



X-MAT® breakthrough technology uses recycled lithium-ion batteries to create powerful battery components

Advancement marks major step forward for battery recycling

Orlando, Fla. (December 17, 2019) – X-MAT®, the Advanced Materials Division of Semplastics, has found a way to reengineer materials acquired from recycled lithium-ion batteries to create new, better performing batteries. The advancement can upend battery manufacturing, while motivating the world to recycle more lithium-ion batteries.

The lithium-ion batteries, found in many electronics, including cell phones and electric cars, contain graphite anodes. In the United States, 95 percent of these batteries are not currently recycled. The scientists at X-MAT's battery research laboratory have used the company's patented coating technology to nearly double the capacity of battery-grade graphite by coating recycled graphite, obtained from discarded lithium-ion batteries. The recycled graphite is highly contaminated and cannot currently be reused in batteries – until now.



While normal graphite has an upper capacity rating of about 360 mAh/g, recycled graphite begins with a capacity rating of up to 270 mAh/g. X-MAT® initial testing found that combining recycled graphite and the patented coating technology increased the capacity rating to 700 mAh/g.

X-MAT®'s new advancement is a game-changer for lithium-ion battery recycling

"This is a category buster. We have found a way to turn scraps into gold by making them even more powerful than new graphite," said X-MAT® CEO Bill Easter. "These stunning results open the door for environmentally-conscious companies to start manufacturing batteries with recycled graphite."

X-MAT® will continue battery testing at its own laboratory and will seek independent testing in 2020. The company is already testing its special coating on new natural and synthetic graphite anodes, which has yielded 2X the capacity over uncoated anodes.

The company is working to become the first manufacturer in North America capable of producing specialty coatings for battery-grade graphite anodes that can boost the performance of standard graphite anodes beyond their theoretical limit.

To learn more, [click here](#).

About X-MAT®, the Advanced Materials Division of Semplastics

X-MAT®, the Advanced Materials Division of Semplastics, launched in 2013. X-MAT® developed a revolutionary high performance material that combines some of the best properties of metals (electrical conductivity), engineering plastics (lightweight) and ceramics (high operating temperature). X-MAT® has had several partnerships including work with NASA, Space Florida and the NETL. X-MAT's game-changing material has various current applications including fireproof roof tiles, lightweight space mirrors, battery electrodes and 3D printed ceramics. X-MAT® technology can be custom-engineered to fit many specifications and has unlimited potential market applications. To learn more about X-MAT® capabilities and future projects, visit their website at <https://www.x-materials.com> or call (407)353-6885.

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