Emergency Response Guidebook 2008 and ERG2008 Training Video

Pipeline and Hazardous Materials Safety Administration
Office of Hazardous Materials Initiatives and Training
Federal Hazmat Law
49 U.S.C. Section 5101 et seq.

“...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.”

Driving force behind PHMSA’s mission and ERG Initiative
DOT Intent

Place an ERG in Every Publicly Owned Emergency Response Vehicle
ERG

- Aids Emergency Responders
  - Initial Arrival On Scene
- Identifies Specific or Generic Hazards of Material
- Provides for Protective Actions
- Lists Emergency Response Telephone Numbers
ERG History

• First Published 1973
  – Four Year Cycle
• Internationally Recognized Technical Guidance
  – Translated into Several Languages Including Japanese, Thai, Hebrew, and German
• 1996 and Subsequent Issues
  – Joint Collaboration for One North American Guidebook
    • USA, Canada, and Mexico
Federal Register Notice

- Intent to Publish Next ERG
  - Solicit Comments:
    - For Revision of the Emergency Response Guidebook
    - From Experienced First Responders to hazmat incidents
    - On experiences of First Responders:
      - Obtaining emergency response information during an incident
      - Using Emergency Contact Phone Numbers in ERG
      - Using the ERG at Incidents
    - Established Open Email for Comments – Still Active
  - ERG2008@dot.gov
Getting the ERG to Emergency Responders

- Hazmat Registration Fees Provide Funding for:
  - Publishing and
  - Distribution to States
- State Coordinators Volunteer to Distribute To Responders
- ERG2004 – 2.2 Million Copies Distributed Free of Charge
- ERG2008 – Over 1.75 Million Hard Copies Distributed
- ERG2008 Mobile Available on Website
  - Software for I-phone Available Soon
2008 Guidebook Changes

- UN Changes
- 49 CFR Changes
- Comments From First Responders
- Emergency Telephone Number Updates
- Technical Changes Determined By Scientists

- Change Sheet Available in PDF Format From PHMSA Webpage
  - Multiple copies available at https://hazmatonline.phmsa.dot.gov/services/
2004 Change to 2008

Layout - No Change
- White Pages
- Bordered Pages
  - Yellow
  - Blue
  - Orange
  - Green
- Glossary
White Page Changes
Shipping Paper Sample
Sequence Change

Mandatory for International shipping papers since January 1, 2007

NOTE: Shipping papers originating in the US for domestic shipments may use the old sequence until January 1, 2013:

**ISOPROPNOL, 3, UN1219, II**
RESIST RUSHING IN!
APPROACH INCIDENT FROM UPWIND
STAY CLEAR OF ALL SPILLS, VAPORS, FUMES AND SMOKE

HOW TO USE THIS GUIDEBOOK DURING AN INCIDENT INVOLVING DANGEROUS GOODS

ONE - IDENTIFY THE MATERIAL BY FINDING ANY ONE OF THE FOLLOWING:

- A DIGIT ID NUMBER ON A PLACARD OR ORANGE PANEL
- THE 4 DIGIT ID NUMBER (AIR RINNA) ON A SHIPPIING DOCUMENT OR PACKAGE
- THE NAME OF THE MATERIAL ON A SHIPPING DOCUMENT, PLACARD OR PACKAGE
- IF AN ID NUMBER OR THE NAME OF THE MATERIAL CANNOT BE FOUND, SKIP TO THE NOTES BELOW.

TWO - LOOK UP THE MATERIAL'S 3-DIGIT GUIDE NUMBER IN EITHER:

- THE ID NUMBER INDEX (the yellow bordered pages of the guidebook)
- THE NAME OF MATERIAL INDEX (the blue bordered pages of the guidebook)

If the guide number is supplemented with the letter "P", indicates that the material may undergo violent polymerization if subjected to heat or contamination.

If the index entry is highlighted (either yellow or blue), it is a TTH (Toxic Inhalation Hazard) material, a chemical weapon agent or a Dangerous Water Reactive Material (produces toxic gas upon contact with water). LOOK FOR THE ID NUMBER AND NAME OF THE MATERIAL IN THE TABLE OF INITIAL SUGGESTED PROTECTIVE ACTIONS (see page 239). If protective action is not required, use the information jointly with the 3-digit guide number.

