Emerging pathway to bulk industrial graphene: From Batteries to Coatings

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Abstract

The widespread adaptation of any new material in bulk applications, such as batteries, composites and protective coatings, is critically dependent on availability of low-cost material tailored to suit each application. Graphene offers benefits to all of the abovementioned application areas in its different forms [1]. The main challenges of industrial scale graphene production to date have been material quality, reproducibility and cost. This presentation will cover Talga's recent progress in expanding the company's graphene and graphite production and processing capability with a particular focus on economic considerations from mining to graphene production. The talk will then provide insights into the use of the materials in battery anodes and protective coatings. Particular focus will be on comparing the physico-chemical properties of the materials to their performance tested via industrially relevant test methods spanning electrochemical, mechanical and corrosion testing among others.

References

[1] Ferrari, A.C. et al., Nanoscale, 7 (2015), 598-4810

Figures

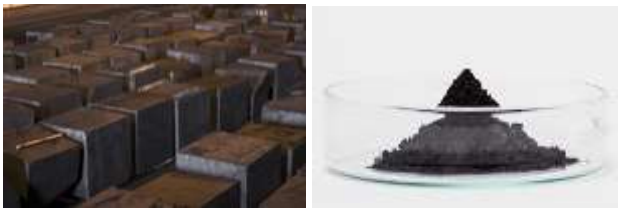

Figure 1: Talga's vertically integrated advanced material supply ranges from mineral resources (left) to graphite and graphene products (right)

Figure 2: The product portfolio includes a range of graphene based protective coatings (left) and active materials for batteries (right)