

Developing a Hazardous Materials Training Program

What You Should Know



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Effective Training Program

- Develop Safety Culture
- Provides Employees with Understanding of Regulatory Compliance and Railroad Safety
- Improve Company Effectiveness & Productivity
- Comply with Special Permits and One-Time Movement Approvals
- Prevent Agency Sanctions such as Emergency Orders
- Prevent Catastrophic Events

Hazmat Training Requirements

General Awareness / Familiarization

Hazmat training designed to provide the employee with sufficient information to recognize & identify hazardous materials consistent with the hazard communication standards.

Function Specific

Specialized training designed to provide sufficient information, skills & knowledge of federal requirements for an individual to safely function in a particular job.

Safety

Designed for employees who handle or transport hazmat & persons with the potential for exposure to hazmat, as a result of a transportation accident. [** Those who repair & test hazmat packagings are not subject to the safety training requirements*]

Security Awareness

Provides an understanding of security risks.

In-Depth Security Training

Detailed understanding of company security plan requirements.

Hazmat Employers Must:



- **Provide Training**
- **Test Employees**
- **Certify**
- **Develop & Maintain Records**
- **Recurrent Training Every Three Years**

Definition of a Hazmat Employee 171.8

- **Loads, unloads or handles hazmat**
- **Prepares the shipment for transport**
- **Responsible for transportation safety**
- **Requalifies hazmat packagings**
- **Operates vehicles transporting hazmat**

New Employees

- New hazmat employees or an employee who changes job functions that requires DOT training “**may**” perform those functions **only under the direct supervision of a properly trained & knowledgeable hazmat employee.**
- DOT training received from other sources “**may**” be used to satisfy the training requirements; however, the current hazmat employer must determine that the DOT training previously received was adequate & the employer must still **certify** that the new hazmat employee has been trained & tested.
- The employer has **90 days** to complete the new hire’s DOT training !

Who May Provide the Training?

- **Company Employee**
- **Outside Training Firms**
- **Federal or State Agencies**
- **Colleges & Universities**
- **Any other organization that can meet the objectives of the training requirements**
- **Computer-based training programs**

Evaluate Training

- Determine Needs
 - » What materials being transported
 - » Employee Duties
 - » Job Hazard Analysis
- Monitor Effectiveness
 - » Testing both book and proficiency
 - » Employee feedback
 - » Continuous assessment

Use Regulations as Guide for Training

- Applicable sections
 - » Training Rule 172h & 172i
 - » Shipping papers 172.200
 - » Marking 172.300
 - » Labeling 172.400
 - » Placarding 172.500
 - » Loading/Unloading 173.31g, 173.31d
 - » Transloading 174.67

Recordkeeping

1. Hazmat employee's name
2. Most recent training completion date
3. A copy, description *or* location of the training materials
4. Name & address of the trainer(s)
5. Certification that the hazmat employee has been **trained** & **tested**



Security Plans

172.800(b)

- New Rules Effective October 1, 2010
- As used in this section, “large bulk quantity” refers to a quantity greater than 3,000 kg (6,614 pounds) for solids or 3,000 liters (792 gallons) for liquids and gases in a single packaging such as a cargo tank motor vehicle, portable tank, tank car, or other bulk container.

Applicability

- (1) Any quantity of a Division 1.1, 1.2, or 1.3 material;
- (2) A quantity of a Division 1.4, 1.5, or 1.6 material requiring placarding in accordance with subpart F of this part;
- (3) A large bulk quantity of Division 2.1 material;
- (4) A large bulk quantity of Division 2.2 material with a subsidiary hazard of 5.1;
- (5) Any quantity of a material poisonous by inhalation, as defined in § 171.8 of this subchapter;
- (6) A large bulk quantity of a Class 3 material meeting the criteria for Packing Group I or II;
- (7) A quantity of desensitized explosives meeting the definition of Division 4.1 or Class 3 material requiring placarding in accordance with subpart F of this part;
- (8) A large bulk quantity of a Division 4.2 material meeting the criteria for Packing Group I or II;

