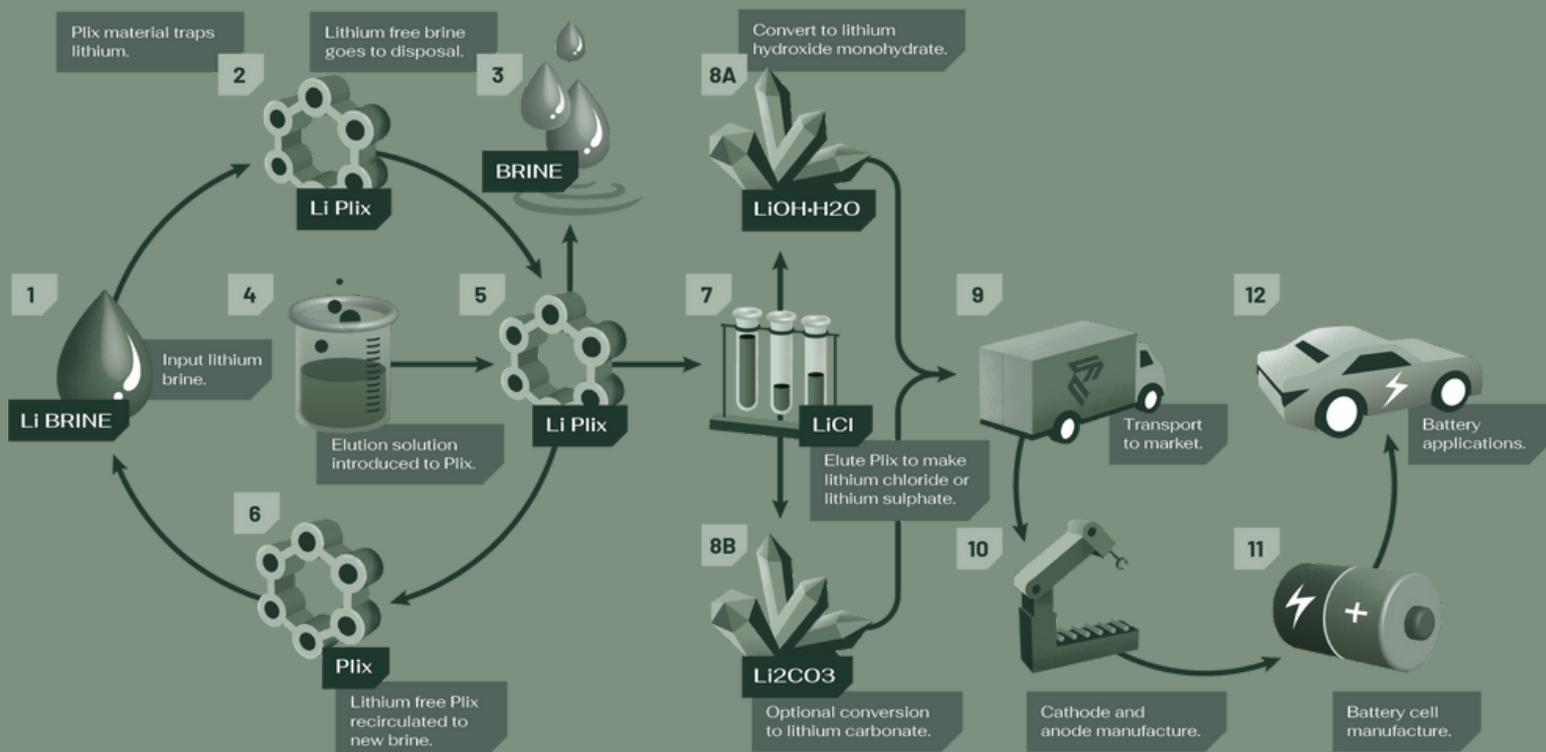


Prairie Lithium Direct Lithium Extraction (DLE) Technology

Why DLE?

- Can accomplish lithium concentration in a matter of hours opposed to months using traditional brine extraction methods.
- Unlocks lithium resources that were once unfeasible to extract due to low concentrations.
- Lithium depleted brine is disposed of back into the deep subsurface using methods that have been demonstrated for decades in Saskatchewan.
- Reduces the land use impact compared to evaporation ponds and open pit mining.
- Leverages knowledge and infrastructure developed by the oil and gas industry to support the electrification of the transportation sector.

