



BULK RECYCLING PACKAGING GUIDE





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COMMON LAMP TYPES AND BEST PACKAGING METHODS



Linear fluorescent and LED lamps: sealed boxes* or fiber drums



Compact Fluorescent (CFL) and small LED: sealed boxes, buckets or drums



HID: sealed boxes, fiber drums or steel drums



Broken bulbs: sealed buckets or sealed drums



*Many customers use boxes that new lamps are supplied in. This is preferred as a means of waste reduction.



PROPERLY LABEL YOUR SEALED LAMP CONTAINERS

Intact lamps are classified as a Universal Waste and should be labeled accordingly.

List the contents as “mercury contaminated lighting waste.”

When you start filling a container with lamps, the EPA requirement is that the accumulation start date is recorded.

Enter your company name as the Shipper.

The address where the waste was generated should be entered here.

A purple rectangular label template for universal waste. The top half has a solid purple background with the words "UNIVERSAL WASTE" in large, bold, white capital letters. The bottom half is white with a thin purple border. It contains five fields, each with a label and a horizontal line for text: "CONTENTS", "ACCUMULATION START DATE", "SHIPPER", "ADDRESS", and "CITY, STATE, ZIP". Green arrows point from the instructional text on the left to each of these fields.

**UNIVERSAL
WASTE**

CONTENTS _____

ACCUMULATION START DATE _____

SHIPPER _____

ADDRESS _____

CITY, STATE, ZIP _____

PROPERLY LABEL YOUR DRUMS OF CRUSHED LAMPS



**UNIVERSAL
WASTE**

CONTENTS _____

ACCUMULATION START DATE _____

SHIPPER _____

ADDRESS _____

CITY, STATE, ZIP _____

Lamps that have been crushed using the Bulb Eater are classified as a universal waste in the states of CO, FL, IL, MD, MT, NM, TN, TX and VA. Drums of crushed lamps in these states should be labeled accordingly.



**HAZARDOUS
WASTE**

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND CONTACT THE NEAREST POLICE OR PUBLIC SAFETY
AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY
GENERATOR INFORMATION:

NAME _____

ADDRESS _____ PHONE _____

CITY _____ STATE _____ ZIP _____

EPA ID NO. / MANIFEST DOCUMENT NO. _____

ACCUMULATION START DATE _____ WASTE NO. _____

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

Lamps crushed in any other state require a hazardous waste label. Hazardous waste generators with an EPA generator number must list it on this form. The waste code for crushed lamps is **D009**.



CRUSHED LAMPS - CONTAMINATED DRUMS

Crushed lamps that are exposed to moisture are extremely difficult to recycle.

Wet crushed lamps are subject to a processing price that can be up to 5 times more expensive than dry drums!

Please be sure to keep your drums of crushed lamps out of the elements and in a place where they will remain dry.



This drum of crushed lamps was processed at a cost of \$1500, which could have been avoided if the contents remained dry.

PREPARING YOUR LIGHTING WASTE FOR PICKUP

Do's



Don'ts

- ✓ Segregate all lighting types in separate containers
 - ✓ Properly label all containers
 - ✓ Palletize whenever possible and secure with shrink wrap
 - ✓ Package lamps tightly without separators or other material
 - ✓ Place partially filled containers at the top of the pallet
 - ✓ Use non-contaminated containers in good condition and keep them dry
 - ✓ Contact TerraCycle Regulated Waste with any questions
- ✓ Comingle different lighting types in the same container
 - ✓ Ship unsealed containers
 - ✓ Tape lamps together
 - ✓ Use internal packing material such as Styrofoam without contacting TerraCycle Regulated Waste in advance
 - ✓ Store lighting waste outdoors, particularly in an area where boxes and drums will be exposed to the elements. Contaminated boxes and drums will be subject to higher processing costs.

BALLASTS



A typical pre-1979 PCB-containing fluorescent light ballast (FLB)

PCB-Ballasts:

- ✓ Manufactured no later than 1979
- ✓ Classified as hazardous waste (see page 5 for label)
- ✓ Must be packaged in a 55-gallon steel drum
- ✓ Drums comingled with both PCB and non-PCB ballasts will be treated as PCB contaminated.
- ✓ Leaking ballasts must be bagged individually

Non-PCB Ballasts:

- ✓ Manufactured after 1979
- ✓ Commonly referred to and labeled as electronic ballasts
- ✓ Classified as universal waste (see page 4 for label)
- ✓ Can be packed in boxes, plastic containers or steel drums



A typical Non-PCB containing fluorescent light ballast. The ballast has a "No PCBs" marking on the top of the ballast and the text "electronic ballast". Only magnetic fluorescent light ballasts contained PCBs.