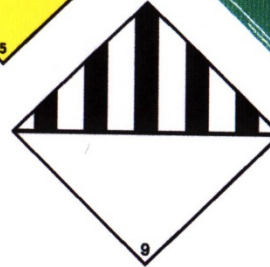
Applicability

- (9) A quantity of a Division 4.3 material requiring placarding in accordance with subpart F of this part;
- (10) A large bulk quantity of a Division 5.1 material in Packing Groups I and II; perchlorates; or ammonium nitrate, ammonium nitrate fertilizers, or ammonium nitrate emulsions, suspensions, or gels;
- (11) Any quantity of organic peroxide, Type B, liquid or solid, temperature controlled;
- (12) A large bulk quantity of Division 6.1 material (for a material poisonous by inhalation see paragraph (5) above);
- (13) A select **agent or toxin** regulated by the Centers for Disease Control and Prevention
- (14) A quantity of uranium hexafluoride requiring placarding
- (15) International Atomic Energy Agency (IAEA) Code of Conduct Category 1 and 2 materials including Highway Route Controlled quantities as defined in 49 CFR 173.403 or known as radionuclides in forms listed as RAM-QC by the Nuclear Regulatory Commission;

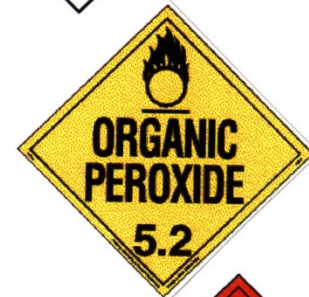
Security Plan Components

- Assessment of possible transportation security risk(s)
- Personnel security
- Unauthorized access
- En route Security

Examples of Function Specific Training



PLACARDS



Proper Display of Placards



Readily visible !

Securely attached/affixed or placed in a holder



Clear of appurtenances & devices such as ladders

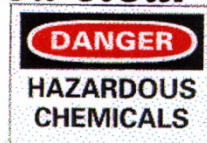
Located clear of dirt & water from wheels



Maintained to preserve format, legibility & color

Displayed horizontally, reading left to right

Located clear of any other markings





**Inhalation
Hazard**

DOT E-14572



MARKING

HOT

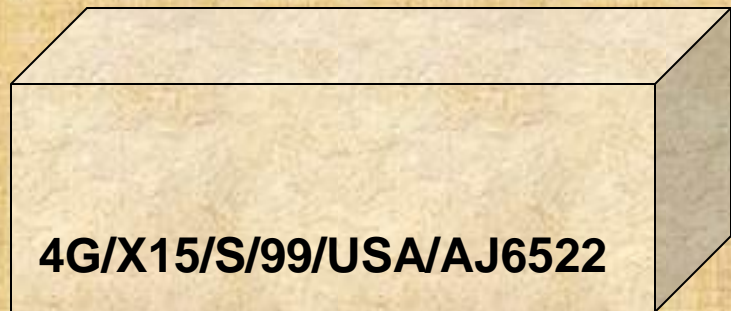
DOT 111A100W1

1075

2448



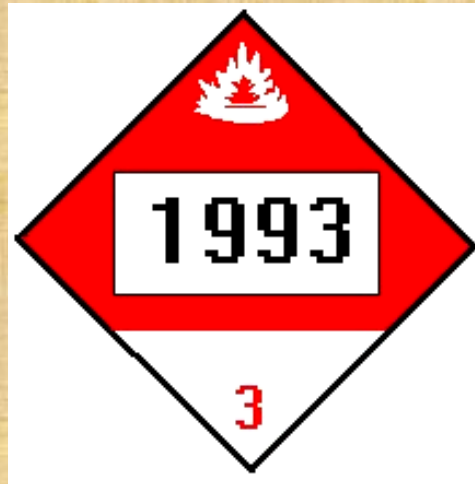
**Liquefied
Petroleum Gas**



Identification Numbers

May only be displayed on :

Orange Panels



Placards



White square-on-point configuration

Commodity Name Markings on Tank Cars

A tank car containing certain materials listed in *CFR 172.330* must be **marked** on each side with the “**key words**” of the **Proper Shipping Name** specified in *CFR 172.101* Table or a **common name** authorized in the regulations (*e.g. Refrigerant Gas*).

