Packaging and Securing Used Stationary Batteries/Cells

**INSTRUCTIONS FOR STACKING USED STATIONARY MONOBLOCK BATTERIES**

1. Select a nearby stack top on which to stack the batteries. (See “Stacking Pallet Specifications” for details).
2. Open the stack top. (See Fig. 1).

**INSTRUCTIONS FOR WRAPPING USED STATIONARY MONOBLOCK BATTERIES FOR SHIPMENT**

1. All batteries must be secured to the pallet with stretch wrap. Stretch wrap must be used if the pallet is light before stretching it around the corners.
2. Start with the stretch wrap fashioned to create a rope effect (See Fig. 3 and 4). Place the stretch wrap at least below center.
3. Secure the cells by nailing wooden cleats to the skid/pallet (See Step 3).
4. Place 1/2" plywood sheet on the top of pallet. (See Step 2).
5. Install metal or plastic banding 2 horizontally around the top layer (See Step 3). Place cardboard on top of pallet. (See Step 2).

**INSTRUCTIONS FOR WRAPPING USED STATIONARY NON-SPLILLABLE STATIONS CELLS FOR SHIPMENT**

1. Place cells on skid/pallet in a way that prevents the batteries from sliding off the pallet.
2. Place 1/2" plywood sheet on the top of pallet.
3. Place the layer of cardboard on the top layer of cells.
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5. Place the layer of cardboard on the top layer of cells. (See Fig. 1).

**INSTRUCTIONS FOR PREPARING USED FLOODED STATIONARY CELLS FOR SHIPMENT**

1. Cells must be palletized using a stretch wrap (See “Stacking Pallet Specifications” for details).
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**IMPORTANT SKID/PALLETT SPECIFICATIONS**

- **Use a stretch wrap preferred with a new shipment to return used battery (minimum 1000 lbs).**
- **Maximum skid/pallet size: 48” x 44” or 48” x 40”**
- **Maximum total weight of package not to exceed 1 1/2 times the battery load.**
- **Total weight of package not to exceed 1 1/2 times the battery load.**
- **Any damaged or cracked cell must be free of electrolyte and placed in a heavy-weight clear polyethylene plastic bag (e.g. plywood) to prevent shorting.**
- **All next cap must be in place.**

**NOTES:**

- **Note:** The top surface must be secured with the cell top before shipping.
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**INSTRUCTIONS FOR PREPARING USED MOBILE CELLS FOR SHIPMENT**

**SUPPORT BRACING METHOD: MULTIPLE CELLS INSTRUCTION**

1. Cells must be palletized using a skid/pallet (See “Skid/Pallet Specifications” for details).
2. Cells must be upright and secured with wooden cleats on skid/pallet.
3. Terminal must be protected with non-conductive caps, tape or other insulating material (i.e. waffleboard, cardboard) to prevent shorting.
4. Metal heading CANNOT come in contact with the posts or terminals of the cells.

**ALTERNATIVE SUPPORT BRACING METHOD: SINGLE CELL INSTRUCTION**

1. Cells must be palletized using a skid/pallet (See “Skid/Pallet Specifications” for details).
2. Cells must be upright and secured with wooden cleats on skid/pallet.
3. Terminal must be protected with non-conductive caps, tape or other insulating material (i.e. waffleboard, cardboard) to prevent shorting.
4. Metal heading CANNOT come in contact with the posts or terminals of the cells.

**SUPPORT BRACING METHOD: SINGLE CELL INSTRUCTION**

1. Cells must be upright and secured with wooden cleats on skid/pallet.
2. Terminal must be protected with non-conductive caps, tape or other insulating material (i.e. waffleboard, cardboard) to prevent shorting.
3. Cells must be handled with steel or plastic banding (See “Metal Banding CANNOT come in contact with the posts or terminals of the cells.”)

**ALTERNATIVE SUPPORT BRACING METHOD: SINGLE CELL INSTRUCTION**

1. Cells must be palletized using a skid/pallet (See “Skid/Pallet Specifications” for details).
2. Use gusset support bracing on all sides of the battery.
3. Batteries must be upright and secured with wooden cleats on skid/pallet.
4. Terminal must be protected with non-conductive caps, tape or other insulating material (i.e. waffleboard, cardboard) to prevent shorting.
5. Metal heading CANNOT come in contact with the posts or terminals of the cells.

**PACKAGING AND SECURING USED MOBILES/CHELS**

**NOTES:**

- Do not band heading around the outside edge of skid/pallet to avoid skid/pallet failure during transport.

These guidelines were developed by a committee of industry experts and are believed adequate to assure compliance with USDOT requirements effective as of December, 2010. However, especially if a incident occurs in transit, regulatory authorities may request additional or other protective packaging. The committee believes these guidelines are consistent with USDOT regulations. Used for extra support.

