

## Substantial Performance Improvements from **ecosparc**<sup>®</sup>-enhanced Coatings

### HIGHLIGHTS

- ▶ **Substantial performance enhancement in Thermal-Cycling Crack, Impact Resistance, Wearability, Cathodic Disbondment and repeat Scribe Creep testing**
- ▶ **Test-work completes the full suite of performance criteria for anti-corrosion coatings**
- ▶ **Builds on the previously reported advancements in using **ecosparc**<sup>®</sup>**
- ▶ **Results further strengthen Sparc Technologies' position to partner with global coatings companies and infrastructure owners in advance of commercial partnerships**
- ▶ **Performance improvements demonstrated will provide both cost and sustainability benefits to asset owners**

Sparc Technologies Limited (**ASX: SPN**) (**Sparc, Sparc Technologies** or the **Company**) is pleased to report further positive results in relation to our flagship **ecosparc**<sup>®</sup> product. The critical Thermal-Cycling Resistance Testing has demonstrated significant reductions in cracking when utilising **ecosparc**<sup>®</sup>-enhanced coatings in comparison to coatings without **ecosparc**<sup>®</sup>.

The prevention and postponement of cracking plays a pivotal role in extending the life of protective coatings. A primary cause of coating deterioration, which subsequently leads to corrosion and asset degradation, is the occurrence of cracks on welds and angular surfaces. An accredited third-party laboratory conducted the Thermal-Cycling Resistance Test, Sec 9: NACE TM0404-2004.

In conjunction with these results, significant supplementary testing has been completed to international standards, all showing marked improvements including Impact Resistance<sup>1</sup>, Wearability<sup>2</sup>, Cathodic Disbondment<sup>3</sup> and repeat Scribe Creep<sup>4</sup> testing that provide a positive compounding effect on the coating performance of **ecosparc**<sup>®</sup> enhanced protective coating.

### **Sparc Technologies General Manager - Graphene, Dr. Denis Wright commented:**

*"This is an excellent set of results that has furthered our understanding of the performance of **ecosparc**<sup>®</sup> in protective coatings. It imparts benefits as a raw material that increases coating longevity, long-term asset protection, provides cost savings and importantly improves overall sustainability. These results will further support and advance our commercialisation efforts."*

<sup>1</sup> ISO 6272-2

<sup>2</sup> ASTM D 4060

<sup>3</sup> ISO 15711

<sup>4</sup> ISO 12944



Previously, protective coatings containing **ecosparc**<sup>®</sup> have demonstrated significant anti-corrosive enhancements through scribe creep testing (ISO12944), a test procedure that measures rust progression from an initial damaged area.

The more recent testing Thermal-Cycling Resistance Test, has demonstrated that the inclusion of **ecosparc**<sup>®</sup> in protective coatings functions as a highly effective shock-absorber, substantially reducing initial damage to a paint system resulting from cracking through a 90°C temperature cycle, 252 times.

In simple terms, corrosion within a paint system primarily arises in areas where damage, such as cracking, has manifested in the paint system. Therefore, coatings enriched with **ecosparc**<sup>®</sup> not only diminish corrosion in the presence of damage but, crucially, are also exceptionally effective in averting the initial occurrence of cracking, when compared to the non- **ecosparc**<sup>®</sup> containing equivalent coatings.

These results further reinforce the value proposition of **ecosparc**<sup>®</sup> in increasing time to first maintenance and then extending subsequent maintenance cycles providing both cost and sustainability benefits to the asset owner through reduced paint use and maintenance (re-coating) costs. Sparc is currently conducting life-cycle analysis to quantify these benefits to assets owners.



Figure 1: Significant improvement in crack resistance after 252 cycles of thermal testing

### About **ecosparc**<sup>®</sup> - A performance additive for Marine and Protective Coatings



Sparc Technologies has developed additives that exploit the power of graphene for a wide range of protective and marine coating applications. The addition of a very small quantity of **ecosparc**<sup>®</sup> to conventional paints leads to a substantial enhancement in anti-corrosive performance, ensuring the reliability, longevity, safety and cost-effectiveness of the infrastructure they cover.

Figure 2: **ecosparc**<sup>®</sup> is underpinned by rigorous product testing over four (4) years to ISO standards.



In March 2023, the Company commissioned its **ecosparc**<sup>®</sup> commercial production facility. ([See ASX Announcement 30 March 2023](#)) The state of the art facility enables Sparc to produce commercial quantities of its graphene additive product. Target markets for **ecosparc**<sup>®</sup> include the global coatings industry, composites and other graphene additive applications.