Drums of ballasts should not exceed 700 lbs.

COMMON BATTERY TYPES AND REQUIRED PACKAGING



Alkaline, Button Cell, NiCad, NiMH and any dry cell non-lithium 9V or less battery: Store and ship in any sized sealed container in good condition up to a 55-gallon drum.



Lithium: Smaller batteries can be packed and shipped in plastic containers; larger lithium batteries can be insulated and stacked on a secured pallet. Contact TerraCycle for guidance if you have any damaged lithium batteries.










Lead Acid & NiCad (wet or larger than 9V): Stack on pallets with honeycomb cardboard insulation between rows.



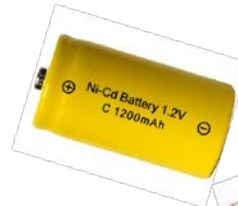


LITHIUM BATTERY LABELS AND PLACARDS

BATTERY DESCRIPTION	UN LABEL	PLACARD
Lithium Metal Battery	 A rectangular label with a red border and diagonal red lines. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the text "UN 3090" is printed in black.	 A diamond-shaped placard with a black border. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the number "9" is printed in black.
Lithium Metal Battery in Equipment	 A rectangular label with a red border and diagonal red lines. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the text "UN3091" is printed in black.	 A diamond-shaped placard with a black border. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the number "9" is printed in black.
Lithium-Ion Battery	 A rectangular label with a red border and diagonal red lines. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the text "UN 3480" is printed in black.	 A diamond-shaped placard with a black border. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the number "9" is printed in black.
Lithium-Ion Battery in Equipment	 A rectangular label with a red border and diagonal red lines. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the text "UN3481" is printed in black.	 A diamond-shaped placard with a black border. It features a black silhouette of three cylindrical batteries, one of which is on fire. Below the illustration, the number "9" is printed in black.



BULK DRY CELL BATTERY PACKAGING REQUIREMENTS



Larger volumes of lithium and 9V or higher batteries should be stored and shipped in sealed plastic drums or stacked on a pallet (see next slide). Boxes and steel drums can be used for non-lithium and lower voltages.

Small quantities of batteries can be stored and shipped in sealed poly pails. Boxes can be used for non-lithium or batteries less than 9V.

Do's

Separate by chemistry – this is especially important for lithium which is combustible

Place clear tape over the contacts of ALL lithium batteries and any battery 9V or higher

Label all containers with “Batteries, Dry, Sealed, N.O.S” (see universal waste label on page 4)

Label any containers containing lithium batteries with “Lithium Metal and/or Lithium Ion Batteries”

Shrink wrap drums and pails heavily to properly secure them to the pallet

Don'ts

Comingle multiple chemistries in the same container – **especially lithium!**

Leave the contacts of 9V or higher or lithium batteries unsecured. Do not use masking tape.

Store and ship unlabeled containers – these are EPA and DOT violations

Neglect to label any containers with lithium. Do not store battery waste outdoors, particularly where it will be exposed to the elements.

