Albany graphite has unique properties for graphene applications

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Following materials testing by the nanomaterials research group at Ben-Gurion University of the Negev (BGU), researchers have identified unique properties in Zenyatta Ventures Ltd. (ZEN.V) Albany Graphite deposit that show positive attributes for use in multiple graphene applications.

According to BGU nanomaterials research group leader, Dr. Oren Regev, "Zenyatta's purified graphite material was tested on dispersion and application for composite property enhancement on drug delivery and hydrogen storage devices by our R&D team. We believe that this is a high-value special material with unique characteristics that could make Albany graphite the preferred material for conversion to valuable graphene applications.

"BGU regularly uses various types of commercially available natural flake graphite, but found Albany graphite to exfoliate under sonication more easily and with higher yields of graphene nanoparticles than any other natural graphite types that we have tested."

Sonication is a highly effective process using sound energy to agitate the graphene layers for separation. Graphene is a single sheet of pure graphite that is one atom thick, flexible, transparent, highly conductive, and is stronger than diamonds or steel.

Zenyatta and BGN Technologies Ltd. (BGN), the technology transfer arm of BGU, have identified funding support opportunities and are

presently in discussion with governments and private corporations to secure these arrangements for scaling up collaboration. Additionally, BGN is in discussion with a commercial partner in Israel that will collaborate on graphene products R&D from Albany graphite in a specific application that will be announced in the future. BGN will also pursue other methods and uses for commercially viable graphene products from Zenyatta's Albany graphite deposit.

BGU's expertise in nanoscience is advancing new materials to convert light and heat into electrical energy and to produce lightweight cars and planes of unprecedented strength. Specifically, the BGU research group focuses on nanomaterials application for composite properties enhancement, drug delivery and hydrogen storage.

The researchers are developing incredibly small transistors to power computers, membranes for desalinating water, as well as graphene surfaces loaded with specific drugs for delivery to targeted diseased cells. They are also working on graphene reinforcement in cement-based materials and hydrogen storage devices as a key enabling technology to advance hydrogen and fuel cell technologies.

According to Dr. Regev, who is also an associate professor in BGU's Department of Chemical Engineering, "Thermogravimetric Analysis (TGA) on the material found it to be completely different from any other natural graphite flake products studied so far in our lab. The Zenyatta graphite appears to be composed of smaller and cleaner particles with a narrower particle size distribution. It is the same order of magnitude as more expensive, commercially available Graphene Nano Platelets (GnP). These ideal properties probably stem from the unique geological process by which the Albany graphite deposit was formed."

"The company is excited with these results and is very pleased to learn that BGU has expressed a strong interest in the potential of our

material," said Dr. Bharat Chahar, vice president of market development for Zenyatta.

"For many applications, this unique material provides further evidence of its suitability. We still believe that graphene requires technological development before the world sees large-scale commercial viability, but are delighted to play a prominent part in the advancement of a new innovative material."

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