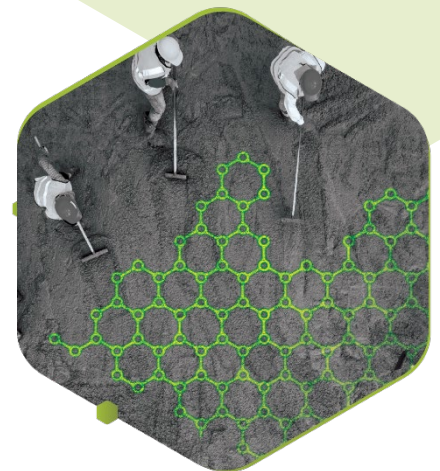


10th JANUARY 2023

First Graphene and Suvo Strategic Minerals to collaborate on low-emission cement and concrete



Highlights

- First Graphene and Suvo Strategic Minerals sign joint development agreement to produce graphene-enhanced metakaolin solutions for cement and concrete products
- Aim to develop superior performing, low CO₂ emission solutions
- Offers further potential to develop commercial solutions that help the construction sector pursue major emission reduction targets
- Addresses green cement market estimated to be worth U\$56bn by 2027

First Graphene Limited (ASX: FGR; “First Graphene” or “the Company”) is pleased to announce it has entered into a joint development agreement (JDA) with fellow ASX-listed company Suvo Strategic Minerals Limited (ASX:SUV; “Suvo”) to research and develop low-emission cement and concrete products.

The agreement aims to investigate the potential for further improvements in CO₂ emission reductions by combining the already successful outcomes achieved from the addition of graphene to cement and concrete with Suvo’s metakaolin. Metakaolin is a pozzolanic material derived from fine kaolinite clay that can be used as a partial replacement for clinker in cement to deliver strength and performance improvements to concrete and mortar products.

Clinker is the key binding agent in cement and is a key contributor to the industry’s significant carbon footprint. This is due to the clinker manufacturing process, which involves roasting calcium carbonate materials at extremely high temperatures, with CO₂ being a major by-product. Depending on a range of factors, for every tonne of cement manufactured, up to 900kg of CO₂ can be produced.

While the metakaolin manufacturing process still involves calcination, it is carried out at much lower temperatures without any significant CO₂ emissions.

Like graphene, metakaolin has been proven to provide superior performance benefits in cement and concrete applications but it is susceptible to degradation in some instances including exposure to high temperatures. Research has shown that graphene-enhanced metakaolin can provide far superior performance under a broader range of conditions.

By combining the two products in a single formulation, synergistic performance benefits, such as accelerated OPC hydration, early hardness development and durability, are expected at reduced clinker amounts.

The joint development being undertaken between First Graphene and Suvo intends to identify opportunities for commercialisation and scaling up of graphene-enhanced metakaolin solutions for use in cement and concrete products.

Under the terms of the agreement, First Graphene will provide R&D services, co-develop a research and development plan to produce graphene-enhanced solutions with Suvo, and ultimately focus on scaling up production of the resulting solutions.

Suvo will take responsibility for testing and validation of graphene-enhanced metakaolin products and provision of market data to enable the scale up of production.

The global green cement market is estimated to be worth U\$56 billion by 2027, according to research company IMARC Group.

First Graphene Managing Director and CEO Michael Bell said:

“This JDA marks another step in First Graphene’s pursuit of greener solutions for the construction sector.

Building on the success we have already demonstrated and are actively commercialising by developing PureGRAPH® enhanced admixtures and grinding aids to reduce CO₂ emissions and improve performance in cement and concrete, the agreement with Suvo provides a potential path to realising even greater improvements.

The combination of First Graphene and Suvo’s products, coupled with the strength of our combined R&D capabilities and engagement with global markets, offers significant potential to develop even more robust solutions to help the cement and concrete sectors reduce and ultimately eliminate carbon emissions.”

Suvo Executive Chairman Henk Ludik said:

“This is an exciting opportunity for Suvo and First Graphene to develop superior solutions that are better for the planet.

Both companies share a common philosophy of investing in R&D that offers the potential for large-scale, successful commercial outcomes and we go into this JDA with some very clear common goals to address the cement and concrete sectors’ carbon reduction objectives.

More than 4 billion tonnes of cement is manufactured each year – which equates to enough to build a city the size of New York every 40 days – so there’s a sizeable market and a big emission reduction target to address.”

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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, silicones 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 and is a Tier 1 partner at the Graphene Engineering and Innovation Centre (GEIC), Manchester, UK, where it has a strong marketing and R&D capability.

About Suvo Strategic Minerals

Suvo Strategic Minerals Limited is an Australian hydrous kaolin producer and exploration company listed on the Australian Securities Exchange (ASX:SUV). Suvo is focused on production at, and expansion of, their 100% owned Pittong hydrous kaolin operation located 40km west of Ballarat in Victoria. Suvo's exploration focus is on near-term kaolin and high purity silica assets with 100% owned Gabbin (kaolin), Eneabba and Muchea (silica sands) projects located in Western Australia.

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