



## 1. Introduction

The purpose of this document is to ensure a safe system of work for the packaging, carriage and storage of automotive, industrial and portable batteries.

## 2. Scope

This procedure applies to:

1. all Veolia facilities which receive, store and / or process batteries.
2. internal transport operations.
3. other internal departments which may deal with waste batteries at third party facilities (e.g. Chempac, Industrial Services).
4. sales.

Where batteries are not being packed by Veolia:

1. a copy of HAZ/3/133/003 must accompany any quotation sent out for the purpose of offering a service to carry, store and / or dispose of waste batteries. If Electric Storage Batteries (liquid filled and / or car battery size) or lithium batteries form part of the quotation then HAZ/3/133/001 and HAZ/3/133/002 should also be sent as appropriate.
2. before **every** collection / acceptance is arranged, a **new** signed copy of HAZ/3/133/003 must be returned to Veolia where batteries feature in the load.

The following exceptions apply:

1. batteries from civic amenity sites or other public drop off facilities.
2. batteries received into Marchwood from Marine Services and other similar marine arisings.

NOTE: Batteries from the sources identified at 2.3.1 and 2.3.2 are excepted from this procedure because their effective segregation and packaging cannot be guaranteed.

Mixed batteries collected in this manner can still be unpredictable and pose an ignition risk. This risk and suitable control measures must be considered when handling batteries from these sources.

**For the purposes of storage of mixed batteries from these sources, at facilities other than those designed specifically to store larger quantities, limited quantity shall mean less than 333 kg (the threshold below which the carriage of mixed batteries is exempt from most the requirements of ADR - See ADR 1.1.3.6). The mixed batteries must be stored in a lockable, non-combustible container segregated from other waste materials and flammable or combustible articles.**

**The storage of larger quantities of mixed batteries at facilities designed for that purpose are subject to separate arrangements.**

## 3. References

ADR 2019 – European Agreement Concerning the International Carriage of Dangerous Goods by Road.  
The EU List of Wastes established by Commission Decision 2000/532/EC (as amended).  
The Hazardous Waste (England and Wales) Regulations 2005 (and subsequent amendments).  
The Special Waste Regulations 1996 (and subsequent amendments).



#### 4. Definitions

None.

#### 5. Procedure

##### 5.1 General Rules

Batteries with different UN numbers must not be packed in the same container.

Batteries must be packed in containers which are impact resistant, non-conductive and have securely fitted lids to prevent the ingress of water / moisture. IBCs, whether whole or cut down, are not suitable containers for the purposes of this procedure.

Batteries with exposed trailing terminal wires are a significant fire hazard. All such exposed trailing terminal wires **must** be insulated or removed prior to the batteries being packaged.

Batteries larger than type 'D' should be packaged to prevent their movement within the outer container either by careful packaging or the use of a packing medium (preferably non-conductive, non-combustible and non-moisture absorbing material such as mica).

Some non-dangerous (for transport purposes) batteries are hazardous waste. The Hazardous Waste Regulations 2005 and The Special Waste Regulations 1996 prohibit the mixing of hazardous waste with non-hazardous waste so hazardous batteries must be packed separately to non-hazardous batteries (see Classification table at 5.2 below for guidance).

**Lithium batteries and Electric Storage Batteries have more specific packing and storage requirements. See HAZ/3/133/001 for Electric Storage Batteries and HAZ/3/133/002 for Lithium batteries.**

##### 5.2 Classification

Batteries must be classified for recycling or disposal based on the most appropriate LoW code and transport regulations. The table below is intended to provide general guidance on common types of battery, but there are numerous types of battery with differing chemistry and hazards.

Battery chemistry	Typical LoW code	Hazardous waste classification	Hazard codes	ADR classification UN No. / Packing Group	Additional packaging requirements
Alkaline, zinc chloride, zinc carbon - Domestic size	160604 160605 200134	Non hazardous	N/A	Non dangerous	General Rules



## Procedure for the Packaging Carriage Storage of Batteries

### SITES & SERVICES



Lead acid - electric storage	160601* 200133*	Hazardous	HP8, HP10, HP14	UN 2794 / N/A UN 2800# / N/A	HAZ/3/133/001 (See note 2 below on classification)
Lithium metal and Lithium Ion batteries	160605 200134	Non hazardous	N/A	UN 3090 / N/A UN 3480 / N/A	HAZ/3/133/002
Equipment containing Lithium batteries	160213* 160214 200135* 200136	May be hazardous depending on other components in the equipment	TBC	UN 3091 / N/A UN 3481 / N/A	HAZ/3/133/002
Batteries containing mercury	160603* 200133*	Hazardous	HP6, HP14	Any of the battery UN numbers (if appropriate)	Depends on nature of battery
Nickel Cadmium (NiCad)	160602* 200133*	Hazardous	HP5, HP7, HP8, HP14	UN 2795 BATTERIES, WET, FILLED WITH ALKALI	General Rules (See note 2 below on classification)
Nickel Cadmium (NiCad)	160602* 200133*	Hazardous	HP5, HP7, HP8, HP14	UN 2800 BATTERIES, WET, NON-SPILLABLE	General Rules (See note 2 below on classification)



