Abstract

[Project Information]

Project Title :	Proposal for the Local Circulation System for LMO-based Lithium Ion Batteries Managed by the Conglomerate Among the Local Companies
Project Number :	JPMEERF20223C04
Project Period (FY) :	2022-2024
Principal Investigator :	Watanabe Masaru
(PI ORCID) :	0000-0001-8566-8760
Principal Institution :	Tohoku University Sendai City, Miyagi Prefecture,, JAPAN Tel: +81-22-785-5868 E-mail: masaru.watanabe.e2@tohoku.ac.jp
Cooperated by :	
Keywords :	Lithium Ion Battery, Hydrothermal Acid Leaching, Hydrothermal Carbonization, Cathode Recycling, Local Circulation

[Abstract]

In order to establish a complete LIB circulation system, we will verify the principle of both the hydrothermal regeneration process and the hydrothermal carbonization process, and demonstrate the process as a circulation system at the laboratory level. In close cooperation with local companies, we will develop a regional circulation system for LMO-based LIBs, including the establishment of a route to collect waste batteries.

Through the three-year project, the use of hydrothermal technology for the regeneration of LIB cathode materials was examined for application to direct regeneration methods in conjunction with innovation in wet refining, and sufficient results were obtained to contribute to process design. LCA analysis showed that the wet refining process is expected to reduce CO2 emissions to a greater extent than existing processes. Therefore, the technological development was successful as expected. Through interviews with local governments and companies, we were able to confirm that the establishment of an intra-regional circulation system is feasible. The research on circulating anodes proceeded as planned, and good results were obtained. We were able to investigate the battery characteristics of the regenerated cathode material and the circulating anode, and were able to establish a basis for adjusting the regenerated and circulating LIBs. From the above, it can be said that the results exceeded our expectations.

[References]

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This study was supported by the Environment Research and Technology Development Fund of the ERCA ({JPMEERF}) funded by the Ministry of the Environment.