**IMPORTANT SKID/PALLET SPECIFICATIONS**

- Use a skid/pallet provided with a new shipment to return used batteries if possible.
- Maximum skid/pallet size: 48” x 44” or 48” x 40”.
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- Use a skid/pallet provided with a new shipment to return used batteries if possible.
INSTRUCTIONS FOR STACKING PALLETS

1. Select a sturdy pallet with no broken or missing boards and durable enough to handle the battery load.
2. Place a layer of cardboard on the pallet to prevent the batteries from sliding off of the pallet.
3. Make the first layer of batteries level and as close together as possible.
4. Place waffleboard (preferred) or sufficient cardboard (multiple sheets if necessary) between all layers, including the top layer of batteries to prevent the possibility of puncturing the batteries above and short circuit.
5. Side terminal batteries must be stacked on the pallets having battery post facing away from each other and not facing towards the outside of the pallet. Side terminals must never touch.
6. Top posts must be positioned towards the outside of the pallet on the layer above it if possible.
7. Stud post batteries (Marine, Group 31, Golf Car) should be on the top layer. If it is not possible, you will need extra layers of cardboard between the layers of batteries to prevent punctures.
8. Damaged batteries that are visibly leaking electrolyte must not be put in a properly wrapped pallet.

INSTRUCTIONS FOR WRAPPING PALLETS

1. Start with the stretch wrap turned sideways to create a rope effect (see fig. 1). Wrap around the top layer twice.*
2. Still using the rope effect, wrap the top layer twice again, crossing over the top layer each time to form an “X-pattern.” This will pull the batteries towards the center to prevent punctures from falling off of the pallet, a DOT requirement.
3. Roll the stretch wrap open (see fig. 2 and 3), wrap around the bottom layer before being sure to catch the edges of the pallet.
4. Finally, after placing cardboard on top of the batteries, wrap around the top layer twice* with the stretch wrap in the rope effect and four of the last corner.

* Wrap as many times as necessary to stabilize the load

INSTRUCTIONS FOR WRAPPING NEW AND USED BATTERIES ON PALLETS

1. Secure the stretch wrap with no twists or existing twists. Be sure there are no ends sticking up, which could puncture the batteries. Stack return battery pallet using pallet provided with new shipment if possible.
2. Place a layer of cardboard on the pallet to prevent the batteries from sliding off of the pallet.
3. Make the first layer of batteries level and on store together as possible. If some of the batteries are shorter, they should be placed in the center. Any taller batteries should be placed on the top layer.
4. Place waffleboard (preferred) or sufficient cardboard (multiple sheets if necessary) between all layers, including the top layer of batteries to prevent the possibility of puncturing the batteries above and short circuit. Place cardboard on top of pallet.
5. Side terminal batteries must be stacked on the pallets having battery post facing away from each other and not facing towards the outside of the pallet. Side terminals must never touch.
6. Top posts must be positioned towards the outside of the pallet on the layer above it if possible.
7. Stud post batteries (Marine, Group 31, Golf Car) should be on the top layer. If it is not possible, you will need extra layers of cardboard between the layers of batteries to prevent punctures.
8. Damaged batteries that are visibly leaking electrolyte must not be put in a properly wrapped pallet.
9. Stud post batteries (Marine, Group 31, Golf Car) should be on the top layer. If it is not possible, you will need extra layers of cardboard between the layers of batteries to prevent punctures.

W AFFLEBOARD OR SHEETS OF CARDBOARD

W AFFLEBOARD PREFERRED

*Batteries

MINIMIZES POTENTIAL FOR POST PENETRATION AND SHORT CIRCUIT

MINIMIZES POTENTIAL FOR POST PENETRATION AND SHORT CIRCUIT

BARREL
PALLETS

* See Item 4 and 7 under Stacking Pallet Instructions

5. Top posts must be positioned towards the outside of the pallet on the layer above it if possible.
6. Stud post batteries (Marine, Group 31, Golf Car) should be on the top layer. If it is not possible, you will need extra layers of cardboard between the layers of batteries to prevent punctures.

IMPORTANT GENERAL HANDLING REQUIREMENTS

Before handling batteries, please read and adhere to all of the following requirements:
• Wear the appropriate personal protection equipment.
• Handle all returned batteries with the same responsible care as new batteries.
• Keep batteries upright at all times. Do not tip-over on side or upside down.
• Do not throw or drop batteries. Put batteries carefully down on pallet.
• Pallet must be constructed with a minimum of three bottom layers and durable enough to handle the battery load.
• Shank return battery pallet using pallet provided with new shipment if possible.

IMPORTANT PALLETT SPECIFICATIONS

• Maximum pallet size: 44” x 48” or 48” x 48”
• Maximum weight per pallet: Approx. 3000 lbs.
• Maximum layers per pallet: 3
• Only lead-acid batteries may be returned, including AGM and gel lead-acid batteries

INSTRUCTIONS FOR WRAPPING NEW AND USED BATTERIES ON PALLETS

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6. Top posts must be positioned towards the outside of the pallet on the layer above it if possible. Make sure that the batteries are counter balanced with cardboard or sheets of cardboard.
7. Stud post batteries (Marine, Group 31, Golf Car) should be on the top layer. If it is not possible, you will need extra layers of cardboard between the layers of batteries to prevent punctures. This is also important when stacking three layers high.

WEB SITE: www.batterycouncil.org