

Standard Lithium Successfully Completes Proof-of-Concept of Modern Lithium Extraction and Crystallisation Technology and Makes Better Than Battery Quality Lithium Carbonate

HIGHLIGHTS

- >99.9% purity lithium carbonate produced (aka '3 nines')
- Successful proof-of-concept of modern lithium processing technology
- Start-to-finish direct extraction of lithium from brine in Arkansas; production of purified, concentrated intermediate; final conversion to high-purity battery quality lithium carbonate end-product

VANCOUVER, British Columbia, Dec. 03, 2020 (GLOBE NEWSWIRE) -- **Standard Lithium Ltd.** ("Standard Lithium" or the "Company") (TSXV: SLL) (OTCQX: STLHF) (FRA: S5L), an innovative technology and lithium project development company is pleased to announce that it has successfully completed the start-to-finish proof of concept of its modern lithium processing technology. Successful operation of the technology at pre-commercial continuous scale has directly extracted lithium from brine in Arkansas and produced a purified, concentrated intermediate product (LiCl solution) which has been converted to better than battery quality lithium carbonate final product.

Better Than Battery Quality

The culmination of the proof-of-concept was to convert and crystallise the LiCl solution produced by the Company's first-of-its-kind Direct Lithium Extraction (DLE) Demonstration Plant ([see news release dated September 09th 2020](#)). The LiCl solution shipped from Arkansas was concentrated further using industry-standard reverse osmosis technology, and then converted at the Company's SiFT Pilot Plant located in British Columbia, Canada. The lithium carbonate recrystallised as per the SiFT technology and the resulting high-purity lithium carbonate was sent for third party chemical analysis. Photos of the lithium carbonate being dried are provided as Figure 1 below; real-time images of the lithium carbonate as it formed in the hot reactor are shown as Figure 2, and the third party analysis of the final product is provided as Table 1 below.

Figure 1 accompanying this announcement is available at
<https://www.globenewswire.com/NewsRoom/AttachmentNg/063e77af-dac1-4349-b723-492f817029a3>

Figure 2 accompanying this announcement is available at
<https://www.globenewswire.com/NewsRoom/AttachmentNg/aacdfe1-ece0-46c6-b6ec->

Table 1: Analysis of Lithium Carbonate

Contaminant	Concentration in Lithium Carbonate (ppm)
Chloride	141
Sulphate	<50
Aluminium	14
Barium	5.34
Calcium	179
Chromium	2
Copper	<0.8
Iron	10
Potassium	<10
Magnesium	58.5
Manganese	<0.4
Sodium	229
Strontium	42
Titanium	2.4
Yttrium	0.8
Zinc	3
Silicon	81
Total Impurities	<785
Lithium Carbonate Purity	>99.92 wt.%

As seen in Table 1, the lithium carbonate produced from the Arkansas brine is of very high purity (>99.92 wt.%), as opposed to the normal industry benchmark for ‘battery quality’ which is usually understood to be >99.5 wt.%. Conversion of the lithium chloride to carbonate using a conventional process is ongoing, and is being performed by a third-party OEM/vendor in Plainfield, Illinois. Data from these tests will be released when available.

Ongoing Optimisation and Pre-Commercial Operations

Standard Lithium continues to operate both the LiSTR DLE plant in Arkansas and the SiFT Pilot Plant in BC in order to gather additional operational data and refine design parameters to allow for future commercial scaling of the technologies. When current pandemic-related restrictions are eased or lifted, it is still the Company’s intention to relocate the SiFT plant to Arkansas so that it can be tied into the existing plant and operate on a continuous and integrated basis. An overview image of the SiFT plant is shown in Figure 3 below.

Figure 3 accompanying this announcement is available at <https://www.globenewswire.com/NewsRoom/AttachmentNg/e209ca0f-d9f2-433d-b25c-2da9c7bc07a7>

Dr. Andy Robinson, President and COO of Standard Lithium commented “*this is an extremely important milestone for Standard Lithium. We’ve managed to demonstrate the first of its kind continuous extraction of lithium from Smackover brine and we’ve converted it into*

better than battery quality material. Not only that, but we've done it at a large scale, which now allows us to keep on working towards commercialisation. This proof of concept validates our approach over the past four years, and is testament to the hard work and ingenuity of our deep and diverse technical team."

