

8th April 2024

Graphene enhanced concrete continues to excel in field trials

Highlights

- Graphene enhanced concrete slab continues to perform well after >200 days in the field at a major UK highway infrastructure project
- Strength and integrity of concrete slab maintained despite aggressive heavy vehicle traffic, abrasion, water exposure and wide range of weather conditions
- First Graphene continues discussions with project consortium to determine next steps following these positive results

First Graphene Limited (ASX: FGR; “First Graphene” or “the Company”) is pleased to announce continued positive results have been reported in field trials of its graphene enhanced cement.

The graphene enhanced concrete slab, which incorporates the Company’s PureGRAPH®, continues to perform well, reaching over 200 days in operation at a wheel washing facility at a major highway infrastructure project in South East England.

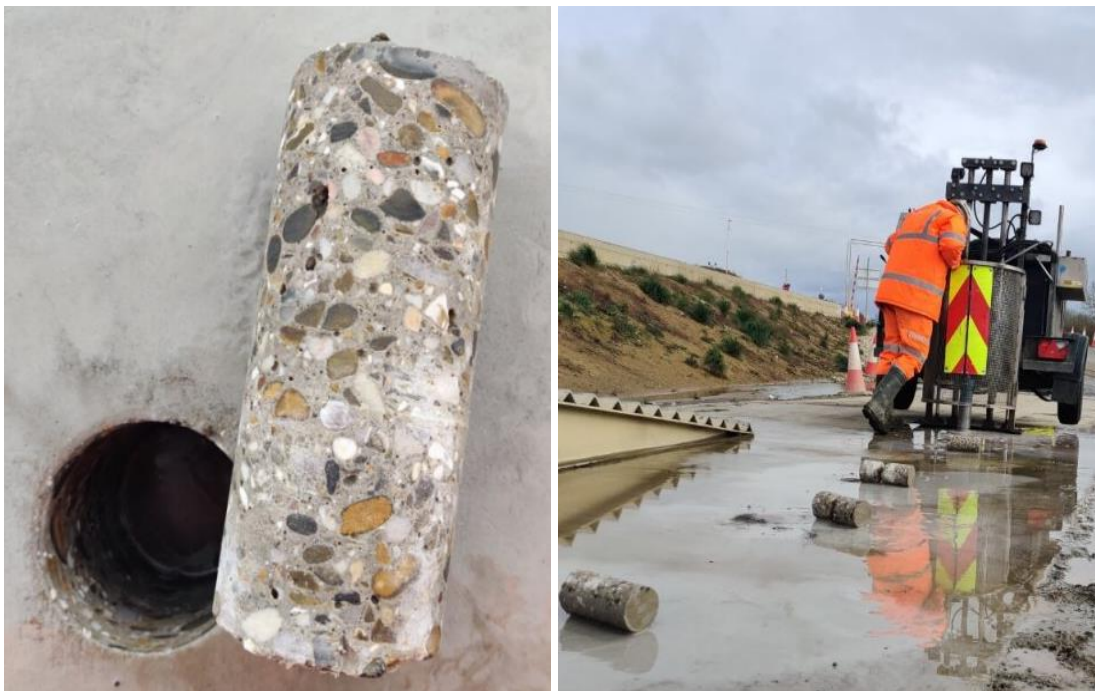


Image 1 and 2: A core sample (L), and samples being removed from the graphene enhanced concrete slab in the UK.

Encouragingly, the slab has maintained its strength and integrity, with a complete absence of defects, damage or deterioration reported by scientists and engineers investigating the project.

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The concrete slab was prepared using a graphene enhanced CEM II A/L concrete mixture, produced by Breedon during site trials last year.

The highway project provides an optimal and challenging environment to test the strength and permeability of the graphene enhanced concrete slab.

