

Lithium Ion Cell Quality Assurance and Good Manufacturing Practices

Lithium ion cells have become extremely diverse and customizable with various form factors, energy capacities, electrolytes, and active materials. As more cell types become available, so too do the number of manufacturers and manufacturing processes. As such, determining the quality of cells and whether proper manufacturing processes are followed can be difficult. While various standards regarding proper cell manufacturing and testing do exist, adherence to these standards does not necessarily guarantee safe and robust cells will be produced. While specification sheets are available from vendors, this may not adequately represent the cell quality, performance, or safety for all applications. In addition, the quality of cell manufacturing can vary substantially between different manufacturing lines or facilities from a single manufacturer.

An in depth analysis of battery cell manufacturing processes can provide valuable insight into the cell quality before installing suboptimal cells in a device. Manufacturing audits have proven useful tools for evaluating the robustness of these manufacturing processes and are proven to have a positive impact on cell failure rates. This talk will share insights from numerous battery cell manufacturing audits around the world including common pitfalls and best practices. It will also discuss qualification of battery cells to gain a deeper understanding of possible safety or performance issues that may affect the quality of the final product. Several case studies will be used to demonstrate the value of these practices in order to insure a safe and robust product.