

Zentek Subsidiary Albany Graphite Corp. Achieves Five Nines Purity for Albany Graphite

written by Raj Shah | July 17, 2024

July 17, 2024 ([Source](#)) – **Zentek Ltd.** (“Zentek” or the “Company”) (NASDAQ:ZTEK)(TSXV:ZEN), an intellectual property technology development and commercialization company is pleased to announce that its wholly owned subsidiary, Albany Graphite Corporation (AGC) has achieved a five nines purity of 99.99915% for a graphite sample from the Albany graphite deposit.

Highlights

- Ultra-high purity “five nines” 99.99915 weight % graphite by Glow Discharge Mass Spectrometry (GDMS) analysis on a 100-gram sample
- Purification performed utilizing an existing, two-step graphite purification process, without the use of hydrofluoric acid
- Proof of concept thermal purification testing yielded extremely low total impurities concentration of less than 8.5 ppm against the generally accepted maximum of 500 ppm for most advanced battery applications
- Material to be immediately tested for suitability as anode component for lithium-ion batteries
- Purified samples will be evaluated for suitability for the nuclear market
- Exploring both production and processing of graphite to create battery ready anode material

In collaboration with Zentek's Canadian technology partner, a sample of the homogenized bulk flotation concentrate produced by SGS Canada Inc. in the 2017 flotation pilot plant campaign was upgraded from ~85% to >99% using a simple hydrometallurgical process. A 100 g sample of the >99% feed was subsequently thermally purified in the National Research Council of Canada's (NRC) fixed-bed furnace at a temperature of 2,700°C for five minutes in an argon atmosphere. A 10 g sample of the purified material was then shipped to Eurofins EAG Laboratories for a full 72 element GDMS analysis. The concentrations of all elements above the detection limits (22 of the 72 total) were summed to yield the total concentration of the detectable impurity elements that remained in the purified sample at 8.48 ppm wt. or 0.00085% wt. The boron concentration in the sample was 0.42 ppm wt.

Next Steps

The material will be evaluated for its suitability for both the lithium-ion battery and nuclear markets.

With significant investment being made in the North American battery supply chain, and growing demand for finished anode material, the Company is exploring both graphite production from the Albany deposit and processing of the graphite to produce a battery ready anode material.

The CEO of Zentek and Albany Graphite Corporation, Greg Fenton commented: "These purification results utilizing an unoptimized, simple process has exceeded our expectations. The unique nature of the Albany deposit has created a competitive advantage for Zentek and its partners and with substantial investment flowing into the North American markets, we believe we are ideally positioned to develop the Albany project. In addition, we are pursuing the value-add processing component of the anode supply

chain to create a vertically integrated, anode solution.”

Updated Resource Estimate

On July 26, 2023, Zentek announced an updated mineral resource estimate. SLR estimated Mineral Resources for the Albany Graphite Project using drill hole data available as of April 30, 2023. The Mineral Resource estimate was based on a potential combined Open Pit (“OP”) and Underground (“UG”) mining scenario using a price per tonne of purified graphite of US\$8,000. The Mineral Resource estimate was based on a potential combined open pit and underground mining scenario, split by the barren sills. SLR estimated Indicated Mineral Resources to total 22.9 million tonnes (“Mt”) at an average grade of 4.1% graphitic carbon (“Cg”), containing 933,000 tonnes of Cg. In addition, Inferred Mineral Resources are estimated to total 13.1 Mt at an average grade of 2.9% Cg, containing 375,000 tonnes of Cg. Inferred Mineral Resources include 3.4 Mt OP resources at an average grade of 2.5% Cg, containing 87,000 tonnes of Cg constrained by a Whittle pit shell, and 9.7 Mt of UG resources below the pit shell at an average grade of 3.0% Cg, containing 288,000 tonnes of Cg. In order to demonstrate Reasonable Prospects of Eventual Economic Extraction (“RPEEE”), the OP Mineral Resources were reported within an optimized Whittle pit shell at a cut-off grade of 1.22% Cg and UG Mineral Resources were reported within underground resource reporting shapes, satisfying the minimum mining size and continuity criteria, and using a cut-off grade of 1.76% Cg.

