

Tokyo Tech Research Confirms Ease of Conversion of Zenyatta's Albany Graphite to Graphene

written by Raj Shah | October 16, 2018

☒ October 16, 2018 ([Source](#)) – Zenyatta Ventures Ltd. (TSXV: ZEN) (“Zenyatta” or “Company”) today reported that researchers in Japan have published findings in the [Journal of Materials Science](#) linking particle size to the ease of producing graphene from graphite through exfoliation – the smaller the feed graphite particle, the easier to exfoliate. The researchers further concluded that, due to the size of its flakes, the exfoliation productivity of graphite derived from Zenyatta's unique Albany deposit in Northern Ontario performed up to 1500% better than the researchers' reference flake graphite materials.

In a [2017 Zenyatta news release](#), Dr. Yoshihiko Arao, Assistant Professor in the Department of Chemical Engineering at Tokyo Tech, stated “Zenyatta's high-purity graphite material was tested by our scientific team on mechanical conversion to graphene and discovered it converted much easier and with higher yields of graphene than our reference material. We have tested many types of natural graphite but found Zenyatta's Albany Graphite material to have better exfoliation performance and produce better graphene particles than the reference material. We believe that this is an extraordinary, unique material and we would like to carry out further collaborative work with Zenyatta on graphene applications.”

The following significant test results are reported in the paper by Dr. Arao and Dr. Masatoshi Kubouchi at Tokyo Tech:

1. The main conclusion of the paper was that the smaller the feed graphite particle, the easier it is to exfoliate thus indicating that the graphite particle size is quite an important variable for successful exfoliation.
 - Exfoliation productivity of smaller Albany Graphite flakes performs up to 1500% better than the larger reference flake graphite materials.
 - Albany Graphite particles reach a 2 μm particle size with a standard milling process, while the reference flake graphite material could not mill below a 3 μm particle size as the graphite tends to agglomerate together.
 - It is concluded that the fine crystalline nature of Albany Graphite contributes to the relatively easy milling characteristics. This can be attributed to the unusual geological mode of formation (a rapid crystallization igneous process) which accounts for the superior crystallinity and overall quality of the graphite mineralization found in this unique deposit.
2. Graphene exfoliated from Albany graphite produced material with the highest aspect ratio with an average thickness of 2.0 nm indicative of graphene with 2.4 layers. Also, the optical absorbance of the Zenyatta graphene dispersion was 2-10 times better than the other 3 reference samples that were tested. This demonstrated that concentrated graphene dispersions can be easily produced from Albany Graphite. The resulting small and thin graphene dispersion is suitable for printable inks.

This paper confirms the reason for success on the Company's many graphene research and product development initiatives, especially in composites. Tokyo Tech has established that Zenyatta's Albany Graphite converts (exfoliates) easily to graphene, producing mono-layer to tri-layer material with

excellent dispersion properties and is highly suitable for many graphene and graphene-oxide applications.

Mr. Peter Wood, P.Eng, P.Geo., President and COO of Zenyatta, is the "Qualified Person" for the purposes of National Instrument 43-101 and has reviewed, prepared and supervised the preparation of the technical information contained in this news release.

About Zenyatta

Zenyatta's Albany Graphite Project hosts a large and unique quality deposit of highly crystalline graphite. Independent labs in Japan, UK, Israel, USA and Canada have demonstrated that Zenyatta's Albany Graphite/Naturally Pure™ easily converts (exfoliates) to graphene using a variety of simple mechanical and chemical methods. The deposit is located in northern Ontario just 30km north of the Trans-Canada Highway, near the communities of Constance Lake First Nation and Hearst. Important nearby infrastructure include hydro-power, natural gas pipeline, a rail line 50 km away and an all-weather road just 10 km from the deposit.

To find out more on Zenyatta Ventures Ltd., please visit our website at www.zenyatta.ca. A copy of this press release and all material documents with respect of the Company may be obtained on Zenyatta's SEDAR profile at www.sedar.ca.

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