

Connecticut's Commercial Driver's Manual

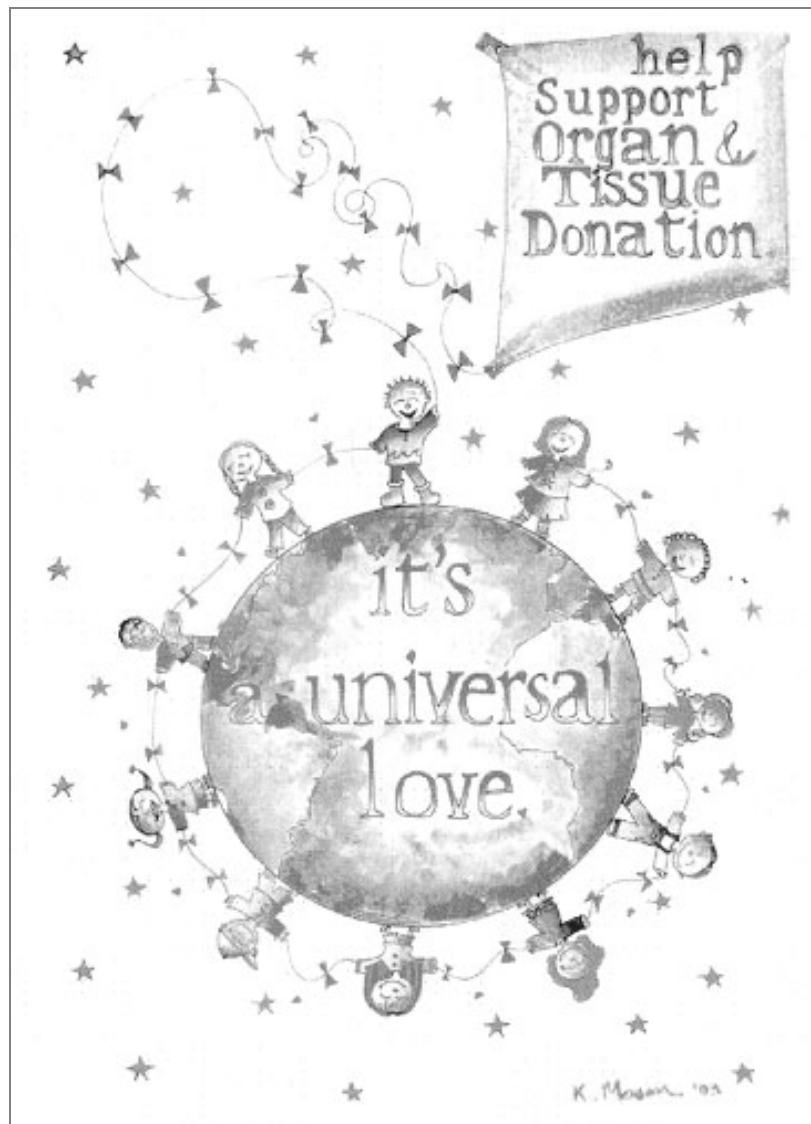
Hazardous Materials Section Booklet



Dannel P. Malloy
Governor

Melody A. Currey
Commissioner

Prepared by:
State of Connecticut
Department of Motor Vehicles
60 State Street
Wethersfield, CT 06161
ct.gov/dmv



Donate Life Connecticut sees a world where everyone who needs an organ or tissue transplant - gets one. A future where no one waits, no life is lost, no family grieves because time ran out.

TABLE OF CONTENTS

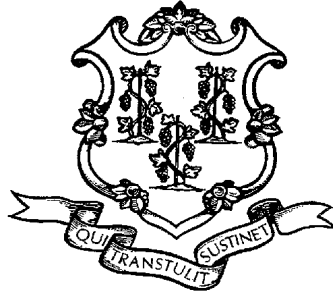
Please see the Connecticut Commercial Driver's Manual for sections 1-10.

SECTION 11:

11.1 The Intent of the Regulations.....	2
11.2 Haz Mat Transportation- Who Does What.....	2
11.3 Communication Rules.....	3
11.4 The Shipping Paper.....	8
11.5 Loading and Unloading.....	12
11.6 Bulk Packaging Marking, Loading and Unloading.....	16
11.7 Hazardous Materials- Driving and Parking Rules.....	17
11.8 Hazardous Materials- Emergencies.....	19
11.9 Requirements for Commercial Driver's License Holders to add or renew the Hazardous Materials Endorsement.....	23
HAZARDOUS MATERIALS GLOSSARY.....	26