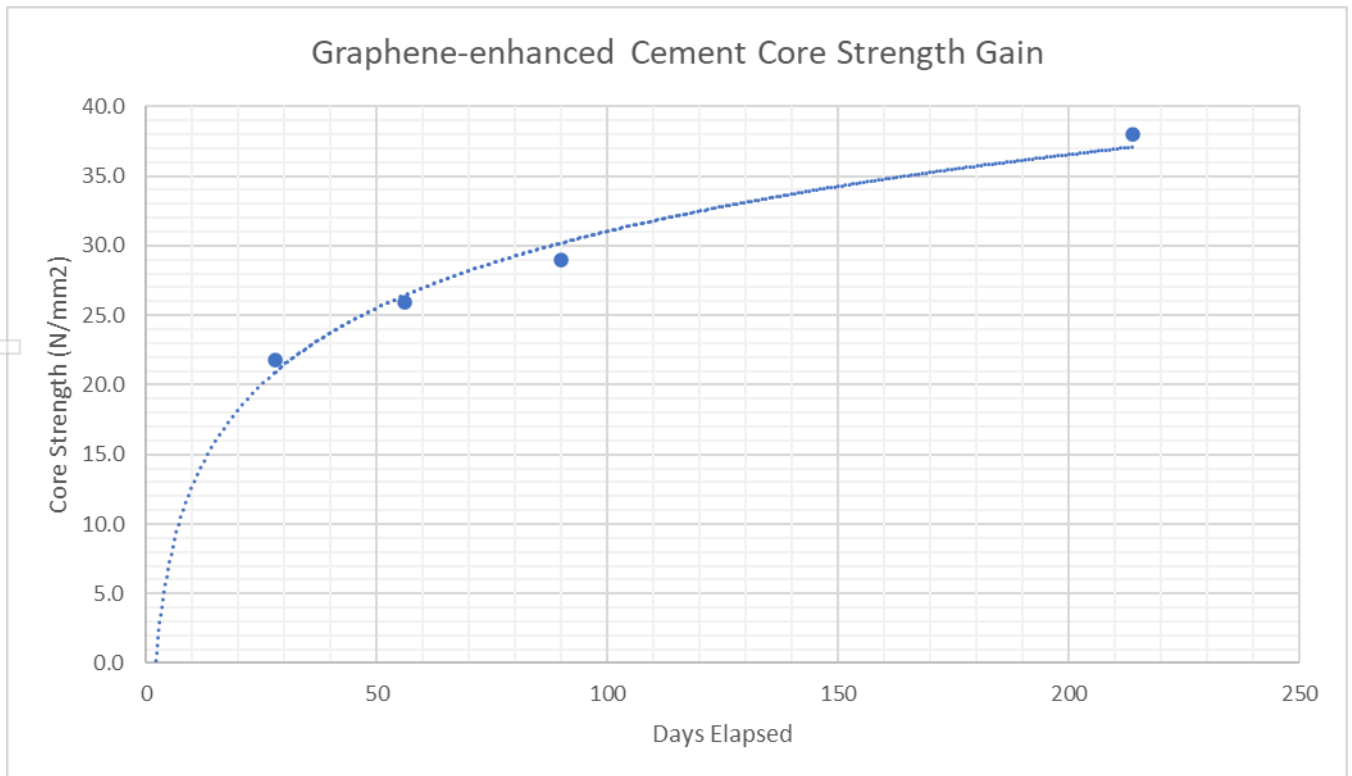
The slab has been subjected to more than 150 heavy vehicle movements each day, as well as considerable abrasion and wetting from washed wheels. It has also undergone exposure testing across a wide range of weather conditions.

Core samples extracted from the graphene enhanced concrete indicate good compressive strength performance for the grade of concrete specified.

These further results mean the long-term strength of graphene enhanced cement has been demonstrated in a real-world aggressive environment.

As previously reported by the Company, the enhanced cement had an immediate 15% reduction in CO₂ emissions during production as a result of its lower clinker factor.

The Company since reported early-stage strength gain, with the slab meeting specifications for the concrete pad (37 MPa after 28 days, based on cube strengths) and continuing to perform well after successive core tests.



Graph 1: Increase in core strength of graphene enhanced cement used in concrete slab.

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The world-leading trial has been conducted with a range of partners, including the UK's largest cement producer, Breedon Group plc, Morgan Sindall Infrastructure and the University of Manchester.

It was also supported by the United Kingdom Government, through Innovate UK, under their Transforming Foundation Industries Programme.

These positive results have provided the opportunity for First Graphene to continue collaborating with Breedon and Morgan Sindall Infrastructure on future projects.

The trials reinforce the potential use of graphene enhanced cement as an emission reducing and higher performing solution for the cement and concrete industry.

First Graphene Managing Director and CEO Michael Bell said:

"These 200-day results represent a significant milestone in the trials of graphene enhanced cement, with the integrity of the slab continuing to go from strength to strength."

First Graphene is contributing to the development of cost effective, ready-to-use solutions to help decarbonise the construction industry, providing a 'greener' solution.

I look forward to providing further updates as we continue our journey with key players in the UK construction industry, such as Breedon and Morgan Sindall Infrastructure."

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 benefits of these advanced materials 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 and is a Member of the Graphene Engineering and Innovation Centre (GEIC), Manchester, UK, where it has a strong marketing and R&D capability.

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