
Graphene Coating Firm Secures Funding to Scale-up Battery Cathode Technology

2021-05-03

Battery materials firm Volexion has secured \$1.1 million in funding as it moves toward commercialisation of its graphene coating for lithium-ion cathode.

The US company aims to increase its output to “several kilogram” batch capacity after the funding as it eyes its goal of being commercially ready by 2024.

The closing of the first tranche of its \$2.2 million seed financing was led by leading climate tech venture capital firms Clean Energy Ventures and Energy Foundry.

[Volexion](#)’s proprietary graphene coating acts as a protective layer around battery cathode materials to suppress material and electrolyte degradation.

The company told BEST the material worked on a number of lithium chemistries, and it had validated the performance on LMO, LMNO, NCA, NMC (532, 622, 811), LNO and it was working on LMR-NMC.

The firm says its “drop-in” cathode material can increase in energy density, power density, and run twice as long as conventional lithium-ion batteries. Its test cell was a high nickel NCA (commercial grade) / graphite and was tested at 1C.

A spokesman told BEST: “We tested rate capability of the material. Power density is a consequence. The rate capability was 5x higher for coated versus uncoated, translating into 40% higher power density at the cell level, without any battery optimization.

“This specific test was 3x improvement -> Uncoated cells reached 80% capacity(i.e., failed), and the coated cells reached 80% capacity. The same cell reached >1,000 cycles under even more demanding conditions.

Volexion's coating can be integrated directly into any manufacturer's existing processes, and is complementary to advanced anode technologies.

David Miller, managing director and co-founder of Clean Energy Ventures, said: "We believe Volexion's innovation will accelerate the performance improvements of lithium-ion batteries by as much as 10 years and enable the additional reduction of over 2.5 billion tons of CO₂e by 2050 through the more rapid adoption of electric vehicles."

Volexion has nine collaboration agreements in place with cathode and battery producers. Each agreement depends on the partnership, but generally includes qualifying the technology by coating a cathode material of interest to the partner, and by collaborating on validating the performance on prototype cells.

Volexion has been developing their technology at Argonne National Laboratory with support from the Department of Energy and the National Science Foundation.

Read the [original article](#) on Batteries and Energy Storage Technology (BEST) magazine.