

Vedanta Aluminium Announces Breakthrough Process for Recovering Graphite from Aluminium Industry Waste

On National Technology Day 2025, company showcases a game-changing innovation aligned with this year's theme - by transforming industrial waste into a strategic national resource.

New Delhi; May 12th, 2025: On National Technology Day 2025, Vedanta Aluminium, India's largest aluminium producer, announced that a patent has been granted for its breakthrough technology that enables the recovery of high-purity graphite (>99%) from aluminium industry waste. This achievement exemplifies the spirit of this year's theme: 'YANTRA - Yugantar for Advancing New Technology, Research & Acceleration' - by transforming industrial waste into a strategic national resource.

As the nation celebrates National Technology Day, Vedanta Aluminium's patent is a testament to Indian industry's capacity for deep-tech innovation, aligned with national missions like Atmanirbhar Bharat, National Critical Minerals Mission, and Net Zero goals.

The patented process is developed by Vedanta Aluminium's in-house Research & Development (R&D) team in collaboration with the CSIR - Institute of Minerals and Materials Technology (IMMT), Bhubaneswar. It recovers battery-grade graphite from Spent Pot Lining (SPL) and Shot Blast Dust, the two waste streams generated during aluminium production. This innovation not only aligns with India's circular economy and sustainability priorities but also holds the potential to significantly reduce India's dependence on imported graphite, which currently exceeds 70%.

The recovered graphite has demonstrated exceptional electrical conductivity and structural properties suitable for lithium-ion battery applications. Its atomic structure makes it highly effective for lithiation and de-lithiation, processes critical to battery performance.

Rajiv Kumar, CEO, Vedanta Aluminium, said, "With India's demand for electric vehicles, energy storage, and high-tech electronics set to skyrocket, our patented solution is both timely and transformative. It strengthens our contribution to India's critical minerals roadmap while advancing our vision of zero-waste, future-ready manufacturing."

In 2024, India imported approximately \$41 million worth of natural graphite, positioning it among the top three importers in the Asia-Pacific region, alongside South Korea and Japan. This substantial import value underscores India's continued reliance on foreign sources for critical minerals essential to high-tech industries, including electric vehicles and renewable energy storage. Vedanta Aluminium's patented technology for recovering high-purity graphite from aluminium industry waste offers a promising solution to reduce this dependency, aligning with national objectives for self-reliance in critical mineral resources.

About Vedanta Aluminium Business:

Vedanta Aluminium, a business of Vedanta Limited, is India's largest producer of aluminium, manufacturing more than half of India's aluminium i.e., 2.42 million tonnes in FY25. It is a leader in value-added aluminium products that find critical applications in core industries. Vedanta Aluminium ranks 2nd in the S&P Global Corporate Sustainability Assessment 2024 world rankings for the aluminium industry, a reflection of its leading sustainable development practices. With its world-class aluminium smelters, alumina refinery and power plants in India, the company fulfils its mission of

spurring emerging applications of aluminium as the 'Metal of the Future' for a greener tomorrow.
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