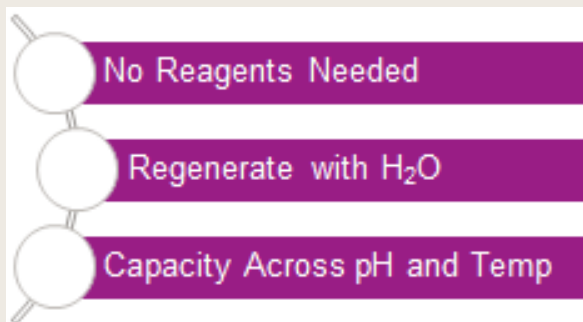
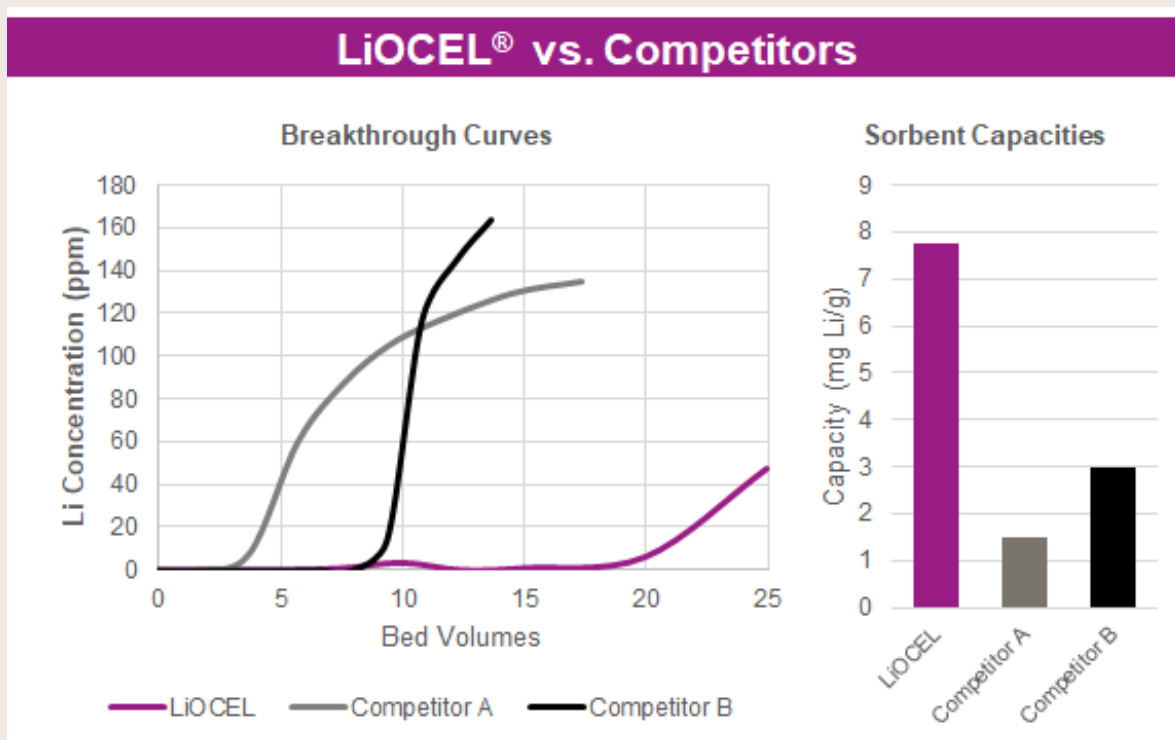


LiOCEL® (Sorbents for DLE)

Sorbents for Direct Lithium Extraction

Lithium remains the go-to material for ion batteries because of its unparalleled charge-to-mass ratio. With the demand for rechargeable high-performance batteries projected to outpace raw material production, manufacturers are looking for new and innovative ways to extract lithium. Direct Lithium Extraction (DLE) offers a greener approach to lithium production, presenting lower OpEx and no weather dependence. LiOCEL® is a LDH sorbent that can be designed, optimized and even customized to efficiently extract lithium chloride from a variety of brine sources.

