



September 17, 2003

Dear Valued Customer:

AERC Recycling Solutions has altered its detailed Battery Shipping and Packaging Guidelines. These changes have been made to comply with new federal DOT requirements that become effective January 1, 2004. In addition to these changes, AERC has altered the Guidelines to increase safety awareness and handling of these potentially dangerous products.

Spent Batteries can react, heat up and release energy causing devastating results if they are mishandled or packaged incorrectly. Our concern for proper packaging and shipment is also for you, our customers, as you collect, combine, package and ship batteries.

The most significant changes to these Guidelines involve taping and protecting terminals, combining all lithium batteries into AERC's Category 4 and reduction of lithium shipping containers to 5-gallon pails to comply with the new federal requirements.

Sincerely,

AERC Recycling Solutions



## **LITHIUM BATTERY ADVISORY**

### **June 26, 2003**

AERC Recycling Solutions is issuing this advisory to all contractors and retailers that collect lithium batteries for recycling. Many businesses collect these batteries from the public and store them until they are shipped to a battery recycling facility. The batteries come from many common products, such as cameras, computers, smoke detectors, EZ-Pass units, cell phones, hearing aids, etc. When containerized these very small (but powerful) batteries can come in contact with each other and create a direct short which will generate sufficient heat to start a fire!

AERC provides a national battery recycling service along with its lamp and mercury recycling. The AERC facility in Allentown, Pennsylvania had an incident with one 55-gallon drum of 3-volt button cell lithium batteries on June 26, 2003. The drum began to release vapor and then caught fire. The fire was quickly extinguished with a dry chemical fire extinguisher and the plant's sprinkler system. There were no injuries or physical damage to the building. The water from the sprinkler system was contained, collected and treated in the in-house water treatment system. The Pennsylvania Department of Environmental Protection responded and found that no release occurred.

AERC was fortunate this incident was minor, and we are offering this advisory so others who handle batteries can take steps to prevent a similar occurrence. We suggest there be frequent monitoring of containers of collected batteries. The battery terminals should be taped to prevent the possibility of direct contact with other batteries. In addition, the packaging is to include separation material (vermiculite, original manufacturers package, etc.) to provide a cushion during storage and transportation.



## **NEW BATTERY PACKAGING GUIDELINES**

**EFFECTIVE 10/01/03**

In the attached document you will find AERC's revised packaging guidelines to be used when shipping batteries to AERC. These guidelines have undergone review and revision by AERC in order address safety requirements for handling, storage and transportation of batteries. The guidelines also meet new USDOT packaging regulations that have been proposed for lithium batteries. The ruling, known as HM224C, was created as a direct response to safety concerns when packaging and transporting lithium batteries. These regulations have already been adopted for international shipments and are expected to be adopted in the near future in the US.

There have been numerous incidents in the industry involving lithium batteries, several of which include waste facility fires, employee injuries, truck fires, retail establishment fires and consumer injuries. All such incidents have involved improper packaging and/or unsafe handling of lithium batteries.

*AERC's goal in providing these guidelines is threefold. First, AERC wishes to provide guidance to generators of batteries so that when the batteries are taken out of service, they are handled and packaged properly so that the generator may avoid incident at its site. Secondly, AERC needs to ensure that waste batteries are packaged properly, so that they arrive at AERC safely. Finally, AERC must ensure that its employees and facilities remain safe and without incident caused by improper packaging of batteries.*

Therefore, please review the following guidelines closely and begin implementing these procedures for packaging and shipping immediately. AERC will expect all generators to adhere to these guidelines by October 01, 2003. When batteries are received at AERC, a quality control inspection will be performed on each container to ensure that proper packaging methods have been used. Those containers found to be improperly packaged will be assessed off-spec fees to recoup additional handling and repackaging costs assumed by AERC to achieve the necessary, safe, packaging standards.

Upon review, should you have any questions on the attached guidelines, please contact an AERC customer service representative at one of the numbers listed below. AERC appreciates the opportunity to serve your battery recycling needs, and to provide you with procedures and guidelines that will help to protect you, your employees and your company.



