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JX Advanced Metals Corporation
JX Advanced Metals Circular Solutions Co., Ltd.

Development of a Recycling Process Achieving a High Recovery Rate for Lithium from End-of-Life Automotive Lithium-Ion Batteries

JX Advanced Metals Corporation (President: Hayashi Yoichi; hereinafter “JX Advanced Metals”) hereby announces that its subsidiary, JX Advanced Metals Circular Solutions Co., Ltd. (President: Yasuda Yutaka; hereinafter “JXCS”), has developed a new process capable of recovering more than 90% of the lithium contained in end-of-life automotive lithium-ion batteries (hereinafter “LiBs”), a recovery rate that is among the highest in the world.

The JX Advanced Metals Group has been working to recover rare metals from end-of-life LiBs since 2009, ahead of many other companies. The Group is currently conducting Japan’s largest-scale demonstration project for “closed-loop recycling,” in which rare metals are recovered from end-of-life automotive LiBs and reused as raw materials for new automotive LiBs¹⁾.

The EU Batteries Regulation requires the recovery rates for rare metals from end-of-life automotive LiBs to reach 80% for lithium and 95% for cobalt and nickel by the end of 2031. In response, the Group has been working to improve the recovery rates of these rare metals.

Lithium is particularly difficult to recover, and companies in Japan and overseas have been pursuing various approaches to improve its recovery rate. Against this backdrop, the newly developed process achieves a lithium recovery rate of more than 90%, a level among the highest in the world²⁾. In addition, by utilizing recovered lithium to minimize the amount of chemicals used during the recovery process, the new process improves overall process efficiency and reduces the product carbon footprint (hereinafter “CFP”) by 40% compared with the conventional process²⁾. By combining a world-leading lithium recovery rate with a significant reduction in CFP, the process represents an advanced and innovative development for the industry.

JXCS is currently installing equipment for the new process at the existing facilities of JX Advanced Metals Circular Solutions Tsuruga Co., Ltd. (hereinafter “JXCS Tsuruga”), a subsidiary of JXCS, with the aim of commencing operations in the second half of fiscal 2026. This demonstration project is being conducted with support from the Green Innovation Fund Project of the New Energy and Industrial Technology Development Organization (NEDO).

Amid the global transition toward decarbonization and the tightening of environmental regulations aimed at conserving natural resources, companies are increasingly expected not only to improve the recycling rates of end products but also to reduce environmental impact throughout the entire product lifecycle.

The newly developed process addresses challenges faced by automotive OEMs, diversified electronics manufacturers, and other companies by simultaneously improving rare metal recovery rates and reducing CFP. It is also expected to contribute to the promotion of cross-industry resource circulation.

Going forward, the Group will proceed with demonstration testing at JXCS Tsuruga. It will also supply the recovered high-purity recycled materials to the supply chain for evaluation and strengthen collaboration with a range of business partners, thereby further advancing the practical implementation of closed-loop recycling.

JX Advanced Metals will also deliver a presentation titled “Overview of the JX Advanced Metals Group’s LiB Recycling Project” at the Lithium Resource Extraction and Recovery Technology Symposium 2025, to be held at Hirosaki University on April 18.

References

- 1) According to a survey by JXCS.
- 2) CFP per total mass of recovered metal components (cobalt, nickel, lithium). Calculated by JX Advanced Metals based on internal standards.