

ZEN Graphene Solutions Testing of Albany Graphite Tailings as a Partial Cement Replacement Shows Excellent Compressive Strength Results

written by Igor Makarov | February 21, 2019

February 21, 2019 ([Source](#)) – **ZEN Graphene Solutions Ltd.** (TSXV: ZEN) (“**ZEN**” or the “**Company**”) is pleased to provide an update on the Albany Graphite Project tailings test work for potential application as a partial cement replacement material recently initiated at the University of British Columbia-Okanagan Campus (“UBC-0”). (Please see the Company’s [news release dated December 17, 2018](#))

This test work is being carried out as part of the Company’s market development strategy with the goal of utilizing the tailings as a partial cement replacement. Early results show promise and if successful would reduce tailings disposal costs and create a potential by-product revenue stream. In addition, ZEN will also be initiating new research test work where Albany graphene will be added to project tailings material to potentially create an innovative new enhanced cement material and concrete that could have higher strength, faster curing time and increased durability as well as significant environmental benefits through reduced CO₂ emissions.

Francis Dubé, Co-CEO of ZEN, commented, “Cement production from limestone is a significant source of CO₂ emissions accounting for approximately 8% of global emissions. Every ton of cement that we can replace with our tailings material would potentially save

up to approximately one ton of CO₂ emissions.”

The research work is being conducted by Dr. Ahmad Rteil at UBC-0 where ZEN’s tailings material was successfully tested as a partial cement replacement. Dr. Rteil replaced 10 and 20 percent of a cement mixture with ZEN’s tailings material and after 28 days, the results showed the 10% replacement had a compressive strength rating of 46.1 MPa, less than a 2% difference from the control at 47 MPa. The 20% replacement had a compressive strength rating of 37.9 MPa, about 20% difference with the control sample.

These results are significant as currently most of the concrete used by the construction industry (e.g. for low and mid-rise buildings, bridge decks, foundations, etc.) has a compressive strength requirement ranging between 20 MPa and 40 MPa. These highly encouraging initial and unoptimized results show significant promise for ZEN to push forward with further development work. The Company now plans further tests that will optimize the use of Albany Graphite tailings as a partial cement replacement including the potential of adding ZEN graphene to the tailings material.

Dr. Rteil stated, “These results are very promising. Partially replacing cement with tailings materials could have a significant financial and environmental impact on the concrete industry by being able to deliver a better product while reducing its carbon footprint.”

About ZEN Graphene Solutions Ltd.

ZEN Graphene Solutions Ltd. is an emerging graphene technology solutions company with a focus on development of the unique Albany Graphite Project as a precursor graphene material product opportunity and product market development. The Albany Graphite Project provides the company with a competitive advantage in the

potential graphene market as independent labs in Japan, UK, Israel, USA and Canada have demonstrated that ZEN's Albany Graphite/Naturally Pure™ easily converts (exfoliates) to graphene, using a variety of simple mechanical and chemical methods.

To find out more on ZEN Graphene Solutions Ltd., please visit our website at www.ZENGraphene.com . A copy of this news release and all material documents in respect of the Company may be obtained on ZEN's SEDAR profile at www.sedar.ca.

Forward Looking Statements

This press release contains forward-looking statements. This news release includes certain "forward-looking statements", which often, but not always, can be identified by the use of words such as "potential", "believes", "anticipates", "expects", "estimates", "may", "could", "would", "will", or "plan". These statements are based on information currently available to ZEN and ZEN provides no assurance that actual results will meet management's expectations. Although the Company believes that the expectations reflected in these forward-looking statements are reasonable, undue reliance should not be placed on them because the Company can give no assurance that they will prove to be correct. Since forward-looking statements address future events and conditions, by their very nature they involve inherent risks and uncertainties. Although ZEN 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. ZEN 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

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