

BATTERY CUSTOMER GUIDANCE

PREVENTION OF FIRES, AND RELEASE OF DANGEROUS CHEMICALS

Why Store and Package End of Life Batteries correctly?

1. **Risk of Legal Breaches** - There is a legal requirement to store, transport and package batteries correctly (even end of life batteries)
2. **Risk of Fires** - There is a real risk that mis-management of batteries, can cause fires if battery terminals or terminal connections come into contact with each other, or neighbouring materials that can conduct electricity
3. **Risk of Pollution and Harm to People** – whether resulting from a fire, or mishandling or breakages to batteries, exposure to the Lead and acid electrolyte contained in the battery is harmful to people and the environment

Whether collectively, we experience only 1 of the reasons cited above or all 3, at best our organisations suffer significant inconvenience and/or costs and at worst we cause harm to people and the environment whilst also causing disruption and incurring costs.

We probably all know how damaging and disruptive fires, and other accidents can be, so for our collective benefits we ought to eliminate the risks in all its forms.

Batteries are generally inherently safe whilst they are maintained in a good and safe condition – that is to say that all of the chemicals and compounds that may cause a risk to people or the environment are all ‘locked inside’ a tough plastic casing that is sealed and contains everything.

Batteries, or any battery for that matter, normally contain metals or metal compounds that are toxic to people and the environment, and an electrolyte that may be either corrosive or flammable – however, what most of us forget when looking at batteries, is that they are all storing energy and despite having discarded them they will continue to store energy, and



this creates a risk of fire if not managed properly.

So why is the risk of fire so high due to incorrect Battery management, storage and Transport?

Despite individual batteries being low voltage, the Amps generated from a short circuit are typically anything from 1,000 -4,000 Amps but due to the rapid release of this Energy it causes instant overheating resulting in fire or explosion within seconds on a terminal wire or within minutes as the battery heats up to then explode, rupture or set alight.

And in addition to the prevention of fire, there are several other reasons why we want to handle, store and Transport batteries safely; For example, to prevent spills or releases of Toxic metals and electrolyte, caused by;

1. Batteries with vent caps or fill caps, which are handled or stored or transported in such a way that results in the batteries tipping onto their sides or upside down which allows the liquid electrolyte to then spill from the top of the battery
2. Mis-handling or physical damage (accidental, purposeful) which results in the casing being damaged which then allows the electrolyte or toxic materials to escape
3. Superimposed terminals supporting too much weight (so the weight force of materials above cause the terminals to give way breaking the plastic casing, which again would release electrolyte or toxic materials)

Our Practical Guidance

Fenix can supply Transport and Approved Battery bins for the storage and management of all types of used Batteries We understand how difficult it can be to arrange batteries of different shapes and sizes in a safe and secure array, but it can be and should be done for all our sakes;

The Basic Requirements that should be met are;

- Batteries shall be stacked and adequately secured in tiers.
 - Each tier shall be separated by a layer of non-conductive material AND each battery should be isolated to prevent short-circuits.
 - Battery terminals shall not in any case support the weight of superimposed elements.
 - Batteries shall be fastened with inert cushioning materials.
 - Glass batteries should be packaged in single tiers per package.
 - Battery packages shall be labelled.
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- Collection and transportation of spent Pb-acid batteries should be carried out under cover, in leak proof containers and in a manner to prevent compaction, mutilation, or any

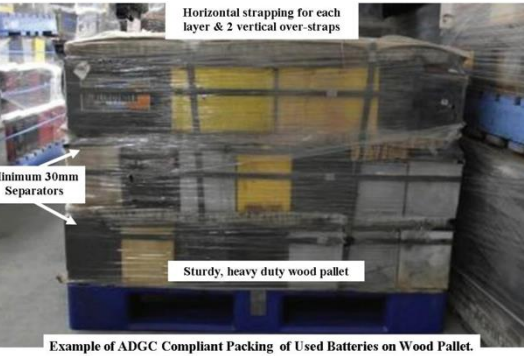
other physical abuse that would destroy their physical integrity.