## **SHIPPING AND PACKAGING GUIDELINES FOR CATEGORY 1 LEAD ACID AND SEALED LEAD ACID BATTERIES**

### **General Packaging Guidelines**

- § Do not mix lead acid batteries with any other type of battery or material as dangerous hydrogen gases may evolve causing explosion or fire.
- § Do not use metal drums to pack lead acid batteries. Metal drums will not be accepted.
- § Containers larger than 5-gallons in size must be secured to pallets for shipping.
- § It is strongly recommended that containers of different category wet cell batteries be segregated on separate shipping pallets to minimize potential for reaction in the event of a spill / leak during transportation.
- § All batteries must be kept DRY. However, do not package batteries with vermiculite, desiccant, or other packaging material.
- § Package batteries to protect against short circuits and to withstand the shocks normally incident to transportation. This can be completed by taping all terminals or contacts with electrical tape or contact covers.
- § Leaking batteries must be packaged separately and shipped as a hazardous waste. All free liquid must be separated from the battery casing and containerized. Under no circumstances may free liquid be shipped in the same container as the battery casing! A separate recycling profile must be completed for leaking batteries and battery "free liquid". Contact AERC sales for more information.
- § All batteries must be segregated by DOT compatibility and packaged in accordance with USDOT regulations.
- § Not adhering to these packaging guidelines will result in a \$500 minimum off-spec fee per occurrence, plus \$50 /man-hour labor charge thereafter.
- § Drums must have bungs in lids. Vented pressure relief bungs are required for 15, 30 and 55-gallon containers to minimize pressure buildup. Contact your AERC sales department for information on how to obtain these bungs.
- § Due to safety and handling concerns, in-process off-spec batteries will not be returned to the generator if AERC is capable of handling the material. Off-spec fees will still be applied.



### **Packaging Small, Non-leaking Wet-Cell (less than 3"x5"x6") and Dry-Cell (sealed) Lead Acid Batteries (any size)**

Package small (less than 3"x5"x6" in dimension), non-leaking lead acid batteries in one of the following USDOT containers at the Packing Group III performance level:

1. 1H2 - Plastic, removable head drum; or,
2. 1G2 - Fiberboard drum with poly liner (4 mil thickness); or,
3. CF - Fiber box with poly liner (4mil thickness).

### **Packaging Large, Non-leaking Wet-Cell Lead Acid Batteries (greater than 3"x5"x6")**

Large, non-leaking lead acid batteries (greater than 3"x5"x6") must be packaged using one of the following methods:

1. Place batteries securely on a wooden pallet. Place a piece of electrical tape over each terminal to avoid terminal contact. Use shrink-wrap or nylon strapping to secure batteries to the pallet. **DO NOT USE METAL STRAPPING TO SECURE BATTERIES TO THE PALLET.** Batteries may be double stacked on pallets, but pallet height may not exceed 2 times the height of the battery.
2. Individual, large lead acid batteries may be packaged one battery per pallet, poly 5-gallon pail or fiberboard box. Terminals must be taped as above to avoid contact.

### **Packaging Leaking Lead Acid Batteries**

Leaking, lead acid batteries must be packaged as follows:

1. Separate all free liquid from battery casing. This liquid should be placed in a poly 1H1 drum or other DOT container compatible with the battery liquid. Profile this solution separately using an AERC Recycling Profile.
2. Place the battery carcasses in a poly drum liner (4 mil thickness) and place in a poly 1H2 (removable head) drum. Once again, leaking batteries must be profiled separately from non-leaking batteries for special handling considerations.
3. Do not pack battery carcasses with vermiculite, desiccant or packaging material.
4. Leaking batteries must be labeled and shipped as a hazardous waste.



### **Labeling Requirements**

1. Attach the appropriate Hazard Class 8 or 9 label to the outer container. Attach a master packing slip indicating description and size of all batteries on each pallet, or use an individual packing slip indicating description, total count and weight for each individual container.
2. If shipping via a Bill of Lading, attach a Universal Waste Label to the container.
3. If shipping via a Hazardous Waste Manifest, attach a Hazardous Waste Label to the container.

