

Lilac Unveils Fifth-Generation Lithium Extraction Technology, Delivering Significant Performance and Cost Improvements

New white paper details technical validation, field results, and cost advantages of Lilac's Gen 5 technology

OAKLAND, CA, UNITED STATES, October 28, 2025 /EINPresswire.com/ -- Lilac Solutions, a leading provider of direct lithium extraction (DLE) technology, today announced the release of its fifth-generation ion exchange (IX) technology, which delivers significant improvements in performance and cost. Gen 5 Lilac IX increases IX media productivity and durability, enhances eluate quality, and simplifies brine pretreatment, driving down capital and operating costs for lithium producers. Developed and manufactured in the United States, Lilac's technology strengthens supply chains for critical minerals while eliminating reliance on Chinese-made components. Alongside this announcement, Lilac has published a [technical white paper](#) documenting Gen 5 performance, field validation, and cost modeling across multiple brine resources.

"Lithium producers are under intense cost pressure as prices remain volatile and the resources needed for new supply are increasingly complex," said Raef Sully, chief executive officer of Lilac Solutions. "Our Gen 5 technology gives producers a clear path to low-cost lithium production from a wider range of brine resources."

Gen 5 Lilac IX provides exceptional performance when compared to conventional alumina adsorbents (AA). Four key attributes enable significant reductions in project costs:

- **Solids Tolerance:** IX system allows passage of 70x larger particles, enabling use of low-cost multi-media filtration and avoiding expensive ultrafiltration often required by AA.
- **Media Productivity:** the lithium production rate per volume of IX media is 20x higher than AA, reducing the required number of reactors and first fill media volume.
- **Media Durability:** delivers up to 10,000 cycles before replacement, which is orders of magnitude higher than competing IX technologies.
- **Eluate Quality:** 7x higher lithium concentration and higher purity with 100x lower boron:lithium ratio than AA, simplifying downstream concentration and purification.

The Gen 5 technology leverages the same proven equipment package used in Lilac's Gen 4 pilot and demonstration plants with a scalable, modular design, off-the-shelf components, and 10x

lower water consumption compared to AA. Gen 5 has been validated in recent field pilots with challenging brines, including the ultra-low-grade Great Salt Lake brine in Utah (70 mg/L Li) and oilfield brines in Europe.

“Lilac’s Gen 5 technology represents a real opportunity for brine developers,” said Dave Snyder, founder and chief technology officer of Lilac Solutions. “Many brine projects have been trying for years to implement conventional adsorbents but struggling with low performance and high costs. This is an exciting moment to take a look at our data and rethink ion exchange.”

Projects incorporating Gen 5 Lilac IX are projected to rank in the first quartile of the global cost curve, with C1 costs ranging from \$3,200 to \$5,500 per tonne of lithium carbonate equivalent (LCE), including the planned full-scale commercial facility at the Great Salt Lake. Gen 5 expands the range of viable brine resources, enabling first-quartile costs across both high- and low-grade brines while maintaining a smaller environmental footprint than legacy brine and hard rock extraction methods.

Lilac’s technology builds on field experience from seven completed pilot and demonstration plants in Argentina, Chile, the United States, and Europe, validating high lithium recoveries, strong impurity rejection, and reliable operations across a wide range of brine grades and types, including salar, oilfield, and surface lake brines. Lilac is completing construction of a commercial-scale IX media manufacturing line in Nevada, USA, which will provide a secure supply for lithium projects globally.

About Lilac

Lilac delivers modern lithium extraction technology to scale lithium supply for global electrification. Lilac’s ion exchange technology helps customers produce lithium from a wide variety of brine resources with high efficiency, minimal cost, and an ultralow environmental footprint. Lilac is based in Oakland, California. Learn more at lilacsolutions.com.

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