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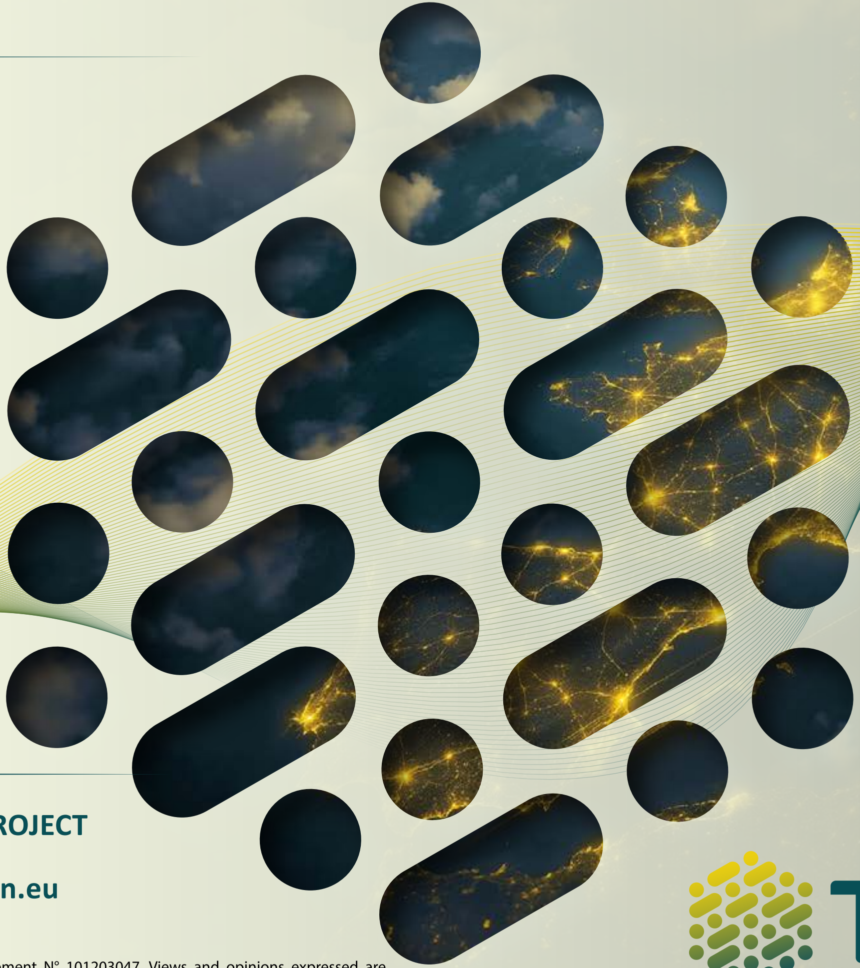

Technologies for Advanced LIthium-Sulfur batteries toward Safe and Sustainable Mobility Applcations.

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TALISSMAN PROJECT

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TALISSMAN

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ABOUT TALISSMAN

TALISSMAN (Technologies for Advanced LIthium-Sulfur batteries toward Safe and Sustainable Mobility Applications) is a Horizon Europe project which seeks to develop safe, high-performance, and sustainable lithium-sulphur batteries for aerospace and electromobility applications. By advancing gelled and solid-state battery concepts, TALISSMAN addresses key technical barriers to industrialisation. The project integrates eco-design, circularity, and recyclability principles, while ensuring compatibility with existing production lines.

THE 7 OBJECTIVES

To achieve its vision of next-generation, safe and sustainable lithium-sulphur batteries, TALISSMAN sets out seven strategic objectives that span material innovation, cell design, manufacturing, sustainability, and industrial uptake.

- **Safe and efficient 3D lithium-metal anodes**
- **Advanced electrolytes for stable performance**
- **High-performance sulphur cathodes**
- **Understanding and preventing battery degradation process**
- **Pilot-scale validation of battery prototypes**
- **Sustainability and circularity by design**
- **Industrial uptake and exploitation**

IMPACTS

Improved Technical Performance:

TALISSMAN will deliver next-gen batteries with energy densities up to 550 Wh/kg (watt-hours per kilogram), meaning more energy stored with less weight – a key enabler for high-efficiency aerospace and electric mobility applications.

Increased Safety:

By replacing flammable liquid electrolytes with quasi-solid and solid-state alternatives, and implementing robust interface protection, TALISSMAN significantly lowers the risk of thermal runaway and dendrite-induced failures.

Superior Cost-Effectiveness:

Thanks to low-cost, abundant materials like sulphur and carbon, combined with scalable, energy-dense designs, TALISSMAN aims to reduce battery costs below €75/kWh by 2030, enhancing competitiveness against conventional LIBs.

METHODOLOGY