DOT & IATA Hazardous Materials Transportation
(49 CFR 172.704)

Sean Halpin
Du-All Safety
DOT Course Objectives

Provide Students information to support the safe transportation of hazardous materials, including:

- Defining the requirements of 49 CFR, Part 172.704 for certification in hazardous handling and transportation and of HM-232, the Security Regulation for awareness training.
- Reviewing the requirements of the DOT regulations relative to the transportation of hazardous materials.
- Reviewing the basic safety elements including recognition and identification of hazardous materials as required by the DOT regulations and the Hazard Communication Standard.
- Reviewing the basic operations required for handling emergencies involving hazardous materials for the DOT Hazmat Employee.
DOT Course Objectives

- Demonstrating some basic functions required for a DOT Hazmat Employee including: basic knowledge of the Hazardous Materials Table (49 CFR 172.101), Labels and Placards, and Shipping Papers.
- Reviewing the nine DOT hazard classes and associate them with the appropriate placards for use in transportation.
- Demonstrating an awareness of security risks associated with hazardous materials transportation.
- Demonstrating an awareness of methods designed to enhance transportation security.
- Demonstrating an awareness of how to recognize and respond to possible security threats.
International Air Transportation Association

- Global reference for shipping Dangerous Goods AND the only reference recognized by the world’s airlines
- Founded in 1945 in Havana, Cuba
  - Originally 57 members from 31 nations, now over 230 members from more than 140 nations
I.A.T.A

Mission:

- Represent, Lead and Serve the airline industry
- Define all the Airline rules and regulations
- Main focus is to provide the safe and secure transportation of all passengers and crew
I.A.T.A. General Awareness Training Objectives

- Enable employees working with or around dangerous goods to recognize and identify their dangers
- Properly mark and label dangerous goods containers for shipment
- Select proper packaging for dangerous goods under the direction of the Certified person
- Complete shipment declaration and AWB under the direction of the Certified person
- Develop appropriate response information to accompany shipment
I.A.T.A. General Awareness Training

- **Who should take this class**
  - Warehouse personnel
  - Operators (moving or handling material)
  - Customer Service
  - Other Office Employees working around D.G.

- **Frequency / Requirements**
  - Within 90 days of initial employment
  - Every 2 years
SHIPPER RESPONSIBILITIES

Identification
Classification
Packing
Marking
Labeling
Documentation
Training

KWE/ DOT & IATA Hazardous Materials Transportation/ Presented by Du-All Safety
OPERATOR RESPONSIBILITIES

Acceptance
Storage and Loading
Inspection of information
Retention of Records
Training

KWE/ DOT & IATA Hazardous Materials Transportation/ Presented by Du-All Safety
What this class does not prepare you for

- This is a training course and does not specifically authorize you to perform any task – only your employer can do that.
- This is a training course and the information provided by the instructors is not your organization’s policy – do not take information from this course as “above” your organization's policy.
- This is a training course and does not provide adequate information to perform a task – you must know the specifics.
- This training provide awareness of hazmat response so you can protect yourself – you are not a hazmat responder.
HazMat Employee Defined

- **HazMat Employee**
  - Load, unload, or handle hazmat, including:
    - Prepare hazmat for transport
    - Responsible for the safe transport of hazmat
    - Operate a vehicle used to transport hazmat
    - Supervise hazmat employees
Regulatory Overview
The Hazardous Materials Regulations

Title 49, Code of Federal Regulations governs the transportation of hazardous materials. The Hazardous Materials Regulations or HMR are found in Parts 171 through 180 of Title 49, CFR. The contents of Parts 171 through 180 include:

- Part 171 – General information, regulations, and definitions
- Part 172 – Hazardous materials table, special provisions, hazardous materials communications, emergency response information, and training requirements
- Part 173 – Shippers – General requirements for shipments and packagings
- Part 174 – Carriage by rail
- Part 175 – Carriage by aircraft
- Part 176 – Carriage by vessel
- Part 177 – Carriage by public highway
- Part 178 – Specifications for packaging
- Part 179 – Specifications for tank cars
- Part 180 – Continuing qualification and maintenance of packagings
“Each hazmat employee shall be provided general awareness/familiarization training designed to . . . enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards . . . . Training conducted by employers to comply with the hazard communication programs required by the Occupational Safety and Health Administration (OSHA) . . . may be used to satisfy the training requirements . . .” of the DOT Regulation
What is HM-181, HM-126F, and HM-232?