Batteries - Nickel metal hydride	160605 200134	Non Hazardous	N/A	Not subject to ADR	See UN 3496 for other modes of transport
Alkaline - Electric storage (similar to car batteries)	160602* 160604 200133*	Maybe hazardous	See codes for NiCd if hazardous	UN 2795 / N/A UN 2800# / N/A	HAZ/3/133/001 (See note 2 below on classification)
<p>NOTE: UN 3028 BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID - This entry should only be used for the transport of non-activated batteries which contain dry potassium hydroxide and which are activated prior to use by the addition of water (see ADR SP304). Suppliers information should be checked if available to confirm exact chemistry and hazards for these dry batteries if they are encountered. UN 3028 should not be used for non-spillable alkaline batteries which contain gelled liquid electrolyte.</p>					

# **NOTE 1** - Where possible, the markings on batteries should be checked to confirm the type and chemistry - e.g. Pb denoting lead acid batteries. This may not always be possible - e.g. if the marking is on the side of the battery and it is packed in a battery box or drum.

# **NOTE 2** - If there is uncertainty as to whether waste batteries are non-spillable, they should be classified with the appropriate UN number for wet batteries.

# **NOTE 3** - Where batteries classified as UN 2794 or UN 2795 are packed with UN 2800, care must be taken to ensure that acid and alkali batteries are not packed together.

# **NOTE 4** - Lithium batteries are non hazardous waste but equipment containing lithium ion batteries may be hazardous waste due to other hazardous components being present.

### 5.3 General Arrangements for the Inspection of Waste Batteries on Receipt

All containers holding waste batteries must be opened on receipt to allow an inspection of the contents. Before opening any containers, the individual undertaking the inspection must check paperwork accompanying the delivery to confirm the number and identity of containers received.

Inspections must be undertaken within 24 hours of receipt of the delivery.

The inspection must take place in an area which is away from flammable or combustible materials, sources of ignition and permanently occupied areas. The inspection must be carried out under cover or, if suitable cover is not available, by adopting appropriate arrangements, so as to prevent the container contents becoming wet.



The individual carrying out the inspection must, as far as possible (i.e. without unpacking the batteries from the outer container), look for signs of battery damage, the presence of water / moisture, sufficient packaging material, effective battery terminal insulation and, in particular, any signs of pressurisation of the container.

Should the inspection reveal any cause for concern, the individual carrying out the inspection must inform site management without delay.

If the container is pressurised, it is likely that a reaction is in progress. Such a situation must be dealt with as an emergency in accordance with the local emergency plan.

If it is safe to do so, the pressurised container must be placed into a quarantine area and the contents repackaged using fresh packaging material. Any suspect batteries must be placed in separate individual containers. Containers which have been repacked must be allowed to stand without being moved for a period of not less than 7 days.

#### 5.4 Lithium Batteries – Additional Requirements

Likely mechanisms for adverse reactions involving waste lithium batteries

- Short circuiting (i.e. unprotected or improperly protected terminals touching) causing overheating, venting of electrolyte and fire.
- Water ingress that is causing a short circuit as described above or a reaction generating hydrogen and subsequent ignition of the hydrogen and / or vented electrolyte.
- Physical damage causing a rupture of the battery casing and possible subsequent spontaneous ignition.
- Exposure to heat (usually greater than 70°C but varies depending on battery).

##### 5.4.2 Arrangements for the Carriage of Waste Lithium Batteries

Waste lithium metal and lithium ion batteries and cells (other than defective batteries and cells) shall be packed in accordance with packing provision P909 and special provision SP377 in ADR.

Batteries must be packed in packing group II type approved containers which are impact resistant and complete with securely fitting lids to prevent the ingress of water / moisture.

NOTE - Where lithium batteries are to be disposed of by incineration at Ellesmere Port, the site applies a 25 kg limit to all containers.

The containers must bear a suitable label for carriage displaying:

- UN 3090 / 3480 for batteries Lithium Metal / Lithium Ion only, or
- UN 3091 / UN 3481 for Lithium Metal / Lithium Ion batteries in equipment.
- Lithium Battery label - ADR model 9A.
- Packages shall be marked "LITHIUM BATTERIES FOR DISPOSAL" or "LITHIUM BATTERIES FOR RECYCLING".