TABLE OF ILLUSTRATIONS

Figure 1: Hazardous Materials Hazard Class/ Division Table.....	3
Figure 2: Example of Hazardous Warning Label.....	4
Figure 3: Placard and Panel Locations.....	5
Figure 4: Part of the Hazardous Materials Table.....	6
Figure 5: List of Hazardous Substances and Reportable Quantities.....	7
Figure 6: Example of Shipping Paper.....	8
Figure 7: Placard Table 1, Any Amount.....	11
Figure 8: Placard Table 2, 1,001 lbs. More.....	12
Figure 9: Prohibited Loading Combinations.....	15
Table A: Radioactive Separation Table.....	25
Table B: Table of Hazard Class Definitions.....	25



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The purpose of this manual is to provide the reader with a general familiarity with the principles of safe and lawful operation of a Commercial Vehicle carrying Hazardous Materials. The contents of this manual are not intended to serve as a precise statement of the General Statutes of the State of Connecticut pertaining to the operation of a Hazmat Vehicle and should not be understood by the reader as such.

SECTION 11: HAZARDOUS MATERIALS

This Section Covers

The Intent of the Regulations
Driver Responsibilities
Communication Rules
Loading and Unloading
Bulk Tank Loading, Unloading and Marking
Driving and Parking Rules
Emergencies

Note: the words "POISON" and "TOXIC" are and can be used interchangeably. However, "POISON" is being phased out of the regulations.

Introduction

Hazardous materials are products that pose a risk to health, safety, and property during transportation. The term often is shortened to HAZMAT, which you may see on road signs, or to HM in government regulations. Hazardous materials include explosives, various types of gas, solids, flammable and combustible liquid, and other materials. Because of the risks involved and the potential consequences these risks impose, the handling of hazardous materials is very heavily regulated by all levels of government.

The Hazardous Materials Regulations (HMR) are found in parts 171-180 of title 49 of the Code of Federal Regulations. The common reference for these regulations is 49 CFR 171-180.

The Hazardous Materials Table in these regulations contains a list of these items. However, this list is not all-inclusive. Whether or not a material is considered hazardous is based on its characteristics and the shipper's decision on whether or not the material meets a definition of a hazardous material in the regulations.

The regulations require vehicles transporting certain types or quantities of hazardous materials to display diamond-shaped, square-on-point, warning signs called placards.

This section is designed to assist you in understanding your role and responsibilities in hauling hazardous materials. Due to the constantly changing nature of government regulations, it is impossible to guarantee absolute accuracy of the materials in this section. An up-to-date copy of the complete regulations is essential for you to have. Included in these regulations is a complete glossary of terms.

You must have a commercial driver's license (CDL) with a hazardous materials endorsement before driving vehicles carrying hazardous materials, which **require** placards. You must pass a written test about the regulations and requirements to get this endorsement.

Everything you need to know to pass the written test is in this section. However, this is only a beginning. Most drivers need to know much more on the job. You can learn more by reading and understanding the federal and state rules applicable to hazardous materials as well as attending hazardous materials training courses. These courses are usually offered by your employer, colleges and universities, and various associations. You get copies of the Federal Regulations (49 CFR) through your local Government Printing Office bookstore and various -industry publishers. Union or company offices often have copies of the rules for driver use. Find out where you can get your own copy to use on the job.

The regulations require training and testing for all drivers involved in transporting hazardous materials. Your employer or a designated representative is required to provide this training and testing. Hazardous materials employers are required to keep a record of that training on each employee as long as that employee is working with hazardous materials, and for 90 days thereafter. The regulations require that hazardous - materials employees be trained and tested at least once every two years.

The regulations also require that drivers have special training before driving a vehicle transporting certain flammable gas materials or highway route controlled quantities of radioactive materials. In addition, drivers

transporting cargo tanks and portable tanks must receive specialized training. Each driver's employer or their designated representative must provide such training.

Some locations require permits to transport certain explosives or bulk hazardous wastes. States and counties also may require drivers to follow special hazardous materials routes. The federal government may require permits or exemptions for special hazardous materials cargo such as rocket fuel. Find out about permits, exemptions, and special routes for places you drive.

11.1 The Intent of the Regulations

Contain the Material

Transporting hazardous materials can be risky. The regulations are intended to protect you, those around you, and the environment. They tell shippers how to package the materials safely and drivers how to load, transport, and unload the material. These are called "containment rules."

Communicate the Risk

To communicate the risk, shippers must warn drivers and others about the material's hazards. The regulations require shippers to put hazard warning labels on packages, provide proper shipping papers, emergency response information, and placards. These steps communicate the hazard to the shipper, the carrier, and the driver.

Assure Safe Drivers and Equipment

In order to get a hazardous materials endorsement on a CDL, you must pass a written test about transporting hazardous materials. To pass the test, you must know how to:

- Identify what are hazardous materials
- Safely load shipments
- Properly placard your vehicle in accordance with the rules
- Safely transport shipments.

Learn the rules and follow them. Following the rules reduces the risk of injury from hazardous materials. Taking shortcuts by breaking rules is unsafe. Rule breakers can be fined and put in jail.