- **HM-181** was actually born in 1991 and identifies changes made to the DOT regulations in the areas of hazardous material classifications, package labeling, placards, and the quantity of the package that the material is shipped in.

- **HM-126F**, a similar amendment to the DOT regulations, sets minimum training requirements for individuals involved in all modes of transportation.

- **HM-232** is the recently enacted regulation regarding transportation security for hazardous materials.
2017 Regulations Changes Summary
58th Edition Dangerous Goods Regulations
(Reference only – Recurrent Training)

- **Dangerous Goods**
  - UN 3480, Lithium ion batteries has been amended to show “forbidden” across columns I/J to identify that these batteries are now restricted to Cargo Aircraft Only. This change became effective 1 April 2016 through an addendum to the 57th edition of the DGR. There is no change to the entries for UN 3481, lithium ion batteries packed with equipment or lithium ion batteries contained in equipment;
  - All entries for lithium batteries, UN 3090, UN 3091, UN 3480 and UN 3481 have been revised to identify that the hazard label has changed to now be the lithium battery Class 9 label. A new Special Provision A206 has also been assigned to reinforce this new requirement

- **Special Provisions**
  - A181—Has been revised to more clearly describe the requirements for packages that contain both lithium batteries packed with equipment and lithium batteries contained in equipment.
  - A331—Is a new special provision assigned against UN 3480, Lithium ion batteries to identify the possible requirements for a shipper to meet to obtain an approval to ship lithium ion batteries at a state of charge in excess of 30% of the rated capacity of the battery.
Marking and Labels

- **7.1.5.5**—Are the new provisions that set out the requirements for the lithium battery mark. The specification of the lithium battery mark is shown as Figure 7.1.C. The new mark comes into effect as of 1 January 2017 with a 2-year transition period during which time either the lithium battery mark or the lithium battery handling label may be applied to packages containing lithium batteries prepared in accordance with Section IB or Section II of the lithium battery packing instructions.

- **7.2.4.4**—The provisions on additional text on hazard labels have been revised to identify that for the new Class 9–Lithium Battery hazard label the only information permitted in the bottom half of the label is the pictogram and the class number.

- **7.3.18**—The specification of the new Class 9–Lithium Battery hazard label has been added as a new Figure 7.3.X. The new hazard label comes into effect as of 1 January 2017 with a 2-year transitional period during which time either the existing Class 9–Miscellaneous Dangerous Goods hazard label or the new Class 9–Lithium Battery hazard label may be applied to packages containing lithium batteries prepared in accordance with Section I, IA or IB of the lithium battery packing instructions.
REGULATORY REFERENCES

ICAO Technical Instructions
International Law Recognized by 49CFR

49 CFR - United States Hazardous Materials Transportation Law

IATA DGR Easy to use manual Based on ICAO
Penalties for Non-Compliance

**Civil**

$250 to $50,000 per day/per violation

**Criminal**

Up to $250,000 (Individual)

Up to $500,000 (Corporation)

Up to 10 years in prison
$180K in FAA Fines for 3 Hazmat Air Shippers

On August 4, an [FAA press release announced](https://www.faa.gov) that three shippers were fined a combined $180,000 for shipping hazmat out of compliance with the US DOT’s Hazardous Materials Regulations (HMR).

FAA alleges that, in each case, the hazmat was “undeclared”—meaning it was shipped without following the HMR rules for classifying, naming, marking, labeling, documenting, and providing emergency response information for hazmat shipments.

**Two $63K Fines for Flammable Paint**

The press release states that in October 2014, a major paint company shipped ten cans of flammable paint—a Class 3 hazardous material—onboard a FedEx flight. FAA issued a $63,000 fine for the hazmat shipping violation.

In a second alleged hazmat violation, a fluids and environmental services provider for the oil and gas industry shipped 17-ounce cans of spray paint in checked baggage. Again, FAA issued a $63,000 fine for violating the HMR.
$180K in FAA Fines for 3 Hazmat Air Shippers

$54K Fine for Flammable and Corrosive Materials

A Texas chemical company allegedly shipped six bottles of hazmat—five bottles of flammable liquids (Class 3 hazmat) and one of corrosive material (Class 8 hazmat)—aboard a FedEx flight from Midland, TX to Irving, TX. For this hazmat shipping mistake, FAA levied a $54,000 fine.
Safety Overview
What is a Hazardous Material?

