

Successful trials with High Density Polyethylene for oceanic farming

HIGHLIGHTS

- **Successful testing of First Graphene's PureGRAPH® products in High Density Polyethylene HDPE**
- **Progressing to advanced trials with Australian shellfish aquaculture manufacturer, Hexcyl Systems Pty Ltd**
- **Aiming to develop a master batch to further improve the robustness and longevity of the Hexcyl range of oyster baskets and adjustable long-line components**
- **Next steps will be to produce super-strong oyster baskets for long-line farming systems**
- **Yield strength increases by more than 60% and abrasion loss reduced by 50%**
- **Confirms PureGRAPH® is a high performing additive for the HDPE industry, one of the largest thermoplastic markets in the world**

First Graphene Limited ("ASX: FGR" or "the Company"), today announced successful trial results from the application of PureGRAPH® graphene to be used in the production of oyster baskets with South Australian based shellfish aquaculture manufacturer, Hexcyl Systems Pty Ltd.

Using FGR's PureGRAPH® products the High-Density Polyethylene (HDPE) showed improvements in strength, wear resistance and longevity.

HDPE is a thermoplastic polymer widely used in packaging (cosmetics, food and beverages), corrosion-resistant piping, geomembranes and plastic timbers. The global market for HDPE was estimated at USD 59 Billion in 2015, with a CAGR of 4%¹.

Craig McGuckin – Managing Director, First Graphene Ltd. believes this an important first step for PureGRAPH® products into this important global market.

"This trial confirms that PureGRAPH® graphene products successfully enhance the performance of HDPE materials in industrial applications. This is an important milestone in our strategy to develop additives for thermoplastic materials". said Mr McGuckin.

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ASX Symbol

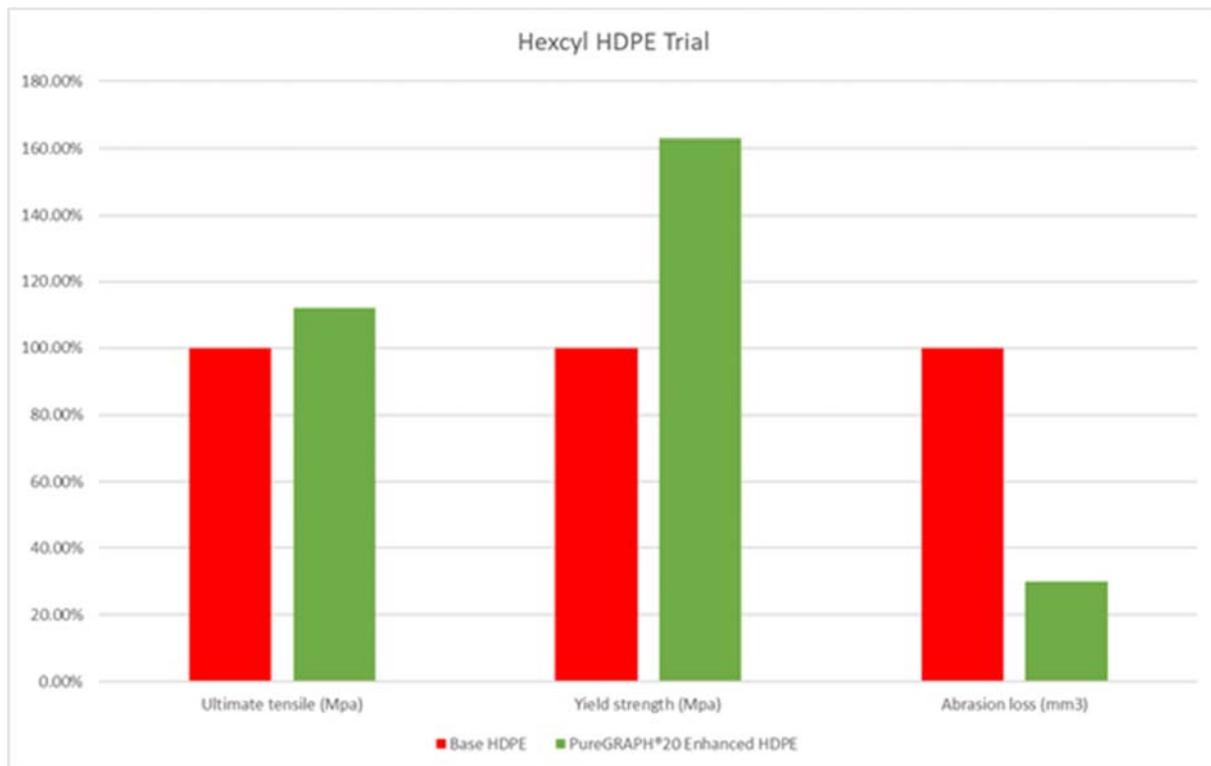
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The capability of First Graphene PureGRAPH® technology enabled significant mechanical improvements.

"A low dosage of less than one per cent of PureGRAPH® has generated an increase in yield strength of more than 60 per cent, when compared to the base HDPE product," said Mr McGuckin.

"Samples showed a more than 10 per cent increase in ultimate tensile strength and at the same concentration, abrasion loss was reduced by more than 50 per cent."

The project will now move to a larger scale trial in real-world, ocean conditions, commencing in August 2020.



Test Results showing ultimate tensile improvements (>10%), defined as the stress (Mpa) at Moment of rupture and calculated using standard test method for tensile properties of plastics (ASTM D638-14).

Yield strength improvements (>60%), defined as the stress (Mpa) limit of elastic behaviour and calculated using standard test method for tensile properties of plastics (ASTM D638-14).

Abrasion loss reduction (>50%), defined as a volume loss (mm³) under abrasion and calculated using an internal method designed to simulate an accelerated abrasive environment.

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About First Graphene Ltd (ASX: FGR)

First Graphene Ltd. is the leading supplier of high-performing, graphene products. The company has a robust manufacturing platform based upon captive supply of high-purity raw materials and an established 100 tonne/year graphene production capacity. Commercial applications are now being progressed in composites, elastomers, fire retardancy, construction and energy storage.

First Graphene Ltd. is publicly listed in Australia (ASX:FGR) and has a primary manufacturing base in Henderson, near Perth, WA. The company is incorporated in the UK as First Graphene (UK) Ltd. and is a Tier 1 partner at the Graphene Engineering and Innovation Centre (GEIC), Manchester, UK.

PureGRAPH® Range of Products

PureGRAPH® graphene powders are available in tonnage volumes with lateral platelet sizes of 20µm, 10µm and 5µm. The products are high performing additives, characterised by their high quality and ease of use.

With authority of the board, this announcement has been authorised for release, by Peter R. Youd

Director, Chief Financial Officer and Company Secretary

¹ Global Market Insights Feb 2017 | Report ID: GMI1156 | Authors: Kiran Pulidindi, Hemant Pandey