

Zentek Provides Review of Albany Graphite

written by Raj Shah | May 3, 2023

May 03, 2023 ([Source](#)) – Zentek Ltd. (“Zentek” or the “Company”) (NASDAQ ZTEK)(TSXV: ZEN), a graphene technology development and commercialization company, further to its press release dated April 25, 2023 announcing the intention to transfer its Albany Graphite Project located north of Lake Superior and southwest of James Bay in Ontario to its currently wholly-owned subsidiary Albany Graphite Corp., provides a review of some of the past testing conducted on the material produced from the Albany Graphite Project, and key drivers of value since 2015.

The Albany Graphite deposit was discovered in 2011 and was identified as a unique hydrothermal graphite deposit formed by an igneous rather than sedimentary process. Flake graphite is formed by the metamorphism of sedimentary rocks rich in organic carbonaceous material. Albany graphite, however, was formed through an igneous process where carbon-bearing fluids separated from an ascending carbon-rich magma and were subsequently precipitated as graphite. Due to this unique igneous origin, Albany Graphite has high performance properties comparable to synthetic graphite.

Zentek, under its previous name Zenyatta Ventures Ltd., reported in several previous news releases how Albany Graphite material performed in key metrics including on:

October 3, 2013:

“Published physics data on electrical resistivity of graphite typically ranges from .003 to .060 ohm-centimetres. Zenyatta’s graphite showed a resistivity of .0034 ohm-centimetres for a

compressed bulk graphite test bar measuring 50x12x2.4mm. These results are comparable with high grade synthetic graphite and represent a value at the top of the range. The resistivity test was conducted on a random sample of Zenyatta's high purity Albany graphite without any attempt to select particle size or to align the graphite crystals to optimize the test results. These initial test results are very encouraging and indicate that Zenyatta's high purity graphite should be competitive with the best graphite available for a variety of applications including electronic components and batteries."

August 12, 2015:

"Thermogravimetric Analysis (TGA) results showed that all Albany graphite samples had high thermal stability under the Ballard standard TGA protocol. Under this protocol most forms of graphite undergo complete thermal decomposition at around 860°C to lose all carbon. On the other hand, Zenyatta's Albany graphite samples only lost 60 – 65% even at 1000°C. The detailed investigation clearly indicated that the Albany graphite exhibits excellent thermal stability, and this can be used advantageously in the sub-components of fuel cells, in particular as the gas diffusion layer material. Also, corrosion resistance is an important requirement for an electrically conductive material like graphite used as a component material in fuel cells. Our testing results revealed that Zenyatta graphite samples of a certain particle size was found to be more corrosion resistant than typical graphite."

March 29, 2016:

"Zenyatta natural graphite material was prototyped, tested, and compared for key mechanical and electrical properties against Ballard's baseline synthetic graphite in a commercial product platform. Importantly, the properties of Zenyatta's Albany

graphite material were all within the specifications needed for high performance of Ballard products in a number of commercial fuel cell applications. The components made from Albany graphite were equivalent to the existing synthetic graphite made components. This is another significant step in the process of qualifying Zenyatta's Albany graphite for existing fuel cell markets in transportation and stationary energy storage.

From an environmental and cost advantage, the Ballard report also concluded:

- 1. Zenyatta graphite provides a clean carbon option for fuel cell components (i.e. plates and membrane electrode assembly).*
- 2. If Zenyatta's hydrothermal graphite can also be low cost compared to existing synthetic graphite, it will facilitate fuel cell cost reduction and market penetration."*

Past testing strongly suggest that Albany graphite has the high-performance metrics, such as electrical resistivity, heat tolerance and corrosion resistance, required to compete directly with synthetic graphite in high-end applications like batteries and fuel cells.

Increased Recovery:

On March 20, 2019, the Company reported that work completed at SGS Canada Inc. (SGS) Lakefield, Ontario successfully simulated an industrial process to purify Albany Graphite concentrate. This new process increased recovery from 75% to 90% while achieving greater efficiency in both chemical reagent consumption and energy input when compared to the previous flow sheet.

Increasing Demand for Graphite:

The graphite industry appears to be at the start of a significant increase in demand that is expected to grow to 8 to 25 times current demand by 2040* due mainly to growth in the electric vehicle industry. A Lithium-ion battery's biggest contributor by weight is graphite, making up to 28% of the battery thus a key demand driver in the graphite industry for both natural graphite and synthetic graphite.

*IEA (2021), The Role of Critical Minerals in Clean Energy Transitions, IEA, Paris
<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

Impact of the Inflation Reduction Act ("IRA"):

The IRA of the United States of America announcement in August 2022 requires that starting in 2027, 80% of the market value of critical minerals in an electric vehicle's battery must be sourced domestically or from US free-trade partners to be eligible for a tax-credit. Currently, China is the dominant player in both the graphite production and processing industry, and the impact of the IRA will support a significant shift in the graphite market and support North American production and processing.

Brian Bosse, CEO of Albany Graphite Corp. commented:

"All these factors have played a significant role in Zentek's decision to transfer the Albany Graphite Project to a separate entity and to resume work on this unique graphite deposit. The determination to restart this work is the result of a careful review by our team and I am eager to get this excellent project moving forward."

Any scientific and technical content of this news release was reviewed, verified, and approved by Peter Wood, P.Eng., P.Geo., Vice President of Special Projects of Zentek, a Qualified Person as defined by Canadian Securities Administrators National Instrument 43-101 – *Standards of Disclosure for Mineral Projects*.

About Zentek Ltd.

Zentek is a graphene technology company focused on the research, development, and commercialization of novel graphene-based products to give its commercial partners a competitive advantage by making their products better, safer, and greener.

Zentek's patented ZenGUARD™ coating 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 systems. Zentek's ZenGUARD™ production facility is located in Guelph, Ontario. Zentek's second technology is the patent pending ZenARMOR™ platform focused on corrosion protection applications.

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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.

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SOURCE: Zentek Ltd.