### **USDOT Proper Shipping Names for Lead Acid Batteries**

#### **Universal Waste: Shipping via a Bill of Lading**

1. Batteries, wet, filled with acid, 8, UN2794, PG III (Used lead acid batteries for recycling)(ERG 154) *\*(Use if the shipping container contains less than 10 pounds of lead)*
2. RQ Batteries, wet, filled with acid (Lead), 8, UN2794, PG III (Used lead acid batteries for recycling)(ERG 154) *\*(Use if the shipping container contains equal to or greater than 10 pounds of lead)*

#### **Hazardous Waste: Shipping via a Hazardous Waste Manifest**

1. Use the appropriate shipping name listed above under the “Universal Waste” shipping descriptions and add the word “Waste” before the proper shipping name (following any applicable RQ). Note: EPA Hazardous Waste Number(s) D002 (corrosive) and/or D008 (lead) should be entered in Item I of the manifest.



## **SHIPPING AND PACKAGING GUIDELINES FOR CATEGORY 2 ALKALINE OR NICKEL-CADMIUM BATTERIES, ZINC AIR, CARBON ZINC (NON- MERCURY), NICKEL IRON, AND NICKEL METAL HYDRIDE BATTERIES**

### **General Packaging Guidelines:**

- § Do Not mix category two batteries with any other type of battery to ensure that only batteries that are chemically compatible are packaged together.
- § Containers larger than 5-gallons in size must be secured to pallets for shipping.
- § It is strongly recommended that containers of different category wet cell batteries be segregated on separate shipping pallets to minimize potential for reaction in the event of a spill / leak during transportation.
- § All batteries must be kept DRY. However, do not package batteries with vermiculite, desiccant, or other packaging material.
- § Package batteries to protect against short circuits and to withstand the shocks normally incident to transportation. This can be completed by taping all terminals or contacts with electrical tape or contact covers.
- § Leaking batteries must be packaged separately and shipped as a hazardous waste. All free liquid must be separated from the battery casing and containerized. Under no circumstances may free liquid be shipped in the same container as the battery casing! A separate recycling profile must be completed for leaking batteries and battery "free liquid". Contact AERC sales for more information.
- § All batteries must be segregated by DOT compatibility and packaged in accordance with USDOT regulations.
- § Not adhering to these packaging guidelines will result in a \$500 minimum off-spec fee per occurrence, plus \$50/man-hour labor charge thereafter.
- § Drums must have bungs in lids. Vented pressure relief bungs are required for 15, 30 and 55-gallon containers to minimize pressure buildup. Contact your AERC sales department for information on how to obtain these bungs.
- § Due to safety and handling concerns, in-process off-spec batteries will not be returned to the generator if AERC is capable of handling the material. Off-spec fees will still be applied.



### **Packaging Dry-Cell, Non-leaking Category 2 Batteries**

All batteries must be segregated (leaking from non-leaking) and packaged in accordance with USDOT regulations.

Package non-leaking batteries in one of the following USDOT containers at the Packing Group III performance level:

1. 1A2- Steel, removable head drum with a minimum 4 mm thickness plastic drum liner;
2. 1H2- Plastic, removable head container; or,
3. 1G2- Fiberboard drum.

Place each battery in individual plastic bags; *OR*,

Use original packaging in which the batteries were received; *OR*,

Place a piece of electrical (insulation) tape over each terminal to avoid terminal contact.

### **Packaging Non-leaking Wet-Cell NiCd Batteries and Wet-Cell Alkaline Batteries**

Large, non-leaking wet NiCd batteries (greater than 3"x5"x6") must be packaged using one of the following methods:

Place batteries securely on a wooden pallet. Place a piece of electrical tape over each terminal to avoid terminal contact. Use shrink-wrap or nylon strapping to secure batteries to the pallet. **DO NOT USE METAL STRAPPING TO SECURE BATTERIES TO THE PALLET.** Batteries may be double stacked on pallets, but pallet height may not exceed 1/1/2 times the width of the pallet.