USE GUIDE 152 FOR ALL EXPLOSIVES EXCEPT FOR EXPLOSIVES 14 (EXPLOSIVES C) WHERE GUIDE 114 IS TO BE CONSULTED.

THREE - TURN TO THE NUMBERED GUIDE (the orange bordered page) AND READ CAREFULLY.

NOTES:

- IF A NUMBERED GUIDE CANNOT BE OBTAINED DUE TO FOLLOWING THE ABOVE STEPS, AND A PLACARD CAN BE SEEN LOCATE THE PLACARD IN THE TABLE OF PLACARDS (pages 16-17) THEN GOTO THE 3 DIGIT GUIDE SHOWN NEXT TO THE SAMPLE PLACARD.

- IF A REFERENCE TO A GUIDE CANNOT BE FOUND AND THIS INCIDENT IS RELIEVED TO INVOLVE DANGEROUS GOODS, THEN TO GUIDE 114 AND USE IT UNTIL ADDITIONAL INFORMATION BECOMES AVAILABLE. If the shipping document lists an emergency response telephone number call that number. If the shipping document is not available, or no emergency response telephone number is listed, IMMEDIATELY CALL the appropriate emergency response agency listed on the inside back cover of this guidebook. Provide as much information as possible, such as the name of the carrier (truck company or shipper) and vehicle number. As a last resort, consult the Table of Rail Car and Road Trailer Identification Chart (pages 18-19). If the container cannot be identified, estimate that the information associated with these containers is for the worst case possible.

BREFORE EMERGENCY - BECOME FAMILIAR WITH THIS GUIDEBOOK IN THE U.S. according to the requirements of the U.S. Department of Labor's Occupational Safety and Health Administration (29CFR, 1910.120), and regulations issued by the U.S. Environmental Protection Agency (EPA, 40 CFR Part 311). First responders must be trained regarding the use of this guidebook.

RESIST RUSHING IN!
APPROACH INCIDENT FROM UPWIND
STAY CLEAR OF ALL SPILLS, VAPORS, FUMES, SMOKE AND SUSPICIOUS SOURCES

HOW TO USE THIS GUIDEBOOK DURING AN INCIDENT INVOLVING DANGEROUS GOODS

STEP ONE - IDENTIFY THE MATERIAL USING ANY OF THE FOLLOWING:

- 4 DIGIT ID NUMBER (AIR RINNA) ON A PLACARD, ORANGE PANEL, SHIPPING PAPER OR PACKAGE
- NAME OF THE MATERIAL ON A SHIPPIING DOCUMENT OR PACKAGE

STEP TWO - IDENTIFY 3-DIGIT GUIDE NUMBER USING:

- 3-DIGIT NUMBER INDEX (the yellow bordered page)
- NAME OF MATERIAL INDEX (the blue bordered page)

GUIDE NUMBER SUPPLEMENTED WITH THE LETTER "P" INDICATES THAT THE MATERIAL MAY UNDERGO VIOLENT POLYMERIZATION IF SUBJECTED TO HEAT OR CONTAMINATION.

CHECK THE IDENTIFICATION NUMBER IN THE TABLE OF INITIAL SUGGESTED PROTECTIVE ACTIONS (see page 239). IF PROTECTIVE ACTION IS REQUIRED, USE THE INFORMATION JOINTLY WITH THE 3-DIGIT GUIDE NUMBER.

STEP THREE - TURN TO THE NUMBERED GUIDE (the orange bordered page) AND READ CAREFULLY.

USE GUIDE 152 FOR ALL EXPLOSIVES EXCEPT FOR EXPLOSIVES 14 (EXPLOSIVES C) WHERE GUIDE 114 IS TO BE CONSULTED.

NOTE:

IF ABOVE STEPS CANNOT BE COMPLETED AND PLACARD IS VISIBLE: Turn to pages 16-17, use 3-digit guide number to place, PROCEED TO NUMBERED GUIDE (orange bordered page).

IF SOPHISTICATED INCIDENT IS INVOLVED, USE THE ADVANCED INFORMATION LISTS (inside back cover of this guidebook). If emergency response telephone is not available, immediately call the appropriate emergency response agency listed on the inside back cover of this guidebook. Provide as much information as possible, such as the name of the carrier (truck company or shipper) and vehicle number. IF A REFERENCE TO A GUIDE CANNOT BE FOUND AND THIS INCIDENT IS RELIEVED TO INVOLVE DANGEROUS GOODS, TURN TO GUIDE 114 NOW, AND USE IT UNTIL ADDITIONAL INFORMATION BECOMES AVAILABLE.

