Docket #: S22-521

Electrochemical Conversion of Lithium Precursors to Lithium Products

Stanford researchers in the Cargnello Lab have developed a new energy efficient method of converting lithium precursors, such as lithium chloride or lithium sulfate, to battery-ready lithium products, such as lithium hydroxide or lithium carbonate. The proposed flow through method improves upon current state-of-the-art lithium conversion techniques by eliminating energy-intensive solubility-based crystallization approaches commonly employed today. This process will reduce the cost, carbon footprint, and energy requirement of lithium precursor production for batteries.

Figure:

Image credit: Inventors

Stage of Development

- Proof of concept
- Process tested at lab scale

Applications

- **Battery recycling applications**
- **Water purification** method in areas with high lithium contamination (e.g. battery plant waste streams, water bodies near battery plants, etc.)

- **Conversion of lithium chloride** to lithium carbonate or lithium hydroxide form

Advantages

- **Cheaper** conversion of lithium chloride to lithium hydroxide with fewer reagents and less energy required.
- **Sustainable,** fully electrified lithium conversion process.
- **Improves upon current techniques** which are inefficient and low yield

Innovators

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