According to the U.S. Department of Transportation, a “Hazardous Material” is defined as “a substance or material, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.”
Hazardous Substances

- Hazardous substances are chemicals and other substances that can affect your health, causing illness or disease.
- Solvents, pesticides, paints, adhesives, petroleum products, heavy metals or any other substance that is hazardous to health and is used or produced at work.
Hazard Communication Program

- Must comply with Hazard Communication Standard – 8 CCR 5194
Hazard Communication Program Requirements

Written program must include:

- A list of hazardous chemicals present in the workplace
- SDS
- Labeling system information
Safety Data Sheets

- Primary tool for getting detailed chemical information
- Must be readily available
<table>
<thead>
<tr>
<th>Chemical Product and Company Name</th>
<th>Accidental Release Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition/Information on Ingredients</td>
<td>Handling and Storage</td>
</tr>
<tr>
<td>Hazards Identification</td>
<td>Exposure Controls/Personal Protection</td>
</tr>
<tr>
<td>First Aid Measures</td>
<td>Physical and Chemical Properties</td>
</tr>
<tr>
<td>Fire Fighting Measures</td>
<td>Stability and Reactivity</td>
</tr>
</tbody>
</table>

KWE/ DOT & IATA Hazardous Materials Transportation/ Presented by Du-All Safety
SDS Information Includes (p1)

- Chemical identity
- Physical and chemical characteristics
- Physical and health hazards
- Primary routes of entry
SDS Information Includes (p2)

- PEL, TLV, other exposure limit
- Whether it is a carcinogen
- Precautions for safe handling/use
- Recommended engineering controls
SDS Information Includes (p3)

- Emergency first aid procedures
- Date of preparation
- Name, address, phone number of manufacturer, importer, responsible party
SDS Information Includes (p4)

- SDSs also provide information regarding:
  - signs and symptoms of exposure
  - personal protective equipment
  - spill and leak clean-up
  - labeling information
OSHA Globally Harmonized System Labels

- Explosives, self-reactives, organic peroxides
- Gases under pressure
- Flammables, pyrophoric, self-heating, emits flammable gas, self-reactive, organic peroxides
- Oxidizers
- Acute toxicity, fatal or toxic
- Skin corrosion/burns, eye damage, corrosive to metals
- Carcinogen, mutagenicity, repro toxicity, resp sensitizers, target organ toxicity, aspiration toxicity
- Irritant, skin sensitizer, acute toxicity, narcotic effects, resp tract irritant, haz to ozone layer
- Aquatic toxicity
Manufacturer/ Distributor Label

<table>
<thead>
<tr>
<th>PRODUCT IDENTIFIER</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUPPLIER IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Postal Code</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRECAUTIONARY STATEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep container tightly closed. Store in cool, well ventilated place that is locked.</td>
</tr>
<tr>
<td>Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools.</td>
</tr>
<tr>
<td>Use explosion-proof electrical equipment.</td>
</tr>
<tr>
<td>Take precautionary measure against static discharge.</td>
</tr>
<tr>
<td>Ground and bond container and receiving equipment.</td>
</tr>
<tr>
<td>Do not breathe vapors.</td>
</tr>
<tr>
<td>Wear Protective gloves.</td>
</tr>
<tr>
<td>Do not eat, drink or smoke when using this product.</td>
</tr>
<tr>
<td>Wash hands thoroughly after handling.</td>
</tr>
<tr>
<td>Dispoae of in accordance with local, regional, national, international regulations as specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In Case of Fire:</th>
</tr>
</thead>
<tbody>
<tr>
<td>use dry chemical (BC) or Carbon dioxide (CO₂) fire extinguisher to extinguish.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First Aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>If exposed call Poison Center.</td>
</tr>
<tr>
<td>If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAZARD PICTOGRAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANGER</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNAL WORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAZARD STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly flammable liquid and vapor. May cause liver and kidney damage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUPPLEMENTAL INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions for use</td>
</tr>
<tr>
<td>______________________</td>
</tr>
<tr>
<td>______________________</td>
</tr>
<tr>
<td>______________________</td>
</tr>
<tr>
<td>Fill weight: Lot Number</td>
</tr>
<tr>
<td>Gross weight: Fill Date: Expiration Date:</td>
</tr>
</tbody>
</table>
HazMat Identification Systems

KWE/ DOT & IATA Hazardous Materials Transportation/ Presented by Du-All Safety
HazMat Identification

- HMIS
- Labels
- Placards
- Markings
Labels must be used on packages containing a hazardous material in transport unless exempted.

