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NEWSLETTER

The Challenge of Reconditioning Lithium Ion Batteries

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Reconditioning batteries for secondary use is not new to the battery industry. It has been a fairly common practice for large-format nickel metal hydride, lead-acid, and nickel cadmium batteries for many years. For example, there are reports of nickel metal hydride batteries from hybrid vehicles being used on farms to power well pumps.

But growth in lithium ion battery applications has created a new challenge: how to address the potential safety and regulatory implications for the lithium ion cell and battery reconditioner *and* minimize potential liability risks of the original cell and battery manufacturers.

Manufacturing of high-quality lithium ion cells is a very precise, sophisticated, and expensive operation. A finished cell contains a flammable electrolyte and provides a much a higher energy density than other rechargeable battery technologies. Cells are often designed and manufactured for a very specific application, and Tier 1 cell manufacturers have very tight controls over what battery pack manufacturers are authorized to use their cells.

In addition, unlike other battery technologies, lithium ion cells and batteries are subject to very stringent, mandatory testing requirements found in the United Nations (UN) Manual of Tests and Criteria. For example, U.S. hazardous materials regulations and international dangerous goods regulations prohibit offering of lithium ion cells and batteries for transport unless cell and battery designs have been tested in accordance with the UN Manual of Tests and Criteria. The international air transport dangerous goods regulations (*e.g.*, IATA Dangerous Goods Regulations) specifically state that

Authors

George A. Kerchner
Consultant
202.719.4109
gkerchner@wiley.law

refurbished batteries are subject to the UN testing requirements. (There are very limited exceptions from these tests for prototype and low-production lithium ion cells and batteries).

Some entities are investigating or proposing to recondition small lithium ion cells extracted from portable battery packs, going so far as to assemble cells into "new" battery packs. This may present considerable risk, however, particularly when a cell or battery pack was originally designed for a specific application (*e.g.*, power tools) but later is placed into a product it was never designed to power.

Federal and state consumer product safety laws impose duties to ensure safety on all manufacturers, whether providing a virgin or a reconditioned product. In addition, the Federal Trade Commission regulations regarding deceptive acts appear to prohibit the sale of a battery assembled from reconditioned cells unless it is identified as a refurbished or reconditioned product. That is, the battery could not be offered for sale as a "new" product. Failure to disclose prior use would be unlawful even where a product has been refurbished to "good as new" condition.

These restrictions may be less pertinent to re-use of large-format lithium ion cells and batteries such as those used in hybrid and electric vehicles and stationary grid applications—products with a potentially high value. But reconditioners still must be well-versed on how the cells were previously used, the limitations on reconditioning cells, and the safety and regulatory issues associated with reconditioned cells and batteries.

There may be significant environmental benefits when products are reused, recycled, or refurbished for secondary use. However, entities involved in the reconditioning of lithium ion cells and batteries and original cell manufacturers need to carefully consider the very broad regulatory and liability implications associated with this type of activity.