Mineral Resources of graphite are contained within two vertical pipes spaced approximately 250 m apart. The East Pipe is approximately 300 m long in the NW-SE direction by 50 m wide by 600 m deep. A halo (overprint) of lower grade mineralization occurs around the East Pipe for a collective width of 150 m in the NE-SW direction. The West Pipe is approximately 300 m long

in the NE-SW direction by 175 m wide by 500 m deep. Both pipes are cut by 10 m to 60 m thick barren sills located approximately 200 m to 300 m below topographic surface.

Mr. Peter Wood, P.Eng., P.Geo., Vice President, Development of AGC, a “Qualified Person” under NI 43-101, has reviewed the technical information contained in this news release.

Overview of the Albany Graphite Project

The Albany Graphite Project, an igneous-hosted fluid-derived graphite deposit located in Claim Block 4F, comprised of 521 mining claims (461 single-cell claims and 60 boundary-cell claims) is at an advanced exploration stage. The project is located west of the communities of Constance Lake First Nation (“CLFN”) and Hearst, Ontario, within 30 km of the Trans-Canada Highway, close to established infrastructure including roads, rail, power transmission lines, and a natural gas pipeline. Project environmental baseline studies were initiated in 2019.

Due to its unique formation, Albany Graphite exhibits high thermal stability and corrosion resistance, as per Ballard Power’s testing reported in the Company’s August 12, 2015, news release. Phase 4 testing by Ballard Power concluded that Albany Graphite could compete with synthetic graphite in fuel cells as per the Company’s news release on March 29, 2016.

The electrical resistivity of graphite is one of the most useful characteristics of graphite and the Albany Graphite exhibited excellent resistivity of 0.0034 ohm-centimeters. These results are comparable to high-purity synthetic graphite and registers at the top end of the range as reported in the Company’s October 3, 2013, news release.

Additionally, Albany Graphite could potentially combine the carbon production footprint of natural graphite, which is

considerably lower than that of synthetic graphite, with the higher performance envelope of synthetic graphite. Finally, it will help satisfy North American domestic content requirements under critical mineral support programs such as the Inflation Reduction Act and the Defense Production Act.

About Zentek Ltd.

Zentek is an ISO 13485:2016 certified intellectual property technology company focused on the research, development and commercialization of novel products seeking to give the Company's commercial partners a competitive advantage by making their products better, safer, and greener.

Zentek's patented technology platform ZenGUARD™, is shown to have 99-per-cent anti-microbial activity and to significantly increase the bacterial and viral filtration efficiency of both surgical masks and HVAC (heating, ventilation, and air conditioning) systems. Zentek's ZenGUARD™ production facility is located in Guelph, Ontario. Zentek's patent pending ZenARMOR™ technology platform is focused on corrosion protection applications.

Zentek has a global exclusive license to the Aptamer-based platform technology developed by McMaster University which is being jointly developed Zentek and McMaster for both the diagnostic and therapeutic markets.

For further information:

investorrelations@zentek.com

Ryan Shacklock

Tel: (306) 270-9610

Email: rshacklock@zentek.com

To find out more about Zentek, please visit our website

at www.Zentek.com. A copy of this news release and all material documents in respect of the Company may be obtained on Zentek's SEDAR profile at <http://www.sedar.com/>.

Forward-Looking Statements

This news release contains forward-looking statements. Since forward-looking statements address future events and conditions, by their very nature they involve inherent risks and uncertainties. Although Zentek believes that the assumptions and factors used in preparing the forward-looking information in this news release are reasonable, undue reliance should not be placed on such information, which only applies as of the date of this news release, and no assurance can be given that such events will occur in the disclosed time frames or at all. Zentek disclaims any intention or obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, other than as required by law.

Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.