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Patents secured to produce critical minerals and hydrogen from Kainos Technology

Highlights

- **Two new patents secured for First Graphene's Kainos Technology by the Australian Government and Republic of Korea**
- **Grant-funded research project in UK investigating commercial scale-up of graphite, graphene, and hydrogen production from Kainos Technology**
- **Global recognition of graphite as a critical mineral expected to advance commercial demand for the process**

First Graphene Limited (ASX:FGR; "First Graphene" or "the Company") has secured patents in Australia and Korea for its Kainos Technology, used to produce graphite, graphene, and hydrogen from petroleum waste streams.

The patents reinforce First Graphene as the owner and innovator of this process and reiterate both the Australian and Korean Governments' demand for graphite, which is listed as a critical mineral¹.

The Kainos Technology uses acoustic or hydrodynamic cavitation to convert petroleum feedstocks into high-quality, battery-grade synthetic graphite and graphene, as well as clean hydrogen as a by-product.

These elements are vital for the global energy transition; graphite and graphene are required for electric vehicle batteries and hydrogen can be used as an alternative energy source which does not produce carbon emissions.

Global demand for electric vehicles is expected to grow sixfold over the next few years, with annual sales rising to approximately 28 million by 2030².

The hydrogen industry is growing with global trade anticipated to generate more than A\$440 billion in annual export revenues by 2050³.

The Company has also advanced a collaborative research project with Swansea University, which was awarded A\$192,152 under the Analysis for Innovators (A4i) Round 12, Stage 2 funding from Innovate UK, to further investigate the market potential of the Kainos Technology.

The six-month project has focused on developing a commercial approach to scaling-up production of synthetic graphite and pristine graphene, using the patented processes.

The research project is expected to finish at the end of February, and success could enable further grant-funded research to advance commercialisation of the Kainos Technology.

First Graphene Managing Director and CEO Michael Bell said:

“The granting of these patents mark a major milestone for our Kainos Technology, as we advance commercialisation of the process to supply the products needed for the global energy transition.

Our Kainos Technology has the potential to assist the oil and gas sector by leveraging petroleum waste to produce in-demand synthetic graphite and graphene required for the booming electric vehicle market.

Meanwhile, the creation of hydrogen as a by-product can help shore up supply of an emission-reducing alternative energy source, at a time when demand for renewable energy sources continues to grow.

We look forward to the results of the research currently in its final stages by our UK team and Swansea University, as we work to advance commercialisation of this industry-changing product.”

References

¹[Australia’s Critical Minerals List](#)

²[McKinsey & Company](#)

³[Deloitte](#)

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This release has been approved for release by the Chairman.

For further information please contact:

Investors

Michael Bell
Managing Director and CEO
First Graphene Limited
michael.bell@firstgraphene.net
+61 1300 660 448

Media

Emily Evans
Media and Content Manager
SPOKE.
emily@hellospoke.com.au
+61 401 337 959

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.