Inspect your vehicle before and during each trip. Law enforcement officers may stop and inspect your vehicle. When stopped, they may check your shipping papers, vehicle placards, the hazardous materials endorsement on your driver's license, and your knowledge of hazardous materials.

11.2 Haz Mat Transportation –Who Does What

The Shipper

- Sends products from one place to another by truck, rail, vessel, or airplane.
- Uses the hazardous materials regulations to, determine the product's:
 - Proper shipping name
 - Hazard class
 - Identification number
 - Correct packaging
 - Correct label and markings
 - Correct placards
- Must package, mark, and label the materials; prepare shipping papers; provide emergency response information; and supply placards.
- Certify on the original shipping paper that the shipment has been prepared according to the rules (unless you are pulling cargo tanks supplied by you or your employer).

The Carrier

- Takes the shipment from the shipper to its destination.
- Prior to transportation, checks that the shipper correctly described, marked, labeled, and otherwise

- prepared the shipment for transportation.
- Refuses improper shipments.
- Reports accidents and incidents involving hazardous materials to the proper government agency.

The Driver

- Makes sure the shipper has identified, marked, and labeled the hazardous materials properly.
- Refuses leaking packages and shipments.
- Placards his vehicle, if required, when loading.
- Safely transports the shipment without delay.
- Follows all special rules about transporting hazardous materials.
- Keeps hazardous materials shipping papers and emergency response information in the proper place.

11.3 COMMUNICATION RULES

Definitions

Some words and phrases have special meanings when talking about hazardous materials. Some of these may differ from meanings you are used to. The words and phrases in this section may be on your test. The meanings of other important words are in the glossary at the end of this booklet.

A material's **hazard class** reflects the risks associated with it. There are 11 different hazard classes. Figure 1 tells the exact meaning of each hazard class. The types of materials included in these 11 classes are in the table below.

Figure 1: Hazardous Materials Class/ Division Table

CLASS	DIVISION	NAME OF CLASS OR DIVISION	EXAMPLE
1	1.1 1.2 1.3 1.4 1.5 1.6	Mass Explosives Projection Hazards Mass Fire Hazards Minor Hazards Wry Insensitive Extremely Insensitive	Dynamite Flares Display Fireworks Ammunition Blasting Agents Explosive Devices
2	2.1 2.2 2.3	Flammable Gases Non-Flammable Gases Poisonous/Toxic Gases	Propane Helium Fluorine, Compressed
3	-	Flammable Liquids	Gasoline
4	4.1 4.2 4.3	Flammable Solids Spontaneously Combustible Spontaneously Combustible When Wet	Ammonium Picrate, Wetted White Phosphorus Sodium
5	5.1 5.2	Oxidizers Organic Peroxides	Ammonium Nitrate Methyl Ethyl Ketone Peroxide
6	6.1 6.2	Poison (Toxic Material) Infectious Substances	Potassium Cyanide Anthrax Virus
7	-	Radioactive	Uranium
8	-	Corrosives	Battery Fluid
9	-	Miscellaneous Hazardous Materials	Polychlorinated Biphenyls(PCB)
None	-	ORM-D (Other Regulated Material-Domestic)	Food Flavorings, Medicines
None	-	Combustible Liquids	Fuel Oil

A **shipping paper** describes- the hazardous materials being transported. Shipping orders, bills of lading, and manifests are all shipping papers. Figure 6 on page 8 shows an example shipping paper.

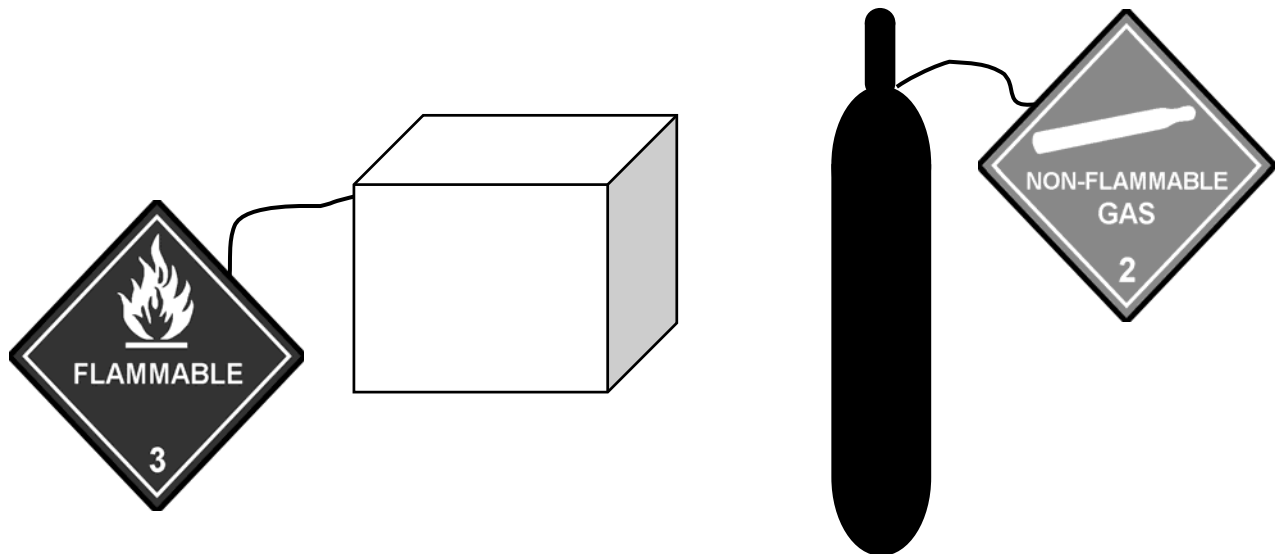
After an accident or hazardous materials spill or leak, you may be injured and unable to communicate the hazards of the materials you are transporting. Firefighters and police can prevent or reduce the amount of damage or injury at the scene if they know what hazardous materials are being carried. Your life, and the lives of others, may depend on quickly locating the hazardous materials shipping papers. For that reason the rules:

