



This Startup Reckons it's Found a Way to Cut EV Battery Charge Times in Half

2022-09-10

The tech enables the incorporation of the low cost graphene into battery cathodes.

Appetite for electric vehicles is surging. 6.6m EVs were sold globally last year — double the year before. But the actual tech powering these vehicles still has a long way to go: EV batteries are expensive to produce and take a long time to charge.

Now one startup, based in Bristol, says it's got the tech to cut lithium-ion battery charging times in half and reduce manufacturing costs by 12%. Lithium-ion batteries are in most EVs and are what the biggest battery makers, like [Northvolt](#), produce.

Investors are understandably interested, and the startup, [Anaphite](#), has just raised a £4.1m seed round.

The round was led by Elbow Beach Capital, and with participation from Silicon Roundabout Ventures, Wealth Club, Blue Wire Capital, OION, Zero Carbon Capital, Climate VC and Deeptech Labs. Cofounders Alex Hewitt and Sam Burrow started the company in 2018 while they were students at [Bristol University](#).

“30% of an EV's costs come from its battery,” explains Hewitt. “And 50% of the battery's costs come from its cathode. So roughly 15% of an EV's cost is the cathode, but in 2021, only 6% of capital raised by private companies went into cathode development.”

The cathode is one of the key components of a lithium-ion battery. The flow of ions and electrons between the positively charged cathode and another part of the battery, the anode,

is what creates energy.

Hewitt emphasises that little innovation has been focused on the cathode, despite its cost. Boosting cathode efficiency — both in terms of finances and charge times — is a key part of hastening the green transition.

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Anaphite’s process works by incorporating graphene into the cathode. Graphene has strong electric properties, but it either comes in a specialist form which is highly expensive or a low-cost form that’s difficult to process and work into the battery system.

Anaphite’s tech enables the incorporation of the low-cost graphene into the cathodes, something that was previously hard to achieve.

“The graphene-enhanced cathode material enables higher charge rates due to the high conductivity of the graphene,” Hewitt explains. It also increases the energy density in the battery.

The second part of Anaphite’s tech is a novel coating process, which removes the need for large coating ovens currently used in the cell manufacturing process. Electrodes inside lithium-ion batteries are coated with a chemical mixture that is key to make the battery work. They use a lot of energy and take up a large portion of factory space. Replacing them leads to a cost reduction of up to 16%.

Anaphite is in trials with a European EV battery manufacturer, which is testing its materials in their batteries — and it’s hoping to be in commercial EV production lines by 2028.

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