Min. 3.9" height
for rail cars

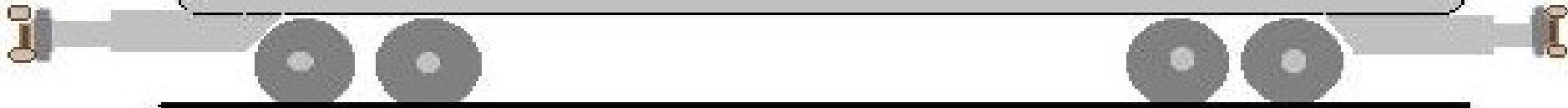
GATX 87554

LD LMT 180,000 LB

LT WT 81,300 LB

CHLORINE

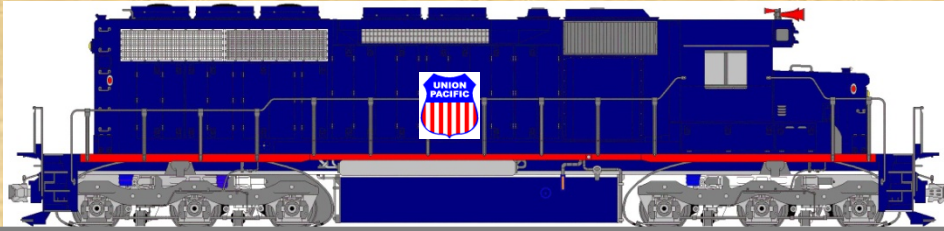
INHALATION HAZARD



Poisonous by Inhalation Marking

- ✓ Packages must be marked :
 “**INHALATION HAZARD**” !
- ✓ Marked on **2 opposing sides** for bulk packagings in letters at least **3.9”** in height for rail cars, at least **2”** in height for other bulk packagings & at least **1”** for portable tanks < 1,000 gals & IBC’s.
- ✓ Transport vehicles & freight containers containing PIH materials in non-bulk packagings must be marked on each side & each end with the **IDENTIFICATION NUMBER** for each PIH material if:
 - ✓ Material is in Hazard Zone A or B and,
 - ✓ Loaded at one facility with 2,205 lbs or more with the same PIH material

Train vs Switching



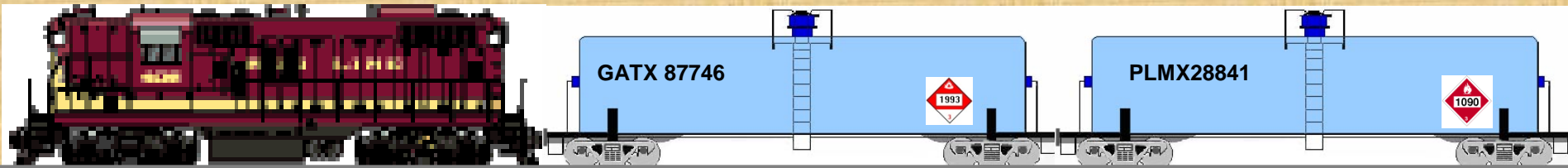
Definition of a “**Train**” – means 1 or more engines coupled with 1 or more rail cars, **except during switching operations** or where the operation is that of classifying and assembling rail cars within a railroad yard for the purpose of making or breaking up trains.

- **CFR 171.8**

FRA Interpretation:

Except for interchange operations, which are always considered “train” movements, the definition of a “train” is applicable if **federal air brake rules apply**.

Train Placement of Hazmat



General - The following must be separated from a locomotive or occupied caboose by at least **1 non-placarded car:**

- ✓ **Residue** tank car
- ✓ **Radioactive**

Train Placement Table for “Loaded” Placarded Cars - *CFR 174.85 (d)*

The table utilizes (4) Placard Groups:

- **Placard Group 1** – Explosives (Div. 1.1 & 1.2) *
- **Placard Group 3** – 2.3, Zone A & 6.1, PG I, Zone A *
- **Placard Group 4** – Class 7 (Radioactive)
- **Placard Group 2** – which are all of the other classes/divisions, less the exclusions !

** Requires a white square background behind the placard !*

Notice to Train Crews of Placarded Cars

174.26

Train
Consist

Switch
List

Carrier
Waybill

Bill of
Lading

The train crew must have a **document** that reflects the **current position** in the train of each rail car containing Hazmat (*load or residue*). In addition, a member of the crew of a train transporting Hazmat must have a **copy** of a document for the Hazmat being transported showing the information required by Part 172 of the subchapter.

Example RR Waybill

- IDP RAILROAD COMPANY -

* DANGEROUS *

TXPX 33021

SACRAMENTO CA

KANSAS CITY KS

KORTHALS INC

IDP, DENVER, JLP

4905781

PREPAID
WEIGHT AND CHARGES TO FOLLOW

1 T/C
PROPANE
2.1
UN1075

EMERGENCY CONTACT:
800-424-9300

HAZMAT STCC = 4905781

— IDP RAILROAD COMPANY —

Reporting Hazmat Incidents

* Immediate Notification *



- As a direct result of Hazmat:
 - A person is **killed** *or*,
 - Injury requiring **hospitalization**
 - Estimated damages > **\$50,000**
 - **Evacuation** lasting > 1 hour
 - **Radioactive** contamination
 - **Etiologic** contamination
 - Release of a **Marine Pollutant**
> 119 gal (liquid) or 882 lbs.
(solid)

Carrier's Responsibilities for Inspecting Hazardous Materials



At each location where a hazardous material is accepted for transportation *or* placed in train, the carrier shall inspect each rail car containing hazardous material, at ground level, for required:

- ✓ **Markings**
- ✓ **Labels**
- ✓ **Placards**
- ✓ **Securement of closures & leakage**

This inspection may be performed in conjunction with inspections required under Parts 215 & 232 of this title.

