

Abstract Submitted
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Post-test analysis of lithium-ion battery materials at Argonne National Laboratory¹ JAVIER BARENO, NANCY DIETZ-RAGO, IRA BLOOM, Argonne National Laboratory — Electrochemical performance is often limited by surface and interfacial reactions at the electrodes. However, routine handling of samples can alter the very surfaces that are the object of study. Our approach combines standardized testing of batteries with sample harvesting under inert atmosphere conditions. Cells of different formats are disassembled inside an Argon glove box with controlled water and oxygen concentrations below 2 ppm. Cell components are characterized *in situ*, guaranteeing that observed changes in physicochemical state are due to electrochemical operation, rather than sample manipulation. We employ a complementary set of spectroscopic, microscopic, electrochemical and metallographic characterization to obtain a complete picture of cell degradation mechanisms. The resulting information about observed degradation mechanisms is provided to materials developers, both academic and industrial, to suggest new strategies and speed up the Research & Development cycle of Li-ion and related technologies. This talk will describe Argonne's post-test analysis laboratory, with an emphasis on capabilities and opportunities for collaboration. Cell disassembly, sample harvesting procedures and recent results will be discussed.

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