Eastern Aerosol Association

US Department of Transportation
Pipeline and Hazardous Materials Safety Administration

October 11, 2012
Federal Hazmat Law

Protect against the risks to life, property, and the environment which are inherent in the transportation of hazardous materials in intrastate, interstate, and foreign commerce

49 U.S.C. Section 5101 et seq.
PHMSA’s Hazmat Safety Mission

Pipeline and Hazardous Material Safety Administration

Mitigating All Risk with Focus on Reducing High Consequence and Incidents

Safety Security
What We are Trying to Prevent
Value Jet Flight 592
Douglas DC-9
May 11, 1996
Value Jet Crash Site 18 miles Northwest of Miami
Value Jet Flt # 592 Crash Site Northwest of Miami
Chemical Oxygen Generator
Passenger Service Units
Chemical Oxygen Generator
Classified 5.1 Hazardous Material

An oxygen canister
Chemical Oxygen Generators
Sodium Chlorate, Barium Peroxide 5%, Potassium Perchlorate 1%
## Sabre Tech Shipping Ticket

### “5 boxes” Oxy Canisters

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>9560892</td>
<td>&quot;Empty&quot;</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>9560367</td>
<td>OXY Cyl/two wheels</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>A9560892</td>
<td>OXY Cyl/two wheels</td>
</tr>
</tbody>
</table>

**Attention:**

**Ship to:** Valujet Airlines

**Address:** P.O. Box 1288, Fort Lauderdale, FL 33398

**VIA:** Valujet (Comair)

**Date:** 5/10/96

**Attention:**

**Customer Furnished Material Returned Per Customer Instructions:**

---

**RECEIPT AT VALUET AIRMED (ATL):**

**DATE:** 5/10/96

**By:** Christopher

**Shipped By:**

**Specifically embargoed and labeled to title to all materials included on shipping ticket by the date specified and shall not be sold, transferred, or otherwise disposed of without the written consent of the shipper.**

**Collect:** Prepaid **C.O.D.:**
NTSB Test Lab

(NTSB video)
Human Error may result from a variety of factors including:

- Lack of knowledge leading to **mishandling** of hazmat
- Lack of knowledge leading to **undeclared** shipments
- Lack of awareness that **hazmat is present**
- Failure to follow established **safety procedures**
- Lack of knowledge of how to **respond to an incident**
Comprehensive Regulatory Safety System

- Classify the risk
- Contain the risk
- Communicate the risk
- Certify and Comply
Hazardous Materials Regulations Responsibilities

• Modal administrations (FAA, FMCSA, and FRA) enforce the HMR respective to their mode

• U.S. Coast Guard (Department of Homeland Security) enforces the HMR respective to maritime operations
Hazard Classes
Classify The Risk

Explosives
Gases
Flammable Liquids
Flammable Solids
Oxidizers and Organic Peroxides
Poison and Infectious Substances
Radioactive
Corrosive
Miscellaneous
A brief history of compressed gas cylinders

- 18th Century - first “cylinders” were animal bladders upgraded to gas bags of oiled textile / silk with gilt paint
- 1886 Germany - seamless steel tubes by extrusion
- 1891 Harrisburg Pipe - discarded piece of pipe 51 x 5 inch cylinders for anhydrous ammonia in making dry ice
- 1897 French produced 1st acetylene cylinders
- 1902 Harrisburg Steel Corp - 1st US cylinders manufactured
- 1904 Anheuser-Busch Brewery - carbon dioxide cylinder
- 1913 Compress Gas Manufacturers Association (CGA)
- 1943 Aqualung – Jacques Cousteau and Emile Gagnan
Aerosol History

- 1927 - Norwegian, Erik Rotheim, patented aerosol can for dispensing products/fluids using chemical propellant system
- 1943 - World War II - Dept of Ag - Lyle David Goodhue and W.N. Sullivan, portable and dispensable insect repellent for soldiers using fluorocarbon (liquefied gas) as the propellant
- 1950 - Robert H. Abplanalp invented the clog-free spray valve
- 1978 - U.S. EPA banned CFCs (chlorofluorocarbon) and Ozone Depleting Chemicals (ODCs) in aerosol products
- 2011 - FDA phase out of CFCs in MDI (Metered-Dose-Inhaler) and replaced with HFA (hydrofluoralkane) propellant
Hazard Classes
Classify The Risk

Explosives
Gases
Flammable Liquids
Flammable Solids
Oxidizers and Organic Peroxides
Poison and Infectious Substances
Radioactive
Corrosive
Miscellaneous
Shipping Compressed Gases - Divisions of Class 2 Materials

