

## Vedanta signs MoU with research institutes for value-creation from bauxite residue

Vedanta, India's largest producer of aluminium and its value-added products, has signed a memorandum of understanding (MoU) for value-creation from bauxite residue (red mud), which is a by-product generated during processing of bauxite into alumina using the Bayer process. Bauxite is the primary ore for aluminium, that undergoes an intermediate refining stage to produce alumina, which then undergoes electrolysis for producing aluminium. Abundantly available on earth's crust, mining of bauxite is one of the most inherently sustainable mining processes. Approximately three tonnes of bauxite produce one tonne of alumina, and around two tonnes of alumina are required to produce one tonne of aluminium.

Bauxite residue has many metal values like Iron, Alumina, Rare Earth Elements (REE) and Titanium Dioxide. Creating indigenous capabilities for extraction of REEs from bauxite residue has been the brainchild of NITI Aayog, given the importance of Scandium for defence and its scarce availability in India which resulted in import dependency. As it is a voluminous by-product, bauxite residue requires scientific ways of managing it, and even more advanced methodologies to extract commercial value from it.

Along with peer aluminium producers, Vedanta has entered into the partnership with three research institutes namely CSIR-National Metallurgical Laboratory (NML), Jamshedpur, Institute of Minerals and Materials Technology (IMMT), Bhubaneswar, and Jawaharlal Nehru Aluminium Research, Development & Design Centre (JNARDDC), Nagpur. As part of this, all three research institutes shall work together to develop technologies for bauxite residue utilization, like red mud beneficiation for REE enrichment, recovery of alumina values, recovery of iron values and process for extraction and separation of Titanium and REEs (La, Ce, Y, Sc). Once established, the processes will be validated through an integrated facility.

**Speaking about Vedanta's partnership in the project, Mr. Rahul Sharma, Dy.CEO – Aluminium, Vedanta Ltd said,** "Our world-class operations are guided by the sustainability tenets of 'Zero Harm, Zero Waste and Zero Discharge'. Implementing new age solutions for efficient waste management and creation of circular economy is ingrained in our decision-making process. In addition to the initiatives already being taken towards ensuring a healthy environment through sustainable ways of working, Vedanta's robust waste management system and zero discharge mechanisms have set benchmarks in the global alumina refining sector. Under this MoU, we aim to maximize value-extraction from bauxite residue for further usage downstream."

Globally, as the quest for value-creation from by-products for a circular economy picks momentum, Vedanta has emerged as a trend-setter in the field of alumina refining in terms of by-product reduction and utilization. Innovation has been one of the key pillars in the success of Vedanta Aluminium's growth story in Lanjigarh (Kalahandi district, Odisha). Since the commencement of operations in the Indian aluminium sector, Vedanta's Lanjigarh refinery has rapidly evolved technologically into becoming one of the world's most advanced alumina refineries.



In 2013, Vedanta had put in place Red Mud Filtration, a first-of-its-kind process for dry handling of bauxite residue in the alumina refining industry. In 2020, the company piloted the Wick Drain project, a new-age waste management system, for even better handling of residue and efficient land usage. Parallely, it is also working on other avenues to best utilize bauxite residue like cement and brick manufacturing, road construction, backfilling of depleted mine voids, etc.

Vedanta Aluminium & Power Business, a division of Vedanta Limited, is India's largest producer of Aluminium, producing almost half of India's Aluminium or 1.9 million tonnes per annum (MTPA) in FY20, and is also one of the largest private power producers in the country. Vedanta is a leader in value-added Aluminium products that find critical applications in core industries. With its world-class smelters, power plants and alumina refinery spread across 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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### **About Vedanta Limited**

Vedanta Limited, a subsidiary of Vedanta Resources Limited, is one of the world's leading Oil & Gas and Metals company with significant operations in Oil & Gas, Zinc, Lead, Silver, Copper, Iron Ore, Steel, and Aluminium & Power across India, South Africa, Namibia, and Australia. For two decades, Vedanta has been contributing significantly to nation building. Governance and sustainable development are at the core of Vedanta's strategy, with a strong focus on health, safety, and environment. Giving back is in the DNA of Vedanta, which is focused on enhancing the lives of local communities. Under the aegis of Vedanta Cares, the flagship social impact program, Nand Ghars have been set up as model anganwadis focused on eradicating child malnutrition, providing education, healthcare, and empowering women with skill development. The company has been featured in Dow Jones Sustainability Index, and was conferred CII-ITC Sustainability Award, the FICCI CSR Award, Dun & Bradstreet Awards in Metals & Mining, and certified as a Great Place to Work. Vedanta Limited is listed on the Bombay Stock Exchange and the National Stock Exchange in India and has ADRs listed on the New York Stock Exchange.

### **About Vedanta Aluminium and Power:**

Vedanta Aluminium & Power, a part of Vedanta Limited, is India's largest producer of Aluminium, producing almost half of India's Aluminium or 1.9 million tonnes per annum (MTPA) in FY20, and is also one of the largest private power producers in the country. BALCO is a part of Vedanta's Aluminium and Power Business. Vedanta is a leader in value-added Aluminium products that find critical applications in core industries. With its world-class smelters, power plants and alumina refinery spread across 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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