- Different DOT label for each Hazard Class/Division
- Labels for primary and subsidiary risks
DOT HazMat Label

- DOT Labeling System
- Diamond-shaped labels, 4 inches on each side, required to be affixed on two sides of non-bulk containers
- Subsidiary labels indicate additional hazards, and lack the hazard class number
DOT Placard System

- Diamond-shaped placards, 10 ¾ inches on each side, required to be placed on bulk containers
- Placards must appear on all four sides of the vehicle
Hazard Class 9 - Miscellaneous Dangerous Goods (ORM-D)

- Division 9.1 Misc. dangerous goods.
- Division 9.2 Environmentally hazardous substances.
- Division 9.3 Dangerous waste.
Hazard Class 9 - Miscellaneous dangerous goods Placards

Miscellaneous Not required for domestic transportation. Placard 454 kg (1,001 lbs.) or more gross weight of material which presents a hazard during the transport, but is not included in any other hazard class.
Placard any quantity of these

Enter Division Number 1.1, 1.2, or 1.3 and compatibility group letter, when required. Placard any quantity.

Enter compatibility group letter, when required. Placard 454 kg (1,001 lbs.)

Placard any quantity of Division 2.3 material.

RADIOACTIVE Placard any quantity of packaging bearing the RADIOACTIVE III label. Certain low specific activity radioactive materials in "exclusive use" will not bear the label but RADIOACTIVE placard is required.

DANGEROUS WHEN WET Placard any quantity of Division 4.3 material

POISON Placard any quantity of 6.1, PGI, inhalation hazard only. Placard 454 kg (1,001 lbs.) or more or PG or II, other than PGI inhalation hazard.
Subsidiary Risk

Class numbers do not appear on subsidiary risk placard

Placard empty tank cars for residue of material last contained.

Required background for placards on rail shipments of certain explosives and poisons. Also required for highway route-controlled quantities of radioactive materials (see §§172.507 and 172.510).
The DANGEROUS Placard

- Placard 454 kg (1,001 lbs.) gross weight of two or more categories of hazardous materials listed in Table 2.
- A freight container, until load device, motor vehicle, or rail car which contain non-bulk packaging with two or more categories of hazardous materials that require placard specified in Table 2 may be placarded with a DANGEROUS placard instead of the separate placarding specified for each of the materials in Table 2.
- However, when 2.268 kg (5,000 lbs.) or more of one category of materials is loaded at one facility, the placard specified in Table 2 must be applied.
Many military placards are the same as UN/NA.
• Some resemble UN/NA and some are completely different
More Military......
Packaging types

Single

Combination

Composite
Packaging Markings

A three-part code indicates the type of packaging

1. Drums
2. Barrels
3. Jerricans
4. Boxes
5. Bags
6. Composite

A. Steel
B. Aluminum
C. Wood
G. Fibre
H. Plastic

1. Closed Head
2. Open Head
Packaging Markings

Example markings for a liquids drum

1=drum
A=steel
1=Tight Head

UN Symbol

1A1/Y 1.2/100
01/USA/xxxx

Specific Gravity of Liquid
Vapor pressure of Liquid (kPa)

Packing Group

Year of Manufacture

Country of Manufacture

Manufacturer DOT Registration Number
Combination Packaging

4G/Y20/S/09
USA/CM0405
Single Packaging Intended To Contain Liquids

\[ \text{UN} \quad 1A1/Y1.4/150/08/NL/RM0709 \]
UN Specification Packaging
Intended for Infectious Substances

4G/CLASS 6.2/09
USA/HAZ PACKING CO.
Handling Labels

- Magnetized Material: Keep away from aircraft compass detector unit.
- Danger: Do not load in passenger aircraft.
- Cargo Aircraft Only: Forbidden in passenger aircraft.
- Upward Arrows: Contains cryogenic liquid.
- Keep away from heat.
- Caution: Do not load or transport package if damaged.

