

ELEMENT 25'S HPMSM EXTRACTION & PURIFICATION GLOBAL PATENT APPLICATIONS ENTER NATIONAL PHASE

Element 25 Limited (**E25** or **Company**) (**ASX: E25; OTCQX: ELMTF**) is pleased to advise it has lodged National Patent Applications in multiple key jurisdictions to obtain global protection for its proprietary lithium-ion battery grade High Purity Manganese Sulphate Monohydrate (**HPMSM**) processing technology.

The two patent applications relate to innovative hydrometallurgical processes developed in-house that significantly enhance the product quality, efficiency, sustainability, and commercial value of HPMSM recovery operations:

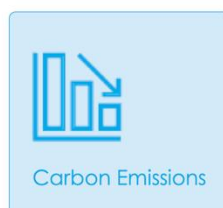


- **Patent 1:** Leach and primary purification - the first key step in the E25 technology is a low carbon, low energy leach and purification method which reduces reagent consumption and, importantly, generates a saleable by-product, negating the generation of waste material which is a key issue for incumbent technologies in China.
- **Patent 2:** Selective extraction of manganese from acidic leach solution to generate a high purity manganese sulphate product, without the use of conventional (toxic) fluoride reagents, making it safer and more cost effective. The process allows for the generation of a very high purity product whilst generating a saleable by-product stream, with zero waste generation.

The Company has filed national patent applications in 17 strategic jurisdictions, including Australia, the United States, Mexico, Canada, China, Japan, and European markets. As patents are only granted by each country's relevant national patent office, the individual National Phase filings are a key requirement in the process to have a patent granted internationally.

Element 25 Managing Director Justin Brown said: “Securing intellectual property protection in key global markets is a major milestone for Element 25. These patent filings validate the strength of our technology and underpin our strategy to commercialise innovative, lower-impact commercially competitive mineral processing solutions.”

The Element 25 Process makes significant changes & improvements:



Current Outdated Technologies mean:

- Large volumes of waste residues.
- Toxic Reagents like fluorine.
- Inefficient.
- Higher Cost.
- Outdated processing technology.

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These filings follow initial provisional patents lodged in November 2023, under the International Patent Cooperation Treaty (**PCT**) and represent the next step in securing global protection for the Company's intellectual property.

The patent applications reflect the Company's ongoing commitment to innovation in the mining and minerals sector. By protecting these technologies, Element 25 is positioned to:

- Enhance its commercial offering to project partners and customers;
- License the technology across multiple regions and commodities; and
- Support long-term value creation through IP-driven competitive advantage.

Using manganese ore sourced from its Butcherbird mine in WA's Pilbara, Element 25 plans to leverage this innovative, advanced processing flowsheet to convert Butcherbird manganese concentrate into HPMSM, a critical raw material for the manufacture of lithium-ion batteries, with its initial facility planned for Louisiana, USA. The proprietary flowsheet reduces energy consumption, virtually eliminates waste and delivers the lowest reported carbon intensity HPMSM globally¹. The Company will provide further updates as the patent applications progress through national IP offices.

ABOUT HPMSM & BATTERY TECHNOLOGY

High Purity Manganese Sulphate Monohydrate (**HPMSM**) ($\text{MnSO}_4 \cdot \text{H}_2\text{O}$) with a very high manganese content and low levels of impurities is used as a critical component in the production of cathode materials for lithium-ion batteries, especially including Nickel-Manganese-Cobalt (**NMC**), Lithium-Manganese-Iron-Phosphate (**LMFP**) batteries, an emerging alternative to Lithium-Iron-Phosphate (**LFP**).

More recently global automakers, in seeking to solve complex supply chain challenges associated with nickel and cobalt supply, have made a shift to higher manganese chemistries such as Lithium Manganese Rich (**LMR**) which are expected to enter commercial production from 2028².

With a typical high nickel battery cell, the chemical composition is roughly 85% nickel, 10% manganese and 5% cobalt. The composition of LMR cells is much different – around 35% nickel, 65% manganese, and virtually no cobalt.

This new technology will therefore significantly increase HPMSM demand and result in lower cost, higher performing batteries and use 5-10X base case manganese when compared to high nickel batteries currently favoured by western automakers.

General Motors LLC (**GM**)³, one of Element 25's project partners in the planned Louisiana HPMSM refinery is leading the way with their plans to be first to market with LMR batteries in production vehicles from 2028. GM estimates that their new LMR cells will get 33% more energy density at a comparable cost than LFP, or lithium iron phosphate, another popular lower-cost EV battery chemistry.