The batteries must be packed so as to prevent short circuits (e.g. terminals covered with insulating tape) and should be placed in suitable packing material (preferably non-conductive, non-combustible and non-moisture absorbing) so as to prevent movement within the outer container. Where possible, larger batteries should be placed within their original packaging or in packaging specifically designed for the purpose.

The outer container must be clean and dry and the batteries must be packed under dry conditions. The container should be filled to the top with packing material irrespective of the number / quantity of waste batteries within unless a plastic liner is used and tied off to prevent movement during transport. Accompanying paperwork must provide details



of the type, size and number of batteries contained in the outer container. Where batteries have been “neutralised” by an agreed robust auditable process, this must also be clearly stated on the documentation.

Waste lithium batteries must not be packed together with any other battery types.

Due to potential fire risk, damaged or defective batteries are subject to special packing requirements in ADR. Due to the potential fire risk, due consideration must be given to the safe handling, transport and storage of such batteries. Disposal sites should only accept damaged or defective batteries after a suitable risk assessment has been undertaken to ensure they can be stored safely.

#### 5.4.3 Special requirements for Packing of Damaged or Defective Waste Lithium Batteries

Packagings shall conform to the packing group II performance level.

1. Each damaged or defective cell or battery or equipment containing such cells or batteries shall be individually packed in inner packaging and placed inside an outer packaging. The inner packaging or outer packaging shall be leak-proof to prevent the potential release of electrolyte.
2. Each inner packaging shall be surrounded by sufficient non-combustible and non-conductive thermal insulation material to protect against a dangerous evolution of heat.
3. Sealed packagings shall be fitted with a venting device when appropriate.
4. Appropriate measures shall be taken to minimize the effects of vibrations and shocks, prevent movement of the cells or batteries within the package that may lead to further damage and a dangerous condition during carriage. Cushioning material that is non-combustible and non-conductive may also be used to meet this requirement.

For leaking cells or batteries, sufficient inert absorbent material shall be added to the inner or outer packaging to absorb any release of electrolyte.

A cell or battery with a net mass of more than 30 kg shall be limited to one cell or battery per outer packaging.

The containers must bear a suitable label for carriage displaying:

- UN 3090 / UN 3480 for batteries Lithium Metal / Lithium Ion only, or
- UN 3091 / UN 3481 Lithium Metal / Lithium Ion batteries in equipment.
- Lithium Battery Label - ADR model 9A.
- Packages shall be marked “DAMAGED / DEFECTIVE LITHIUM ION BATTERIES” or “DAMAGED / DEFECTIVE LITHIUM METAL BATTERIES” as applicable.

#### 5.4.4 Additional Arrangements for the Inspection of Waste Lithium Batteries on Receipt

In addition to the general arrangements described at 5.3, the following conditions apply:

- **All** containers holding lithium batteries must be opened on receipt to allow an inspection of the contents. Before opening any containers, the individual undertaking the inspection must check paperwork accompanying the delivery to confirm the number and identity of containers received and whether or not the batteries have been “neutralised” prior to shipment.
- Inspections must be undertaken on the day of receipt of the delivery.

#### 5.4.5 Arrangements for the Storage of Waste Lithium Batteries

Waste lithium batteries must be stored in a Type Approved plastic package. The outer package must be impact resistant and sealed to prevent water / moisture ingress.





Packages containing batteries must be stored within a secure, ventilated container constructed from non-combustible materials, and capable of containing batteries ejected from the packages within in the event of a fire or other adverse reaction (e.g. a steel trans-safe, waste-tainer, etc.) Where individual packages are to be "stacked", steel racking or similar should be used. Wooden pallets must not be used for stacking within the secure container.

Waste lithium batteries may not be stored for more than 4 weeks following acceptance, except in circumstances where the established outlet subsequently becomes unavailable.

The secure container must be located away from storage or other areas containing flammable or combustible materials, sources of ignition, and be away from areas which are permanently occupied. The suitability of selected locations must be risk assessed and justified on a case by case basis. The secure container must be labelled to clearly show the nature of its contents and their associated hazards.

#### 6. Variation

None.

#### 7. Documentation

Reference No	Title	Minimum Retention Period
HAZ/3/133/001	Electric Storage Batteries – Additional Packing Requirements	N/A
HAZ/3/133/002	Lithium Batteries – Additional Packing Requirements	N/A
HAZ/3/133/003	Transfer of Batteries to Veolia – Producer Packing Information	2 years
HAZ/3/133/004	What to look for when collecting waste batteries	N/A