

CT-85: Low Cost, Conductive Fiberglass Composites with Carbon Nanofibers

This project seeks to use carbon nanofibers to produce a low cost, electrically conductive nanofiber-fiberglass polymer composite. Polymers are often used for electrical insulation, but many new applications are possible for a low cost conducting polymer. Applications extend into emission control systems, where polymers are preferable because of potential corrosion concerns. Other applications may implement carbon nanofiber properties enhancing strength and conductivity when producing heated windshield wipers, tire chords, static discharge panels, and electromagnetic shielding.

An immediate application, the Electrostatic Precipitator (ESP), is the focus of Phase I. ESPs are used extensively to reduce pollutants from coal-fired power plants and boiler flue gases used in the chemicals, pulp and paper industry. They are the most common industrial device used for particulate collection, as they separate particles from carrier gas by using an electrostatic charge. Therefore, Phase I's goal is to demonstrate the fabrication of a conducting fiberglass composite with a carbon nanofiber additive to produce laminates, beams and composite fibers. If successful, then Phase II will seek to use those results to design and produce specific components for ESP and other industries.

The CT-85 project will utilize a combined effort of industry, academia, and government resources to develop a new manufacturing process and a novel material product. Nanofibers have been extensively researched because of their novel properties and market potential, as they are starting to enter commercial applications.

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