ALWAYS REPORT IF ONLY THE CONTAINER CAN BE IDENTIFIED, CONSULT THE TABLE OF RAIL CAR AND ROAD TRAILER IDENTIFICATION CHART (pages 18-19). REMEMBER THAT THE INFORMATION ASSOCIATED WITH THESE CONTAINERS IS FOR THE WORST CASE SCENERIOES.
Guidebook Contents - Page 4

• New information on Green Pages – Toxic Inhalation Hazards (TIH) Now Table 1 and Table 2
  – Table 1, TIH materials, including certain chemical warfare agents, and water reactive materials
  • Provides two different types of recommended safe distances
    – Initial isolation distances
    – Protective action distances
Guidebook Contents - Page 4 (cont’d)

- New information on Green Pages – Toxic Inhalation Hazards (TIH) Now Table 1 and Table 2
  - Table 2, Water Reactive Materials Which Produce Toxic Gases
    - Listed by ID number in order
    - Materials which produce large amounts of TIH when spilled in water
    - Identifies the TIH gases produced
Table of Placards Added
New Organic Peroxide Placard and Environmentally Hazardous Substance Marking
ERRATA
Table of Placards
Ammonia Anhydrous - UN1005

OLD

NEW
Rail and Road Trailer Identification Chart

- Enlarged detail on tank car figures
- New Intermodal Tank Identified
New Pipeline Pages

PIPELINE TRANSPORTATION

Hazardous materials are transported in North America through millions of miles of underground pipelines. Products commonly transported through these pipeline systems include natural gas, crude oil, gasoline, diesel fuel, and jet fuel. Although the pipelines are buried, there are aboveground structures and signs indicating the presence of underground pipelines.

**Liquid Pipelines**

Surface indications of a liquid pipeline leak can include:

- Liquids bubbling from the ground
- “Oil slick” on flowing or standing water
- Flames that appear to be coming from the ground
- Vapor clouds

**Structures – Storage Tanks, Valves, Pump Stations, Aerial Patrol Markers**

Signs – Will often appear at road, railroad, and water crossings. Signs may also be posted at property boundaries. The signs will include the operator’s name, product transported, and an emergency phone number for the operator. Warning, Caution, or Danger will appear on the signs.

Gas Pipelines

Surface indications of a gas pipeline leak can include:

- Hissing, roaring, or blowing sound
- Dirt or water being blown in the air
- Continuous bubbling in wet or flooded areas
- Flames that appear to be coming from the ground
- Dead or brown vegetation in an otherwise green field
- In winter, melted snow over the pipeline

Gas Transmission pipelines are large-diameter, steel lines transporting flammable, toxic, or corrosive gas at very high pressure.

**Structures – Compressor Station Buildings, Valves, Metering Stations, and Aerial Patrol Markers**

Signs – Will often appear at road, railroad, and water crossings. Signs may also be posted at property boundaries. The signs will include the operator’s name, product transported, and an emergency phone number for the operator. Warning, Caution, or Danger will appear on the signs.

Natural gas Distribution pipelines are typically smaller-diameter, lower-pressure pipelines and may be steel, plastic, or cast iron. Natural gas is delivered directly to customers through distribution pipelines.

Regulator stations, customer meters & regulators, and valve box covers are generally the only aboveground indications of gas distribution pipelines.

Should you notice a leak or a spill, remember to only approach from upwind and uphill. Identify the emergency telephone number for the company and then dial that number as well as 911. Be cautious concerning the risks of asphyxiation, flammability as well as the danger of a potential explosion.