KWE/ DOT & IATA Hazardous Materials Transportation/ Presented by Du-All Safety
Example of a Completed Package

To:
From:

Sodium Nitrite
UN1500

4G/Y20/S/09
USA/T7402

KWE/ DOT & IATA Hazardous Materials Transportation/ Presented by Du-All Safety
The Hazardous Materials Table

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Hazardous materials descriptions and proper shipping names</th>
<th>Hazard class or division</th>
<th>Identification Numbers</th>
<th>PG</th>
<th>Label Codes</th>
<th>Special provisions ($172.102)</th>
<th>(8) Packaging ($173.*)</th>
<th>(9) Quantity limitations</th>
<th>(10) Vessel stowage Location</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>Acetaldehyde</td>
<td>3</td>
<td>UN1089</td>
<td>I</td>
<td>3</td>
<td>A3, B16, T11, T2, T7</td>
<td>None</td>
<td>201</td>
<td>243</td>
<td>Forbidden</td>
</tr>
<tr>
<td>Acetaldehyde ammonia</td>
<td>Acetaldehyde ammonia</td>
<td>9</td>
<td>UN1841</td>
<td>II</td>
<td>9</td>
<td>IP8, IP6</td>
<td>155</td>
<td>204</td>
<td>240</td>
<td>200 kg, 200 kg</td>
</tr>
<tr>
<td>Acetaldehyde oxime</td>
<td>Acetaldehyde oxime</td>
<td>3</td>
<td>UN2332</td>
<td>III</td>
<td>3</td>
<td>B1, B3, T4, T1</td>
<td>150</td>
<td>203</td>
<td>242</td>
<td>60 L, 220 L</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration
WHAT IS IT?

- The Hazardous Materials Table is found in the HMR and lists materials that the Research and Special Programs Administration (RSPA) has determined to be hazardous.
The Hazardous Materials Table

Contains all the necessary information to identify the requirements that apply to each shipment of each hazardous material:

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column 2</td>
<td>Proper Shipping Descriptions And Names</td>
</tr>
<tr>
<td>Column 3</td>
<td>Hazard Class Or Division</td>
</tr>
<tr>
<td>Column 4</td>
<td>Identification Numbers</td>
</tr>
<tr>
<td>Column 5</td>
<td>Packing Group</td>
</tr>
<tr>
<td>Column 6</td>
<td>Labeling Requirements</td>
</tr>
<tr>
<td>Column 7</td>
<td>Special Provisions</td>
</tr>
<tr>
<td>Column 8</td>
<td>Packaging Authorizations</td>
</tr>
<tr>
<td>Column 9</td>
<td>Quantity Limitations</td>
</tr>
<tr>
<td>Column 10</td>
<td>Vessel Stowage</td>
</tr>
</tbody>
</table>
Who Uses It?

Anyone with the responsibility of determining:

- What the hazards of a material are
- The proper packaging, labeling, placards
- The proper shipping descriptions
- Any transportation restrictions
Shipping Papers
Shipping Papers

- Properly completed shipping papers must accompany every shipment of hazardous materials
- Whenever a hazardous material is transported, its description must appear on the shipping paper.
  - A Bill of Lading is the most common
  - Hazardous Waste Manifest
  - Multiple entries can be made on one shipping document.
  - Hazardous and non-hazardous materials can both be listed on the same document.
When both a hazardous and a non-hazardous material are listed, the hazardous material must be:

- Listed FIRST
- Shown in contrasting color and highlighted on multi-sheet forms.
- Identified with an “X” or “RQ” in the “HM” column.
## Bill of Lading

**Shipper:** RBP Chemical Technology, Inc.

**Shipper Address:**
150 S. 118th St. 
P.O. Box 14069 
Mississauga, WI 53214-5069

**Website:** www.rbchemical.com

**Contact Information:**

- **Corporate:** 414-258-0911
- **Fax:** 414-258-7908

### STRAIGHT BILL OF LADING

**Shipper:** Mueller Graphic Supply, Inc.

**Address:**
11475 W. THEODORE TRECKER WAY
WEST ALLIS, WI 53214

### FOR CHEMICAL EMERGENCY

**CALL CHEMTREC DAY OR NIGHT**

800-424-9300

### Shipper Information:

- **CUST NO:** P63400
- **SHIP VIA:** Customer Pickup
- **SHIP DATE:** 9/19/2005
- **BILL NO:** 3768

### Customer Information:

- **CUST ORDER NO:** 52715
- **SHIP DATE:** 9/19/2005
- **COLLECT:** 09

### Description of Goods:

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5GS Pail</td>
</tr>
<tr>
<td>1</td>
<td>55GS Drum</td>
</tr>
<tr>
<td>1</td>
<td>5GP Pail</td>
</tr>
<tr>
<td>1</td>
<td>Carton</td>
</tr>
</tbody>
</table>

- **Description details:**
  - 5GS Pail: FLAMMABLE LIQUIDS, N.O.S., 3, UN1993, II (HEPTANE, SOLVENT NAPHTHA), KWIK WASH, NMFC 149980 Sub 2
  - 55GS Drum: AQUA WASH, NMFC 149980 Sub 2
  - 5GP Pail: AQUANOL 200, NMFC 48580 Sub 3
  - Carton: PETRO GUM, NMFC 149980 Sub 2