- Require shippers to describe hazardous materials correctly and include an emergency response telephone number on shipping papers.
- Require carriers and drivers to put tabs on hazardous materials shipping papers, or keep them on top of other shipping papers and keep the required emergency response information with the shipping papers.
- Require drivers to keep hazardous materials shipping papers
 - In a pouch on the driver's door, or
 - Clearly visible to persons entering into the cab of the truck **and** within immediate reach of the driver while restrained by the lap belt, or
 - When the driver is not at the controls of the vehicle, in a pouch mounted to the inside of the driver's door, or on the driver's seat

Package Labels

Shippers put diamond-shaped hazard warning labels on most hazardous materials packages. These labels inform others of the hazard. If the diamond label won't fit on the package, shippers may put the label on a tag securely attached to the package. For example, compressed gas cylinders that will not hold a label will have tags or decals. Labels look like the example in Figure 2.

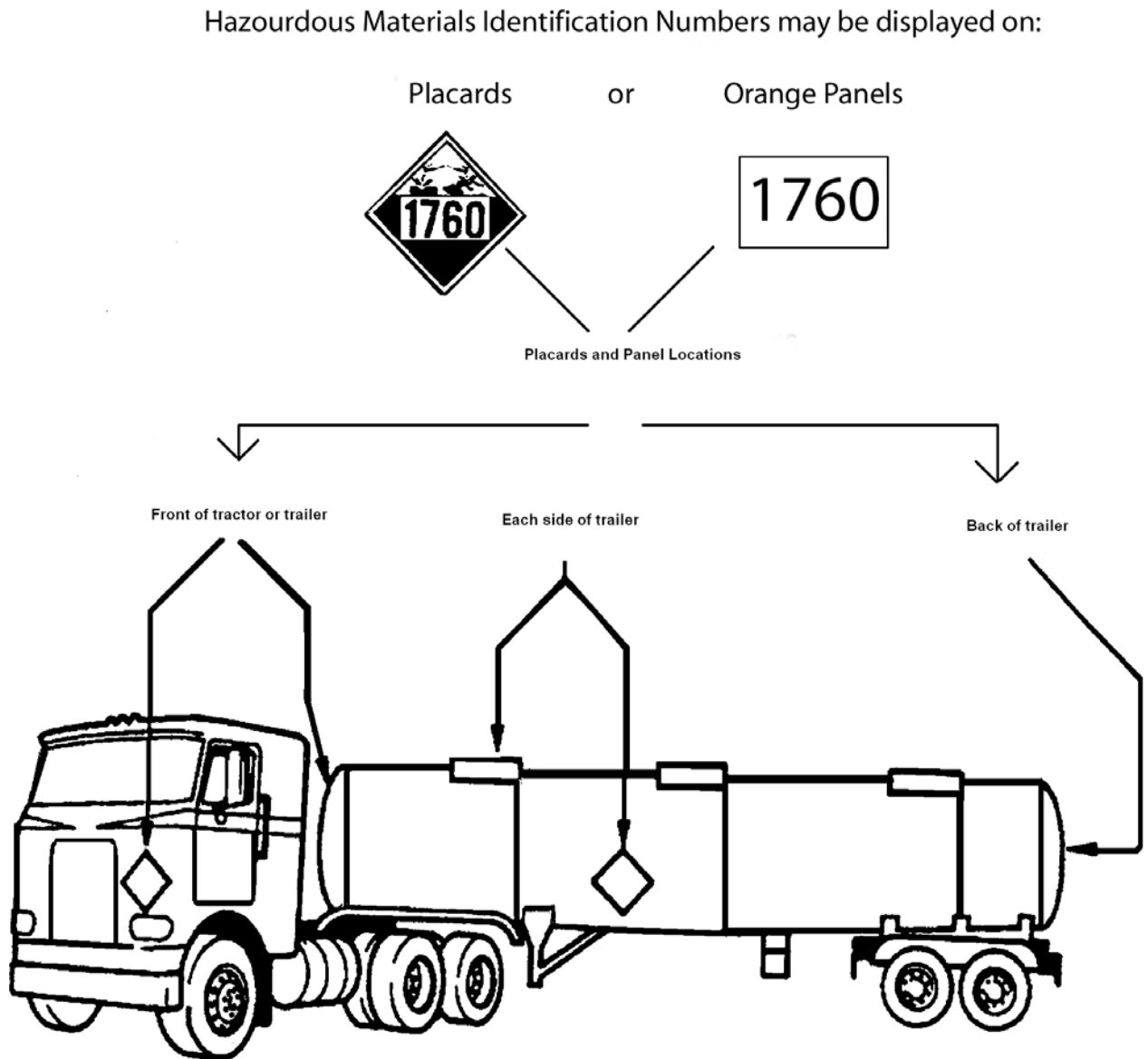
Figure 2: Example of Hazardous Warning Labels



