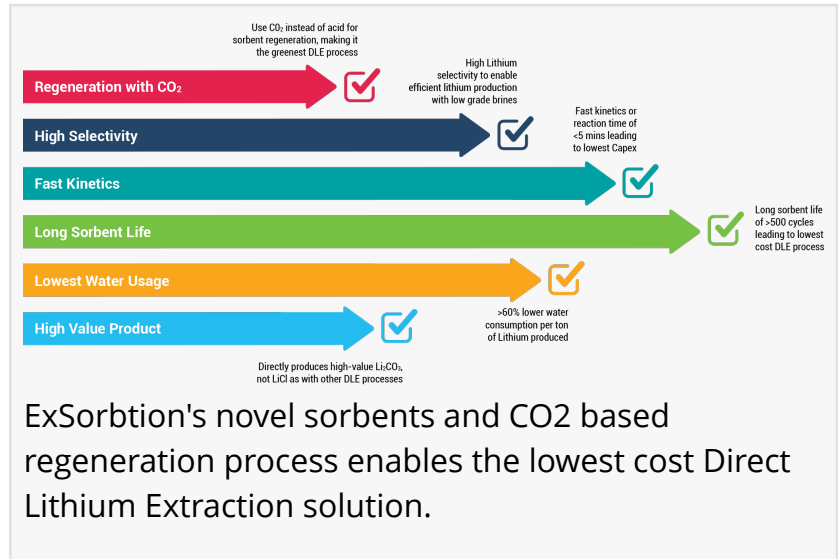


ExSorbtion Secures \$1.8 Million DOE Contract to Accelerate Commercialization of its Direct Lithium Extraction Technology

This funding will drive the advancement of domestic lithium production to bolster the U.S. supply chain for critical battery materials.

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EINPresswire.com/ -- [ExSorbtion](https://www.exsorbtion.com) Inc., a pioneering company in advanced Direct Lithium Extraction (DLE) technology, is proud to announce that the \$1.8 million award from the U.S. Department of Energy's (DOE) Advanced Materials and Manufacturing Technologies Office (AMMTO) and Geothermal Technologies Office (GTO) is now under contract.



This funding will drive the advancement of domestic lithium production to bolster the U.S. supply chain for critical battery materials, and will empower ExSorbtion to achieve five key milestones:



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Anupam Ghildyal

- Scale-up sorbent manufacturing process to enable annual production capacity of 3,000–5,000 tons of [sorbents](#).
- Design, build, and commission a skid-mounted fully intergrated DLE system for field testing at multiple U.S. locations.
- Demonstrate the production of battery-grade lithium

carbonate from U.S. geothermal and geological brines.

- Complete the design of a 20,000-ton-per-year lithium carbonate production plant.
- Select a site and partner for a full-scale production facility.

“At the outset, we rigorously assessed all available sorbent chemistries for lithium extraction. Manganese-based sorbents quickly emerged as the superior choice for their unmatched lithium uptake, selectivity, rapid reaction times, and high recovery rates compared to aluminum-, titanium-, and zirconium-based alternatives,” explained Anupam Ghildyal, President of ExSorbtion.

“Despite their potential, most companies abandoned manganese-based sorbents due to their degradation by hydrochloric acid during [regeneration](#) (extraction of adsorbed lithium from the sorbents), which drastically shortens their lifespan.”

He continued: “We focused on overcoming these challenges with two key objectives: (1) develop more robust manganese-based sorbents and (2) eliminate the use of hydrochloric acid for regeneration. Today, we are proud to announce that we’ve achieved both. Our innovative metal-ion imprinted polymer sorbents, featuring dual active zones, are the most durable and effective sorbents on the market. Additionally, we’ve invented a regeneration process using carbon dioxide gas, which extends sorbent lifespans to 500–1,000 cycles. This breakthrough makes our process not only the most cost-effective but also the greenest DLE solution available. This DOE award validates our innovation and underscores our ability to deliver scalable, sustainable lithium extraction solutions for U.S. geothermal, Smackover, and oilfield brines. We deeply appreciate the DOE’s support.”

ExSorbtion has already demonstrated the following with oilfield, geothermal, smackover and geothermal brines from U.S., Canada and Argentina.

- Durability: Over 500 cycles for manganese-based sorbents.
- Capacity: Lithium uptake of up to 10 mg-Li/g-sorbent per cycle.
- Speed: Adsorption within two minutes and regeneration within five minutes.
- Versatility: High selectivity for lithium extraction, even in brines with lithium concentrations as low as 40 mg/liter.
- Selectivity: Greater than 99.5% lithium selectivity versus competing salts.
- Efficiency: Lithium recovery rates exceeding 90%.
- Sustainability: Regeneration using carbon dioxide gas, making the process a carbon sink.

- Output: Direct production of high-value lithium carbonate compared to the lower-value lithium chloride produced by other DLE processes.

Field testing of ExSorbtion's skid-mounted DLE system will commence in 2025, followed by the establishment of a full-scale, battery-grade lithium carbonate production facility in 2026. With demonstrated success across diverse brines, ExSorbtion is poised to revolutionize sustainable lithium extraction.

About ExSorbtion:

ExSorbtion's mission is to become the highest-value supplier of lithium to enable the electrification of everything. ExSorbtion has acquired and is commercializing a technology developed by SRI International for Direct Lithium Extraction (DLE). This technology portfolio includes patented sorbents that have demonstrated very high lithium selectivity and fast reaction time to adsorb lithium from the brine and to remove lithium from the sorbent.

The patented regeneration process uses carbon dioxide gas instead of acid (used by all other DLE companies) to extract the adsorbed lithium from the sorbents. By using gas instead of acid, ExSorbtion's sorbents last more than 10 times longer than competing manganese- and titanium-based sorbents – which is essential since the cost of the sorbent is over 30% of the overall cost of goods sold for the DLE process, enabling ExSorbtion to offer potentially the lowest operating cost compared to other DLE processes.

Additionally, since the process uses carbon dioxide gas for regeneration, the process acts as a carbon sink, making it the greenest DLE process while consuming a significantly lower amount of fresh water than competing DLE processes.

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