

# The new “force” in the emerging graphene space.

Graphene remains a relatively niche product since commercial production of the world's first two-dimensional material can be troublesome, yet global demand is projected to spiral in the coming years as breakthroughs in processing establish a new paradigm in which the immensely tough material can be manufactured to meet the rapidly escalating number of graphene-based patents being filed worldwide. Talga Resources Ltd. (ASX: TLG) (“Talga”), on the other hand, possess graphite resources of such high quality that it can be milled directly into a graphene product suitable for the additives and battery markets using Talga's patent-pending exfoliation process.

In fact, two of the company's five graphite projects host unique ore that allows graphite and graphene to be liberated at an atomic level in a groundbreaking and extremely cost effective way. The graphene produced is of a high quality and suitable for a range of large volume composite, additive and technology applications; this is strongly supported by the number of offtake agreements that Talga have so far secured, including, most recently, a memorandum of understanding with global market giant Heidelberg Cement.

Since graphene is 200 times stronger than steel but far more flexible, it is an extremely desirable substance to concrete and steel manufacturers as an additive, and Talga are developing the ability to meet this demand with a product of considerably greater quality than their peers. In fact, concrete manufactured using Talga materials is stronger, has far higher thermal conductivity and, if used in sufficient quantities, creates electrically conductive and superstrong building materials essential for railway construction, where resistive materials cause signal disturbances.

Further to this, Talga's graphene is suitable for use as anode material in lithium ion batteries before it has even been milled; the unbeatable conductivity of the company's processed ore means that faster charging and longer life cycles are pretty much guaranteed, and we should expect the product to play a key role in batteries moving forward since the advantages over graphite anodes are numerous.

The graphite resources themselves are based in Sweden, with three of them ranking amongst the top 10 highest purity deposits currently known, and the Vittangi Project in particular takes the top spot as a microcrystalline flake resource grading at 25.5% graphite. The extremely fine, pre-crystallised nature of the material found at this site is what makes it suitable for immediate use as a graphene product, since graphene is simply two-dimensional sheets of the carbon atoms of which graphite is comprised.

When ground, it is a curiously smooth and ethereal substance and of phenomenal value to the coatings industry as a result. Talga have already received initial revenues from their product as part of agreements with Chemetall (a BASF subsidiary) and a 3D printer manufacturer for use in speciality inks. Companies such as these are currently serving to validate the product and strategy in order to deliver a decisive business case, but commercial scale graphene production is something that will disrupt a massive number of industries.

Talga's share price has already experienced substantial gains this year, and ~\$12m capital raising was completed with institutions and major shareholders designed to fund Talga through to expiry of December 2018. Moreover, the flagship Vittangi project has recently been upgraded to 12.3Mt from the previous 9.8Mt; it seems as if the company is about to become a force to be reckoned with in the emerging graphene space.