

Sparc Technologies' graphene products set to disrupt the construction and energy sectors

Sparc Technologies listed on the ASX in November 2020 based on a graphene technology platform from the University of Adelaide, a world leader in graphene research.

Its initial offering within the construction sector will comprise coatings (and allied polymeric products), concrete (and allied cementitious products), and composites (engineered plastics). The company's objective is to work with Industry partners in product development whilst also supporting customers' ambitions with regards to ESG outcomes.

In support of its objective to develop applications for graphene, often described as a 'super material', the company has a research and development facility in Adelaide and a team of graphene technologists.

Discovered in 2004 at Manchester University, graphene is an allotrope of carbon – a specific crystalline form of carbon – and in its purest state at one atom thick is the thinnest material known. Its discovery was deemed significant with the researchers involved being awarded the Nobel Prize for Physics in 2010.

Properties of graphene include electrical and thermal conductivity, strength (200 times stronger than steel), hardness (harder than diamonds), hydrophobicity, and the ability to act as a biocide.

A remarkable characteristic of graphene is that just one gram of the material has a theoretical surface area of approximately 2,500 square metres.

Sparc Technologies Managing Director Mike Bartels said the company knows how to formulate with graphene. An example of this know-how can be seen in the company's ability to deliver significant improvement in the performance of coatings that are typically used to protect critical steel structures. Testing to internationally recognised standards, Sparc can demonstrate an improvement of up to 40 per cent in the anticorrosive performance of commercially available epoxy coatings.

Bartels continued: "We are confident that we can use the knowledge developed in coatings and apply it to a host of other materials within the construction and energy sectors. We do not produce graphene dispersions that are simply aimed at aiding handleability, we

formulate graphene containing products for a targeted end use. And then we test, and test again allowing us to optimise how these products are employed."

Sparc's graphene formulations are described as Graphene Based Additives (GBAs) and will be marketed under the ecosparc banner. In the development of these additives Sparc has refined a number of core competencies which include the ability to characterise graphene, the ability to formulate stable GBAs for targeted end uses, and the know-how that supports the safe handling and commercial manufacture of graphene containing products.

Sparc is now working to commercialise this technology and is in discussions with a number of major coatings companies in pursuit of this aim.

"With the cost of graphene greatly reduced, commercially viable opportunities now exist to realise the benefits that can be afforded by graphene inclusion in products. After years of research, we understand the mechanism by which graphene has the potential to positively impact the mechanical performance of construction materials."

"So whether graphene inclusion is used to improve the performance of existing products or used to establish a range of new, differentiated products, the future for graphene is assured given its array of unique features."

As we all know, the world is now focused on the clean energy transition and increasingly on ESG outcomes. Sparc's superior-performing coatings products are an example of how the company can play a role in improving sustainability outcomes within the coatings industry. By extending the useful life of a coating and subsequently the time to first maintenance of an asset, quantifiable ESG objectives can be achieved.

Sparc is also poised to impart its graphene knowledge into the renewable energy sector with projects focused on battery materials and green hydrogen production.

Sparc's strategic partner, the University of Adelaide, invited the company to assist with a project being undertaken at the university concerning a unique process for hydrogen production. This invitation subsequently led to the establishment of a joint venture between Sparc, the university, and Fortescue Future Industries. With the formation of this joint venture, Sparc will play an important role in supporting the clean energy transition.



UNLOCKING THE PROPERTIES OF GRAPHENE FOR THE CONSTRUCTION AND ENERGY SECTORS

Graphene is opening the doors for new environmentally friendly solutions for the Construction and Energy sectors.

Our flagship **ecosparc** range is an example of our ability to exploit the properties of graphene, having demonstrated the ability to improve the anticorrosive performance of coatings by 40%.

Sparc's expertise is now being applied to developing Graphene Based Additives for application across a wide range of industrial products.

ecosparc applications



Coatings



Concrete



Composites

Speak to us about exploring the transformational power of Graphene in delivering enhanced products to your range.

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