### Gross Weight:

- **Total Weight:** 571

### Hazmat Class:

- **Hazmat Class:** 3, 5, 55
Entry must be legible and in English
Entry may not contain code numbers or abbreviations
Each entry for each hazardous material must include the BASIC DESCRIPTION:
  • Proper shipping name (Column 2, Hazmat Table)
  • Hazard class (Column 3, Hazmat Table)
  • Identification Number (Column 4, Hazmat Table)
  • Packing Group (Column 5, Hazmat Table)
SHIPPING PAPERS

Shipping paper must:

• Contain the name of the shipper
• Indicate multiple pages, for example “page 1 of 4”.
• Show emergency response number
• Contain Shipper’s Certification
• Include the total quantity of material
• Accompany the shipment (give to the driver)
• Be readily available in driver’s compartment
# Dangerous Goods Checklist for a Non-Radioactive Shipment

## 2013 DANGEROUS GOODS CHECKLIST FOR A NON-RADIOACTIVE SHIPMENT

The recommended checklist appearing on the following pages is intended to verify shipments at origin. Never accept or refuse a shipment before all items have been checked.

**Is the following information correct for each entry?**

### SHIPPERS DECLARATION FOR DANGEROUS GOODS (DGD)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO*</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Identification

8. **UN or ID Number, preceded by prefix [8.1.6.9.1, Step 1]...**

9. **Proper Shipping Name and the technical name in brackets for asterisked entries [8.1.6.9.1, Step 2]...**

10. **Class or Division, and for Class 1, the Compatibility Group, [8.1.6.9.1, Step 3]...**

11. **Subsidiary Risk, in parentheses, immediately following Class or Division [8.1.6.9.1, Step 4]...**

12. **Packing Group [8.1.6.9.1, Step 5]...**

### Quantity and Type of Packing

13. **Number and Type of Packages [8.1.6.9.2, Step 6]...**

14. **Quantity and unit of measure (net, or gross followed by “G”, as applicable) within per package limit [8.1.6.9.2, Step 6]...**

15. **When different dangerous goods are packed in one outer packaging, the following rules are complied with:**
   - Compatible according to Table 9.3.A.
   - UN packages containing Division 6.2 [5.0.2.11(c)]...
   - “All packed in one (type of packaging)” [8.1.6.9.2, Step 6(f)]...
   - Calculation of “Q” value must not exceed 1 [5.0.2.11 (g) & (h); 2.75.6; 8.1.6.9.2, Step 6(g)]...

16. **Overpack**
   - Compatible according to Table 9.3.A. [5.0.1.5.1 and 5.0.1.5.3]...
   - Wording “Overpack Used” [8.1.6.9.2, Step 7]...

### Packing Instructions

17. **Packing Instruction Number [8.1.6.9.3, Step 8]...**

### Authorizations

18. **Check all verifiable special provisions. The Special Provision Number if A1, A2, A51, A81, A88, A99 or A130 [8.1.6.9.4, Step 9]...**

19. **Indication that governmental authorization is attached, including a copy in English and additional approvals for other items under [8.1.6.9.4, Step 9]...**

### Additional Handling Information

20. **The mandatory statement shown for self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2, or samples thereof, for PBE and for fireworks [8.1.6.11.1, 8.1.6.11.2, 8.1.6.11.3 and 8.1.6.11.5]...**

21. **Name and Telephone Number of a responsible person for Division 6.2 Infectious Substance shipment [8.1.6.11.4]...**

22. **Name and Title (or Department) of Signatory, Place and Date indicated and Signature of Shipper [8.1.6.13, 8.1.6.14, and 8.1.6.15]...**

23. **Amendment or alteration signed by Shipper [8.1.2.6]...**

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KWE/ DOT & IATA Hazardous Materials Transportation
# Dangerous Goods Checklist for a Non-Radioactive Shipment

**AIR WAYBILL-HANDLING INFORMATION**

24. The statement: “Dangerous goods as per attached Shipper’s Declaration” or “Dangerous Goods as per attached DGD” [8.2.1(a)]
   - [ ] YES  [ ] NO  [ ] N/A
25. “Cargo Aircraft Only” or “CAO”, if applicable [8.2.1(b)]
   - [ ] YES  [ ] NO  [ ] N/A
26. Where non-dangerous goods are included, the number of pieces of dangerous goods shown [8.2.2]...
   - [ ] YES  [ ] NO  [ ] N/A