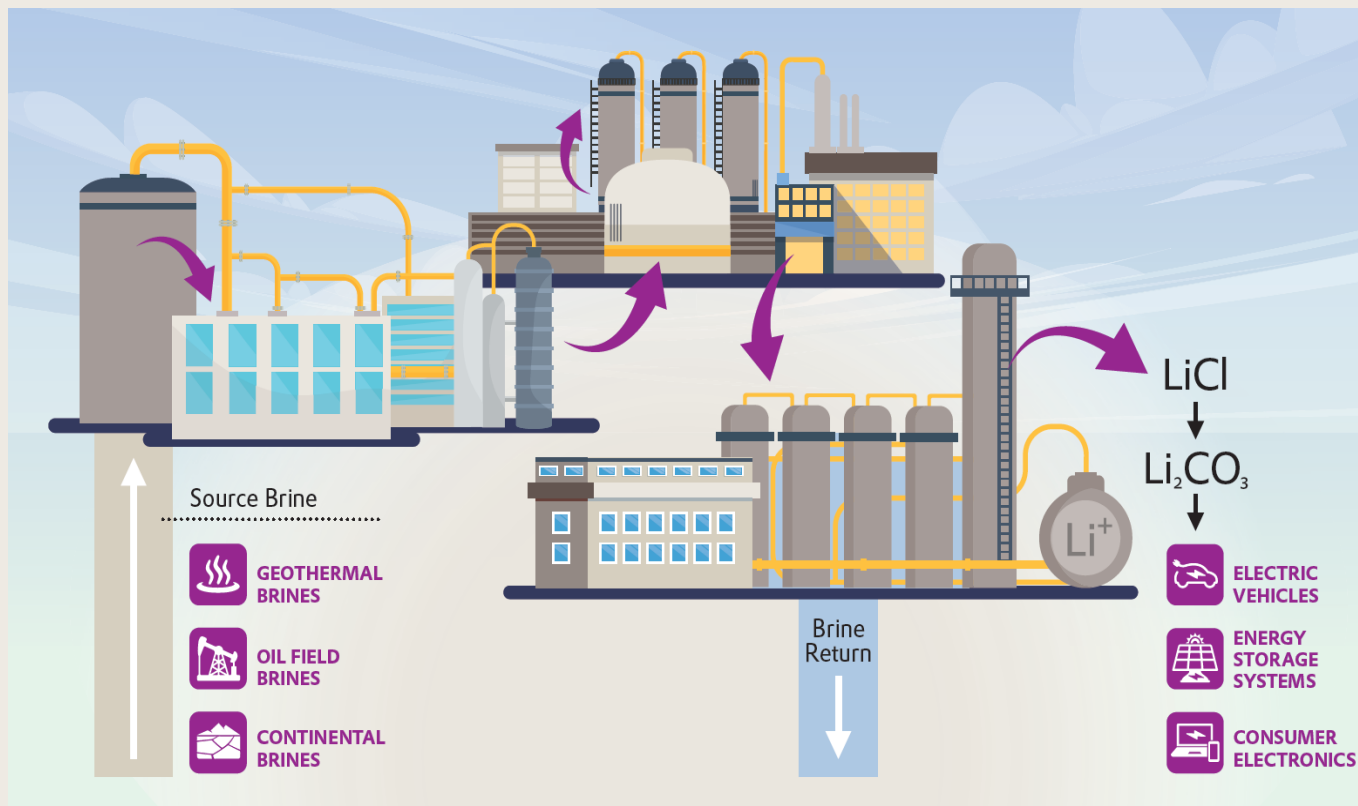


Conditions for above comparison:

Inlet LiCl: 180 ppm, Temperature: ambient, TDS: 100,000 ppm, Flow: 15 bv/hr, pH: 6

Simply expose LiOCEL® to your brine and elute the lithium with water. LiOCEL® removes the need for costly reagents during DLE and drastically lowers operating expenses.

*This product is produced in the USA



What
makes a
good
sorbent?

1. **Capacity** - Typical competitive capacities are 1 – 6 mg Li/g.
2. **Selectivity** - Separation coefficients of Li/Na > 1000
3. **Stability** - Sorbents must demonstrate chemical and mechanical stability for repeated loading and elution cycles
4. **Particle Size** - In fixed bed, PSD impacts pressure drop and mass transfer



LiOCEL®

1. LiOCEL® capacity of 6-10 mg Li/g
2. LiOCEL® Separation coefficients of Li/Na > 1000
3. LiOCEL® Lifetime testing > 1000 cycles (longer trials to be completed)
4. LiOCEL® PSD customizable

Evonik is an industry leader when it comes to specialty chemical manufacturing and the LiOCEL® line of products is no exception.

Our global presence and experience with sorbents has allowed us to create innovative solutions to the world of lithium extraction.

Evonik's extensive history with development projects, and potential tie in to downstream technologies from DLE, allows us to bring our customer's products and services to the center stage.

Let us know where your interests lie so can work together to reach common goals.

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Disclaimer

This information and all further technical advice are based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

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