Press release
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MISSION ACCOMPLISHED AT DEPTHS OF +6000 METRES

A consortium comprising Steatite with OXIS Energy, MSubs and the National Oceanography Centre (NOC) has achieved what it set out to do by developing a pressure tolerant Lithium Sulfur (Li-S) battery that's capable of powering autonomous vehicles to ocean depths of over 6,000 metres.

· The cells can withstand the extreme pressure of 664 bars - that's equivalent to a water depth of 6,640 metres - at a temperature of 4°C without being compromised on integrity.

· The cells (rated at 300 Wh/Kg in standard conditions) achieved 289Wh/kg at a pressure of 450 bars - that's equivalent to a water depth of 4,500 metres - at a temperature of 4°C.

· The Gravimetric Energy Density of the complete battery is 184Wh/kg with the optimised design.

· Due to the neutral buoyancy of the cells and battery, buoyancy foam can be reduced in the vehicle, saving cost, weight and volume

· MSUBS has integrated the battery to power a test vehicle supplied by “Deepbots AS” named “Sperre Subfighter 7500”, which is a ROV (Remotely Operated Underwater Vehicle). These tests were performed on site at Sperre AS, Nottoden, Norway.

The project manager of MAS at OXIS, Dr Roohollah Torabi, said: "It has been a great pleasure for OXIS to work with Steatite, NOC and MSUBS. The consortium members had special and complementary skills that contributed to the success of the project. We hit all of our ambitious targets to fabricate and test a customised battery using Li-S cells and its demonstration in a real environment. It’s an impressive achievement for the consortium to develop a pressure tolerant battery which can generate new market opportunities for marine applications. We are also very grateful to Innovate UK and DSTL for funding the project."

Paul Edwards, Divisional Director of Steatite Batteries, added, “The project has provided a number of challenges which have all been overcome though the hard work and determination of the consortium members. With valuable domain expertise and test resource provided by our academic partners at the NOC, through to successful sea trials and product integration by MSubs, the group can be proud of the world class achievements and capabilities it has delivered.

The programme has generated considerable interest within the marine community, where the benefits of a lightweight pressure tolerant battery and improved safety offered by Lithium Sulfur cells are realized as a significant game changing technology. As the OXIS chemistry continues to mature and improve in terms of Gravimetric energy, we will see greater gains in battery pack performance. The Steatite Battery Management System and battery pack design enables a broad range of applications, and we are now looking toward the next phase which will see our battery packs successfully deployed in long term marine autonomous applications.“

OXIS Energy Ltd is involved in the design, development and now the move towards commercial production of Lithium Sulfur cells for battery systems. With 35 patent families, OXIS has been granted 108 patents with 110 pending. OXIS has demonstrable empirical data justifying its claim on the inherent safety of its battery technology.

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Steatite Ltd is a market leader in the design, development and supply of rugged and industrial computers, custom lithium battery solutions, secure communication systems, antennas and subsystems ideally suited to harsh operating environments. Steatite has spent years developing a strong reputation for creating solutions to meet the operational demands of its customers. Dedicated in-house teams support clients by designing, building and supplying the most advanced range of components and systems tailored to their application requirements.

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