Team TELEPORT:

Targeted Extraction of Lithium with Electroactive Particles for Recovery Technology

Iron in the brine drives Li⁺ capture via intercalation Concentrated Li⁺ in the intercalation material is released for further purification Electrodialysis is used to isolate Li⁺ from competing cations using a metal organic frameworkbased membrane Li⁺ selective metal organic frameworkbased composite membrane is used to isolate the LiOH•H₂O product

Iron byproduct of electrodialysis is used to regenerate the intercalation material, release Li⁺, and prepare the intercalation material bed for subsequent Li⁺ capture.

Advantages:

- Selective Li⁺ extraction using an intercalation material
- Driven by existing brine chemistry
- Minimal additional chemicals or external energy needed
- Scalable and space-efficient processing
- Intercalation material simplifies downstream purification
- Product purity enhanced by solid materials and advanced membranes



