4 April 2024

Gelion plc ("Gelion" or the "Company")

Lithium-Sulfur Cell High Energy Density Milestone Achieved

Gelion (AIM: GELN), the Anglo-Australian battery innovator, announces an update on its Next Generation Lithium-Sulfur (Li-S) battery development.

Gelion has achieved a high energy density milestone by fabricating a 395 Wh/kg lithium-sulfur 9.5 Ah pouch cell (commercial cell format). This result represents a c. 60% increase in the energy density (lower weight) compared with current lithium-ion batteries (approximately 250 Wh/kg).

Further to the announcement on 19 March 2024, Gelion had produced 1.0 Ah cells using the OXIS Gen2 cell technology that achieved energy density of 245 Wh/kg. The achievement of 395 Wh/kg aligns with the independent energy density modelling projections for a larger cell format.

Achievement of this milestone represents a key technology proof point for Gelion. By re-establishing this performance, building on the OXIS Gen 2 technology and IP acquired from Johnson Matthey. The Company has set a new benchmark against which to compare upcoming 'Next Generation' cell which targets further performance improvements upon this announced result.

On 19 March 2024, Gelion identified that testing of our Next Generation cell technology is exhibiting our expected solid-tosolid conversion (see Glossary) behaviour toward enhanced stability and longevity. We will continue to progress these developments in addition to the silicon-sulfur cell technology in cooperation with lonblox.

Gelion's ambition for its next generation platform is to unlock the potential of sulfur batteries for a wide range of global applications including electric vertical-takeoff-and-landing (eVTOL) aircraft, drones, electric vehicles (EV), and stationary energy storage (ESS), as high Wh/kg translates to lighter batteries and opens many advantages for these markets. Sulfur being an abundant material offers a future not limited by geographically concentrated and controlled battery metals which significantly improves battery lifecycle sustainability.

John Wood, CEO of Gelion said: "This result further validates Gelion's Li-S technology plan. In 2023 we established a leading Li-S cell technology foundation following the acquisition of OXLiD and the IP acquired from OXIS and Johnson Matthey. Whilst these are still early results, we intend to build on them actively throughout 2024, unveiling and demonstrating the unique core proposition that Gelion is assembling.

"We continue to build on our position within the global battery industry and focus on establishing a strong identity and market presence which is centred on the key metrics of performance, cost, and safety, ready to leverage once our technologies go-to-market."



Background

In May 2023, Gelion updated on the progress made using the battery technology package acquired from Johnson Matthey (containing, in addition to its own IP, the Li-S IP and know-how from OXIS Energy). Gelion has worked over the past nine months to benchmark, improve on, and define a next generation approach to Li-S battery development.

Li-S batteries are an advanced alternative to Li-ion batteries that can achieve much greater gravimetric energy densities (measured as amount of energy per battery weight). This is critical to drive down the weight in mobile applications such as EV's, e-aviation, and drones, reducing auxiliary component cost and lessening their upfront environmental impact. They do not contain rare metals in the cathode and can be scaled to meet the demands of global electrification. The technology

shows promise to be safer (lower risk of fires) than current batteries.

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Glossary	
Ah	Ampere hours. A measure of capacity stored in the cell. The larger the number the higher the capacity.
Energy density (Wh/kg)	The ratio of energy stored per unit weight i.e. Watt-hours per kilogram. The higher the number the lighter the battery.
Pouch cell	An industry standard format of a battery which comprises a flat pouch-shaped design with a multi-layered laminate structure.
Solid-to- solid conversion	A low or polysulfide-free conversion of sulfur within the cathode. Polysulfides are a liquid form of sulfur that are corrosive and reduce cycle life in traditional lithium-sulfur batteries. Solid-to-solid conversion helps mitigate the formation of the polysulfides.

About Gelion

Gelion ("gel: ion") is a global -energy storage innovator, supporting the transition to a more sustainable economy by commercialising two globally important next generation technologies: Lithium-Sulfur (Li-S) and Zinc-based (Zn) hybrid cells to electrify mobile and stationary applications. Gelion plc (the Group) is listed on theLondon Stock Exchange's AIM market and wholly owns Australia based Gelion Technologies Pty Ltd. Gelion is designing and delivering innovative battery technology to enable that transition and return value for its customers and investors.

Lithium Sulfur

Gelion's effort is directed at the potential for the Li-S chemistry to deliver double the gravimetric energy density of standard Lithium-ion chemistries whilst concurrently reducing cost and increasing safety, targeting the EV and e-aviation markets, helping to make global transport, energy consumption and storage more sustainable.

Gelion is developing a product for its high energy density sulfur cathode at its expanded R&D facilities in Sydney, enabling it to integrate with a variety of anodes ranging from graphite to silicon to lithium metal, depending on the targeted application.

Gelion recently also expanded in the UK by acquiring OXLiD Ltd, significantly increasing its capability in cathode improvement thereby accelerating path to commercial partners and commercialisation.

Zinc

Gelion is adapting its zinc technology to comprise an alternate cathode technology, a zinc hybrid cell to develop complementary next-generation batteries for the lead-acid eco-system. Early testing indicates that this solution has the potential to maintain good energy density levels with enhanced cost and safety aspects. Once fully developed, Gelion intends for its zinc technology to provide a durable and sustainable market extension within the ecosystem that supports lead-acid batteries.

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