DANGEROUS GOODS PANEL (DGP)

TWENTY-FIRST MEETING

Montréal, 5 to 16 November 2007

SHIPPING BATTERIES BROCHURE

(Presented by R. Richard)
Recalled or Defective Batteries and Electronic Equipment:

- Upon learning that a battery is part of a recall, stop using the recalled battery immediately and contact the manufacturer. Do not attempt to recharge it.
- If the manufacturer recommends discharging the battery, follow the instructions to safely discharge the battery.
- Ship recalled batteries only in the packaging provided by the manufacturer in association with the recall.
- Assemble and close the packaging in accordance with the recall instructions you receive from the manufacturer.
- When shipping multiple recalled batteries to the manufacturer, individually package each battery. Never consolidate multiple batteries into a single package.
- Only ship recalled batteries by ground transportation (i.e., do not use express mail, overnight mail, or air-mail).
- Do not pack a recalled battery in checked or carry-on baggage if traveling by plane.
- Additional information on packaging and shipping recalled batteries or electronic equipment may be obtained from the manufacturer or the Consumer Product Safety Commission (www.cpsc.gov).

Lithium Battery Safety Issues:

Batteries are used for everything from flashlights to pacemakers, but they do have the potential to be dangerous if they are damaged, improperly packaged or not carefully designed. Battery manufacturers are aware of these dangers and design safety measures into the cells. Lithium battery packaging manufacturers incorporate safety devices into the package designs to protect the battery from out of tolerance operating conditions and where possible, from damage.

Dry Cell Batteries:

These are the sealed, non-vented batteries that are normally used in flashlights or small appliances. Examples include alkaline, nickel metal hydride, and carbon zinc batteries.

**Packaging Requirements:**
- Pack these batteries securely side-by-side, in order to prevent movement or dangerous short-circuit.

Lithium Batteries

Lithium batteries are used in many devices such as cell phones, computers, and cameras. Even though they are more costly than alkaline batteries, lithium cells provide a much longer operating life, and can be much more powerful. If short-circuited, lithium batteries can discharge rapidly, releasing a powerful electric charge quickly enough to set fire to surrounding materials.

**Packaging:**
- Fully enclose individual batteries in plastic blister wrap, paperboard, or other inner packaging that will protect each battery from making contact with another battery or any item that is capable of short-circuiting (example: multiple batteries enclosed in a single, form-fitting “ready” blister pack).

Additional Requirements:
- Leave devices in the off position or remove batteries and package separately.
- Properly cushion items to prevent movement.
- Place contents in a sturdy outer container.

For information on safe carriage of batteries and battery-powered devices during travel, visit http://SafeTravel.dot.gov.

To comment on hazardous materials publications in progress, please visit http://hazmat.dot.gov/HMpubsreview/ and check back frequently to review new hazardous materials training products under development.

This brochure is in no way intended to replace the training requirement mandated by the U.S. hazardous materials regulations (49 CFR) and ICAO Technical Instructions. This is for information purposes only. Refer to the 49 CFR and ICAO Technical Instructions for more comprehensive information.

For more information call the Hazardous Materials Info-Line at 1-800-467-4922, visit our web site at http://hazmat.dot.gov or e-mail us at training@hazmat.dot.gov.
Batteries are an everyday staple of American life. From mp3-players and notebook computers, to motorized wheelchairs and cordless tools, batteries are in many products we use and rely on every day. However, many types of batteries have the potential to be dangerous if not handled and transported safely. Misused, mismanaged, improperly stored, or defective batteries can short circuit and overheat, which may lead to a fire. Some batteries contain corrosive liquid, which can cause people or damage property. For this reason, many batteries are classified as hazardous materials (also called dangerous goods) and must be transported in accordance with regulations issued by the U.S. Department of Transportation (DOT), of other countries, and international bodies such as the International Civil Aviation Organization (ICAO) and the International Maritime Organization.

The purpose of these regulations is to protect the safety of people and property. If the applicable packaging, communication (labeling and shipping papers) and handling requirements are not followed, these shipments may contribute to fires, fatalities, or other types of incidents during transport. For this reason, failure to comply with the applicable regulations may result in a fine or jail time. If you are using a small package carrier such as FedEx, DHL, or UPS, you need to find out which regulations they require their customers to comply with.

In the United States, DOT’s Pipeline and Hazardous Materials Safety Administration (PHMSA) works to ensure the safe transportation of hazardous materials – including batteries – shipped by highway, rail, water, or air. PHMSA prepared this brochure with the help of industry partners to assist you in safely packaging batteries for transport. Whether you are shipping a single battery for a notebook computer or a pallet load of D-cells for outdoor equipment, the safety of your package, and the people who handle it along the way, depends on these precautions.

### Wet Batteries:

- **UN3087** batteries wet filled with acid, electric storage.
- **UN3775** batteries wet filled with alkali, electric storage.

#### Class 8 Corrosive hazardous materials

**Packaging Requirements:**

- Securely pack the batteries in a strong outer packaging that meets an authorized UN performance standard, as pictured in Fig. 1 on page 2. These containers must be nonporous, with an additional outer part that adequately seals to prevent leakage in the event of a spill. When shipping an acid or alkali absorbent material, if required, in the event electrolytes spills from battery.
- Position batteries in an orientation that will help to ensure that it is least likely to result in a shortcircuit.
- Securely fasten the batteries with the top coverings and vents facing upward to prevent short-circuiting and spilling of battery electrolyte.

### Lithium Batteries:

- **UN0020** Lithium batteries (both lithium metal and lithium ion batteries).
- **UN0021** Lithium batteries packed with in equipment.

#### Class 9 Miscellaneous hazardous materials

**Regulations:**

Lithium metal batteries and lithium ion batteries are used in everything from flashlights to personal computers and notebook computers. They also are used extensively by the military and in products such as electric, electric, and hybrid vehicles. These batteries provide more power and require a much longer operating time than many other types of batteries. They have the potential to generate a significant amount of heat and catch fire if damaged, mishandled packaged, corralled for, or not carefully handled. The U.S. and international regulations pertaining to the transportation of lithium metal cells and batteries and lithium ion cells and batteries have changed significantly over the past few years.

#### Nonspillable Batteries:

- **UN3090** – Batteries, wet, nonspillable. 

#### Class 8 Corrosive hazardous materials

A nonspillable wet electric storage battery is not subject to other U.S. or international hazardous materials regulations, when:

- the battery meets certain testing and specification requirements,
- the battery and its outer packaging are plainly and durably marked “NONSPILLABLE” or “NONSPILLABLE BATTERY,” and
- the battery is packed in such a way as to prevent short circuits.

You can find these requirements in:

- The ICAO Technical Instructions, in Packing Instruction 906 and Special Provision A67.

When shipping a nonspillable battery or a nonspillable battery contained in or packed with a piece of equipment, it is important to check the regulations carefully to be sure all of the requirements have been met (see shipper’s declaration required). If you are shipping a nonspillable battery under this provision, you must check the regulations carefully, to make sure special provision A67 applies.

You may ship lithium ion and lithium metal batteries when:

- the battery is packed in such a way as to prevent short circuits.

**Contact the hazardous materials or dangerous goods office of the carrier you plan to use, such as UPS, FedEx, or DHL. Certain carriers will require you to provide documentation that you have complied with the U.S. international hazardous materials regulations, and additional carrier specific requirements.**