Lists of Regulated Products

Placards are signs put on the outside of a vehicle, which identify the hazard class of the cargo. A placarded vehicle must have at least four placards corresponding to the hazard class being transported. They are put on the front, rear, and both sides of the vehicle (see Figure 3). Placards must be readable from all four directions. They are 10 3/4 inches square, square-on-point, in a diamond shape. Cargo tanks and other bulk packaging display the I. D. number of their contents on placards or orange panels or white square-on-point displays that are the same size as placards.

Figure 3: Placard and Panel locations



There are three main lists used by shippers, carriers, and drivers when trying to identify hazardous materials. Before transporting a material, look for its name on three lists. Some materials are on all lists, others on only one. Always check the following lists:

- Section 172.101, the Hazardous Materials Table

- Appendix A to Section 172.101, the List of Hazardous Substances and Reportable Quantities
- Appendix B to Section 172.101, the List of Marine Pollutants.

The Hazardous Materials Table. Figure 4 shows part of the Hazardous Materials Table. Column 1 tells which shipping mode(s) the entry affects and other information concerning the shipping description. The next five columns show each material's shipping name, hazard class. or division, ID number, packaging group, and required labels.

Figure 4: Part of the Hazardous Materials Table

172.101 HAZARDOUS METERIALS TABLE									
Symbols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class or Division (3)	Identification Numbers (4)	Packing Group (5)	Label(s) required (if not excepted) (6)	Special provisions (7)	Packaging authorizations (8)		
							Exceptions (8A)	Non-bulk packaging (8B)	Bulk Packaging (8C)
G	Toxic solids, self heating, n.o.s....	6.1	UN3124	I	6.1 4.2	A5- T6, TP33	None	211	241

Six different symbols may appear in **Column 1** of the table.

- +** Shows the proper shipping name, hazard class, and packing group to use, even if the material doesn't meet the hazard class definition.
- A** Means the hazardous material described in Column 2 is subject to the HMR only when offered or intended for transport by air unless it is a hazardous substance or hazardous waste.
- W** Means the hazardous material described in Column 2 is subject to the HMR only when offered or intended for transportation by water unless it is a hazardous substance, hazardous waste, or marine pollutant.
- D** Means the proper shipping name is appropriate for describing materials for domestic transportation, but may not be proper for international transportation.
- I** Identifies a proper shipping name that is used to describe materials in international transportation. A different shipping name may be used when only domestic transportation is involved.
- G** Identifies proper shipping names for which one or more technical names of the hazardous materials must be entered in parentheses in association with the basic description.

Column 2 lists the proper shipping names and descriptions of regulated materials. Entries are in alphabetical order so you can **more** quickly find the right entry. The table shows proper shipping names in regular type. The shipping paper must show proper shipping names. Names shown in *italics* are not proper shipping names.

Column 3 shows a material's hazard class or division, or the entry "Forbidden." Never transport a "Forbidden" material.

Column 4 lists the identification number for each proper shipping name. Identification numbers are preceded by the letters "UN" or "NA." The letters "NA are associated with proper shipping names that are only used within the United States and to and from Canada. The identification number must appear on the

shipping paper as part of the shipping description and also appear on the package. It also must appear on cargo tanks and other bulk packaging. Police and firefighters use this number to quickly identify the hazardous materials.

Column 5 shows the packing group assigned to a material. If column is blank, no packing group is assigned.