If you know the material involved, identify the three-digit guide number by looking up the name in the alphabetical list (blue-bordered pages) and then by using the three-digit guide number, consult the recommendations outlined in the recommended guide.
Other White Page Changes

- Protective clothing updates
- Criminal/Terrorist Use of Chemical/Biological/Radiological Agents
  - Initial Action Personal Safety Considerations (Radiological Agents)
- Glossary Terms
  - Acute Exposure Guideline Level(s) 1-3 (AEGLs) added
  - Packing Group added
  - Others
Yellow and Blue Page Changes
NEW: ID and Guide No. for Ethanol Mixtures

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Guide No.</th>
<th>Name of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3475</td>
<td>127</td>
<td>Ethanol and gasoline mixture, with more than 10% ethanol</td>
</tr>
<tr>
<td>3475</td>
<td>127</td>
<td>Ethanol and motor spirit mixture, with more than 10% ethanol</td>
</tr>
<tr>
<td>3475</td>
<td>127</td>
<td>Ethanol and petrol mixture, with more than 10% ethanol</td>
</tr>
<tr>
<td>3475</td>
<td>127</td>
<td>Gasoline and ethanol mixture, with more than 10% ethanol</td>
</tr>
<tr>
<td>3475</td>
<td>127</td>
<td>Motor spirit and ethanol mixture, with more than 10% ethanol</td>
</tr>
<tr>
<td>3475</td>
<td>127</td>
<td>Petrol and ethanol mixture, with more than 10% ethanol</td>
</tr>
</tbody>
</table>
NEW: Lithium Metal Batteries

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Guide No.</th>
<th>Name of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3090</td>
<td>138</td>
<td>Lithium metal batteries (including lithium alloy batteries)</td>
</tr>
<tr>
<td>3091</td>
<td>138</td>
<td>Lithium metal batteries contained in equipment (including lithium alloy batteries)</td>
</tr>
<tr>
<td>3091</td>
<td>138</td>
<td>Lithium metal batteries packed with equipment (including lithium alloy batteries)</td>
</tr>
</tbody>
</table>
### NEW: Lithium Ion Batteries

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Guide No.</th>
<th>Name of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3480</td>
<td>147</td>
<td>Lithium ion batteries (including lithium ion polymer batteries)</td>
</tr>
<tr>
<td>3481</td>
<td>147</td>
<td>Lithium ion batteries contained in equipment (including lithium ion polymer batteries)</td>
</tr>
<tr>
<td>3481</td>
<td>147</td>
<td>Lithium ion batteries packed with equipment (including lithium ion polymer batteries)</td>
</tr>
</tbody>
</table>
## NEW: Fuel Cell Cartridges

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Guide No.</th>
<th>Name of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3473</td>
<td>128</td>
<td>Fuel cell cartridges contained in equipment, containing flammable liquids</td>
</tr>
<tr>
<td>3473</td>
<td>128</td>
<td>Fuel cell cartridges, containing flammable liquids</td>
</tr>
<tr>
<td>3473</td>
<td>128</td>
<td>Fuel cell cartridges packed with equipment, containing flammable liquids</td>
</tr>
<tr>
<td>3476</td>
<td>138</td>
<td>Fuel cell cartridges contained in equipment, containing water-reactive substances</td>
</tr>
<tr>
<td>3476</td>
<td>138</td>
<td>Fuel cell cartridges, containing water-reactive substances</td>
</tr>
<tr>
<td>3476</td>
<td>138</td>
<td>Fuel cell cartridges packed with equipment, containing water-reactive substances</td>
</tr>
<tr>
<td>3477</td>
<td>153</td>
<td>Fuel cell cartridges contained in equipment, containing corrosive substances</td>
</tr>
<tr>
<td>3477</td>
<td>153</td>
<td>Fuel cell cartridges, containing corrosive substances</td>
</tr>
<tr>
<td>3477</td>
<td>153</td>
<td>Fuel cell cartridges packed with equipment, containing corrosive substances</td>
</tr>
</tbody>
</table>
NEW: Fuel Cell Cartridges (cont’d)

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Guide No.</th>
<th>Name of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3478</td>
<td>115</td>
<td>Fuel cell cartridges contained in equipment, containing liquefied flammable gas</td>
</tr>
<tr>
<td>3478</td>
<td>115</td>
<td>Fuel cell cartridges, containing liquefied flammable gas</td>
</tr>
<tr>
<td>3478</td>
<td>115</td>
<td>Fuel cell cartridges packed with equipment, containing liquefied flammable gas</td>
</tr>
<tr>
<td>3479</td>
<td>115</td>
<td>Fuel cell cartridges contained in equipment, containing hydrogen in metal hydride</td>
</tr>
<tr>
<td>3479</td>
<td>115</td>
<td>Fuel cell cartridges, containing hydrogen in metal hydride</td>
</tr>
<tr>
<td>3479</td>
<td>115</td>
<td>Fuel cell cartridges packed with equipment, containing hydrogen in metal hydride</td>
</tr>
</tbody>
</table>