Individual, large Category 2 batteries may be packaged one battery per pallet, poly 5-gallon pail or fiberboard box. Terminals must be taped as above to avoid contact.

### **Packaging Leaking Category 2 Batteries**

Separate all free liquid from battery casing. This liquid should be placed in a poly 1H1 drum or other DOT container compatible with the battery liquid. Profile this solution separately using an AERC Recycling Profile.

Place the battery carcasses in a poly drum liner (4 mil thickness) and place in a poly 1H2 (removable head) drum. Once again, leaking batteries must be profiled separately from non-leaking batteries for special handling considerations.

Do not pack battery carcasses with vermiculite, desiccant or packaging material.

Leaking batteries must be labeled and shipped as a hazardous waste.



## **Labeling Requirements**

1. Attach the appropriate Hazard Class 8 label to the outer container.
2. Attach a master packing slip indicating description and size of all batteries on each pallet, or use an individual packing slip indicating description, total count and weight for each individual container.
3. If shipping via a Bill of Lading, attach a Universal Waste Label to the container.
4. If shipping via a Hazardous Waste Manifest, attach a Hazardous Waste Label to the container.

## **USDOT Proper Shipping Names for wet Alkaline Batteries and Zinc Air Batteries:**

NOTE: Leaking batteries must be separated and shipped as a hazardous waste. Refer to the battery manufacturer MSDS when calculating the RQ for each container.

1. Mercury - RQ = 1 lb. - use D009
2. Lead - RQ = 10 lbs. - use D008
3. Cadmium - RQ = 10 lbs. - use D006
4. Zinc - RQ = 1,000 lbs.
5. Corrosivity - RQ = 100 lbs. - use D002

*NOTE: SOME ALKALINE BATTERIES HAVE BEEN DETERMINED TO CONTAIN MERCURY. ALTHOUGH MOST ALKALINES HAVE BEEN DETERMINED TO BE NON-HAZARDOUS FOR MERCURY (i.e. TCLP < 0.2 mg/L), THE GENERATOR SHOULD APPROPRIATELY ASSESS THEIR WASTE THROUGH MANUFACTURER MSDS AND PROPERLY DETERMINE EPA CODES AS REQUIRED.*

### **Universal Waste: Shipping via a Bill of Lading**

1. Batteries, wet, filled with alkali, 8, UN2795, PG III (Used alkaline batteries for recycling)(ERG 154)\*(Use if the shipping container contains less than 10 pounds of cadmium)
2. RQ Batteries, wet, filled with alkali (Cadmium), 8, UN2795, PG III (Used alkaline batteries for recycling)(ERG 154)\*(Use if the shipping container contains equal to or greater than 10 pounds of cadmium)

### **Hazardous Waste: Shipping via a Hazardous Waste Manifest**

Use the appropriate shipping name listed above under the "Universal Waste" shipping descriptions and add the word "Waste" before the proper shipping name (following the applicable RQ). Note: EPA Hazardous Waste Number(s) D002 (corrosive) and/or D006 (cadmium) should be entered in Item I of the manifest.



**USDOT Proper Shipping Batteries:**

**Names for Wet NiCd**

**Universal Waste: Shipping via a Bill of Lading**

1. Batteries, wet, filled with alkali 8, UN2795, PG III (Used nickel-cadmium batteries for recycling)(ERG 154) *\*(Use if the shipping container contains less than 10 pounds of cadmium)*
2. RQ Batteries, wet, filled with alkali (Cadmium), 8, UN2795, PG III (Used nickel-cadmium batteries for recycling)(ERG 154) *\*(Use if the shipping container contains equal to or greater than 10 pounds of cadmium)*

**Hazardous Waste: Shipping via a Hazardous Waste Manifest**

Use the appropriate shipping name listed above under the “Universal Waste” shipping descriptions and add the word “Waste” before the proper shipping name (following the applicable RQ). Note: EPA Hazardous Waste Number(s) D002 (corrosive) and/or D006 (cadmium) should be entered in Item I of the manifest.

