OPERATIONS • MARKET DEVELOPMENT • PRACTICE

Concrete® PRODUCTS

CONCRETEPRODUCTS.COM

OCTOBER 2016

PRECAST/PRESTRESSED

- ATMI Precast
- Clark Pacific
- High Concrete
- Northeast Prestressed
- PCI Sustainable Plants

A MINING MEDIA PUBLICATION

Mining entity extends testing of admixture derived from prized graphite

Zenyatta Ventures Ltd., owner of a rare, volcanic graphite deposit in Ontario, has entered an agreement with Israel-based admixture specialist Larisplast Ltd. to expand research on a processed material called graphene, which has shown in preliminary testing to accelerate concrete curing time; reduce cement requirements; and, impart mechanical performance suited to seismic or blast impact loads.

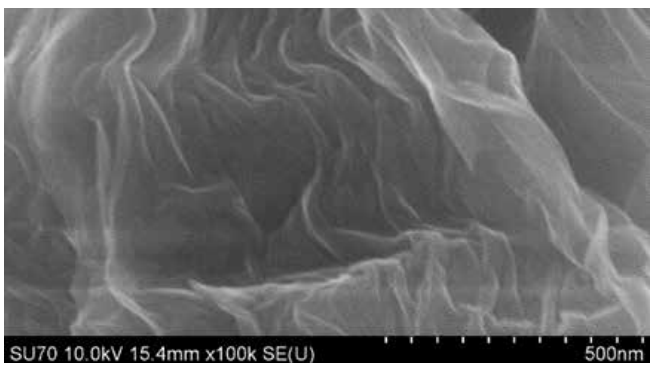
Graphene is derived from material extracted at Zenyatta's Albany deposit, initially tapped in 2011-12 for copper-nickel. Officials from the Thunder Bay, Ontario-based, Toronto Stock Exchange-Venture company characterize graphite as a form of carbon with unique chemical, electrical and thermal properties—and one of the lightest reinforcing compounds. Tests at Ben-Gurion University of the Negev (BGU), Israel, confirm graphene's curing, engineering and binder-optimizing benefits for concrete.

"Evidence has shown that Zenyatta has discovered a unique subclass of a hydrothermal graphite deposit unlike any other," observes Professor Dr. Andrew Conly of Lakehead University, Thunder Bay. "Igneous breccia-hosted graphite deposits like Albany are very rare, and to the best of my knowledge, none are currently being mined or even in an advanced stage of exploration globally. The far more common flake type (sedimentary) graphite deposits form through a completely different geological process."

Zenyatta and Larisplast have received Canada-Israel Industrial R&D Foundation grants under the Ontario-Israel Collaboration Program. Upon successful second phase graphene testing for commercial concrete, the agreement contemplates a 50/50 partnership to market the specialized admixture product globally. Zenyatta would be the exclusive purified graphite supplier to it and any other party working with Larisplast on the concrete technology.

Larisplast develops, produces and markets materials for Israel's concrete industry, and is currently eyeing international markets and distribution channels. BGU is a research leader in alternative energy, robotics and nanotechnology; one of its groups focuses on carbon nanotubes and graphene product derivatives. The Advanced Technologies Park adjacent to the campus is home to multinational technology companies—among them EMC, Oracle, Hewlett Packard and Deutsche Telekom—that are leveraging university research & development capabilities through B.G. Negev Technologies and Applications Ltd.

PHOTO, ALBANY DEPOSIT MODEL: Zenyatta Ventures



Specimens extracted from one of Albany deposit's two "pipes" evidence a graphite formed during volcanic activity, while a scanning electron micrograph shows graphene oxide produced from the compound. Zenyatta Ventures describes the darker material at the left of the cutaway section below as "graphite breccia," from which the prospective graphene admixture is derived.