¹ E25 ASX Announcement dated 21 February 2023

² [Ford Announces Breakthrough With LMR Battery Chemistry](#)

³ [Why LMR batteries will change the outlook for the EV market](#)

Manganese is more abundant and less expensive than both nickel and cobalt, which makes it an attractive material for reducing overall battery costs—critical for EV adoption at a global level.

HPMSM supports the current battery chemistries and is an enabler for the next generation of battery chemistries, with LMFP and NMC are aiming for longer range, better safety and lower cost. This makes HPMSM a strategic material for battery technology and innovation.

ABOUT ELEMENT 25



Figure 1. Conceptual rendering of Element 25's planned HPMSM refinery in Louisiana USA.

Element 25 is an ASX-listed company (ASX: **E25**) that operates the world-class 100%-owned Butcherbird Manganese Project in Western Australia and is currently undertaking activities to expand production to approximately 1.1Mtpa of medium-grade high silica manganese ore for use in traditional and new energy markets⁴.

E25 is also commercialising innovative proprietary technology to produce battery-grade high-purity manganese sulphate monohydrate (HPMSM) for use in Electric Vehicle (**EV**) battery manufacturing. The Company is planning to build its first HPMSM refinery in Louisiana USA to produce raw materials for the US EV market, in partnership with General Motors LLC (**GM**) and Stellantis N.V. (**Stellantis**)⁵. E25 aims to become an industry leading, world class, low-carbon battery materials manufacturer.

The Louisiana refinery is planned as the first of several HPMSM facilities planned for development under E25's "*Design One Build Many*" commercialisation strategy which envisages a hub and spoke model, with ore supplied from E25's Butcherbird Mine in Western Australia to supply processing facilities in key regional markets to supply HPMSM to the rapidly growing EV servicing key global regions.

⁴ E25 ASX Release dated 22 January 2025

⁵ E25 ASX Releases dated 9 January 2023 and 26 June 2023

Company information, ASX announcements, investor presentations, corporate videos, and other investor material in the Company's projects can be viewed at: www.element25.com.au.

This announcement is authorised for market release by Element 25 Limited's Board of Directors.

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Competent Persons Statement

The Company confirms that in the case of Production Targets, all material assumptions underpinning the production target, or the forecast financial information derived from a production target, in the market announcement dated 22 January 2025 continue to apply and have not materially changed. All estimates or Mineral Resources or Ore Reserves underpinning the production target have been prepared by a competent person or persons in accordance with the requirements of the JORC Code, Appendix 5A.

The Company confirms that in the case of Mineral Resource or Ore Reserves, all material assumptions and technical parameters underpinning the estimates in the market announcements dated 29 October 2024 and 22 January 2025 continue to apply and have not materially changed.

The Company confirms that it is not aware of any new information or data that materially affects information included in previous announcements, and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

Investor Relations Disclaimer

Certain Statements included in this announcement are forward-looking statements concerning Element 25 Limited and its subsidiaries (E25) and its operations, economic performance, financial condition, plans and expectations. Without limiting the foregoing, statements including the words "believes", "anticipates", "plans", "expects", "could", "potential", "should" and similar expressions are also forward-looking statements.

All forward-looking statements are subject to a variety of known and unknown risks, uncertainties and other factors that could cause actual events or results to differ from those expressed or implied, including, without limitation, business integration risks; uncertainty of production, development plans and cost estimates, commodity price fluctuations; political or economic instability and regulatory changes; currency fluctuations, the state of the capital markets, uncertainty in the measurement of mineral reserves and resource estimates, E25's ability to attract and retain qualified personnel and management, potential labour unrest, reclamation and closure requirements for mineral properties; unpredictable risks and hazards related to the development and operation of a mine or mineral or mineral deposit or mineral processing facility that are beyond E25's control, the availability of capital to fund all of the Company's projects and other risks and uncertainties.

You are cautioned that the foregoing list is not exhaustive of all factors and assumptions which may have been used. E25 cannot assure you that actual events, performance or results will be consistent with these forward-looking statements, and management's assumptions may prove to be incorrect. E25's forward-looking statements reflect current expectations regarding future events and operating performance and speak only as of the date hereof and E25 does not assume any obligation to update forward-looking statements if circumstances or management's beliefs, expectations or opinions should change other than as required by applicable law. For the reasons set forth above, you should not place undue reliance on forward-looking statements.