ADDED: Contained in and Packed with Equipment

<table>
<thead>
<tr>
<th>ID No.</th>
<th>Guide No.</th>
<th>Name of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3468</td>
<td>115</td>
<td>Hydrogen in a metal hydride storage system contained in equipment</td>
</tr>
<tr>
<td>3468</td>
<td>115</td>
<td>Hydrogen in a metal hydride storage system packed with equipment</td>
</tr>
</tbody>
</table>
Errata
Blue Pages

- Identification number corrected

Petrol and ethanol mixture, with 127 3475
more than 10% ethanol
Orange Guide Changes
**ADDED: Guide 147**

- New Guide for Lithium Ion Batteries

<table>
<thead>
<tr>
<th>GUIDE 147</th>
<th>Lithium Ion Batteries</th>
<th>ENR2005</th>
<th>EMERGENCY RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POTENTIAL HAZARDS</strong></td>
<td></td>
<td></td>
<td><strong>FIRE</strong></td>
</tr>
<tr>
<td>FIRE OR EXPLOSION</td>
<td>- Lithium ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures (&gt; 302°F (&gt; 150°C)). When heated, a small vent may continue to release hydrogen gas.</td>
<td></td>
<td><strong>Dry Chemical, CO₂, water spray or regular foam.</strong></td>
</tr>
<tr>
<td></td>
<td>- May burn rapidly with flame-burn effect.</td>
<td></td>
<td><strong>Large Fire:</strong></td>
</tr>
<tr>
<td></td>
<td>- May generate toxic fumes.</td>
<td></td>
<td>- Water spray, fog, regular foam.</td>
</tr>
<tr>
<td></td>
<td>- May ignite flammable liquids and gases.</td>
<td></td>
<td><strong>Spill or Leak:</strong></td>
</tr>
<tr>
<td></td>
<td>- May generate toxic fumes.</td>
<td></td>
<td>- Eliminate all ignitable sources.</td>
</tr>
<tr>
<td></td>
<td>- May contaminate building structures.</td>
<td></td>
<td>- Do not breath or enter burning area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- In case of fire or explosion, do not use water.</td>
</tr>
<tr>
<td>HEALTH</td>
<td></td>
<td></td>
<td>- Use breathing apparatus if not using safe avoidance techniques.</td>
</tr>
<tr>
<td></td>
<td>- Contact with battery electrolyte may irritate skin, eyes, and mucous membranes.</td>
<td></td>
<td>- Use extinguishing media.</td>
</tr>
<tr>
<td></td>
<td>- Fire will produce irritating, corrosive, or toxic vapors.</td>
<td></td>
<td>- Ventilate the area.</td>
</tr>
<tr>
<td></td>
<td>- Burning batteries may produce toxic hydrogen fluoride gas (see GUIDE 125).</td>
<td></td>
<td>- Wear protective clothing and observe the local regulations.</td>
</tr>
<tr>
<td></td>
<td>- Exposure to these materials may be hazardous.</td>
<td></td>
<td>- Provide immediate medical care.</td>
</tr>
<tr>
<td>PUBLIC SAFETY</td>
<td></td>
<td></td>
<td><strong>PROTECTIVE CLOTHING</strong></td>
</tr>
<tr>
<td></td>
<td>- CALL Emergency Response/Telephone Number(s) on shipping Paper(s). If 3M shipping paper not available or no answer, refer to appropriate telephone numbers located on the inside back cover.</td>
<td></td>
<td>- Use positive pressure self-contained breathing apparatus (SCBA).</td>
</tr>
<tr>
<td></td>
<td>- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions.</td>
<td></td>
<td>- Obstruct fire fighting/protective clothing will only provide limited protection.</td>
</tr>
<tr>
<td></td>
<td>- Keep unauthorized personnel away.</td>
<td></td>
<td><strong>EVACUATION</strong></td>
</tr>
<tr>
<td></td>
<td>- Stay outside.</td>
<td></td>
<td>- Consider initial downwind evacuation for at least 400 meters (1300 feet).</td>
</tr>
<tr>
<td></td>
<td>- Keep out of fire area.</td>
<td></td>
<td>- For Inhalation: <strong>Large Fire:</strong></td>
</tr>
<tr>
<td></td>
<td>- Ventilate closed areas before entering.</td>
<td></td>
<td>- Consult local regulations and cover clothing.</td>
</tr>
<tr>
<td><strong>FIRST AID</strong></td>
<td></td>
<td></td>
<td><strong>FIRST AID:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Remove victim to fresh air.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Call 911 or emergency medical service.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Use artificial respiration if unable to breathe.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Performed open resuscitation is difficult.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Remove and isolate contaminated clothing and shoes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- In case of contact with substances, immediately flush skin with running water for at least 20 minutes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Encourage medical personnel to use respirators if involved and take precautions to protect themselves.</td>
</tr>
</tbody>
</table>
Green Pages Revision

