

Revolutionising Smart Composites with Graphene Formulations

In a groundbreaking collaboration between the Swinburne University of Technology and Sparc Technologies Ltd (ASX: SPN), the Australian Research Council (ARC) research project is propelling the field of smart coatings into the future. This pioneering research can potentially revolutionise various industries, including aerospace, infrastructure, space exploration, and renewable energy.

Traditionally, most composites are passive and unresponsive. However, the integration of graphene introduces intelligence into these materials, turning them into "smart" materials capable of sharing information and responding dynamically to their environment. Dr. Nishar Hameed, the chief lead investigator in this research, explains.

Sparc, an Australian leader in graphene additive production, is at the forefront of pioneering groundbreaking technologies in coatings and composites. This innovative company boasts a state-of-the-art facility that empowers Sparc to manufacture substantial quantities of its game-changing product, the graphene additive, ecosparc. Sparc Technologies is poised to redefine the possibilities of graphene-based solutions on a global scale. A statement by Dr. Denis Wright, General Manager – Graphene, "It is a very exciting opportunity to be contributing to this project and developing Ecosparc additives that will impart through their intrinsic properties, intelligence into coatings and composites and convert them from a traditionally passive material into a responsive active material that has the potential to self-monitor and communicate changes to their internal environment."

At the heart of this transformation lies Graphene, which can be processed into nano-platelets, enabling cost-effective mass production. With its exceptional electrical conductivity, the incorporation of graphene in minimal amounts can impart conductivity, sensory capabilities, and smart functionality to a wide array of coatings and composites. This ingenious technique unlocks a multitude of features, including built-in sensors, radiation protection, energy storage, performance tracking, and data processing, while simultaneously enhancing structural robustness. These breakthroughs are on the brink of transforming sectors such as construction, green technologies, and public transportation.

The collaborative project will test different grades of graphene based additive formulations developed by Sparc for their performance and effectiveness in multifunctional coating. This will create new knowledge and critical requirements for manufacturing scalable graphene formulations for coatings and composite industries.



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