**PACKAGE(S) AND OVERPACKS**

27. Packaging conforms with packing instruction and is free from damage or leakage [The relevant PI and 9.1.3]
   - [ ] YES  [ ] NO  [ ] N/A
28. Same number and type of packagings and overpacks delivered as shown on DGD [8.1.3]
   - [ ] YES  [ ] NO  [ ] N/A

**Markings**

29. UN Specification Packaging, marked according to 6.0.4 and 6.0.5:
   - Symbol and Specification Code
   - [ ] YES  [ ] NO  [ ] N/A
   - X, Y or Z meets or exceeds Packing Group/Packing Instruction requirements
   - [ ] YES  [ ] NO  [ ] N/A
   - Gross Weight within limits (Solids, Inner Packagings or IBCs [SP A17g])
   - [ ] YES  [ ] NO  [ ] N/A
   - Infectious substance package marking [5.5.3.1]
   - [ ] YES  [ ] NO  [ ] N/A
30. The UN or ID number(s) [7.1.5.1(a)]
   - [ ] YES  [ ] NO  [ ] N/A
31. The Proper Shipping Name(s) including technical name where required [7.1.5.1(a)]
   - [ ] YES  [ ] NO  [ ] N/A
32. The full name(s) and Address(es) of Shipper and Consignee [7.1.5.1(b)]
   - [ ] YES  [ ] NO  [ ] N/A
33. For consignments of more than one package of all classes (except ID 9000 and Class 7) the net quantity or gross weight followed by “O”, as applicable, unless contents are identical, marked on the packages [7.1.5.1(e)]
   - [ ] YES  [ ] NO  [ ] N/A
34. Carbon Dioxide, Solid (Dry ice), the net quantity marked on the packages [7.1.5.1(d)]
   - [ ] YES  [ ] NO  [ ] N/A
35. The Name and Telephone Number of a responsible person for Division 6.2 Infectious Substances Shipment [7.1.5.1(e)]
   - [ ] YES  [ ] NO  [ ] N/A
36. The Special Marking requirements shown for Packing Instruction 202 [7.1.5.1(f)]
   - [ ] YES  [ ] NO  [ ] N/A
37. Limited Quantities mark [7.1.5.3]
   - [ ] YES  [ ] NO  [ ] N/A
38. The Environmentally Hazardous Substance Mark [7.1.6.3]
   - [ ] YES  [ ] NO  [ ] N/A

**Labelling**

39. The label(s) identifying the Primary risk as per 4.2, Column D [7.2.3.2; 7.2.3.3(b)]
   - [ ] YES  [ ] NO  [ ] N/A
40. The label(s) identifying the Subsidiary risk, as per 4.2, Column D [7.2.3.2; 7.2.8.23]
   - [ ] YES  [ ] NO  [ ] N/A
41. Cargo Aircraft Only label [7.2.4.2; 7.2.8.3]
   - [ ] YES  [ ] NO  [ ] N/A
42. "Orientation" labels on two opposite sides, if applicable [7.2.4.4]
   - [ ] YES  [ ] NO  [ ] N/A
43. "Cryogenic Liquid" labels, if applicable [7.2.4.3]
   - [ ] YES  [ ] NO  [ ] N/A
44. "Keep Away From Heat" label, if applicable [7.2.4.5]
   - [ ] YES  [ ] NO  [ ] N/A
45. All required labels are displayed correctly [7.2.6] and all irrelevant marks and labels removed or obliterated [7.1.1; 7.2.1]
   - [ ] YES  [ ] NO  [ ] N/A

**For Overpacks**

46. Packaging Use markings and hazard and handling labels, as required must be clearly visible or reproduced on the outside of the overpack [7.14.1; 7.2.7]
   - [ ] YES  [ ] NO  [ ] N/A
47. The word “Overpack” marked if markings and labels are not visible [7.14.1]
   - [ ] YES  [ ] NO  [ ] N/A
48. If more than one overpack is used, identification marks shown and total quantity of dangerous goods [7.1.4.2]
   - [ ] YES  [ ] NO  [ ] N/A
49. “Cargo Aircraft Only” restrictions [5.0.1.53]
   - [ ] YES  [ ] NO  [ ] N/A