- **Table 1** - Initial Isolation and Protective Action Distances

- **Table 2** – Water-Reactive Materials Which Produce Toxic Gases When Spilled in Water
ERG 2008 Mobile
Pocket and Windows PC
http://hazmat.dot.gov/pubs/erg/guidebook.htm

- Requests Received From Emergency Responders Indicate Need for ERG2008 Mobile
- ERG2008 Download Now Available
- Smartphone Software Coming
- Windows Print Function Coming
PC Window – Material By ID Number

ID No: 1541  Acetone cyanohydrin, stabilized

GUIDE  SUBSTANCES - TOXIC and/or CORROSIVE (Flammable / Water-Sensitive)

PC Window – Material By ID Number

FIRE OR EXPLOSION

- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapors from explosive mixture with air, inclusions, combustibles and other explosion hazards.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined area (cellars, basements, tanks).
- Vapors may travel to source of ignition and flash back.
- Those substances designated with a “W” may precipitate explosively when heated or involved in a fire.
- Substance will react with water (some violently) releasing flammable, toxic or corrosive gases and runoff.
- Contact with metal may evolve flammable hydrogen gas.
- Contact with water may result in the heated or wet material to contaminate with water.

HEALTH

- TOXIC: inhalation, ingestion or contact with skin, eyes or clothing) with vapors, dusts or substance may cause severe injury, burns or death.
- Irritation and/or damage to tissues are extreme irritating/inflammation.
- Reaction with water or moist air will release toxic, corrosive or flammable gases.
- Reaction with water may generate much heat that will increase the concentration of fumes in the air.
- This will produce irritating, corrosive and/or toxic gases.

EYE PROTECTION

Use splash guard or safety glasses. Wear safety glasses and chemical resistant clothing.

FIRE or EXPLOSION

- CALL Emergency Response Telephone Number on Shipping Paper. If Shipping Paper not available or not answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (165 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate enclosed areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighting protective clothing provides limited protection in the situations only. It is not effective in spill situations when direct contact with the substance is possible.

EVA VA TION

- Spill Table 1 – Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary; the isolation distance shown under "PUBLIC SAFETY" may apply. spill or release of this material in a fire. ISOLATE for 800 meters (1/2 mile) in all directions, also consider initial evacuation for 800 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

- Water: Most foams will react with the material and release corrosive/toxic gases.
- CAUTION: the Aqueous Film Forming Foam (AFFF) is an aqueous chemical only.
- Small Fire
  - CO2 dry chemical, dry sand, alcohol-resistant foam.
  - Large Fire
  - Water spray, fog or alcohol-resistant foam.
- Use 1% Type B FLUSHING AGENT and/or 1% Type A WITH WATER, use 2% alcohol-resistant foam expansion foam.
- More containers from the area if you can’t do it without this.
- Use water spray or fog, do not use straight streams.
- Fire involving tanks or car/track fluids
- If fire from maximum distance is use unmanned hose holders or monitor nozzle.
- DO NOT get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Ventilate immediately in a large explosion event from ignition and fire damage or decomposition of tank.