- Division 2.1 - flammable gas
- Division 2.2 - non-flammable and non-poisonous compressed gas
- Division 2.3 - gas poisonous by inhalation

No Packing Group for Class 2 Compressed Gases

- PG I = Great Danger
- PG II = Medium Danger
- PG III = Minor Danger
Aerosol UN1950

Division 2.1 – flammable gas
Division 2.2 – non flammable gas
Division 2.2 (6.1) – non flammable gas (poison)
Division 2.2 (8) – non flammable gas (corrosive)

49 CFR § 171.8 an aerosol means any non-refillable receptacle containing a gas compressed, liquefied or dissolved under pressure, the sole purpose of which is to expel a non-poisonous (other than a Division 6.1 PG III material) liquid, paste, or powder and fitted with a self-closing release device allowing the contents to be ejected by the gas.
Aerosols with Subsidiary Hazards

- **Division 2.3** gases (poisonous / toxic gases) may not be transported in an aerosol container

- Substances of **Division 6.1, PG I or II**, and substances of **Class 8, PG I** are forbidden from transportation in an aerosol container

- When the contents are classified as **Division 6.1, PG III or Class 8, PG II or III**, the aerosol must be assigned a subsidiary hazard of **Division 6.1** or **Class 8**, as appropriate
Hazardous Materials Descriptions

• Identification number

• Proper shipping name (PSN)

• Hazard class or division
  – (Subsidiary risks)

• Packing Group
<table>
<thead>
<tr>
<th>Symbols (1)</th>
<th>Hazardous Materials Descriptions and Proper Shipping Names (2)</th>
<th>Hazard Class or Division (3)</th>
<th>I.D. Numbers (4)</th>
<th>PG (5)</th>
<th>Label Codes (6)</th>
<th>Special Provisions (§ 172.102) (7)</th>
<th>Packaging (8) (§ 173.***</th>
<th>Except. (8A)</th>
<th>Non Bulk (8B)</th>
<th>Bulk (8C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Aerosols</strong>, poison, Packing Group III (each not exceeding 1L capacity)</td>
<td>2.2</td>
<td>UN1950</td>
<td></td>
<td>2.2, 6.1</td>
<td></td>
<td>306</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols</strong>, flammable, (each not exceeding 1L capacity)</td>
<td>2.1</td>
<td>UN1950</td>
<td></td>
<td>2.1</td>
<td>N82</td>
<td>306</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols</strong>, flammable, n.o.s. (engine starting fluid) (each not exceeding 1L capacity)</td>
<td>2.1</td>
<td>UN1950</td>
<td></td>
<td>2.1</td>
<td>N82</td>
<td>306</td>
<td>304</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols</strong>, non-flammable, (each not exceeding 1L capacity)</td>
<td>2.2</td>
<td>UN1950</td>
<td></td>
<td>2.2</td>
<td></td>
<td>306</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols</strong>, poison, (each not exceeding 1L capacity)</td>
<td>2.2</td>
<td>UN1950</td>
<td></td>
<td>2.2, 6.1</td>
<td></td>
<td>306</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>I</td>
<td><strong>Air bag inflators, or Air bag modules, or Seat-belt pretensioners</strong></td>
<td>1.4G</td>
<td>UN0503</td>
<td>II</td>
<td>1.4G</td>
<td>161</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>
# The Hazardous Material Table

(HMT; 49 CFR § 172.101)

<table>
<thead>
<tr>
<th>Symbols (1)</th>
<th>Hazardous Materials Descriptions and Proper Shipping Names (2)</th>
<th>Hazard Class or Division (3)</th>
<th>I.D. Numbers (4)</th>
<th>PG (5)</th>
<th>Label Codes (6)</th>
<th>Special Provisions (§ 172.102) (7)</th>
<th>Packaging (8) (§ 173.*** )</th>
<th>Except. (8A)</th>
<th>Non Bulk (8B)</th>
<th>Bulk (8C)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aerosols, corrosive, PG II or III (each not exceeding 1L capacity)</strong></td>
<td>2.2</td>
<td>UN1950</td>
<td>2.2, 8</td>
<td>A34</td>
<td>306</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aerosols, flammable, (each not exceeding 1L capacity)</strong></td>
<td>2.1</td>
<td>UN1950</td>
<td>2.1</td>
<td>N82</td>
<td>306</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aerosols, flammable, n.o.s. (engine starting fluid) (each not exceeding 1L capacity)</strong></td>
<td>2.1</td>
<td>UN1950</td>
<td>2.1</td>
<td>N82</td>
<td>306</td>
<td>304</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aerosols, non-flammable, (each not exceeding 1L capacity)</strong></td>
<td>2.2</td>
<td>UN1950</td>
<td>2.2</td>
<td></td>
<td>306</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aerosols, poison, Packing Group III (each not exceeding 1L capacity)</strong></td>
<td>2.2</td>
<td>UN1950</td>
<td>2.2, 6.1</td>
<td></td>
<td>306</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air bag inflators, or Air bag modules, or Seat-belt pretensioners</strong></td>
<td>1.4G</td>
<td>UN0503</td>
<td>II</td>
<td>1.4G</td>
<td>161</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## The Hazardous Material Table