**GENERAL**

50. State and Operator variations complied with [2.8]
   - [ ] YES  [ ] NO  [ ] N/A
51. Cargo Aircraft Only shipments, a cargo aircraft operates on all sectors
   - [ ] YES  [ ] NO  [ ] N/A

Comments:

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Checked by:

Place: ____________________________ Signature: ____________________________

Date: ____________________________ Time: ____________________________

*IF ANY BOX IS CHECKED “NO”, DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.*
PACKING GROUP I – GREAT DANGER
PACKING GROUP II – MEDIUM DANGER
PACKING GROUP III – MINOR DANGER
I.A.T.A. Packaging Requirements

- Substances MUST be compatible with their packaging
- Metal packagings must be corrosion resistant or with protection against corrosion for substances with a Class 8 subsidiary risk
- NON COMPATIBLE DANGEROUS GOODS MUST NOT BE PACKAGED IN THE SAME CONTAINER
2 Key Documents must accompany Dangerous Goods shipments

- Air Way Bill (AWB)
- Dangerous Goods Declaration

Must Be Signed and dated by the Shipper or his agent (I.A.T.A. Certified Person)

A type written signature is not allowed
Loading and Securement
HazMat Emergency Response
Your Actions in a HazMat Emergency

- Stop
- Warn
- Isolate
- Minimize Exposure

You are not an emergency responder – leave that to the professionals!
Those who handle hazardous materials must know:

- The basic description & technical name of the material
- Immediate hazard's to health
- Risks of fire and exposure
- Who to contact
- How to clear the area
- How to isolate a spill
- Preliminary first aid and fire fighting methods
- Emergency response phone numbers
Hazard Recognition Site & Response

- Electrical Hazards
- Thermal Exposure
- Noise
- Traffic
- Work-related Violence
- Container Shapes
  - Plastic Drums
  - Larger vehicles in the proximity of the building such as trucks with Ribbed Tank Cars
  - 5-gallon Canisters
Hazard Recognition

- Placards & Labels
- Shipping Papers and SDS
NFPA 704 System
- Indicates general hazards
- Used on buildings
- Not used everywhere

Discussed here because buildings where you pick up or deposit your load may be involved in an emergency
NFPA 704

4 Flash Point below 73 °F
3 Flash Point below 100 °F
2 Flash Point from 100 to 200 °F
1 Preheating Required for Ignition
0 Will Not Burn
NFPA 704

4  Death or Severe Injury with Short Exposure
3  Severe Temporary or Long Term Injury
2  Severe Injury with Intense or Long Term Exposure
1  Irritation or Minor Injury
0  No Hazard
NFPA 704

4 Explosive Decomposition at Normal Temps.
3 Detonation with Strong Initiating Source
2 Unstable Chemical Reactions
1 Unstable at Elevated Temperatures
0 Stable

Reactivity
NFPA 704

Specific Hazards

OXY = Oxidizer
ACID = Acid
ALK = Alkali
COR = Corrosive
W = Water
= Radioactive
EMERGENCY RESPONSE INFORMATION

Proper Basic Description of HM
Immediate Hazards to Health
Risk of Fire/Explosion
Immediate Precautions (Accident/Incident)
Immediate Methods for Handling Fires
Initial Methods for Handling Spills/Leaks (No Fire)
Preliminary First Aid Measures
EMERGENCY RESPONSE TELEPHONE NUMBER

Includes Area OR International Access Code

No ‘1-800’ Numbers that do not work outside the U.S.

Entered In A Clearly Visible Location

Answered/Monitored 24 Hours A Day

Person Must be Knowledgeable

Must Be the Number Of the Person Offering Material

KWE/ DOT & IATA Hazardous Materials Transportation/ Presented by Du-All Safety
DOT Emergency Response Guide

- White
- Yellow - U.N. Number
- Blue - Alphabetical
- Orange - Safety Recommendations
- Green - Initial Isolation
Emergency Response Guide Page

GUIDE 129

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (saurows, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode which heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

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 for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters’ protective clothing will only provide limited protection.

EVACUATION

Large Spill
- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire
- If tank, rail car or tank truck is involved 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

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire
- Dry chemical, CO₂, water spray or alcohol-resistant foam.
- Do not use dry chemical extinguishers to control fires involving nitromethane or nitroethane.

Large Fire
- Water spray, fog or alcohol-resistant foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.

Fire Involving Tanks or Car/Trailer Loads
- Fight fire from maximum distance or use unmaned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

Large Spill
- Dig far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water.
- Do not remove clothing if adhering to skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Questions?

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