

# Semplastics awarded SBIR grant by the Department of Energy for lithium-ion battery recycling technology

*Innovative battery technology earns additional \$1.1 million in funds for Phase II research*

OVIEDO, FLA., U.S. , October 3, 2023 /EINPresswire.com/ -- Semplastics, a leading innovator in energy storage solutions, has been awarded a Small Business Innovation Research (SBIR) grant from the U.S. Department of Energy (DOE).

This grant will enable the company to advance its pioneering work in recycling and upcycling low-value graphite from spent lithium-ion batteries to create high-performance, high-value anode materials.

The increasing global demand for lithium-ion batteries, used in everything from consumer electronics to electric vehicles, has raised concerns about the sustainability and availability of raw materials and supply chain vulnerabilities. Semplastics and its battery subsidiary, X-BATT, address these challenges by focusing on:

- Diversifying supply chains for critical materials like graphite
- Developing material and technology substitutes
- Promoting recycling, reuse, and efficiency

This project aligns with the DOE Vehicle Technologies Office's interest in mitigating global supply risk and enhancing national security by reducing dependence on foreign sources for critical materials.

"We are incredibly honored to receive this Phase II SBIR grant from the DOE. This opportunity



validates the groundbreaking work our team has been doing to make lithium-ion battery materials more sustainable and secure," said Bill Easter, CEO of Semplastics and X-BATT. "Our technology promises not just to revolutionize battery recycling, but to also contribute meaningfully to national energy security and environmental sustainability."

In Phase I, Semplastics successfully utilized a proprietary, low-cost, inorganic, resin-based technology that allows the conversion of impure recycled graphite into high-capacity anode materials. The company leveraged its expertise in polymer-derived ceramics to inhibit the negative impact of impurities on the graphite's performance.

Phase II of the project aims to fabricate and test larger cells, up to 2 Ah, using recycled graphite composite anodes. The work will also involve optimizing electrochemical performance metrics and conducting life-cycle and techno-economic analyses with industry partners to establish pathways to commercialization.

The successful implementation of this technology will make recycled graphite economically viable for the first time, reducing costs and energy usage in manufacturing. The technology could eventually support larger battery applications, such as electric vehicles, contributing to a more sustainable and secure energy future.

#### [About X-BATT®](#)

Established in 2019, X-BATT® focuses on leveraging its patented technology for high-capacity, low-cost, scalable lithium-ion battery components and provides customized, cutting-edge solutions that will allow the renewable energy future to be fully realized.

[www.x-battinc.com](http://www.x-battinc.com)

#### [About Semplastics](#)

Semplastics, a Florida-based material engineering company, launched in 2000. Over the last 20 years, Semplastics has supplied plastic engineered components to a broad range of industries from medical to aerospace. The Advanced Materials Division of Semplastics, X-MAT®, was later formed in 2013. Since inception, X-MAT® has developed a revolutionary, high-performance material that combines properties of metals (electrical conductivity), engineering plastics (lightweight) and ceramics (high operating temperature). Semplastics has held partnerships with NASA, Space Florida and the Department of Energy. Its game-changing material has various current applications including fireproof roof tiles, lightweight space mirrors, battery electrodes and 3D printing ceramics. Semplastics' technology can be custom-engineered to fit many specifications and has unlimited potential market applications. To learn more about Semplastics and X-MAT®'s capabilities and future projects, visit their websites at <https://semplastics.com/> and <https://www.x-materials.com> or call (407) 353-6885.

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