(HMT; 49 CFR § 172.101)

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Hazardous Materials Descriptions and Proper Shipping Names (2)</th>
<th>Hazard Class or Division (3)</th>
<th>I.D. Numbers (4)</th>
<th>PG (5)</th>
<th>Label Codes (6)</th>
<th>Special Provisions (§ 172.102) (7)</th>
<th>Packaging (8) (§ 173.***))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Aerosols, corrosive, PG II or III (each not exceeding 1L capacity)</strong></td>
<td>2.2</td>
<td>UN1950</td>
<td>2.2,  8</td>
<td>A34</td>
<td></td>
<td>306, None, None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols, flammable, (each not exceeding 1L capacity)</strong></td>
<td>2.1</td>
<td>UN1950</td>
<td>2.1</td>
<td>N82</td>
<td></td>
<td>306, None, None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols, flammable, n.o.s. (engine starting fluid) (each not exceeding 1L capacity)</strong></td>
<td>2.1</td>
<td>UN1950</td>
<td>2.1</td>
<td>N82</td>
<td></td>
<td>306, 304, None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols, non-flammable, (each not exceeding 1L capacity)</strong></td>
<td>2.2</td>
<td>UN1950</td>
<td>2.2</td>
<td></td>
<td></td>
<td>306, None, None</td>
</tr>
<tr>
<td></td>
<td><strong>Aerosols, poison, Packing Group III (each not exceeding 1L capacity)</strong></td>
<td>2.2</td>
<td>UN1950</td>
<td>2.2, 6.1</td>
<td></td>
<td></td>
<td>306, None, None</td>
</tr>
<tr>
<td>I</td>
<td><strong>Air bag inflators, or Air bag modules, or Seat-belt pretensioners</strong></td>
<td>1.4G</td>
<td>UN0503</td>
<td>II</td>
<td>1.4G</td>
<td>161</td>
<td>None, 62, None</td>
</tr>
</tbody>
</table>
Packaging Contain The Risk

- Multimodal Packaging
- Explosives
- Radioactive Materials
- Cylinders
- Shippers
- Carriers
Manufacturing Specifications
2P - 2Q  Metal and 2S Plastic Containers

- Single-trip inside containers seamless, or with seams, welded, soldered, brazed, double seamed, or swedged
- The maximum capacity shall not exceed 1 Liter (61.0 in³)
  The maximum inside diameter shall not exceed 3 inches
  Ends shall be of pressure design (concave / pressure ends)
- Competent Inspector, inspect material, completed containers witness tests, reject defective materials or containers
- Minimum wall thickness  2P = 0.007 inch  2Q = 0.008 inch
- Symbol, if used, must be registered with the Associate Administrator. Name or symbol of person making the mark.

§ 178.33
DOT - 2P - 2Q - 2S containers
non - DOT specification containers

Manufacturing Specifications are listed in Part 178 Subpart B
### The Hazardous Material Table

#### Exceptions

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Hazardous Materials Descriptions and Proper Shipping Names (2)</th>
<th>Hazard Class or Division (3)</th>
<th>I.D. Numbers (4)</th>
<th>PG (5)</th>
<th>Label Codes (6)</th>
<th>Special Provisions (§ 172.102) (7)</th>
<th>Except. (8A)</th>
<th>Non Bulk (8B)</th>
<th>Bulk (8C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aerosols, corrosive, PG II or III (each not exceeding 1L capacity)</td>
<td>2.2</td>
<td>UN1950</td>
<td>2.2, 8</td>
<td>A34</td>
<td></td>
<td>306</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

§ 172.102 Special Provisions code: A34.

