

The road to graphene enhanced concrete just got faster

It is harder than diamond but more elastic than rubber, it's tougher than steel but lighter than aluminium. Made from graphite, graphene is the strongest known material to man. Only one atom thick, a single layer of graphene is 100 times stronger than the strongest steel. Graphene represents a conceptually new class of material that is regarded as 2D having length and width, the third dimension, height, is considered to be zero. Graphene sounds like it belongs on an alien space ship, yet it is available here on planet earth. Being a miracle material the future applications for graphene can be enormous.

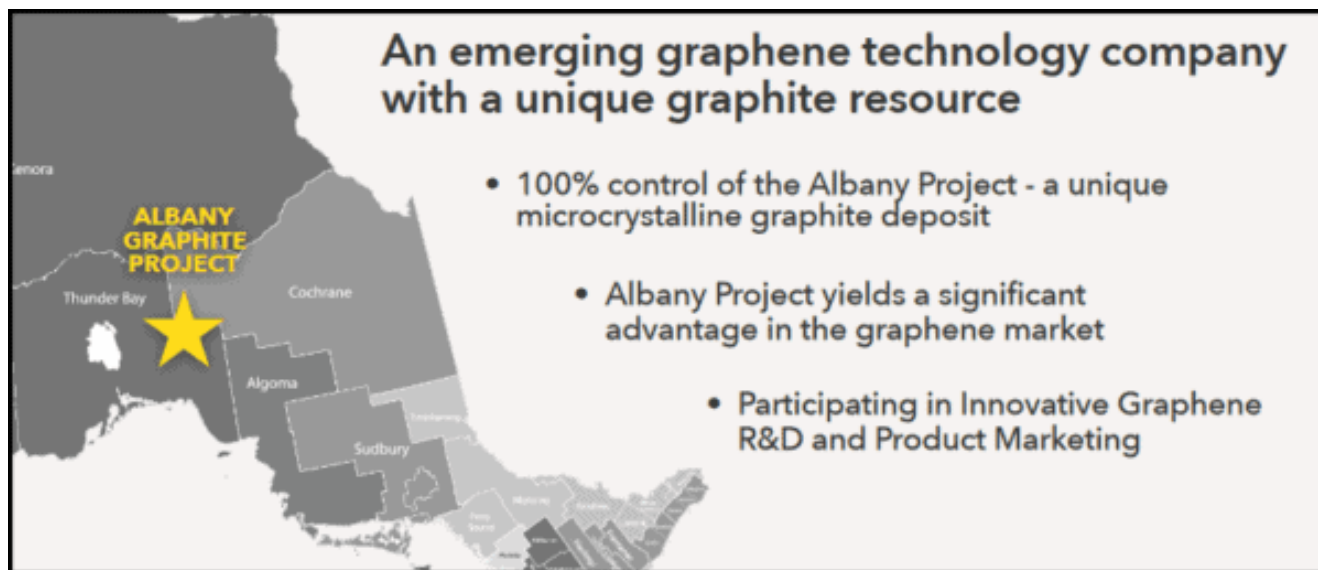
ZEN Graphene Solutions Ltd. (TSXV: ZEN) is a world leading developer of high quality graphene material. Already emerging with new market opportunities, graphene has many exciting applications. ZEN's challenge as a new high quality supplier is to define and prioritize markets and offer the best value and creation potential by working in collaboration alongside researchers in the industry and in academia. ZEN is actively collaborating with 22 industrial end users and 10 Canadian universities. ZEN is also receiving significant interest from multiple Canadian government agencies who have already directly contributed over \$2 million to ZEN's high quality graphene research and development work.

The Albany Graphite Project

ZEN's Albany Graphite Project in Ontario Canada hosts a large and unique quality deposit of highly crystallize graphite carbon allotrope that can improve aerospace, biomedical, water treatment, transportation and civil engineering industries.

The Albany Graphite Deposit is an open pit and underground

project that has a total indicated resource of 24.3 Mt containing 968,000 tonnes of graphitic carbon at a grade of 3.98%. It is currently in the development stage.