CFR 174.9

Carrier's Responsibilities for Shipping Papers

BILL OF LADING

GATX 83447

1 T/C Liquefied Petroleum Gas/
2.1/ UN1075

EMERGENCY CONTACT 1-800-4249300

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Amanda Blake

A person may not accept or transport a hazardous material by rail unless that person **receives a shipping paper** that properly conveys the information required by Part 172 of this subchapter. Only an initial carrier within the United States must receive and retain a copy of the shipper's certification as required by CFR 172.204 of this subchapter.

- **CFR 174.24**

174.83



Certain **loaded**, placarded rail cars may **NOT** be:

- ✓ Cut off while in motion
- ✓ Coupled into with more force than is necessary to complete the coupling
- ✓ Struck by any car moving under its own momentum

These shipments are:

- ✓ 1.1 & 1.2 (Explosives)
- ✓ 2.3, Zone A (Poisonous Gases)
- ✓ 6.1, PG I, Zone A (Poison Liquids)
- ✓ DOT 113 tank car placarded Div. 2.1 (Load *or* Residue)
- ✓ Placarded flatcar or a flatcar carrying a placarded transport vehicle, freight container or bulk packaging

Exclusions from Handling & Train Placement Requirements

- ✓ **Combustible liquids**
- ✓ **Class 9** (Miscellaneous Hazmat)
- ✓ **Div. 6.1, PG III**
(Poisonous material)
- ✓ **Div. 1.6** (Extremely Insensitive
Detonating Substances)
- ✓ **ORM-D** (Consumer Commodities)



POSITION IN TRAIN OF PLACARDED CARS TRANSPORTING HAZARDOUS MATERIALS

RESTRICTIONS	Placard Group 1	Placard Group 2		Placard Group 3		Placard Group 4
	Rail Car	Tank Car	Rail Car	Tank Car	Rail Car	Rail Car
1 When train length permits, placarded car may not be nearer than the sixth car from the engine or occupied caboose.	X	X		X		
2 When train length does not permit, placarded car must be placed near the middle of the train, but not nearer than the second car from an engine or occupied caboose.	X	X		X		
3 A placarded car may not be placed next to an open-top car when any of the lading in the open top car protrudes beyond the car ends, or if the lading shifted, would protrude beyond the car ends.	X	X		X		
4 A placarded car may not be placed next to a loaded flat car, except closed TOFC/COFC equipment, auto carriers, and other specially-equipped cars with tie-down devices for securing vehicles. Permanent bulk head flat cars are considered the same as open-top cars.	X	X		X		
5 A placarded car may not be placed next to any transport vehicle or freight container having an internal combustion engine or an open-flame device in operation.	X	X		X		

- (1) Where an “X” appears at the intersection of a Placard Group column & a Restriction row, the corresponding restriction applies !
- (2) “Rail Car” means a car other than a tank car.
- (3) For purposes of this subpart, each unit of an articulated intermodal rail car shall be considered as one car.

POSITION IN TRAIN OF PLACARDED CARS TRANSPORTING HAZARDOUS MATERIALS

RESTRICTIONS	Placard Group 1	Placard Group 2		Placard Group 3		Placard Group 4
	Rail Car	Tank Car	Rail Car	Tank Car	Rail Car	Rail Car
6. Placarded cars may not be placed next to each other based on the following:						
Placard Group 1		X	X	X	X	X
Placard Group 2	X			X	X	X
Placard Group 3	X	X	X			X
Placard Group 4	X	X	X	X	X	

PLACARD GROUP:

Group 1 – Divisions 1.1 and 1.2 (Class A explosive) materials

Group 2 – Division 1.3, 1.4, 1.5 (Class B and C explosive), Class 2 (compressed gas; other than Div. 2.3, Zone A, Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), Class 6 (poisonous liquid); other than Div 6.1, PG 1, Zone A, and Class 8 (corrosive materials).

Group 3 – Divisions 2.3 (PG I, Zone A; poisonous gas) and 6.1 (PG I, Zone A; poisonous liquid) materials.

Group 4 – Class 7 (radioactive) materials.



The End!