Quality Assurance

Dr. Ron Molnar, Professional Metallurgical Engineer (Ontario P.E.# 100111288), is a qualified person as defined by NI 43-101, and has reviewed and approved the scientific and technical information that forms the basis for this news release. Dr. Molnar is independent of the Company.

About Standard Lithium Ltd.

Standard Lithium (TSXV: SLL) is an innovative technology and lithium development company. The company's flagship project is located in southern Arkansas, where it is engaged in the testing and proving of the commercial viability of lithium extraction from over 150,000 acres of permitted brine operations. The Company has commissioned its first-of-a-kind industrial scale Direct Lithium Extraction Demonstration Plant at LANXESS' South Plant facility in southern Arkansas. The Demonstration Plant utilizes the Company's proprietary LiSTR technology to selectively extract lithium from LANXESS' tailbrine. The Demonstration Plant is being used for proof-of-concept and commercial feasibility studies. The scalable, environmentally-friendly process eliminates the use of evaporation ponds, reduces processing time from months to hours and greatly increases the effective recovery of lithium. The company is also pursuing the resource development of over 30,000 acres of separate brine leases located in southwestern Arkansas and approximately 45,000 acres of mineral leases located in the Mojave Desert in San Bernardino County, California.

Standard Lithium is listed on the TSX Venture Exchange under the trading symbol "SLL"; quoted on the OTC - Nasdaq Intl Designation under the symbol "STLHF"; and on the Frankfurt Stock Exchange under the symbol "S5L". Please visit the Company's website at www.standardlithium.com.

On behalf of the Board of Standard Lithium Ltd.

Robert Mintak, CEO & Director

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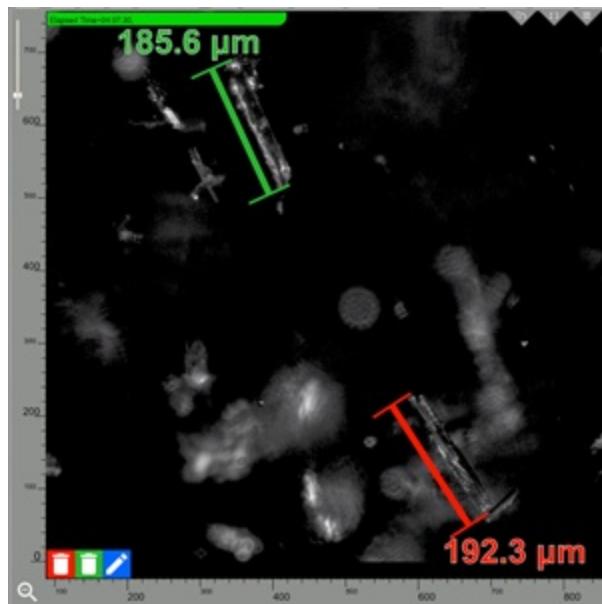


Figure 1



Trays of high purity lithium carbonate produced at the SiFT Pilot Plant in Richmond, BC, Canada, being dried in a controlled temperature oven prior to analysis.

Figure 2



Examples of high purity lithium carbonate crystals (shown with red and green scale bars) being formed in real-time inside the SiFT Pilot Plant hot reactor. The blurry objects in the image are similar crystals that are beyond the focal plane of the high-speed laser photomicroscope. Real-time modern analytical tools allow the reaction to be carefully monitored and enable control of the rate of crystal growth and hence purity.

Figure 3



A montage showing the scale and layout of the SiFT Pilot Plant in Richmond, BC, Canada. The plant is modular and can be easily dismantled for transport to Arkansas when pandemic-related restrictions are eased or lifted.

Source: Standard Lithium