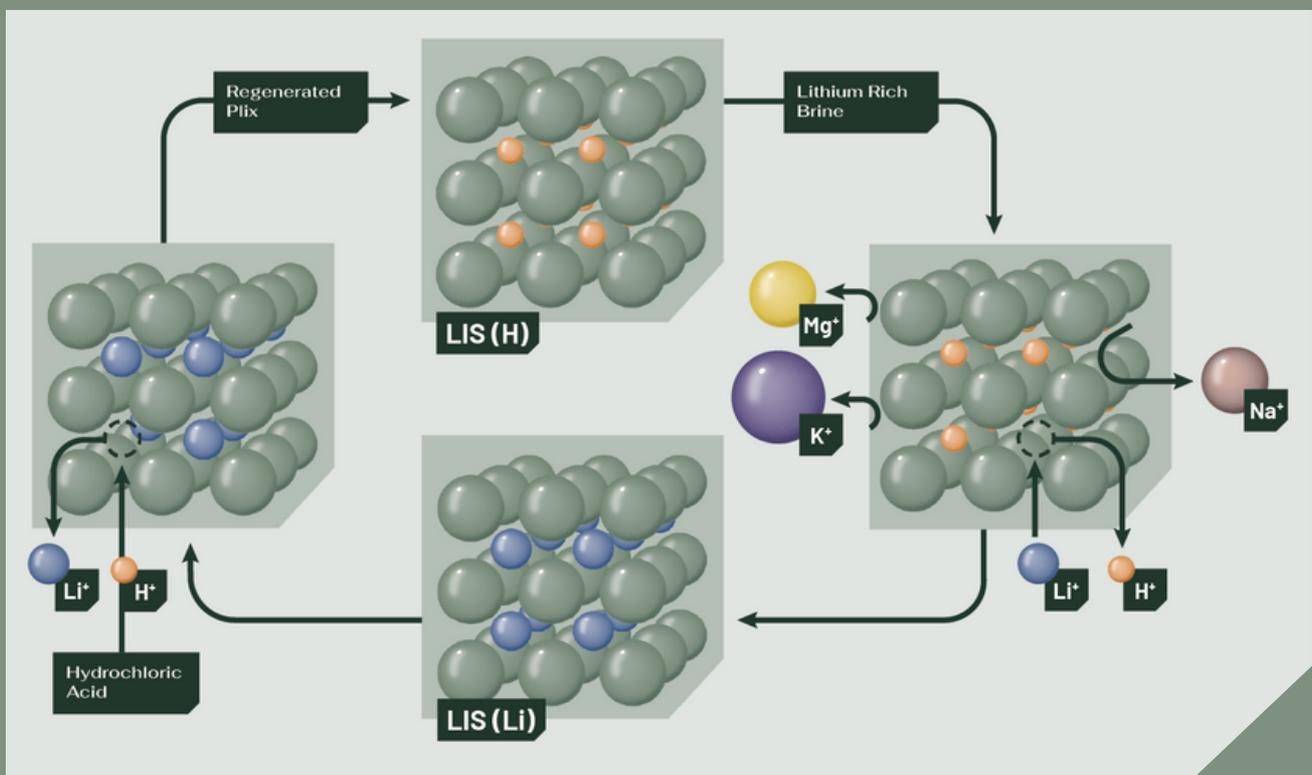


How it Works

1. Lithium-rich brine is pumped from the subsurface.
2. Plix, a lithium selective ion exchange material, is mixed with the brine stream via inline static mixers accelerating the uptake of lithium into the crystal structure of the Plix.
3. Plix is separated from the brine stream, washed with reverse osmosis water to remove residual brine and impurities. Lithium-free brine is disposed of back into deep subsurface reservoirs.
4. The lithium is stripped from the Plix using dilute hydrochloric acid.
5. The concentrated lithium chloride is sent for additional purification before being made into battery grade lithium chemicals.
6. The recycled Plix is ready to be mixed with fresh lithium-rich brine in a new loading cycle.

PLIX - Prairie Lithium Ion Exchange

- Plix is a specially formulated lithium selective ion exchange material developed by Prairie Lithium.
- Lithium ions exchange with hydrogen ions in the crystal structure of the Plix.
- Plix acts as a Lithium Ion Sieve (LIS) that only allows lithium ions to exchange into its crystal structure due to the ionic radii.
- Plix rejects the inclusion of other ions like Mg, K, and Na ions to the crystal structure reducing carryover into the concentrated LiCl solution.
- When Plix is loaded with lithium it is stripped with a solution of dilute hydrochloric acid. Exchanging lithium in the Plix with a hydrogen from the acid.
- After the lithium is stripped, Plix is recycled back into the lithium rich brine stream for another loading cycle.



Prairie Lithium Pilot Facility

- Operational since August 2020
- Built to develop the DLE technology and derisk commercial deployment
- Processed 400 m³ of lithium rich Duperow brine
- Maximum throughput of 17 m³ of brine or 10 kg LCE per day

