

# PPG Forms Partnership With SiNode Systems for Vehicle Battery Technology

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*Project focuses on commercializing high-energy anode materials*

PITTSBURGH--(BUSINESS WIRE)-- PPG (NYSE:PPG) today announced it has entered into a partnership with SiNode Systems to accelerate the commercialization of high-energy anode materials for advanced battery applications in electric vehicles. The 30-month project will enable the partners to rapidly develop and demonstrate anode materials that will store more energy than conventional lithium-ion battery materials, enabling electric vehicles to travel farther on a single charge or to have a lighter-weight battery.

In 2016, SiNode was selected among several competitors to receive a contract for the project from the [United States Advanced Battery Consortium LLC](#) (USABC), which is providing 50 percent of the project's funding through the U.S. Department of Energy. Project partners are funding the remaining 50 percent.

The project will focus on improving the stability and scalability of SiNode's anode materials to meet or exceed USABC targets for a battery's active materials, which store the energy. Raymor Industries will provide graphene – a nanoscale-thin layer of pure carbon that is required for the high-energy anode materials – to PPG, which will then prepare the material for SiNode. PPG will help both Raymor and SiNode scale up their manufacturing processes to production volumes to support the project.

"Partnering with PPG will allow us to accelerate the commercialization of our battery materials platform for a wide range of markets, from consumer electronics to electric vehicles," said Samir Mayekar, SiNode co-founder and CEO. "Our team is thrilled to collaborate with PPG."

Kurt Olson, PPG research fellow, said, "We believe SiNode's technology has great potential to benefit the battery market, and we appreciate this opportunity for collaboration. Boosting the range and reducing the weight of electric vehicles through batteries that store more energy will increase the practicality of, and consumer interest in, these cars. Applying PPG technology to help improve the sustainability of products, such as electric vehicles, is a strategic goal for us, and we are pleased to participate in this project."

PPG's current goal is to have 40 percent of its total sales derived from sustainable products by 2020. The company met its initial 30 percent goal five years ahead of schedule in 2015.

## About SiNode Systems

Founded in 2012, SiNode Systems is an advanced materials company developing silicon-graphene materials for the next generation of lithium-ion batteries. SiNode materials offer higher battery capacity and faster charging rates, all while being produced via a low-cost, solution-chemistry-based manufacturing process. SiNode seeks to change the landscape for lithium-ion batteries so they can meet the demands of a wide range of industries, from consumer electronics to electric vehicles. For more information, visit [www.sinodesystems.com](http://www.sinodesystems.com).

## About USABC

USABC is a subsidiary of the United States Council for Automotive Research LLC (USCAR). Enabled by a cooperative agreement with the U.S. Department of Energy (DOE), USABC's mission is to develop electrochemical energy storage technologies that support commercialization of hybrid, plug-in hybrid, electric and fuel cell vehicles. Now in its 25th year, USCAR is the collaborative automotive technology company for FCA US LLC, Ford Motor Company and General Motors. The goal of USCAR is to further strengthen the technology base of the domestic auto industry through cooperative research and development. For more information, visit [www.uscar.org](http://www.uscar.org).

## About Raymor Industries

Headquartered in Boisbriand, Quebec, Canada, Raymor Industries Inc. provides carbon-based materials that make the difference for electrical conductivity applications and the next generation of carbon-based electronics. Its NanoIntegris and Raymor Nanotech subsidiaries are known for the high purity of their carbon nanotubes. Raymor can now provide low-cost, high-performance and PAH-free graphene for electronic applications. For more information, visit [www.raymor.com](http://www.raymor.com).

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headquarters in Pittsburgh, we operate and innovate in more than 70 countries and reported net sales of \$14.3 billion in 2016. We serve customers in construction, consumer products, industrial and transportation markets and aftermarkets. To learn more, visit [www.ppg.com](http://www.ppg.com).

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