>20,000	>20,000	Li ₂ CO ₃	Li ₂ CO ₃
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).	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.