Aerosols containing a corrosive (Class 8) liquid in **PG II** charged with a gas are **not permitted** for transportation by **air-craft**.

<table>
<thead>
<tr>
<th></th>
<th>Aerosols, poison, Packing Group III (each not exceeding 1L capacity)</th>
<th>2.2</th>
<th>UN1950</th>
<th>2.2, 6.1</th>
<th>306</th>
<th>None</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4G</td>
<td>Air bag inflators, or Air bag modules, or Seat-belt pretensioners</td>
<td>1.4G</td>
<td>UN0503</td>
<td>II</td>
<td>161</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>1.4G</th>
<th>UN0503</th>
<th>II</th>
<th>161</th>
<th>None</th>
<th>62</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Exceptions for Limited Quantities of Compressed Gases

- § 173.306(a)(3) allows transportation of limited quantity of gases when packaged in a **metal** container for the purpose of expelling nonpoisonous (other than Div 6.1 PGIII material) liquid, paste or powder. The material must be packaged in a:

- **DOT-2P** container (2P = 0.007 inch) if the pressure exceeds 140 psi @ 130°F

- **DOT-2Q** container (2Q = 0.008 inch) if the pressure exceeds 160 psi @ 130°F. Pressure in container **must not exceed** 180 psi @ 130°F

- **Size limit**: 1 Liter (61.0 cubic inches) water capacity
Exceptions for Limited Quantities of Compressed Gases

- § 173.306(a)(5) allows transportation of limited quantity of Division 2.2 gases, with no subsidiary risk, when packaged in a plastic container for the purpose of expelling liquid, paste or powder. The material must be packaged in a:

- Non-DOT specification plastic container if the pressure is less than 140 psi @ 130 °F

- DOT-2S container if the pressure is between 140 psi and 160 psi @ 130° F
  Pressure in container must not exceed 160 psig @ 130° F

- Size limit: 1Liter (61.0 cubic inches) water capacity
Other Exceptions

- § 173.306(b) specifies unique exceptions for foodstuff, soap, biologicals, electronic tubes, and audible fire alarms

- § 173.306(j) provides additional exceptions for aerosols and receptacles small, containing gas with a capacity less than 50 mL (1.7 oz) (except pepper spray)

- Special Permits may be obtained to allow for an alternate means of shipping
Bag – on – Valve

STEP 1 - Placing of valve and bag inside the can.

STEP 2 - Crimping and under cup or through the valve gassing.

STEP 3 - Pressure control.

STEP 4 - Product filling in the bag and weight control.

STEP 5 - Actuator and cap placement.
Bag – on – Valve

Stage 1: T-T-V gassing pressurization through the valve with a liquid propellant.

Stage 2: Bag filling with the product through the stem.
Bag – on – Valve

1. The Valve - Bag-on-Valve systems available both female and male valves
2. The Bag – FDA - approved laminated aluminum bag
4. The Propellant - Separation between product and propellant. Bag-on-Valve can be used with compressed air or nitrogen
5. The Actuator - range of standard actuators depending on product demands
6. The Can - Standard aerosol can, aluminum or tin plate
   The Cap - Can be used with many kinds of standard over-caps.
Hot Water Bath Required!!

- The temperature and duration must be such that the internal pressure reaches that which would be reached at 131 °F or....122 °F - if the liquid phase does not exceed 95% of the capacity at 122 °F

Therefore, the more product in the container (> 95% capacity) then, the higher test temperature of 131 °F is used

Liquid content of the material and gas must not completely fill the container at 130 °F

§ 173.306(a) & (a)(3)(i)
Hot water bath not properly conducted!!

Container heated until pressure is equivalent to the equilibrium pressure at 131 °F, without evidence of leakage, distortion, or other defect.

§ 173.306(a)(3)(v) & (a)(5)(ii)
Hot Water Bath
Alternative Temperature Test
Alternative Pressure & Leak Test

- Contents sensitive to heat “or” if plastic container softens
- Then the temperature of the bath must be set between 20 °C (68 °F) and 30 °C (86 °F)
- One container in 2,000 tested at the higher temperature “or”
- Before Filling - Pressure and Leak testing at two thirds the design pressure of the container ……..and
- After Filling – Weighed and Leak tested

§ 173.306(a)(5)(v)&(vi)
Spray Can Paint Filling Stations

filling pre-charged cans
Offered for transport by air when not eligible
Limited Quantities of Compressed Gas

- Must not completely fill the container at 130 °F

- **Strong outer packaging** is required - must be such that under conditions normal to transportation there is no release of the material

- Outside must be marked:
  
  “INSIDE CONTAINERS COMPLY WITH THE PRESCRIBED REGULATIONS”

§ 173.306(a)(3)(iii) & (iv) & (vi)
Communicate the Risk – Hazcom
Exceptions for Limited Quantities of Compressed Gases

- Labels are not required, except when shipped by air
- Specification packagings are not required (except as listed)
- Placards are not required...