**USDOT Proper Shipping Name for Dry Nickel-Cadmium Batteries:**

**Universal Waste: Shipping via a Bill of Lading**

1. Batteries, dry, containing potassium hydroxide solid, 8, UN3028, PG III (Used nickel-cadmium batteries for recycling)(ERG 154) *\*(Use if the shipping container contains less than 10 pounds of cadmium).*
2. RQ Batteries, dry, containing potassium hydroxide solid (Cadmium), 8, UN3028, PG III (used nickel-cadmium batteries for recycling)(ERG 154) *\*(Use if the shipping container contains equal to or greater than 10 pounds of cadmium)*

**Hazardous Waste: Shipping via a Hazardous Waste Manifest**

Use the appropriate shipping name listed above under the “Universal Waste” shipping descriptions and add the word “Waste” before the proper shipping name (following the applicable RQ). Note: EPA Hazardous Waste Number D006 (cadmium) should be entered in Item I of the manifest.

**USDOT Proper Shipping Names for Dry Alkaline, Nickel Iron, Nickel Metal Hydride and Carbon Zinc Batteries:**

**Universal Waste: Shipping via a Bill of Lading**

Batteries, dry, not USDOT-regulated (Used batteries for recycling)

**Hazardous Waste: Shipping via a Hazardous Waste Manifest**

Use the shipping name listed above under the “Universal Waste” shipping description and add the word “Waste” before the proper shipping name. Note: “NONE” should be entered in lieu of an EPA Hazardous Waste Number in Item I of the manifest.



## **SHIPPING AND PACKAGING GUIDELINES FOR CATEGORY 3 MERCURY, MERCURIC OXIDE, CARBON ZINC (WITH MERCURY), ATON, AND BUTTON CELL SILVER OXIDE BATTERIES**

### **General Packaging Guidelines**

- § Do Not mix Category 3 batteries with any other type of battery to ensure chemical and USDOT compatibility.
- § Containers larger than 5-gallons in size must be secured to pallets for shipping.
- § All batteries must be kept DRY. However, do not package batteries with vermiculite, desiccant, or other packaging material.
- § Package batteries to protect against short circuits and to withstand the shocks normally incident to transportation. This can be completed by taping all terminals or contacts with electrical tape or contact covers.
- § Leaking batteries must be packaged separately and shipped as a hazardous waste. All free liquid must be separated from the battery casing and containerized. Under no circumstances may free liquid be shipped in the same container as the battery casing! A separate recycling profile must be completed for leaking batteries and battery "free liquid". Contact AERC sales for more information.
- § All batteries must be segregated by DOT compatibility and packaged in accordance with USDOT regulations.
- § Not adhering to these packaging guidelines will result in a \$500 off-spec fee per occurrence, plus \$50 /man-hour labor charge thereafter.
- § Drums must have bungs in lids. Vented pressure relief bungs are required for 15, 30 and 55-gallon containers to minimize pressure buildup. Contact your AERC sales department for information on how to obtain these bungs.
- § Due to safety and handling concerns, in-process off-spec batteries will not be returned to the generator if AERC is capable of handling the material. Off-spec fees will still be applied.



### **Packaging Non-leaking Category 3 Batteries:**

All batteries must be segregated (leaking from non-leaking) and packaged in accordance with USDOT regulations. Package non-leaking batteries in one of the following USDOT containers at the Packing Group III performance level:

1. 1A2 - Steel, removable head drum with a minimum 4 mm thickness plastic drum liner;
2. 1H2 - Plastic, removable head drum; or,
3. 1G2 - Fiberboard drum.

Place each battery in individual plastic bags; *OR*,

Use original packaging in which the batteries were received; *OR*,

Place a piece of electrical (insulation) tape over each terminal to avoid terminal contact.