Column 6 shows the hazard warning labels) shippers must put on packages of hazardous materials. Some products require use of more than one label due to a dual hazard being present. No label is needed where the table shows the word NONE.

Column 7 lists the additional (special) provisions that apply to this material. When there is an entry in this column, you must refer to the federal regulations for specific information.

Column 8 is a three-part column showing the section numbers covering the packaging requirements for each hazardous material.

NOTE: Columns 9 and 10 do not apply to transportation by highway.

Appendix A to §172.101 - The List of Hazardous Substances and Reportable Quantities. The DOT and the EPA want to know about spills of **hazardous substances**. They are named in the List of Hazardous Substances and Reportable Quantities (see Figure 5). Column 3 of the list shows each product's reportable quantity (RQ). When these materials are being transported in a reportable quantity or greater *in one package*, the shipper displays the letters RQ on the shipping paper and package. The letters RQ may appear before or after the basic description. You or your employer must report any spill of these materials, which occurs in a **reportable quantity**.

If the words "toxic" (or poison) "Inhalation Hazard" appear on the shipping paper or package, the rules require display of the "POISON INHALATION HAZARD" or "POISON GAS" placards, as appropriate. These placards must be used in addition to other placards, which may be required by the product's hazard class. Always display the hazard class placard and the Poison Inhalation Hazard or Poison Gas placard, even for small amounts.

Spills of 10 Pounds or more must be reported.

Figure 5: List of Hazardous Substances and Reportable Quantities

LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES- Continued		
Hazardous Substance	Synonyms	Reportable Quantity (RQ) Pounds (Kilograms)
Phenyl mercaptan	Benzinethiol Thiophenol	100 (45.4)
Phenylmercuric acetate	Mercury, (acetato-0) phenyl	100 (45.4)
N-Phenylthiourea	Thiourea, phenyl	100 (45.4)
Phorate	Phosphorodithioic acid, 0,0-diethyl S-(ethylthio), methylester	10(4.54)
Phosgene	Carbonyl chloride	10 (4.54)
Phosphine	Hydrogen Phosphide	100 (45.4)
Phosphoric acid		5000 (2270)
Phosphoric acid, diethyl		
4-nitrophenyl ester	Diethyl-p nitrophenyl phosphate	100 (45.4)
Phosphoric acid, lead salt	Lead phosphate	1 (0.454)

Test Your Knowledge

1. Shippers package in order to _____ the material.
2. Drivers placard their vehicle to _____ the risk.
3. What three things do you need to know to decide which placards (if any) you need?
4. A hazardous materials ID number must appear on the _____ and on the _____ The identification number must also appear on cargo tanks and other bulk packaging.
5. Where must you keep shipping papers describing hazardous materials?

These questions may be on the test. If you are unable to answer all of the questions, re-read **11.1 THE INTENT OF THE REGULATIONS, 11.2 HAZARDOUS MATERIALS TRANSPORTATION - WHO DOES WHAT AND 11.3 COMMUNICATION RULES.**

11.4 THE SHIPPING PAPER

The shipping paper shown in Figure 6 describes a shipment. A shipping paper for hazardous materials must include:

- Page numbers if the shipping paper has more than one page. The first page must tell the total number of pages. For example, "Page 1 of 4."
- A proper shipping description for each hazardous material.
- On original hazardous materials shipping papers a "**shipper's certification**," signed by the shipper, saying they prepared the shipment according to the rules

Figure 6: Example of Shipping Paper

"RQ" means that this is a reportable quantity		Hazard Class from Column 3 of the Table	
Proper shipping name from Column 2 of the Hazardous Materials		ID Number from Column 4 of the Hazardous Materials Table	
SHIPPING PAPER Page 1 of 1			
TO: Wafers R US 88 Valley Street Silicon Junction, CA		FROM: Essex Corporation 5775 Dawson Avenue Coleta, CA 93117	
QTY	HM	DESCRIPTION	WEIGHT
1 cyl	RQ	Phosgene, 2.3, 8UN1076, Poison, Inhalat Hazard, Zone A	25 lbs
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.			
Shipper: Essex Corp Per: Shultz Date: 6/27/88		Carrier: Knuckle Bros. Per: Date:	
SPECIAL INSTRUCTIONS: 24 Hr. Emergency Contact, Ed Shultz, 1-800-555-5555			

Item Description

If a shipping paper describes both hazardous and non-hazardous products, the hazardous materials will be either:

- Described first
- Highlighted in a contrasting color
- Identified by an "X" placed before the shipping name in a column captioned "HM." The letters "RQ" may be used instead of "X" if a reportable quantity is present in one package.

The basic description of hazardous materials includes the identification number, proper shipping name, the hazard class or division, subsidiary hazard (in parentheses), if required, and the packing group, if any, in that order. Alternatively, the basic description may be shown with the identification (ID) number listed first. The packing group is displayed in Roman numerals and may be preceded by "PG."

