

4th November 2025

Cement & Concrete Segment Update

Highlights

- **Production of 600 tonnes of low carbon PureGRAPH® enhanced cement to go ahead in December targeting several client applications**
- **Concrete roof tiles containing PureGRAPH® enhanced cement to be trialed by specialist precast concrete manufacturer and supplier FP McCann**
- **Morgan Sindall to use graphene enhanced cement for ground slabs in London railway infrastructure project**
- **Breedon to construct concrete demonstration site at Hope Cement Works for EV charging infrastructure**

First Graphene Limited (ASX:FGR; “First Graphene” or “the Company”) is pleased to announce a raft of new trial projects to roll out in the UK containing PureGRAPH® enhanced cement produced by commercial partner Breedon Group PLC (LON:BREE) (“Breedon”).

Breedon will produce approximately 600 tonnes of cement incorporating circa three tonnes of PureGRAPH® CEM at its Hope Cement Works in Derbyshire, UK.

This will in turn be distributed to numerous material, construction and academic partners in the UK looking to benefit from material performance improvements and carbon reduction associated with graphene enhanced cement (GEC) and concrete products.

It is anticipated CO₂ emissions associated with cement production will reduce by approximately 16% thanks to the partial replacement of carbon intensive clinker.

Several other organisations have requested material to be tested in their respective applications.

FP McCann to test graphene in concrete roof tiles

FP McCann is utilising between 40 and 60 tonnes of graphene enhanced cement in the production of thousands of roof tiles at its Cadeby manufacturing plant in Leicestershire, which will then be tested at the company’s R&D facility at Knockloughrim.

This aspect of the trial forms part of a successful application for a Contracts for Innovation with the Department for Energy Security and Net Zero (DESNZ) and Defra: Resource Efficient Construction Impacts project funded by UK Government¹, of which A\$30,000 is for the supply of graphene enhanced cement and other raw materials.

Cadeby has traditionally used large quantities of CEM I and fine aggregate in the production of

¹ <https://iuk-business-connect.org.uk/opportunities/contracts-for-innovation-resource-efficient-construction-impacts/>



**Funded by
UK Government**

millions of concrete roof tiles annually. Manufacturing at this scale relies on strict process control, where even small variations can have a negative impact in production efficiency.

The trial project will replace CEM I with GEC, which incorporates graphene nanoplatelets to reduce carbon without compromising product strength.



Figure 1: Example of FP McCann's concrete tiles.

Testing and tile quality assessment will be carried out for approximately five months following their manufacture looking at realising material use efficiencies and reducing waste.

FP McCann's trial has partially been designed in response to the UK housing shortage crisis and Government's plan to deliver 1.5 million affordable, sustainable new homes.

This involves combatting rising material cost constraints by making cost effective, low carbon construction solutions available to the construction market.

Morgan Sindall gears up to lay graphene ground slabs

Meanwhile the high-end infrastructure division of Morgan Sindall Group PLC (LON:MGNS) plans to use concrete batched by Capital Concrete in railway infrastructure ground slabs in London.

Morgan Sindall has previously successfully tested graphene enhanced concrete containing PureGRAPH® to build a high use truck wash bay on a motorway in the UK.

This new collaboration will involve two tonnes of cement for a concrete batch, which will be used primarily in ground slabs while a smaller test slab will be poured for durability testing, monitoring and measuring. Remaining concrete will be used to produce samples for a suite of standard strength tests.

Breedon trial reflects decarbonisation targets

As the manufacturer of graphene enhanced cement, Breedon plans to conduct pre-trial equipment inspections at Hope Cement Works this month with production to commence December 2025.

Having already proven up carbon emissions reduction and performance improvements of cement produced with PureGRAPH®, Breedon is a valued commercial partner of First Graphene and has strong commitments to manufacturing more sustainable construction materials.

Some of the trial material will be used in the construction of a concrete slab at Hope Cement Works integrating EV charging infrastructure for staff and visitors.

University of Manchester to oversee validation

The University of Manchester, under guidance from the Head of Research at the Department of Civil Engineering and Management Meini Su, will carry out compressive strength testing and analysis on materials produced from the trial.

Independent testing and verification will help validate results obtained during the multi-faceted trial from both a structural and environmental perspective.

First Graphene Managing Director and CEO Michael Bell said:

“This is a dynamic approach to trialling graphene enhanced construction material formulated by First Graphene and produced in collaboration with our strategic commercial partner Breedon.

We know the cement and concrete sector has one of the highest volume potentials for graphene integration into product, and we’re proud to supply three tonnes of our Aqua Dispersed PureGRAPH® to build the foundation of this 600-tonne cement trial.

While there has been some delay to trial production at this scale, it has allowed our partners to secure appropriate infrastructure projects and construction schedules to put Breedon’s GEC to use.

Naturally, we’re very excited to be working alongside some of the UK’s premier construction and materials organisations – Morgan Sindall and FP McCann – with ongoing support from the University of Manchester to bring this trial to fruition.”

Morgan Sindall Infrastructure Head of Materials Engineering Mark Wilson said:

“As part of our commitment to decarbonising the construction industry, we are trialling a low-carbon, graphene enhanced cement designed to significantly reduce clinker content and associated CO₂ emissions.

This innovative material supports our ambition to deliver practical, science-led solutions that contribute to a lower-carbon built environment and align with our validated net zero targets.”

Breedon Works Manager Steve Groves said:

“We’re proud to be working alongside our partners as we move into production of our latest batch of graphene enhanced, low-carbon cement.

This marks an important milestone in our journey towards more sustainable construction materials. By reducing clinker content and lowering CO₂ emissions, we’re demonstrating that innovation and environmental responsibility can go hand in hand.

Cement remains a vital part of modern infrastructure, and we’re determined to show that it can also be part of the solution. At Breedon, we’re committed to working collaboratively, using science and practical experience to create products that make a real difference - from their manufacture right through to their performance in the built environment.”

University of Manchester's Akilu Yunusa-Kaltungo said:

"We're delighted to progress to the second trial phase of graphene enhanced cement production in collaboration with our academic and industrial partners.

This stage represents an important step towards translating advanced materials research into tangible products. By combining academic insight with commercial and industrial expertise, we aim to validate the performance and sustainability benefits of this innovative material.

The University of Manchester is proud to contribute scientific rigour and independent verification to ensure that graphene-enhanced cement can deliver meaningful environmental and structural advantages across the construction sector."

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This release has been approved for release by the Chairman.

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About First Graphene Ltd (ASX: FGR)

First Graphene Limited is focused on the development of advanced materials to help industry improve. The Company is a leading supplier of graphitic materials and product formulations with a specific commercial focus on large, high-growth global markets including cement and concrete; composites and plastics; coatings, adhesives, sealants and elastomers (CASE); and energy storage applications.

One of the key outcomes these advanced materials offer is the reduction of carbon dioxide emissions, whether directly through a reduction in output of these harmful greenhouse gases or lower energy usage requirements in manufacturing, or indirectly due to enhanced performance characteristics and extending the usable life of products.

First Graphene has a robust manufacturing platform based on captive and abundant supply of high-purity raw materials, and readily scalable technologies to meet growing market demand. As well as being the world's leading supplier of its own high performance PureGRAPH® graphene product range, the Company works with multiple industry partners around the world as a supplier of graphitic materials and partner to research, develop, test and facilitate the commercial marketing of a wide range of sector-specific chemical solutions.

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 where it has a strong R&D capability.