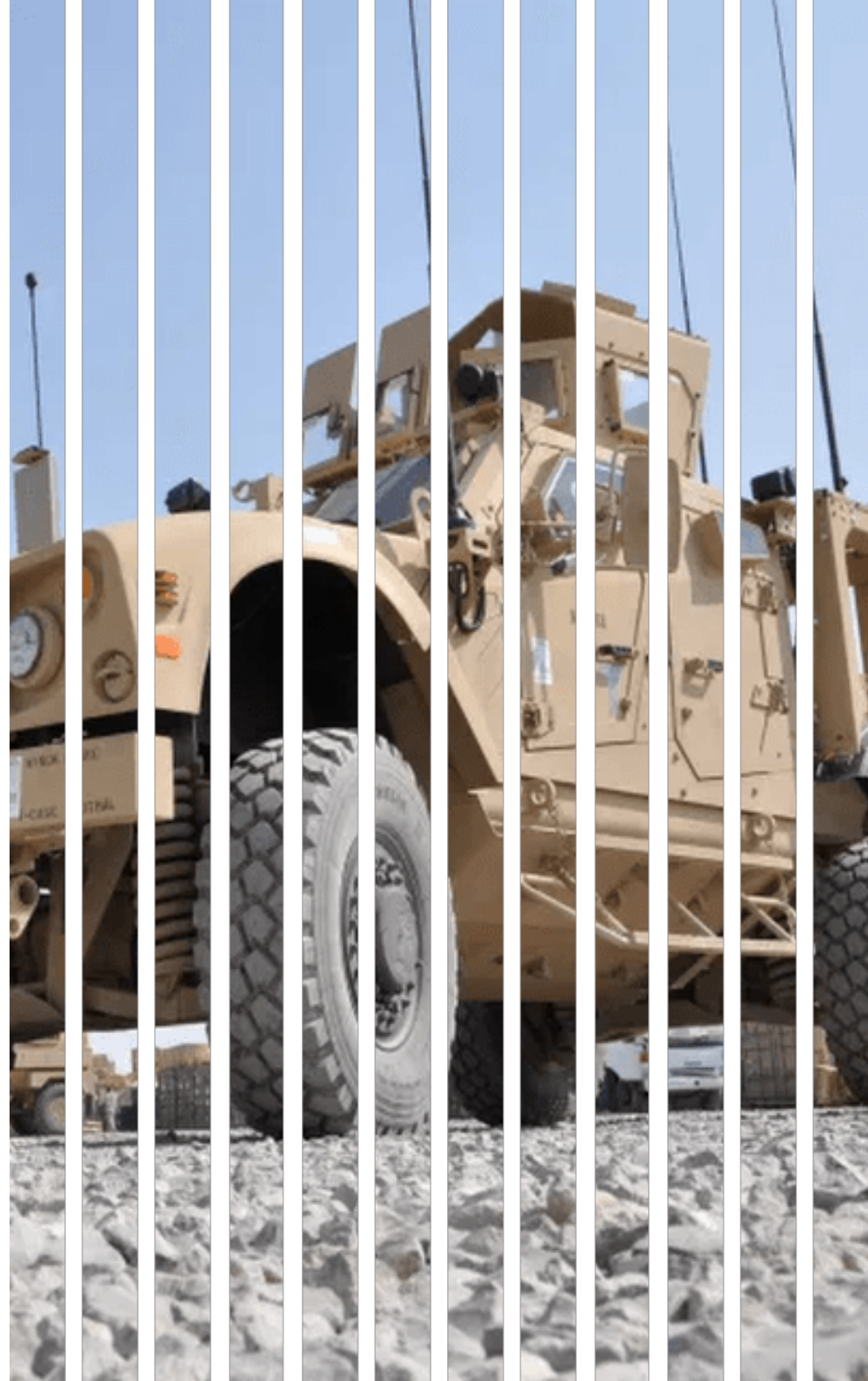


POWER EXTREME



Environmental Management

Standard Operating Procedure For
Accumulation and Disposal of
Used Batteries





This ENVIRONMENTAL MANAGEMENT INSTRUCTION is issued by the Company subject to its General Terms and Conditions. Attention is drawn to the limitations of liability and jurisdictional issues defined therein.

Power Extreme Technologies

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Purpose

To ensure that the accumulation and disposal of used batteries on Power Extreme client sites is accomplished in accordance with internationally accepted Hazardous Waste (HW) principles and guidelines, aligned with client local regulations.

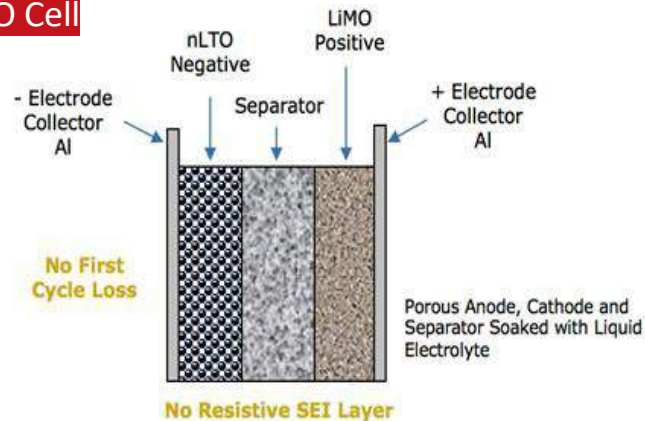
Reference

IATA 2019 Lithium Battery Guidance Document (where relevant)

Scope

This procedure applies to all used batteries supplied by Power Extreme to any of its duly authorised distributors, re-sellers or agents.

Composition of an LTO Cell



**Lithium Titanate
Cell Construction**

Recycling of LTO batteries

Accumulation:

Clients is responsible to accumulate used batteries in a designated, safe (access controlled) environment where it will be stored, ready for the disposal process. The nature of the batteries construct, being a fully enclosed, sealed unit which requires various processes of de-construction allows for the used batteries to be stock- piled up to acceptable quantities, determined by the client.

Note:

A Material Safety Data sheet (MSDS) or Safety Data Sheet (SDS) is NOT required for the return or accumulation of batteries referred to in this SOP.

Recycling:

The recycling process of Lithium Titanate Oxide technology batteries normally begins with deactivation involving a full discharge to remove the stored energy and prevent a surprise thermal event.

The electrolyte can also be frozen to prevent electrochemical reactions during the crushing process. The battery is then cut open. A process that evaporates and recovers the organic solvents of the electrolyte in a vacuum by condensation is used.

This process does to not produce toxic exhaust gases. The gasses released are mainly CO₂ (about 95%), with little CO and H₂ (less than 5%).

The described activities are divided into the following:

- Mechanical - involves crushing the battery
- Pyrometallurgical - pyrometallurgical extracts the metals by thermal treatment
- Hydrometallurgical - involves aqueous processes.

Once disassembled, sorting separates copper foil, aluminium foil, plastic separator, electronics and the coating materials.

Copper can be recycled from the cast, but lithium Titanate Oxide and Aluminium remain in the slag.

A hydrometallurgical process is necessary to recover lithium. This includes leaching, extraction, crystallization, and precipitation from a liquid solution.

Hydrometallurgical treatment is used to recover pure metals, e.g. Lithium and Aluminium, gleaned from separated coating materials after mechanical processes or from slag in pyrometallurgical processes.

To reduce the dangers of fire incidents during the recycling process, smaller recyclers incinerate LTO batteries externally in special waste treatment facilities before doing mechanical separation.

Power Extreme can facilitate clients with Environmental Management on-site or the actual disposal process on behalf of a client, whichever is most suitable.

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