Store or ship loosely packed or unsealed containers of battery waste



LARGE LEAD ACID AND VEHICLE BATTERY PACKAGING REQUIREMENTS



Use at least 3 layers of shrink wrap



Insulate each level with cardboard

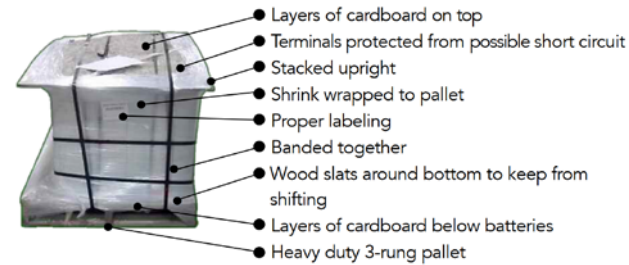


Stack neatly with no overhang on pallet

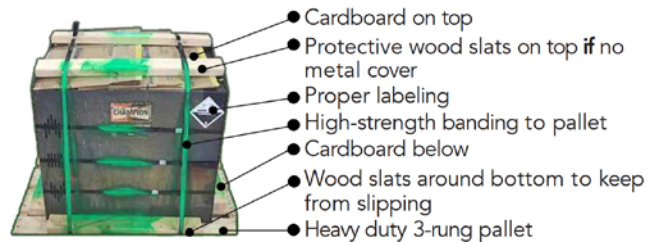
Do's	Don'ts
Store and ship used auto batteries secured to a pallet with at least 3 layers of shrink wrap	Allow any of the terminals to come into contact with each other
Stack up to 3 layers of batteries as seen in the image front and center above	Stack vehicle batteries any higher than 3 layers
Keep all batteries within the confines of the pallet – no overhang!	Ship loose batteries or a pallet with batteries overhanging
Place a universal waste label (see page 4) on the pallet noting the battery chemistry	Store or ship unlabeled pallets of battery waste



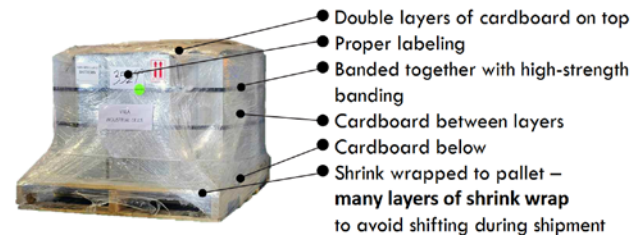
Rack



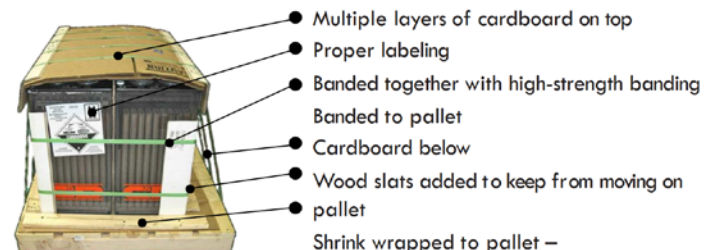
Steelcase



VRLA



Wet Cell



ELECTRONICS

- ✓ All electronics are classified as universal waste (see label on page 4).
- ✓ Small electronics can be packed in sealed boxes, pails or drums. These containers should then be palletized and secured with shrink wrap. Pallet should be labeled with a description of contents and estimated weight.
- ✓ Please refer to the chart below for guidelines on bulk e-waste shipments:

Description	Packaging Height	Average Weight/Skid	Pallet Stacked	Pallet Wrapped	Gaylord on Pallet
Printers-Large	7 ft. - Skid	1,000 lbs.	●	●	
Printers-Small	Gaylord Container	550 lbs.			●
Copiers	4 ft.	750 lbs.	●	●	
Televisions (TVs)	Items should not exceed 7 ft.	1,000 lbs.		●	●
Cathode Ray Tube Monitors	7 ft. - Skid	750 lbs.	●	●	
CPUs	7 ft. - Skid	1,350 lbs.	●	●	
Computer Peripherals	Gaylord Container	550 lbs.			●
Flat Panels Monitors	Gaylord Container	300 lbs.			●
Cathode Ray Tubes Cathode Ray Glass	7 ft. - Skid	1,000 lbs.	Gaylord Box on Pallet Covered and Shrink Wrapped		



GENERAL REMINDERS AND BEST PRACTICES

- ✓ All containers should be labeled with a description of its contents.
- ✓ Most items noted in this guide are universal waste. The most common exceptions are PCB Ballasts and crushed lamps (variable by state).
- ✓ Containers should never be exposed to moisture or the elements. Such containers may be rejected at the time of pickup and are subject to additional processing fees.
- ✓ Never combine different waste streams in the same container.
- ✓ Do not combine various types of the same waste stream in the same container (ie., fluorescent and HID lamps).
- ✓ Take battery packaging very seriously – this is closely monitored by various agencies including USDOT.
- ✓ Always contact TerraCycle Regulated Waste at 800-909-9709, info@aircycle.com or your account manager with any packaging and recycling questions.