The **ecosparc**<sup>®</sup> production facility enables Sparc to provide commercial quantities of graphene additive product for trials with global coatings companies. In parallel, the Company is pursuing opportunities to target Australian coatings companies that are looking to enhance the anti-corrosive and environmental performance of their products, with the addition of **ecosparc**<sup>®</sup>.

Multiple global and domestic coating companies continue to undertake product evaluation of **ecosparc**<sup>®</sup> in anti-corrosion coatings. Results from testing and qualification work with these companies are expected in H2 2023/H1 2024. Further to this, Sparc has commenced a campaign targeting asset owners with a view to conducting field trials utilising graphene containing coatings on key infrastructure such as steel frames, tanks and steel structures close to the ocean. Infrastructure owners being targeted include government, defence, mining, and oil and gas companies.

## Enhancing coating performance



Figure 3: **ecosparc**<sup>®</sup> is a performance additive for Marine and Protective Coatings

Sparc is also currently engaged in product development and trials with global composites companies targeting inclusion of **ecosparc**<sup>®</sup> to improve performance outcomes. This leverages the excellent results in coatings where the inclusion of graphene is known to impart improved physical properties. Trials have commenced to overcome “pain points” where Graphene Based Additives may improve performance.

-ENDS-



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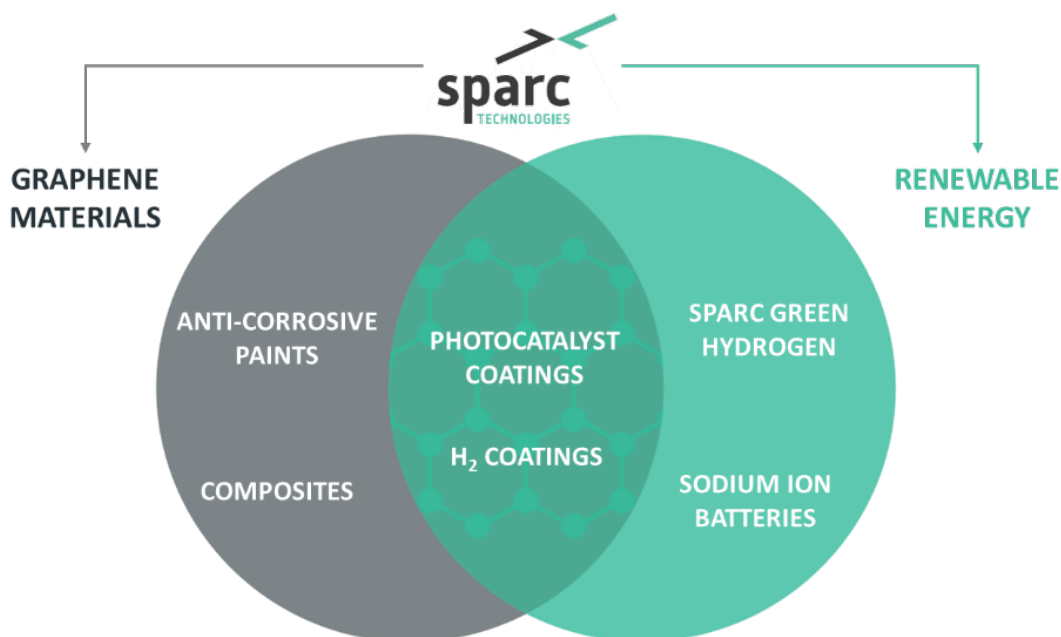
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**About Sparc Technologies**



Sparc Technologies Limited ('Sparc', ASX: SPN) is an Australian company pioneering new technologies to disrupt and transform industry while seeking to deliver a more sustainable world. Sparc has established offices in Australia, Europe and North America and is focused on three core areas of technology development.

1. Sparc has spent over 4 years developing a **graphene based additive** product, **ecosparc®**, which has demonstrated up to 40% anti-corrosion improvement in commercially available epoxy coatings. Sparc recently commissioned a manufacturing facility to produce **ecosparc®** and is engaging with global paint companies and end users to advance commercial scale trials.
2. Sparc is a majority shareholder of **Sparc Hydrogen** which is a company pioneering the development of **photocatalytic water splitting** ('PWS') green hydrogen production technology. PWS is an alternative to producing green hydrogen via electrolysis, using only sunlight, water and a photocatalyst. Given lower infrastructure requirements and energy use, the process has the potential to deliver a cost and flexibility advantage over electrolysis.
3. Sparc is also developing **sodium ion battery technology** in partnership with Queensland University of Technology.

For more information please visit: [sparctechnologies.com.au](http://sparctechnologies.com.au)