Shipping name, hazard class, and ID number must not be abbreviated unless specifically authorized in the hazardous materials regulations. The description must also show:

- The total quantity and unit of measure
- The letters RQ, if a reportable quantity
- If the letters RQ appear, the name of the hazardous substance
- For those entries identified with the letter "G" in column 1 of the hazardous materials table, the technical names(s) of the hazardous material
- Except for combustible liquids, the subsidiary hazard class(es), or subsidiary division numbers(s) must be entered in parenthesis immediately following the primary hazard class, or division number

Shipping papers also must list an emergency response telephone number. The emergency response telephone number is the responsibility of the shipper. It can be used by emergency responders to obtain information about any hazardous materials involved in a spill or fire.

Shippers must also ensure that emergency response information for each hazardous material transported is immediately available at all times while the shipment is in transit. The emergency response information must be able to be used away from the motor vehicle and must provide information on how to safely handle incidents involving the material. It must include information on the shipping name of the hazardous materials.

Such information can be on the shipping paper or some other document that includes the basic description and technical name of the hazardous material. Or, it may be in a guidance book such as the North America Emergency Response Guidebook (NAERG). Motor carriers may assist shippers by keeping an NAERG on each vehicle carrying hazardous materials. The driver must provide the emergency response information, to any federal, state, or local authority responding to a hazardous materials incident or investigating one.

Total quantity must appear before or after the basic description. The packaging type and the unit of measurement may be abbreviated. For example:

10 ctns. Paint, 3, UN1263, PG II, 500 lbs.

The shipper of hazardous wastes must put the word WASTE before the proper shipping name of the material on the shipping paper (hazardous waste manifest). For example:

Waste Acetone, 3, UN1090, PG II.

A non-hazardous material may **not** be described by using a hazard class or an ID number.

Shipper's Certification

When the shipper packages hazardous materials, he/she certifies that the package has been prepared according to the rules. The signed shipper's certification appears on the original shipping paper. The only exceptions are when a shipper is a private carrier transporting their own product and when the package is provided by the carrier (for example, a cargo tank). Unless a package is clearly unsafe or does not comply

with the HMR, you may accept the shipper's certification concerning proper packaging. Some carriers have additional rules about transporting hazardous materials. Follow your employer's rules when accepting shipments.

Package Markings and Labels

Shippers print required markings directly on the package, an attached label, or tag. An important package marking is the name of the hazardous materials. It is the same name as the one on the shipping paper.

When required, the shipper will put the following on the package:

- The name and address of shipper or consignee
- The hazardous material's shipping name and ID number
- The labels required

If the rules require it, the shipper also will put RQ or INHALATIONHAZARD on the package. Packages with liquid containers inside will also have package orientation markings with the arrows pointing in the correct upright direction. The labels used always reflect the hazard class of the product. If a package needs more than one label, the labels will be close together, near the proper shipping name.

Recognizing Hazardous Materials

Learn to recognize shipments of hazardous materials. To find out if the shipment includes hazardous materials, look at the shipping paper. Does it have:

- An entry with a proper shipping name, hazard class, and ID number?
- A highlighted entry, or one with an X or RQ in the hazardous materials column?

Other clues suggesting hazardous materials:

- What business is the shipper in? Paint dealer? Chemical supply? Scientific supply house? Pest control or agricultural supplier? Explosives, munitions, or fireworks dealer?
- Are there tanks with diamond labels or placards on the premises?
- What type of package is being shipped? Cylinders and drums are often used for hazardous materials shipments.
- Is a hazard class label, proper shipping name, or ID number on the package?
- Are there any handling precautions?

Hazardous Waste Manifest

When transporting hazardous wastes, you must sign by hand and carry a Uniform Hazardous Waste Manifest. The name and EPA registration number of the shippers, carriers, and destination must appear on the manifest. Shippers must prepare, date, and sign by hand the manifest. Treat the manifest as a shipping paper when transporting the waste. Only give the waste shipment to another registered carrier or disposal treatment facility. Each carrier transporting the shipment must sign by hand the manifest. After you deliver the shipment, keep your copy of the manifest. Each copy must have all needed signatures and dates, including those of the person to whom you delivered the waste.

Placarding

Attach the appropriate placards to the vehicle before you drive it. You are only allowed to move an improperly placarded vehicle during an emergency, in order to protect life or property.

Placards must appear on both sides and ends of the vehicle. Each placard must be:

- Easily seen from the direction it faces
- Placed so the words or numbers are level and read from left to right
- At least 3 inches away from any other markings
- Kept clear of attachments or devices such as ladders, doors, and tarpaulins
- Kept clean and undamaged so that the color, format, and message are easily seen

To decide which placards to use, you need to know:

- The hazard class of the materials
- The amount of hazardous materials shipped
- The total weight of all classes of hazardous materials in your vehicle

Always make sure that the shipper shows the correct basic description on the shipping paper and verifies that the proper labels are shown on the packages. If you are not familiar with the material, ask the shipper to contact your office.