Initial Isolations and Protective Action Distances

<table>
<thead>
<tr>
<th>SMALLS SPILLS (from a small package or small tank)</th>
<th>LARGE SPILLS (from a large package or from a small package)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First ISOLATE in all Directions</strong></td>
<td><strong>First ISOLATE in all Directions</strong></td>
</tr>
<tr>
<td><strong>Then PROTECT</strong></td>
<td><strong>Then PROTECT</strong></td>
</tr>
<tr>
<td><strong>First ISOLATE in all Directions</strong></td>
<td><strong>Then PROTECT</strong></td>
</tr>
<tr>
<td><strong>Then PROTECT</strong></td>
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 PC Windows - Material By Name

ID No. 1541 Acetone cyanohydrin, stabilized

GUIDE SUBSTANCES - TOXIC and/or CORROSIVE (Flammable / Water-Sensitive)

155

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- HIGHLY FLAMMABLE, will burn rapidly by heat, sparks or flame.
- Vapors form explosive mixtures with air. Indoor, outdoor and enclosed explosion hazards.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (street, basements, tanks).
- Vapors may travel to source of ignition and flash back.
- Those substances designated with a "P" may polymerize explosively when heated or involved in a fire.
- Substances will react with water (some violently) releasing flammable, toxic or corrosive gases and runoff.
- Contact with metal may cause flammable hydrogen gas.
- Containers may explode when heated or if contaminated with water.

HEALTH

- EXPOSING, inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death.
- Bromocresolates and chlorocresolates are extremely irritating/irritating.
- Reaction with water or moist air will cause toxic, corrosive or narcotic gases.
- Reaction with water may generate much heat that will increase the concentration of fumes in the air.
- Fire will produce irritating, corrosive and/or toxic gases.
- React with metal may cause flammable hydrogen gas.

PUBLIC SAFETY

- CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (165 feet) for liquids and at least 20 meters (65 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventialte enclosed areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear Chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firemen's protective clothing provides limited protection in fire situations only. It is not effective in spill situations where direct contact with the substance is possible.

EVADE

- See Table 1: Initial Isolation and Protective Action Distances for highlighted material. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

FIRST AID RESPONSES

- Note: Most forms will react with the material and release corrosive/toxic gases.

CAUTION: For Acetyl chloride (UN1712), use CO2 or dry chemical only.

Small Fire

- CO2, dry chemical, UL class A, B, C, dry chemical.
- Large Fire

- Water sprays, fog or alcohol-resistant foam.

For Uncontrolled, Do Not Use WATER: use APP alcohol-resistant medium expansion foam.
- Move containers from the area if you can do it without risk.
- Use water spray or fog, do not use straight stream.
- Do not breathe fumes.
- Do not use water until after fire is out.
- Do not breathe fumes. In case of fire, move away from fire and obstructions in direction of wind.

Initial Isolation and Protective Action Distances

<table>
<thead>
<tr>
<th>Note</th>
<th>SMALL SPILLS (From a small package or small leak from large package)</th>
<th>LARGE SPILLS (From a large package or from many small package)</th>
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<tbody>
<tr>
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<td>First ISOLATE in all Directions</td>
<td>Then PROTECT Downwind during</td>
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<td>30m (100 ft)</td>
<td>0.1 km (0.1 mi)</td>
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<td>Proper administrative controls</td>
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<td>Air bag fillers</td>
<td>171</td>
<td>209</td>
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<tr>
<td>Air bag fillers, compressed gas</td>
<td>126</td>
<td>209</td>
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<tr>
<td>Air bag fillers, pyrotechnic</td>
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Toxic Gas(es) Produced When Spilled in Water: (CN2)
**U.S. Department of Transportation**  
**Pipeline and Hazardous Materials Safety Administration**

**Split Screen Display**

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**DOT ERG 2008 Mobile**

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- **View**  
- **Find Guidelines**  
- **Browse**

**Marked Name**

- **ID No.: 1541**  
- **Acetone cyanohydrin, stabilized**

**GUIDE: SUBSTANCES - TOXIC and/or CORROSIVE (flammable / water-sensitive)**

**ISB**

- **TOXIC HAZARDS**
  - **Acetone cyanohydrin, stabilized**
  - **Acetone cyanohydrin (Acetone cyanohydrin)**
  - **Acetone cyanohydrin (Acetone cyanohydrin)**
  - **Acetone cyanohydrin (Acetone cyanohydrin)**
  - **Acetone cyanohydrin (Acetone cyanohydrin)**

**POTENTIAL HAZARDS**

- **Health Hazards:** Exposure to acetone cyanohydrin may cause irritation of the respiratory tract, skin, and eyes. Acute exposure may cause respiratory and/or central nervous system depression. Chronic exposure may cause respiratory irritation, dermatitis, and/or central nervous system depression.

