ASX ANNOUNCEMENT

12 SEPTEMBER 2023

ecosparc® Reduction in CO_2 Emissions clarification

Sparc Technologies Limited **(ASX: SPN) (Sparc, Sparc Technologies** or the **Company)** would like to provide further clarification on the fully independent lifecycles assessment (**LCA**) conducted by Lifecycles[1] based upon our extensive data covering several years of ISO corrosion testing. Results indicated that steel assets coated with **ecosparc®-** enhanced high-performance coatings can reduce the CO_2 emissions associated with the maintenance of steel assets by 18 - 21%[2] when benchmarked against the same non-graphene-enhanced epoxy protective coatings.

The LCA clearly showed that steel asset owners will not only benefit from a tangible reduction in carbon emissions through enhanced coatings, but that this benefit will also come at a lower cost to the end-user. This underpins Sparc Technologies' model of creating shared value through its product offering. **ecosparc®** users will not only reduce their environmental impact through the coatings, but they can achieve this while reducing costs.

The LCA was undertaken to international standards using Carbon Footprint (**CFP**) methodology by leading sustainability consultancy Lifecycles, based in Melbourne, Australia. CFP involves evaluating the complete environmental effects and advantages of products and processes from their inception to disposal. This entails analysing the greenhouse gas (**GHG**) emissions at every life cycle phase, aiming to prevent the transfer of impacts between stages and to offer insights for minimising GHG emissions over the entire product life cycle.

Further to the above, we note the Carbon Footprint methodology employed by Lifecycles is based upon the analysis adhered to system boundaries which include the following steps: graphene production and its domestic Australian transport, **ecosparc®** additive production and transport of its inputs, the manufacture of coating products and their packaging requirements, transport of the end coating products to site, asset preparation, coating application and waste disposal. The analysis did not include: site scaffolding installation and manufacture, transport of staff, scaffolding and machinery to site and application of coating via paint guns. The process of conducting a CFP (Carbon Footprint Assessment) adheres to the framework, principles, and specific criteria outlined in the international standards ISO14067[3][4]. These standards are built upon the foundational principles, requirements, and guidelines established in pre-existing standards related to Life Cycle Assessment (LCA), namely ISO 14040:2006 and ISO14044:2006[5]. It is important to note that each phase of the assessment is interconnected with the others, and even though it is a Carbon Footprint Assessment, the overall framework of LCA still applies.

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[1] Life Cycle Strategies Pty. Ltd. is an independent company specialising in circular economy and sustainability reporting and training

[2] Bontinck, P, A (2023), Carbon footprint of **ecosparc®** graphene additive for protective coating applications, Lifecycles, Melbourne, Australia

[3] International Organization for Standardization, International Standard ISO 14067:2018, Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification. 2018, ISO: Geneva, Switzerland. p. 58. 2.

[4] International Organization for Standardization, International Standard, ISO 14044, Environmental Management Standard- Life Cycle Assessment, Requirements and Guidelines. 2006: Switzerland.

[5] International Organization for Standardization, International Standard, ISO 14040, Environmental Management Standard- Life Cycle Assessment, Principles and Framework. 2006: Switzerland.

The Lifecycles Report is qualified as per the following disclosures:

1. Investors are cautioned that the Lifecycles Report has not been prepared for the benefit of Sparc Technologies' investors, and is based on information that may be incomplete or information that may be unable to be used in specific situations. Investors are cautioned that no reliance or actions should be made on the information without seeking prior expert professional, scientific and technical advice.
2. Sparc's graphene has not yet been tested as part of the Lifecycle Report. Sparc has identified several potential international suppliers of graphene, however, at present no contractual arrangements are in place and there are no guarantees such arrangements will be entered into on terms acceptable to Sparc. With the production of graphene still in the development phase, estimating the greenhouse gas emissions associated with its production is extremely complex and will be impacted by the formal engagement of suppliers.
3. Production processes have not yet been standardised, with different suppliers having developed proprietary approaches to producing graphene. As well as different production processes, a range of feedstock can be used (e.g. graphite, carbon black, coal, biomass, etc.).

As a detailed analysis of the supply chain of graphene used by Sparc falls outside the scope of this analysis, a recent scientific publication was consulted to source an estimate of the carbon footprint associated with producing graphene. This suggests that the production of graphene from an exfoliation process can produce between 85-439 kg CO2e per kg. As Sparc requires a mid-range graphene quality, the mid-point was used as an estimate of the carbon footprint associated with producing graphene, 262 kg CO2e per kg. The transport required to supply the material was added to the model, including estimated sea transport, rail and road transport.