### **Packaging Leaking Category 3 Batteries**

Leaking, Category 3 batteries must be packaged as follows:

1. Separate all free liquid from battery casing. This liquid should be placed in a poly 1H1 drum or other DOT container compatible with the battery liquid. Profile this solution separately using an AERC Recycling Profile.
2. Place the battery carcasses in a poly drum liner (4 mil thickness) and place in a poly 1H2 (removable head) drum. Once again, leaking batteries must be profiled separately from non-leaking batteries for special handling considerations.
3. Do not pack battery carcasses with vermiculite, desiccant or packaging material.
4. Leaking batteries must be labeled and shipped as a hazardous waste.

### **Labeling Requirements**

1. Attach the appropriate Hazard Class 8 label to the outer container.
2. Attach a master packing slip indicating description and size of all batteries on each pallet, or use an individual packing slip indicating description, total count and weight for each individual container.
3. If shipping via a Bill of Lading, attach a Universal Waste Label to the container. If shipping via a Hazardous Waste Manifest, attach a Hazardous Waste Label to the container.



**USDOT Proper Shipping**

**Names for Mercury, Mercuric**

**Oxide, Carbon Zinc (with mercury) and Button Cell Silver Oxide Batteries:**

**Universal Waste: Shipping via a Bill of Lading**

1. Mercury contained in manufactured articles, 8, UN2809, PG III (Used batteries for recycling)(ERG 172)\*(Use if the shipping container contains less than 1 pound of mercury and less than 1,000 pounds of silver)
2. RQ Mercury contained in manufactured articles (Mercury), 8, UN2809, PG III
3. (Used mercury batteries for recycling)(ERG 172)\*(Use if the shipping container contains equal to or greater than 1 pound of mercury)
4. RQ Mercury contained in manufactured articles (Mercury)(Silver), 8, UN2809, PG III (Used mercury/silver oxide batteries for recycling)(ERG 172)\*(Use if the shipping container contains equal to or greater than 1 pound of mercury and equal to or greater than 1,000 pounds of silver)

**USDOT Proper Shipping Name for ATON Batteries:**

**Universal Waste: Shipping via a Bill of Lading**

1. Batteries, wet, filled with alkali, 8, UN2795, PG III (Used ATON batteries for recycling)(ERG 154)\*(Use if the shipping container contains less than 1 pound of mercury)
2. RQ Batteries, wet, filled with alkali (Mercury), 8, UN2795, PG III (Used ATON batteries for recycling)(ERG 154)\*(Use if the shipping container contains equal to or greater than 1 pound of mercury)

**Hazardous Waste: Shipping via a Hazardous Waste Manifest**

Use the appropriate shipping name listed above under the “Universal Waste” shipping descriptions and add the word “Waste” before the proper shipping name (following the applicable RQ). Note: EPA Hazardous Waste Number(s) D009 (mercury) and/or D011 (silver) should be entered in Item I of the manifest.



## SHIPPING AND

## PACKAGING

### GUIDELINES FOR CATEGORY 4 LITHIUM, LITHIUM ION AND MAGNESIUM BATTERIES

*THESE GUIDELINES ARE WRITTEN TO TAKE INTO ACCOUNT NEW U.S. DOT REGULATIONS, WHICH GO INTO EFFECT FOR LITHIUM BATTERIES IN 2004. AERC HAS ADOPTED THESE GUIDELINES TO ENSURE NOT ONLY DOT PACKAGING COMPLIANCE BUT ALSO TO ENSURE THAT LITHIUM BATTERIES ARE HANDLED AND PACKAGED SAFELY FROM THE POINT OF GENERATION THROUGH RECEIPT AT AERC.*