**APPLICATION**

- **Storage:** Store acetone cyanohydrin in a cool, well-ventilated area.
- **Handling:** Use appropriate respiratory protection and personal protective equipment when handling acetone cyanohydrin.

**PROTECTIVE CLOTHING:**

- **Respiratory Protection:** Use a positive pressure, self-contained breathing apparatus (SCBA).

**SAFETY PRECAUTIONS:**

- **Personal Protective Equipment:** Wear appropriate respiratory protection and personal protective equipment when handling acetone cyanohydrin.

**EMERGENCY RESPONSE**

- **Initial Isolation:** Isolate the area around the source of the spill or leak.
- **Personal Protection:** Use appropriate respiratory protection and personal protective equipment when handling acetone cyanohydrin.

**Toxic Gases (es) Produced When Spilled in Water:**

**ISB**

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**DOT ERG 2008 Mobile**

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- **Browse**

**Marked Name**

- **ID No.: 1088**  
- **Acetal**

**GUIDE: FLAMMABLE LIQUIDS (flammable / water-miscible)**

**ISB**

- **FLAMMABLE LIQUIDS**
  - **Acetal**
  - **Acetal (Acetal)**
  - **Acetal (Acetal)**
  - **Acetal (Acetal)**
  - **Acetal (Acetal)**

**POTENTIAL HAZARDS**

- **Health Hazards:** Acetal may be irritating to the skin, eyes, and respiratory tract. Acetal may cause central nervous system depression.

**APPLICATION**

- **Storage:** Store acetal in a cool, well-ventilated area.
- **Handling:** Use appropriate respiratory protection and personal protective equipment when handling acetal.

**PROTECTIVE CLOTHING:**

- **Respiratory Protection:** Use a positive pressure, self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing is also required for protection.

**SAFETY PRECAUTIONS:**

- **Personal Protective Equipment:** Wear appropriate respiratory protection and personal protective equipment when handling acetal.

**EMERGENCY RESPONSE**

- **Initial Isolation:** Isolate the area around the source of the spill or leak.
- **Personal Protection:** Use appropriate respiratory protection and personal protective equipment when handling acetal.

**Toxic Gases (es) Produced When Spilled in Water:**

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Hazardous Materials Safety Assistance Team (HMSAT)

- Provide Training for First Responders on How to Use ERG
  - Multimodal Seminars
  - Workshops
  - On Request by State or Local Responders
PHMSA New Initiatives and The Enterprise Approach

- Fusion Center
- Wetlines Issues
- Alternative Fuels Issues
- Lithium Batteries
- Roll-Over Issues
Safe Travel Campaign: Partnering for Safety

SafeTravel.dot.gov

Webpage and pocket guide provide guidance on safe airline travel with portable electronics and spare batteries.
Publications Development Enterprise
http://hazmat.dot.gov/HMpubsreview

- Post Hazmat Publications and Training Materials
- Hazmat Partners and Stakeholders Review and Comment
- PHMSA Produces Coordinated Outreach Materials
Select - Suggest - Submit

1. Select Product to Review

2. Suggest Changes

3. Submit by Due Date
Two Most Popular Publications

DOT CHART 13
Hazardous Materials Marking, Labeling and Placarding Guide

Refer to 49 CFR, Part 172:
- Marking - Subpart D
- Labeling - Subpart E
- Placarding - Subpart F
- Emergency Response - Subpart G

NOTE: This document is for general guidance only and must not be used to determine compliance with 49 CFR, Parts 170-182.
FY 2008 Upcoming Events Information

- Multimodal Hazmat Transportation Seminars
- Workshops

http://hazmat.dot.gov/training/training.htm
Where to Find More Information

http://hazmat.dot.gov
QUESTIONS?

Call:
The Office of Hazardous Materials Initiatives and Training
202-366-4900

Or

Email:
Training@dot.gov
ERG2008@dot.gov
PHMSA and IAFC Collaboration
How to Use the ERG2008