

Technology Snapshot

Technology Licensing Opportunity

LiSA

Lithium Sensing with Advanced Polymer Systems

Value Proposition

LiSA is a field-deployable, polymer-based sensing platform from Los Alamos National Laboratory that enables rapid, in situ detection of lithium in geothermal brines and clay-rich formations — eliminating the need for costly full-depth drilling and time-intensive laboratory assays during early-stage exploration.

Technology Readiness Level 4

IP Information for S-195109

U.S. Patent pending

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Overview

Engineered to operate under variable temperature, salinity and pH conditions typical of lithium-hosting environments, LiSA allows exploration teams to confirm lithium presence in real time, reduce exploration risk and accelerate resource validation. By lowering costs, shortening decision cycles and improving targeting accuracy, the technology addresses a critical bottleneck in domestic lithium development and offers scalable potential for adaptation to other critical minerals, positioning licensees at the forefront of next-generation resource exploration.

Advantages

- **Field-deployable and portable** – Enables onsite lithium detection rather than requiring laboratory analysis.
- **In situ measurement** – Identifies lithium directly in subsurface fluids and soils without full core recovery.
- **Faster decision-making** – Provides near real-time results to guide drilling and exploration strategy.



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- **Lower exploration costs** – Reduces reliance on expensive drilling campaigns and lab assays.
- **Operates in harsh environments** – Engineered to function under variable temperature, salinity, and pH typical of geothermal and clay systems.
- **Platform adaptability** – Tunable polymer approach offers potential extension to other critical minerals.

Technology Description

LiSA works by using a specially designed sensing material that selectively recognizes lithium when it comes into contact with underground fluids or soil. The sensing material is integrated into a portable platform that can be deployed directly in the field, where it interacts with samples onsite and produces a measurable signal if lithium is present. Because the sensing component is engineered to remain stable under the high salinity, temperature and varying chemical conditions typical of lithium-bearing environments, it can function reliably outside of a laboratory setting. In essence, the system translates the chemical presence of lithium into a rapid, field-readable response that helps guide exploration decisions in real time.

The Opportunity:

By integrating LiSA's selective sensing technology into exploration services, downhole tools, surface sampling systems, geothermal operations or direct lithium extraction (DLE) platforms, our partners can offer their customers faster resource validation, reduced exploration risk and improved decision-making in the field. LiSA provides a pathway to differentiate your portfolio with real-time, on-

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Technology Description continued

site lithium detection capability while positioning your organization at the forefront of domestic critical mineral development, with potential expansion into sensing for other high-value elements as market demand evolves.

Market Applications

- Lithium mining and mineral exploration
- Geothermal energy development
- Direct lithium extraction and brine processing
- Oil and gas field services and subsurface technologies
- Analytical instrumentation and field sensing technologies