



HydroGraph PET Test Results Show Improved Plastic Performance

Patented pristine graphene can drive sustainability efforts of plastics industry

TORONTO, Feb. 12, 2024 -- [HydroGraph Clean Power Inc.](#) (CSE: HG) (OTCBQ: HGCPF) (the “Company” or “HydroGraph”), one of five certified graphene manufacturers in the world, today announced that positive test results from its research in combining its proprietary graphene with polyethylene terephthalate (PET) -- the plastic resin commonly used to make water and soda bottles, clamshell food packaging and clothing fibers -- improves plastic’s performance and could reduce material in plastic bottles by 10% to 15%.

Many major corporations have committed to decreasing the use of disposable plastics in their products, aligning with consumer preferences and emerging legislation. However, the global economy may face challenges in completely eliminating plastic, leading companies to explore innovative methods to improve the lifespan of plastics. Testing was done to assess if HydroGraph’s 99.8% pure carbon content fractal graphene, FGA-1, would enhance the mechanical properties of PET. Tensile testing showed an increased elasticity of 22% at 0.5% graphene weight, increased strength at breaking by 114% from virgin PET, and increased strength at yield of 13% to 15%.

“Right now, we’re looking at a potential 10% to 15% reduction in material for bottles,” said Randall Zajac, HydroGraph’s director of business development, resins and composites. “Our next steps will be to prove other benefits, like recyclability and barrier properties. We’re also going to explore if our graphene will boost the strength of recycled material, which would let manufacturers reuse a higher percentage of recycled PET in the material mix.”

By having 10% to 15% less material in the bottles overall, manufacturers will also save on energy from not having to heat and cool the material. “The savings there are considerable,” said Zajac.

Virgin PET pellets from China average US\$1,000 per ton¹, and it takes about 20 to 25 grams to make one 500 ml bottle² at a cost of 1 cent each. The United States produces 50 billion bottles just for water³ annually at a cost of US\$500 million in imported PET pellets. With graphene reducing PET usage by 15%, the total savings would be US\$75 million.

“The global PET market is a huge opportunity for us,” said Stuart Jara, HydroGraph’s CEO. “International annual production is approximately 87 million tons, and based on these results, we project having a 1% penetration, amounting to US \$174 million.”

Testing was done at the [Graphene Engineering Innovation Centre](#) (GEIC) at the University of Manchester, which specializes in the rapid development and scale-up of graphene and other 2D materials applications. HydroGraph has been regularly featured as a key component in Greater Manchester’s US\$200 million investment zone. HydroGraph’s graphene is produced using its patented Hyperion controlled-explosion system at its Manhattan, Kan., facility.

“We are pleased to have collaborated with HydroGraph on this project undertaken at the GEIC involving graphene in PET,” said James Baker, CEO of Graphene@Manchester. “HydroGraph’s leadership and vision in this opportunity has been instrumental, and we are delighted to support their efforts every step of the way. The successful outcomes achieved underlines the efficacy of our partnership and also demonstrates the capabilities of our team here at GEIC. As HydroGraph continues to scale up this process and pursue FDA approval, we are confident that this again demonstrates the potential for graphene in enhancing a range of applications.”

The global graphene market was valued at US\$337 million in 2022 and is projected to grow to US\$2,957.9 million by 2030.⁴

ABOUT HYDROGRAPH

HydroGraph Clean Power Inc. was founded in 2017 to fund and commercialize green, cost-effective processes to manufacture high-purity graphene, and other strategic nanomaterials in bulk. Publicly listed on the Canadian Securities Exchange in December 2021, the Company acquired the exclusive license from Kansas State University to produce both graphene and hydrogen through its patented detonation process. More information about the Company and its products can be found on the HydroGraph website: www.hydrograph.com. For company updates, please follow HydroGraph on [LinkedIn](#) and [Twitter](#).

The Canadian Securities Exchange has not reviewed and does not accept responsibility for the adequacy or accuracy of the content of this news release.

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Forward-Looking Statements

This release contains certain “forward-looking statements” and certain “forward-looking information” as defined under applicable Canadian securities laws. Forward-looking statements and information can generally be identified by the use of forward-looking terminology such as “may”, “will”, “expect”, “intend”, “estimate”, “upon” “anticipate”, “believe”, “continue”, “plans” or similar terminology. Forward-looking statements and information include but are not limited to: the timing of trading of the Company’s common shares on the OTCQB, the potential benefits of listing on the OTCQB, the statements in regards to existing and future products of the Company; the ability to successfully scale the commercialization of the products, the Company’s plans and strategies.

Forward-looking statements and information are based on forecasts of future results, estimates of amounts not yet determinable and assumptions that, while believed by management to be reasonable, are inherently subject to significant business, economic and competitive uncertainties and contingencies. Forward-looking statements and information are subject to various known and unknown risks and uncertainties, many of which are beyond the ability of HydroGraph to control or predict, that may cause HydroGraph’s actual results, performance or achievements to be materially different from those expressed or implied thereby, and are developed based on assumptions about such risks, uncertainties and other factors set out herein, including but not limited to: HydroGraph’s ability to implement its business strategies; risks associated with general economic conditions; adverse industry events; stakeholder engagement; marketing and transportation costs; loss of markets; volatility of commodity prices; inability to access sufficient capital from internal and external sources, and/or inability to access sufficient capital on favorable terms; industry and government regulation; changes in legislation, income tax and regulatory matters; competition; currency and interest rate fluctuations; and other risks. HydroGraph does not undertake any obligation to update forward-looking information except as required by applicable law. Such forward-looking information represents management’s best judgment based on information currently available.

No forward-looking statement can be guaranteed, and actual future results may vary materially. Accordingly, readers are advised not to place undue reliance on forward-looking statements.

¹ https://www.made-in-china.com/products-search/hot-china-products/Virgin_Pet_Pellets_Price.html

² <https://phys.org/news/2009-03-energy-bottle.html>

³ <https://www.earthday.org/fact-sheet-single-use-plastics/>

⁴ <https://www.fortunebusinessinsights.com/graphene-market-102930>