*when shipped in accordance with the provisions specified in § 173.306*

- Additionally, materials meeting limited quantities criteria and suitable for retail sell may be re-classed as consumer commodity, ORM-D

**Weight limit: 66 Lbs (30 kg)**
HM-215K  Harmonization with UN Recommendations, IMDG Code, ICAO Technical Instructions

- Maintain alignment of the HMR with International UN requirements and federal law
- Facilitates international trade and enhances safety


Changes to:
proper shipping names, hazard classes, packing groups, special provisions, packaging authorizations, air transport limited quantities, and vessel stowage requirements
Phase-Out of the ORM-D System

PHMSA revised the HMR to phase out its system of re-classing and transporting “Limited Quantity” material as “Consumer Commodity” ORM-D.

Expires: December 31, 2012
Expires: December 31, 2013
Marking

• Limited Quantities – Highway, Rail, Vessel
  – Section 172.315(a) – Except for transportation by aircraft or as otherwise provided in this subchapter, a package containing a limited quantity of hazardous material is not required to be marked with the proper shipping name and identification (ID) number when marked in accordance with the white square-on-point limited quantity marking

Highway - Rail - Water
AIR - Packaging Instructions Y963 of the 2011 - 2012 ICAO Technical Instructions “ID8000, Consumer Commodity, 9” Certain HM of Class 2 non-toxic aerosols only

100mm x 100mm

or

50mm x 50mm

dependant on package size

§ 172.315(b)(1)&(2)
Shipping Papers and Emergency Response Information
Hazardous Materials Descriptions

- Identification number
- Proper shipping name (PSN)
- Hazard class or division
  - (Subsidiary risks)
- Packing Group
- Technical names (required for n.o.s. entries)
  (may be entered after PSN)
- Total quantity
  - Mass, volume, or activity for Class 7
- Number and type of packages
Hazardous Materials Basic Description in accordance to Globally Harmonized System

<table>
<thead>
<tr>
<th>No. of Units &amp; Container Type</th>
<th>BASIC DESCRIPTION</th>
<th>TOTAL QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 cans</td>
<td>UN1950, Aerosols, non-flammable, 2.2, PG</td>
<td>15 lbs.</td>
</tr>
</tbody>
</table>

I S H P

§ 172.202(b)
Shipping Papers

10 cans X UN1950, Aerosols, non-flammable, 2.2
125 cans X UN1950, Aerosols, flammable, 2.1

This shipment is within limitations for Cargo Aircraft only
Materials not eligible to be re-classed as consumer commodity being offered as such:

- Air gun compressed gas
Limited Quantities of Compressed Gases

“Except for limited quantity of a compressed gas in a container of not more than 4 fluid ounces capacity, meeting the requirements in §173.306(a)(1), the proper shipping name Aerosol, UN1950, may be used only... if meeting the definition in 49 CFR §171.8.

When in containers of not more than 4 fluid ounces capacity (7.22 cubic inches or less) except cigarette lighters. Special exceptions for shipment of certain compressed gases in the ORM-D class are provided in paragraph (i) of this section.
Exceptions for Limited Quantities of Compressed Gases

- Section 173.306(a)(1) allows transportation of limited quantity of gases in containers not exceeding 4 fluid ounces capacity (not the weight of the content)
Size limit exceeded for non-aerosols

UN1075 Petroleum gases, liquefied, 2.1

Not "UN 1950, Aerosols, 2.1,"

§ 173.306(a)(3)
Recent Aerosol Fires Involving Punctures from Apparent Can-to-Can Contact