#### **General Packaging Guidelines**

- § Do Not mix Category 4 batteries with any other type of battery to ensure chemical and USDOT compatibility. Mixing this category with others could cause explosion or fire.
- § Containers are limited to 5-gallons maximum in size (66 lb gross weight per container).
- § Since Lithium is a water-reactive metal, all batteries must be kept dry.
- § Package batteries to protect against short circuits and to withstand the shocks normally incident to transportation. This can be completed by taping all terminals or contacts with electrical tape or contact covers. Failure to protect terminals will lead to a fire or explosion during storage and/or transportation!
- § Batteries must be cushioned from contact with other batteries by layering with vermiculite, speedi-dry or kitty litter. Failure to properly cushion could lead to a direct short, fire or explosion during storage and/or transportation!
- § Leaking batteries must be packaged separately and shipped as a hazardous waste. All free liquid must be separated from the battery casing and containerized. Under no circumstances may free liquid be shipped in the same container as the battery casing! A separate recycling profile must be completed for leaking batteries and battery "free liquid". Contact AERC sales for more information.
- § All batteries must be segregated by DOT compatibility and packaged in accordance with USDOT regulations.
- § Not adhering to these packaging guidelines will result in a \$500 off-spec fee per occurrence, plus \$50 /man-hour labor charge thereafter.
- § Due to safety and handling concerns, in-process off-spec batteries will not be returned to the generator if AERC is capable of handling the material. Off-spec fees will still be applied.



**Packaging Non-leaking**

**Category 4 Batteries:**

All batteries must be segregated (leaking from non-leaking) and packaged in accordance with USDOT regulations.

Package non-leaking batteries in one of the following USDOT containers at the Packing Group II performance level - 5-gallon pail maximum outer shipping container:

1. 1A2 – 5-gallon steel, removable head drum with a minimum 4 mm thickness plastic drum liner;
2. 1H2 – 5-gallon plastic, removable head drum; or,
3. 1G2 – 5-gallon fiberboard drum.

Place each battery in individual plastic bags; *OR*,

Use original packaging in which the batteries were received; *OR*,

Place a piece of electrical (insulation) tape over each terminal to avoid terminal contact. Failure to protect terminals will lead to a fire or explosion during storage and/or transportation!

Provide cushioning for each battery to prevent contact with other batteries by layering with vermiculite, speedi-dry or kitty litter. Failure to provide adequate cushioning will lead to a fire or explosion during storage and/or transportation!

**Packaging Leaking Category 4 Batteries**

Leaking, Category 4 batteries must be packaged as follows:

1. Separate all free liquid from battery casing. This liquid should be placed in a poly 1H1 drum or other DOT container compatible with the battery liquid. Profile this solution separately using an AERC Recycling Profile.
2. Place the battery carcasses in a poly drum liner (4 mil thickness) and place in a poly 1H2 (removable head) drum. Once again, leaking batteries must be profiled separately from non-leaking batteries for special handling considerations.
3. Do not pack battery carcasses with vermiculite, desiccant or packaging material.
4. Leaking batteries must be labeled and shipped as a hazardous waste.



## **Labeling Requirements**

1. Attach a Hazard Class 9 label to the outer container.
2. Attach a packing slip to the outer container. The packing slip should indicate description, total count and weight of the container.
3. If shipping via a Bill of Lading, attach a Universal Waste Label to the container. If shipping via a Hazardous Waste Manifest, attach a Hazardous Waste Label to the container.

### **USDOT Proper Shipping Name for Lithium and Lithium Ion Batteries:**

#### **Universal Waste: Shipping via a Bill of Lading**

Lithium batteries, 9, UN3090, PG II (Used lithium batteries for recycling)(ERG 138)

#### **Hazardous Waste: Shipping via a Hazardous Waste Manifest**

Waste lithium batteries, 9, UN3090, II (Used lithium batteries for recycling)(ERG 138)

*Note: EPA Hazardous Waste Number D003 (reactive) should be entered in Item I of the manifest. Enter "RQ" before the shipping description if a shipping container contains equal to or greater than 100 pounds of reactive hazardous waste.*

### **USDOT Proper Shipping Name for Magnesium Batteries:**

#### **Universal Waste: Shipping via a Bill of Lading**

Batteries, dry, not USDOT-regulated (Used magnesium batteries for recycling)

#### **Hazardous Waste: Shipping via a Hazardous Waste Manifest**

Use the shipping name listed above under the "Universal Waste" shipping descriptions and add the word "Waste" before the proper shipping name. Note: "NONE" should be entered in lieu of an EPA Hazardous Waste Number in Item I of the manifest.