

Abalonyx: Production of Graphene Derivative Materials

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Abalonyx (www.abalonyx.no) is a Norwegian SME, established in 2005 as a private corporation, up to recently primarily engaged in R&D related to graphene oxide and graphene oxide derivatives for functional nano-composites, nano-laminates and coatings. The company started commercial production of graphene oxide (GO) in 2015 and reduced graphene oxide (rGO) in early 2016. Technology basis is both in materials and methods. On the materials side the company is specialized in the synthesis and surface functionalization of GO and rGO, which have been developing since 2008. On the methods side the company uses and develops automated, high throughput methods based on the standard well-plate format. The aim is to employ parallelization and automation in all aspects of experimental work, in order to secure quality and reproducibility. Abalonyx has a core staff in house, undertaking also basic analysis and characterization such as XRD and electrical properties. Our long term relation to the catalysis departments of SINTEF and the University of Oslo gives us access to advanced equipment as well as highly skilled students for part-time employment. We have a lab with basic lab equipment including automated titrator, spin coater, vacuum oven, pH-meter, rotavapor, autoclaves, freeze dryer, centrifuge and analytical balance. Advanced characterization is outsourced. Abalonyx has already developed two products:

- 1- High quality single layer graphene oxide (GO) in the form of an aqueous paste that can safely be handled, shipped and stored.
- 2- Reduced graphene oxide (rGO) with a capacity of about 1 Kg/day production capacity. Abalonyx can offer Kg-quantities of high quality rGO at very competitive prices.

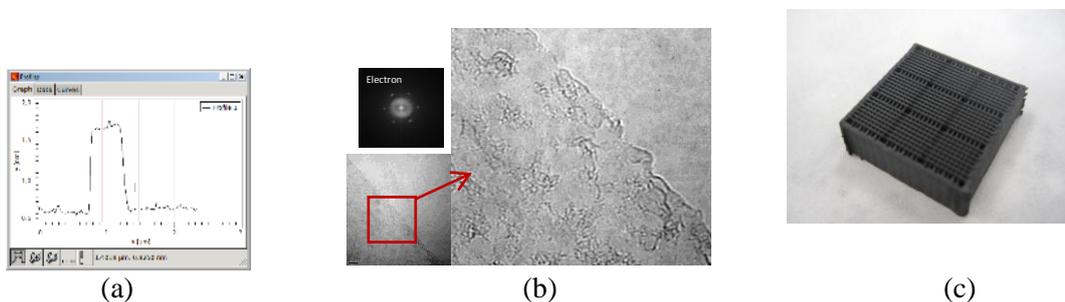


Figure 1: a) AFM image of Abalonyx GO, b) SEM image of rGO and c) rGO-containing bioglass scaffold.

At present our main R&D activity is in water remediation, using GO to treat waters contaminated with heavy radio-nuclides and other heavy metals. We are also developing supported GO and rGO for use as additives to polymers and development of scaffolds for use in regenerative medicine.

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