<table>
<thead>
<tr>
<th>Date</th>
<th>Product</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/14/2008</td>
<td>Hair clipper lubricant</td>
<td>Marked as Consumer Commodity, ORM-D</td>
</tr>
<tr>
<td>3/27/2008</td>
<td>Contact adhesive</td>
<td>Exterior markings destroyed by fire</td>
</tr>
<tr>
<td>1/22/2009</td>
<td>Spray paint</td>
<td>Marked as Consumer Commodity, ORM-D</td>
</tr>
<tr>
<td>2/23/2009</td>
<td>Spray paint</td>
<td>Marked as Consumer Commodity, ORM-D</td>
</tr>
<tr>
<td>3/13/2009</td>
<td>Polyurethane foam cleaner</td>
<td>Exterior markings unknown</td>
</tr>
<tr>
<td>4/22/2010</td>
<td>Glass and mirror cleaner</td>
<td>Marked as Consumer Commodity, ORM-D</td>
</tr>
<tr>
<td>11/18/2010</td>
<td>Shoe cleaner</td>
<td>Marked as Consumer Commodity, ORM-D</td>
</tr>
</tbody>
</table>
Cans not properly packaged and/or separated to prevent friction
Adjacent Cans Rubbing Together
No separation results in friction!!

Pin-hole found at can’s bottom rim adjacent can - rubbing caused puncture. No dividers in the box to separate 12 aerosol cans
The package contained six 16-ounce aerosol cans. One can had a puncture just above the bottom rim. Nothing to prevent can-to-can friction…
No separation results in friction!!!

The package contained twelve 14-ounce aerosol cans. One can had a puncture just above the bottom rim. No dividers...
No separation results in friction!!

Paint cans recovered from fire. No can-to-can protection…
No separation results in friction!!!

One aerosol punctured just above the bottom rim, which had lost its contents. No cushioning…
Potential Enforcement Violation

- Cans leak under conditions normal to transportation
- Shipper did not meet the packaging selection requirements prescribed in Sections 173.24(b)(1)&(2) and 173.24a(a)(3)
- Appendix to Subpart D of Part 107 – Guidelines for Civil Penalties - G. Packaging requirements
  Offering a hazardous material for transportation in a packaging that leaks during conditions normally incident to transportation
Butane Fuel Cans
Rim Vent Relief devices (RVR) on DOT-2P
HM-233A
Aerosols for Recycling or Disposal

- Allows a greater gross weight limitation for packages used for the transport of aerosols for purposes of recycling or disposal above the 30 kg (66 pound) weight limit, not to exceed 500kg (1,100 pounds)

- Aerosol container must be fitted with a cap to protect the valve stem “or” the valve stem must be removed to prevent the accidental discharge of the contents

- Private, Contract or Common carriers under exclusive use for such service

§ 173.306(k)
Aerosol – Passenger Carrying Aircraft

- § 175.10(a)(1)(ii), aerosols of Division 2.2, with no subsidiary hazard, may be carried in checked baggage only. The capacity of each container may not exceed 17 fluid ounces, with aggregated quantity not exceeding 68 ounces (max limit of 4 cans of 17 fluid ounces each)

- Release devices on aerosols must be protected by a cap or other suitable means to prevent inadvertent release.

- Flammable aerosols that are not medicinal or toilet articles for personal use are not permitted in checked or carry-on baggage.
US DOT Hazmat Training
Applicability and Responsibility

- A hazmat employer shall ensure that each of his or her hazmat employees is trained.

The responsibility for training rests with the employer!!!
Hazmat employee training must include:

- General awareness / familiarization training
- Function-specific training
- Safety training
- Security awareness training
- In-depth security training (when applicable)
Testing

- Each hazmat employer must ensure that every hazmat employee is tested on the required training subjects.

- The HMR does not set testing methods or standards. The responsibility is on the hazmat employer.

- The regulation does not specify the type of test or grading. Could be a written test, verbal test or performance test.

- Remember training & testing must be properly documented.
Recordkeeping

The training record must include:

- Hazmat employee’s name
- Most recent training completion date
- Description, copy, or location of the training materials
- Name and address of person providing the training
- “Certification” that the hazmat employee has been trained and tested
Training Resources

PHMSA offers numerous training materials:

- Hazardous Materials Transportation Training Modules on CD ROM
- Brochures
- MPEG Videos
- Seminars, Workshops and Special Events.
Emergency Response Guidebook (ERG)

- Aids emergency responders
- Identifies specific or generic hazards of material(s)
- Provides for protective actions
How You Reach Us

Hazardous Materials
INFO-LINE
1-800-HMR49-22
(1-800-467-4922)
Hours of Operation: 9 am – 5 pm ET

- Obtain answers to HMR questions
- Request copies of Federal Register, exemptions or training materials
- Report HMR violations
- Fax on Demand

E-mail: infocntr@dot.gov
Thank You!

GOT A HAZMAT QUESTION?
http://hazmat.dot.gov
INFO-LINE
1-800-467-4922