

HELPING FROM THE GROUND UP

Argonne verifies newly mined battery material



In the Materials Engineering Research Facility’s analytical lab, an Argonne analytical chemist adjusts a nitrogen tank in preparation for a procedure used to determine the ratio of key elements in cathode materials for lithium-ion batteries while another Argonne researcher monitors a thermogravimetric analyzer to characterize material properties.

CHALLENGE

Analyze and develop lithium carbonate to meet lithium specifications for battery applications.

SOLUTION

From its Kings Valley Lithium Project located in Humboldt County, Nevada—potentially one of the world’s largest strategic, scalable, and reliable sources of high-quality lithium carbonate—Western Lithium USA Corporation produced high-quality lithium carbonate in pilot studies. The company achieved purity—critical in the creation and functionality of batteries and battery-grade materials—in the 99.5 to 99.9 percent range.

As part of an agreement with Argonne, Western Lithium aimed to develop lithium specifications suitable to engage potential customers and advance the Kings Valley project into production of manufacturing-grade lithium. Argonne scientists synthesized conventional electrode materials with lithium carbonate extracted from Western Lithium’s lithium clay deposits at Kings Valley and electrochemically tested them against current industry baseline specifications, providing the company with information critical to moving ahead with its business plan.

BENEFITS

- Lithium carbonate production and quality were optimized and improved to create areas of potential competitive advantage.
- Data provided by Argonne helped Western Lithium position itself as a major U.S.-based lithium carbonate supplier to support the rising global demand for lithium expected from the increased use of hybrid and electric vehicles.

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