Graphene enhanced concrete additive

After reviewing technical data of the Albany Graphite tailings material it was observed that the tailings chemical and physical properties are consistent with the requirements for it to be used in concrete. In collaboration with the university of Toronto and the University of British Columbia, ZEN has been developing a graphene enhanced concrete additive, that has “the potential to increase the strength of the concrete by 40%”. The additive also will have the potential to reduce the amount of concrete required, as well as making the concrete more durable to freeze-thaw cycles and salt corrosion, making the concrete the perfect product relevant to the Canadian climate.

ZEN have just announced (May 8, 2019) they have been awarded a one million dollar reimbursement grant, that will help accelerate their enhanced concrete research development project. The grant will help the Company to achieve its goal in providing cement based products to the Ontario market, possibly by 2020.

Dr Francis Dube ZENs CEO commented: "This \$1,000,000 reimbursement grant will accelerate ZENs innovation for graphene applications through game changing research and vibrant collaboration between industry, and academia helping to launch the next generation of products and jobs."

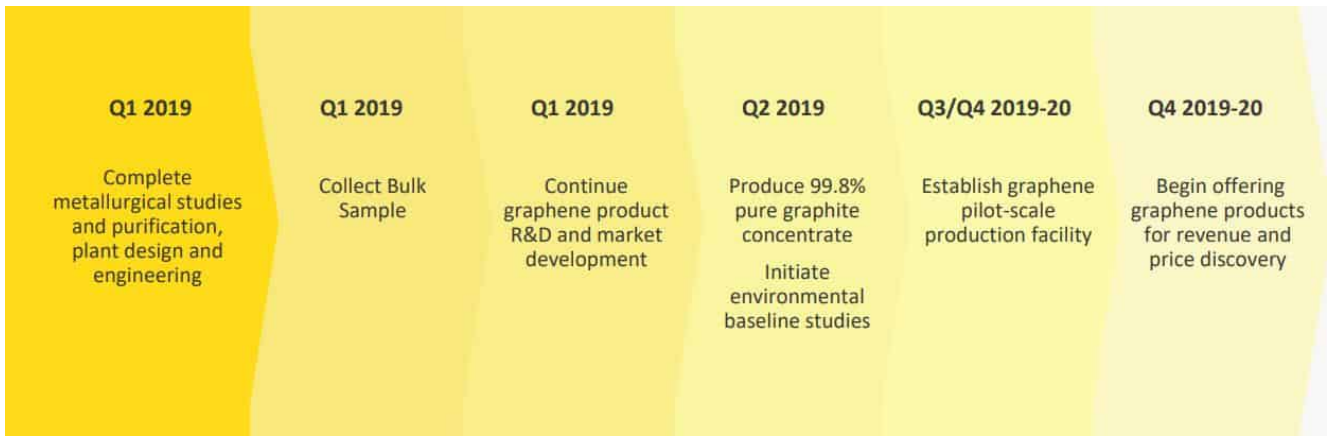
ZEN and partners announce a 324% increase in anode discharge capacity

ZEN Graphene has also reported a 324% increase in anode discharge capacity in preliminary battery testing results using graphene. The German Aerospace centre and Kal Tires reported on preliminary development results from the University of British Columbia, showed that the addition of 5% reduced graphene oxide into Carbon Black resulted in a 324% increase in anode discharge capacity.

Dr Francis Dube stated: "This environmentally friendly process utilizes recycled used tires and produces Carbon Black, which is potentially suitable for use as a anode material in rechargeable batteries. This could decrease the cost of anode material which is currently the highest cost component of these batteries."

ZENs timeline and potential catalysts in 2019/2020

As shown in the chart below ZEN plans to continue to advance their Albany Graphite project with a goal to produce 99.8% pure graphite concentrate in Q2, 2019. Then in Q3/Q4 2019 to establish a graphene pilot scale production plant, and begin offering graphene products by Q4 2019.



2019 will be a huge year for ZEN as they start to produce and offer their own graphene product. Added to this will be progress on various graphene based applications such as improving concrete strength, high strength tyres, and battery anodes, just to name a few. This makes ZEN one of the most exciting graphite and graphene plays in the market today.