- They should not be exposed to fires or high temperatures.

Caution: Cells and batteries, which are not fully discharged may leak, vent or explode when subjected to short circuit or other forms of electrical abuse.



Fenix will safely transport and manage your used batteries

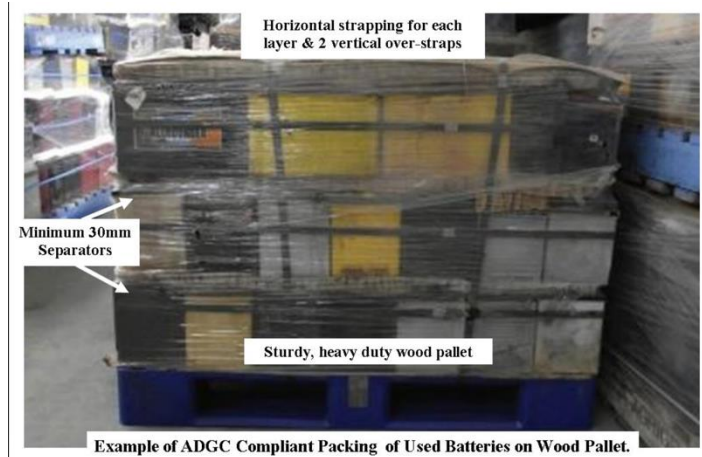


ie adequately secured and containers should be used

Fenix can supply approved storage bins



prevent releases of toxic or corrosive substances



The Legal Requirements

From an Environmental perspective there is a Duty of Care to maintain waste in a safe and secure condition, and for waste to be properly managed by a competent and authorised Waste Management business;

Waste Lead acid Batteries should be stored inside, or under cover – this is so rainfall can't run onto batteries and then any contamination from a waste battery or damaged battery can't then escape to floor surfaces or water courses as a result of the rain water run-off.

This also helps to ensure that the Waste batteries can't be accessed or removed by people that are not authorised to take them, and this protects you and helps you to realise the value in the battery.

Waste Lead acid batteries should be stored in secure and sealed storage areas or storage Bins so that in the event of damage or water ingress etc... then the contaminants or water is fully contained within the container.

From a Transport point of view, this is what the Packaging Requirements specify;

P801	PACKING INSTRUCTION	P801
This instruction applies to new and used batteries assigned to UN Nos. 2794, 2795 or 3028.		
The following packagings are authorized, provided the general provisions of 4.1.1 , except 4.1.1.3, and 4.1.3 are met:		
(1) Rigid outer packagings;		
(2) Wooden slatted crates;		
(3) Pallets.		
Additional requirements:		
1. Batteries shall be protected against short circuits.		
2. Batteries stacked shall be adequately secured in tiers separated by a layer of electrically non-conductive material.		
3. Battery terminals shall not support the weight of other superimposed elements.		
4. Batteries shall be packaged or secured to prevent inadvertent movement. Any cushioning material used shall be inert.		

This instruction applies to used batteries of UN Nos. 2794, 2795, 2800 and 3028.

Stainless steel or solid plastics battery boxes of a capacity of up to 1 m³ are authorized provided the following provisions are met:

- (1) The battery boxes shall be resistant to the corrosive substances contained in the storage batteries;
- (2) Under normal conditions of carriage, no corrosive substance shall leak from the battery boxes and no other substance (e.g. water) shall enter the battery boxes. No dangerous residues of corrosive substances contained in the storage batteries shall adhere to the outside of the battery boxes;
- (3) The battery boxes shall not be loaded with storage batteries to a height greater than the height of their sides;
- (4) No storage battery containing substances or other dangerous goods which may react dangerously with one another shall be placed in a battery box;
- (5) The battery boxes shall be either:
 - (a) covered; or
 - (b) carried in closed or sheeted vehicles or containers.

The Methods for Packaging;

Despite the variation in shape and size of these batteries it is generally practicable to arrange the batteries in tiers within a package and to separate the tiers of batteries with insulated materials.

An illustration of how these batteries may be packaged is illustrated below:

