



# RECYCLING BATTERIES GUIDELINE

## PACKING & SAFE TRANSPORT OF USED LEAD ACID BATTERIES



**MORE INFORMATION**  
[www.batteryrecycling.org.au](http://www.batteryrecycling.org.au)

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### Important Note

The information provided here-in is general in nature. Regulations and best practices change on a regular basis. Companies must do their own research to understand their legal obligations in each jurisdiction and to ensure that they are fully compliant with the current Australian Dangerous Goods Code. To obtain a copy of the code, go to the National Transport Commission website: – [www.ntc.gov.au](http://www.ntc.gov.au)

## PURPOSE OF THIS GUIDE

ULABs are classified as a Dangerous Good under the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code). Any organisation involved in transporting ULAB must comply with the Code.

This guide is designed to ensure that packing and transport of used lead acid batteries (ULABs):

- Complies with the Australian Dangerous Goods Code – ADG 7.7 and Packaging Instruction P801 (Attachment 1), and
- Conforms to likely battery processor requirements (may vary by processor).

### IMPORTANT

We recommend you check the latest Australian Dangerous Goods Code & talk to your battery processor to ensure requirements are well understood.



## Why these guidelines are of value

These guidelines have been designed to provide options for compliance with the Code and enable acceptance by the carrier and the processing facility.

### IMPORTANT

Non-conforming shipments or those in non-preferred packaging may be:

- Rejected by the carrier at pick-up or by the ULAB recycling facility upon delivery.
- Returned at the supplier's expense or be remediated at the supplier's expense.
- Subject to penalties for non-preferred packaging.

## HOW THESE GUIDELINES WORK

The following sections provides guidance on the practicalities of safely implementing the instructions and processor requirements.

- Plan ahead
- Check you are only packing ULABs
- Put safety first
- Follow ULAB best handling practices
- Prepare your ULAB shipment for transport
- Strap the pallet
- Wrap the pallet
- Label the pallet
- Complete the required documentation

## Plan ahead

### ALWAYS STAY CURRENT

STEP 1. Talk with your battery processor to identify any special requirements



STEP 2. Check that there have been no updates to the ADG code

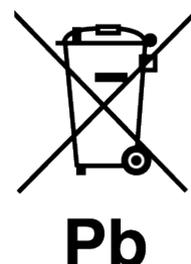
## Check you are only packing ULABs

STEP 3. Verify you are handling only Used Lead Acid Batteries

Care must be taken to ensure batteries of other chemistries such as Nickel and Lithium based batteries are not included with a ULAB shipment.

- Most Australian processors do not process any other battery types since current processing machinery is only able to process one type
- Other battery types have different transport risk classifications.

Lead acid batteries are generally labelled with the chemical symbol for lead (Pb) and the crossed-out wheelie bin (see below).



## Batteries to avoid unless your battery processor tells you otherwise

✘ Do not ship mixed dry cell batteries



✘ Do not ship lithium batteries



✘ Do not ship Nickel Cadmium batteries



Most ULAB recyclers will not accept these battery types. Visit [www.batteryrecycling.org.au](http://www.batteryrecycling.org.au) to find a recycler that will accept these types of batteries.

## Put safety first



### Wear Appropriate Personal Protective Equipment

- ✓ Acid resistant gloves
- ✓ Acid resistant safety glasses
- ✓ Safety boots

### Safe lifting

- ✓ ULABs are heavy - make sure you and your colleagues are aware of safe lifting practices

### Safe Forklift Operation

- ✓ Use safe forklift operations & maintenance
- ✓ Take care to avoid breaking pallets or spilling loads during transit

### Clean up

- ✓ Clean-up spills with appropriate neutralising spill kit material
- ✓ One option is to use bicarbonate of soda/soda ash to neutralise any spilt acid and then sweep up the resultant "powder" for disposal

## Follow ULAB handling best practices

### PREPARE YOUR BATTERIES FOR TRANSPORT

- ✓ Ensure all battery cables or connections are removed



- ✓ Load the batteries on pallets



- ✓ Keep batteries upright at all times - do not tip over on side or upside down



- ✓ Check that any damaged or cracked cell must be free of electrolyte



- ✓ If you have a range of battery types e.g. automotive batteries and other lead acid storage batteries, check with your processor to confirm requirements for loading and separate each type

Be aware that some processors use differential pricing for each battery category, for example automotive, industrial, gel cell and steel cased ULAB

## Prepare your ULAB shipment for transport

The code is quite specific about packing requirements (see Attachment 1). The most common method of packing ULAB for transport in Australia is wooden pallets.

### Things to know about Pallets

- The maximum size of the pallet should not exceed 1200 mm square.
- Pallets must be in good condition and of heavy-duty construction to support ULABs which are heavy!
- Do not use pallets that are damaged with broken or missing timbers as they are not capable of supporting the weight of ULAB.
- Hardwood or plastic pallets are preferred; however, in some cases pine pallets may be suitable. Check with your processor to be sure.
- It is important ensure that pallets are always loaded in accordance with their specific load limit to prevent injuries and battery breakage during loading and unloading.

Although most processors prefer the use of hardwood pallets, softwood and plastic pallets, wooden crates and boxes comply with the P801 Packing Instruction. Check with your processor to be sure!

### What does good packing look like?



Note the Horizontal strap to each layer of ULAB, two vertical straps secure the ULAB to the pallet, clear plastic stretch wrap, and pallets in good condition

### Things to know about stacking ULABs

Stacking ULABs has a big impact on the safety for battery handlers during transit and once they arrive at the recycler. The following can be used to ensure safe and conformant stacking procedures are used:

- Where practical, stack batteries of similar size and shape, such as N200s, to prevent movement.
- Stack automotive batteries separately to industrial and forklift batteries to assist in securing the ULAB in transit and assist handling by the processors.
- Ensure ULABs stacked on outer rows of each layer are of similar height. This forms a solid base for upper layer and secures batteries in the centre of the pallet.
- Stack ULABs in an upright orientation to prevent acid spills and avoid the possibility of short circuit.
- To prevent short circuit and to distribute weight place a sheet of non-conductive material (separators) between each layer of batteries.
- Use heavy duty cardboard separators and check with your processor for alternatives.
- Battery terminals must not support the weight of other batteries. Separators must be of a depth greater than the height of the terminal in order to ensure that terminals are not weight bearing.
- Only stack 2 layers of ULAB high to prevent damage during transit. Some processors may allow stacking up to 3 layers, provided they are on hardwood pallets and they do not exceed the pallet weight rating.
- A pallet of automotive batteries must never exceed 1500 kgs.
- ULAB's must have all vent caps firmly in place prior to strapping and wrapping, as missing or loose vent caps are the major cause of acid spills during transport.

Although packing ULAB in wooden boxes or crates complies with regulations, processors may impose a charge or price deduction for the cost of handling and disposal of these materials.



## Strap the pallet

Effective strapping is also essential for safe transport and handling.

- Strapping must be high strength polypropylene, polyester or nylon plastic.
- Preferred strapping is 19mm wide with a combined break strength of 1500 kg.
- Strapping must be tight enough to prevent battery movement in transit
- Friction welding is preferred; otherwise non-plastic clips.
- Steel strapping is not acceptable, due to the potential risk of fire from short-circuits
- Automotive and industrial batteries must have one horizontal strap around each layer of batteries.
- Forklift and flooded standby power cells must have at least 3 horizontal straps around the load.
- In addition to the above, all pallet loads must have at least 2 cross straps tying the load to the pallet.
- Vertical strapping alone is not acceptable.

## Wrap the pallet

- All pallets of ULAB must be either stretch wrapped or shrink wrapped in plastic to the full height of the pallet stack.
- Make sure plastic wrap does not completely enclose ULABs to avoid the potential for gas build-up.
- Use clear wrap as it facilitates identification of the ULAB by the processor and by authorities in the event of an incident or accident (Note: Black plastic wrap is compliant with the ADG, but not preferred by processors).
- Secure the batteries to the pallet by wrapping around the pallet with plastic wrap at least once.
- Plastic wrapping alone is not acceptable.

## Label your parcel

Prior to transport, packages of batteries are required to be labelled on the front and rear in accordance with the Global Harmonised System which is used for workplace safety as shown below. This label is not to be used for transport.



**BATTERIES, WET FILLED WITH ACID  
UN 2794  
USED LEAD ACID BATTERIES**

Sender Details
Name of Supplier
Address of Supplier
Suburb, State & Postcode

## Labeling of parcels and pallets for transport

Once a package is loaded onto the vehicle it must be labelled with "Class 8" sticker to comply with Dangerous Goods Regulations in accordance with the following:

- The sticker must have minimum size of 100 x 100mm with minimum lettering size of 7mm
- All pallets or bulk containers must be labelled with the proper shipping name, including:
  - Batteries Wet filled with Acid
  - UN number: e.g. UN2794
  - Name and address in Australia of the consigner.
- Ensure label is placed on at least two opposing sides.
- When storing pallets, ensure that the label is visible to incoming trucks and emergency services.

## Vehicle placarding requirements

The Corrosive 8 diamond is required when transporting a thousand litres or more of acid. In the case of lead acid batteries, you can calculate the amount of acid in the load using Special Provision AU08 which provides a nominal 25% content in automotive new or used lead acid batteries.



## Vehicle requirements

When transporting more than 4 tonne of used lead acid batteries you will need to display a corrosive 8 diamond and carry specific Personal Protective Equipment. It is recommended that all of the items in the table below are identified in a pre-start check before transport.

DESCRIPTION	Under 4 tonne	Over 4 tonne
Emergency Information Folder	✓	✓
Battery Manifest	✓	✓
Corrosive 8 Placards (Front and Rear of the Vehicle)		✓
3 x double-sided Reflective Portable Warning Triangles	✓	✓
FIRE EXTINGUISHER 2.5 Kg ABE Dry Powder. In the truck Cabin. (In date, maintained & Tagged)	✓	✓
FIRE EXTINGUISHER 4.5 Kg ABE Dry Powder. In the back of the tray Cabin. (In date, maintained & Tagged)	✓	✓
Eye-Wash Kit – Suitable for Acid Splashes. Must be at least 250ml capacity. In the cabin and In Date	✓	✓
Self-Contained Breathing Apparatus that provides a minimum of 15 minutes air-supply and in the cabin. Must be in date and maintained.		✓
First-Aid Kit (traveller) in the cabin, in date, and maintained & Tagged.	✓	✓
Boots – Acid Resistant (Worn by the Driver)		✓
SPILL KIT INC: Soda-Ash, Dustpan, Brush and Bags	✓	✓
Gloves - Acid Resistant		✓
Torch (In good working condition)	✓	✓
Overalls – Acid Resistant		✓
Goggles or Full-Face Shield		✓

**For more information refer to the Australian Dangerous Goods Code (chapter 5.2)**

## In transit requirements

When transporting up to 5 tonne of ULAB, the ADG specifies requirements needed to enable a vehicle to park in a public place depending on the type of vehicle as shown in the table below.

Enclosed vehicle	✓	The load area containing the batteries must be locked
Tray style vehicle	✓	The load must be covered
Open vehicle	✓	The load must be supervised

## Complete the required documentation

### Australia

Interstate movement of ULAB can only be undertaken with appropriate regulatory Transport Approval & Documentation.

- The Supplier must obtain an approved Consignment Authorisation approval issued by the receiving State/Territory Environmental Protection Authority prior to transportation.
- Ensure the Waste Transport Certificate documentation accompanies the ULAB load during transit and can be presented at the receiving facility upon delivery.

A waste transport licence and a waste transport certificate are also required for intrastate transport of ULAB in some jurisdictions. Contact your local environmental authority for more information.

### New Zealand

Transporters must ensure compliance to all regulations set out by the Environment Risk Management Authority, NZ Transport Agency, Maritime New Zealand and the Ministry of Agriculture and Forestry.

## ATTACHMENT 1. PACKING INSTRUCTIONS FROM ADG 7.7

P801	PACKING INSTRUCTION	P801
	This instruction applies to UN Nos. 2794, 2795 or 3028.	
	<p>The following packagings are authorized, provided that the provisions of <b>4.1.1.1, 4.1.1.2, 4.1.1.6, and 4.1.3</b> are met:</p> <p>(1) Rigid outer packagings, wooden slatted crates or pallets.</p> <p>Additionally, the following conditions must be met:</p> <ul style="list-style-type: none"> <li>(a) Batteries stacks must be in tiers separated by a layer of electrically non-conductive material;</li> <li>(b) Battery terminals must not support the weight of other superimposed elements;</li> <li>(c) Batteries must be packaged or secured to prevent inadvertent movement;</li> <li>(d) Batteries must not leak under normal conditions of transport or appropriate measures must be taken to prevent the release of electrolyte from the package (e.g. individually packaging batteries or other equally effective methods); and</li> <li>(e) Batteries must be protected against short circuits.</li> </ul> <p>(2) Stainless steel or plastics bins may also be used to transport used batteries.</p> <p>Additionally, the following conditions must be met:</p> <ul style="list-style-type: none"> <li>(a) The bins must be resistant to the electrolyte that was contained in the batteries;</li> <li>(b) The bins must not be filled to a height greater than the height of their sides;</li> <li>(c) The outside of the bins must be free of residues of electrolyte contained in the batteries;</li> <li>(d) Under normal conditions of transport, no electrolyte may leak from the bins;</li> <li>(e) Measures must be taken to ensure that filled bins cannot lose their content; and</li> <li>(f) Measures must be taken to prevent short circuits (e.g. batteries are discharged, individual protection of the battery terminals, etc.).</li> </ul>	

### MORE INFORMATION

For more information about ULAB recycling or about how to become a member contact the Australian Battery Recycling Initiative:

info@batteryrecycling.org.au  
www.batteryrecycling.org.au

### To find a ULAB recycler

<http://www.batteryrecycling.org.au/recycling>