

20th April 2021

Patented process converts petroleum feedstock to graphite, graphene and green hydrogen

HIGHLIGHTS

- **One-step cavitation process converts petroleum feedstock to graphite/graphene materials well suited for battery anodes.**
- **Hydrogen is made as a by-product without CO₂ generation.**
- **Patents granted and pending ensure process is exclusive to First Graphene.**
- **Opportunity for oil producers to enter the green energy market.**

First Graphene Limited (ASX:FGR; "First Graphene" or "the Company") is pleased to announce its patented process for converting petroleum feedstock into graphite, graphene and clean hydrogen has proven highly robust and effective.

The Company's researchers at the Graphene Engineering and Innovation Centre in Manchester (GEIC), have successfully demonstrated that the Hydrodynamic Cavitation Technology (previously in collaboration with Kainos Innovation Ltd.) can efficiently produce graphite materials in a single step process. "Green" hydrogen is the only by-product with no carbon dioxide produced in the process.

Following a grant from Innovate UK last year, First Graphene developed a prototype of the process for direct conversion of petroleum to high value graphene and graphite products, targeting the rapidly expanding energy storage market. The process relies on patented technology which is globally exclusive to the Company. As well as being granted a patent in the UK, a US patent has now also been allowed.

While petroleum feedstocks are typically associated with the release of carbon dioxide, as they are often combusted with oxygen to produce carbon dioxide by-products, this is not the case in Hydrodynamic Cavitation. The minimal net carbon footprint from this process is solely due to the electrical energy used for operation of the equipment, which ultimately could be provided from renewable sources.

Products that include graphene, graphite, coated cathodes and functional graphene materials have been successfully created using test samples. These products are ideal for battery electrodes and are currently being tested in lithium-ion battery cells.

First Graphene CEO Michael Bell said work is continuing to optimise the process with a view to demonstrating commercial viability.

"With the rapid growth of the electric vehicle market, demand for graphite continues to grow, while demand for petroleum products for transport is forecast to decline. Natural graphite is listed as a critical raw material by the European Union, and routes to produce graphite from alternative sources with a low carbon dioxide footprint are particularly valuable. This process enables the large-scale manufacture of these critical raw materials from an alternative feedstock, and subsequently presents an exciting opportunity for the petroleum industry. Further to this, the primary by-product of this process is green hydrogen, creating further appeal to energy sectors." Mr Bell said.

ASX ANNOUNCEMENT



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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.

PureGRAPH® Range of Products

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

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