This study, like any carbon footprint, has limitations. It is worth pointing out that a carbon footprint is a desktop model, and as such it relies on assumptions and approximations.

The data collected in the Report by LifeCycles to represent the production of the **ecosparc®** additive is based on SPN's testing data which has shown as increase in resistance to corrosion by 26% for the model.

It was estimated that the use of **ecosparc®** in coating product would raise the emissions by 3.5%, to 7.9 kg CO2e per litre. This change is driven by the use of graphene. Even though graphene is a marginal input in mass terms, it is a highly carbon intensive material to produce, according to current research.

The effects described rely on the lifespan extension being realised. It is worth pointing out that this is a highly uncertain assessment, as there are multiple factors affecting the lifespan of infrastructure assets.

More importantly, there is a high level of uncertainty associated with the effects of the **ecosparc®** additive on maintenance regimes and asset lifespans. Corrosion is an important issue for infrastructure assets, and effective protective measures against corrosion are one of the key approaches to lengthening asset lifespan. Maintenance operations such as recoating are used to reduce risks of corrosion. As such, it is reasonable to expect that the use of a product reducing the risks of corrosion would reduce the need for maintenance operations, as well as extend the overall lifespan of an asset. However, quantifying this improvement is difficult, as many other parameters can come into play. What the study demonstrates is that if those improvements are realised, the environmental benefits would be significant, and they would significantly outweigh the additional emissions associated with producing the **ecosparc®** additive itself.

The recommendations of the Report state that the results of this analysis could be further cemented through additional analysis, including:

1. Working with Sparc's graphene supplier to estimate the footprint of their product. The literature on graphene production suggests that the carbon intensity of graphene is still context dependent, and as such it might change significantly from one production site to another.
2. Conduct further research on the correlation between corrosion resistance and lifespan to ascertain the relationship.
3. Review the maintenance model to cover excluded steps. Additionally, working with businesses conducting this type of work could allow further primary data collection on the topic to increase the robustness of the analysis.

Sparc Technologies continues to currently assess our entire suite of testing. Once completed, it is expected that the anti-corrosive properties of **ecosparc®** will be significantly enhanced, resulting in further savings in cost and carbon emission.

-ENDS-

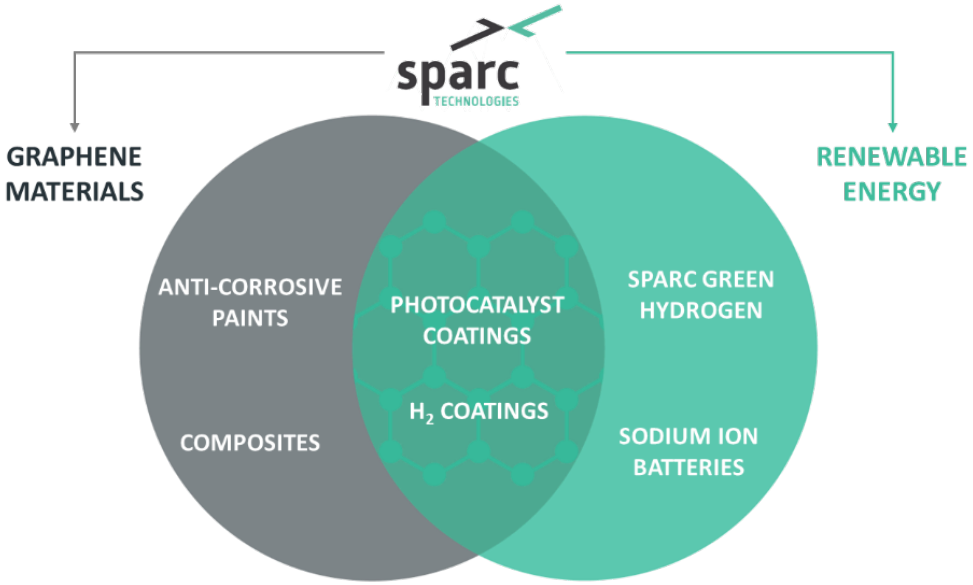
Authorised for release by: Stephen Hunt, Executive Chair.

For more information:

Stephen Hunt
Executive Chair
+61 402 956 205
Stephen.hunt@sparctechnologies.com.au

Mark Flynn
Investor Relations
+61 416 068 733
mark.flynn@sparctechnologies.com.au

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

Forward-Looking Statements & Disclaimer

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