ASX ANNOUNCEMENT

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18th February 2022

First Graphene and partners secure UK grant for low-carbon cement development

HIGHLIGHTS

- **First Graphene-led consortium secures GBP190,000 UK Government grant to develop graphene enhanced, low-carbon cement**
- **Industry and research partners include Breedon Cement Ltd, Morgan Sindall Construction & Infrastructure Ltd and the University of Manchester**
- **Project aims to help cement and concrete industry achieve 25% CO_2 emission reduction goals**

First Graphene Limited (ASX:FGR; "First Graphene" or "the Company") is pleased to announce it is part of a consortium which has been awarded a UK Government grant to develop high performance graphene-enhanced cement.

The GPB190,034 (AUD360,206) grant was awarded by the Government's innovation agency, Innovate UK, and was secured by the consortium which is led by First Graphene and includes construction materials group Breedon Cement Ltd, construction and regeneration group Morgan Sindall Construction & Infrastructure Ltd, and the University of Manchester's Department of Mechanical, Civil and Aerospace Engineering.

The cement industry is a major contributor to carbon dioxide emissions and the Global Cement and Concrete Association, on behalf of 40 leading cement and concrete manufacturers, has committed to cutting carbon emissions by 25% by 2030.

The manufacture of clinker, which binds and strengthens cement, is a primary contributor to CO_2 emissions and the UK cement industry is actively exploring methods to produce cements with lower clinker factor to increase the sustainability of cement products.

A key issue in reducing clinker factor is the associated reduction in strength and durability of cement, however substantial research has shown that small additions of PureGRAPH® can overcome this problem.

First Graphene's PureGRAPH® products have previously been shown in external testing, to international standards, to enhance the performance of cement composites, increasing compressive strength by 34% and tensile strength of cement mortar by 27%.

The project will develop a new graphene-enhanced cement (GR-CEM) product utilising PureGRAPH® additives. GR-CEM will represent a step change in performance, enabling a reduction in the clinker factor and the use of alternative, lower carbon supplementary materials such as limestone and calcined clay to reduce the overall CO_2 burden.

In addition, the project involves optimising graphene dispersion and injection technologies, as well as validating the economic viability, safety and specific CO_2 reduction impacts of GR-CEM.

The grant was awarded through Innovate UK's Transforming Foundation Industries (TFI) program, a competitive process that involves extensive expert review. Total project costs will be GBP240,865 (AUD456,555), with First Graphene's share of the grant totalling GBP118,607 (AUD224,817). The collaborative project, which was due to commence on 1 February 2022, is planned to run over a 12-month period.

The new technologies developed by the consortium will be piloted in a cement manufacturing facility and the performance evaluated through extensive testing against construction industry standards. Requirements for concrete product performance will be guided and evaluated by a leading construction company in a real-world project.

This is one of several recent advances in the cement sector. In January, First Graphene announced an agreement with global construction chemicals manufacturer Fosroc International Limited for the development of PureGRAPH® graphene-enhanced cement grinding aids.

In late 2021, First graphene also filed a patent specification with the United Kingdom Intellectual Property Office that describes a novel method of scaling up the production of graphene suspensions for use in cement additives and concrete admixtures.

Research work carried out by the University of Wollongong last year also found major improvement in sulphate resistance using PureGRAPH® in structural concrete and repair-mortar systems. The Company also has research, development and commercialisation programs underway with cement and concrete specialists in South Africa and New Zealand.

First Graphene Managing Director and CEO Michael Bell said: "*We are delighted to be working with industry leading partners Breedon and Morgan Sindall, as well as the University of Manchester, which together represent a powerful consortium of producers, users, specifiers and researchers along the concrete supply chain. This as an excellent opportunity to develop graphene enhanced concrete products at scale with exceptional visibility across the cement and construction sectors. It is also a major achievement to have secured this funding in a very competitive environment, which is testament to the consortium's manufacturing and engineering capabilities. It is important to note that this is one of multiple collaborations with industry that the Company is undertaking with a view to building our pipeline of commercial opportunities over the coming months.*"

Jude Lagan, Managing Director Cement and Products from Breedon Cement said: "*We're extremely proud to be part of the consortium led by First-Graphene to develop graphene enhanced, low-carbon cement, which could ultimately reduce the amount of clinker in concrete and reduce CO_2 emissions. We recognise that cement is an essential ingredient of our infrastructure, and we're committed to developing more sustainable products for all our customers. It's essential that Breedon can make a material difference to places, and we want to show how we look at the whole life impacts of our products, and how we collaborate and innovate to mitigate the effects of climate change.*"

Dr Akilu Yunusa-Kaltungo from the University of Manchester, the Project's Principal Scientific Researcher, said: "*We are looking forward to collaborating with our industrial partners. Collectively, we are a diverse team with a very wide range of scientific, commercial and industrial experience and knowledge. The University of Manchester looks forward to putting our scientific expertise to good use by engaging with the consortium to develop a range of graphene-enhanced products that will have multiple benefits in real world applications.*"

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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.

About Breedon Cement

Breedon Cement Ltd is part of the Breedon Group, a leading construction materials group in Great Britain and Ireland. The group produces cement, aggregates, asphalt, ready-mixed concrete, Welsh slate and specialist concrete and clay products, and offers a range of contracting services.

About Morgan Sindall Construction & Infrastructure

Morgan Sindall Group plc is a leading UK construction and regeneration group with revenue of c£3bn, employing around 6,600 employees and operating in the public, regulated and private sectors. It operates through five divisions of Construction & Infrastructure, Fit Out, Property Services, Partnership Housing and Urban Regeneration

PureGRAPH® Range of Products

PureGRAPH® *graphene powders and* ***PureGRAPH® AQUA*** *pastes with lateral platelet sizes of 50µm, 20µm, 10µm and 5µm, as well as* ***PureGRAPH® masterbatches and admixtures****, are available in tonnage volumes. The products are high performing additives, characterised by their high quality and ease of use.*

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Australia:	FGR
Frankfurt:	FSE:M11
USA OTCQB:	FGPHF

With authority of the board, this announcement has been authorised for release by Aditya Asthana, Chief Financial Officer and Company Secretary.