Placard Tables

There are two placard tables, Table 1 and Table 2. Unless specifically excepted, Table 1 materials must be placarded whenever any amount is transported.

Figure 7: Placard Table 1, Any Amount

If your vehicle contains any amount of...	Placard as...
1.1.....	Explosive 1.1
1.2.....	Explosive 1.2
1.3.....	Explosive 1.3
2.3.....	Poison Gas
4.3.....	Dangerous When Wet
5.2.....	Organic Peroxide
6.1 (PG I, inhalation hazard only).....	Poison
7 (Radioactive Yellow III label only).....	Radioactive

Except for bulk packagings, the hazard classes in Table 2 need placards only if the total amount transported is 1,001 lbs or more including the package. Add the amounts from all shipping papers for all the Table 2 products you have on board. You may use DANGEROUS placards instead of separate placards for each Table 2 hazard class when:

- You have 1,001 lbs or more of two or more Table 2 hazard classes, requiring different placards.
- You have **not** loaded 2,205 pounds or more of any Table 2 hazard class material at any one place. (You must use the specific placard for this material.)

If the words INHALATION HAZARD zone A, B, C or D for gases, or zone A or B for liquids are on the shipping paper or package, you must display POISON INHALATION HAZARD or POISON GAS placards in addition to any other placards needed by the products hazard class.

When more than one division placard is required for Class 1 materials, only the placard representing the lowest division number must be displayed. In addition, a NON-FLAMMABLE GAS placard is not required on a transport vehicle, which contains non-flammable gas if the transport vehicle also contains flammable gas or oxygen and is placarded with FLAMMABLE GAS or OXYGEN placards as required.

Placards used to identify the primary and subsidiary hazard class(es) of a material must have the hazard class or division number displayed in the lower corner of the placard(s).

Placards may be displayed for hazardous materials even if not required so long as the placard does not misrepresent the hazard of the material being transported.

**Figure 8: Placard Table 2,
1,001 lbs or More**

Table 2

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard design section reference (§)
1.4	Explosives 1.4	172.523
1.5	Explosives 1.5	172.524
1.6	Explosives 1.6	172.525
2.1	Flammable Gas	172.532
2.2	Non-Flammable Gas	172.528
3	Flammable	172.542
Combustible liquid	Combustible	172.544
4.1	Flammable Solid	172.546
4.2	Spontaneously Combustible	172.547
5.1	Oxidizer	172.550
5.2 (Other than organic peroxide, Type B, liquid or solid, temperature controlled)	Organic Peroxide	172.552
6.1 (Other than inhalation hazard, Zone A or B)	Poison	172.554
6.2	(None)	-----
8	Corrosive	172.558
9	Class 9 (see § 172.504(f)(9))	172.560
ORM-D	None	-----

Test Your Knowledge

6. What is a shipper's certification? Where does it appear? Who signs it?
7. When may non-hazardous materials be described by hazardous class words or ID numbers?
8. Name five hazard classes that require placarding in any amount.
9. A shipment described on the Hazardous Waste Manifest may only be delivered to another _____ carrier or treatment facility, which then signs the _____ giving you a copy, which you must keep.
10. Your load includes 20 lbs of Division 2.3 gas and 1,001 lbs. Of flammable gas. What placards so you need, if any?

These questions may be on the test. If you are unable to answer all of the questions, re-read **11.4 THE SHIPPING PAPER**

11.5 LOADING AND UNLOADING

General Loading Requirements

- Do all you can to protect containers of hazardous materials. Don't use any tools, which might damage containers or other packaging during loading. Don't use hooks.
- Before loading or unloading, set the parking brake. Make sure the vehicle will not move.
- Many products become more hazardous when exposed to heat. Load hazardous materials away from heat sources.

- Watch for signs of leaking or damaged containers: LEAKS SPELL TROUBLE! Do not transport leaking packages or packages with hazardous materials residue adhering to the outside of the package. Depending on the material, you, your truck, and others could be in danger.

No Smoking. When loading or unloading hazardous materials, keep fire away. Don't let people smoke nearby. Never smoke around:

Class 1 (EXPLOSIVES)	Division 2.1 (FLAMMABLE GAS)	Class 3 (FLAMMABLE LIQUIDS)
Class 4.1 (FLAMMABLE SOLIDS)	Division 4.2 (SPONTANEOUSLY COMBUSTIBLE)	Class 5 (OXIDIZERS)

Or, an empty cargo tank which has been used to transport Class 3, or Division 2.1 materials, which was required to be marked and placarded in accordance with the hazardous materials rules.

Secure Against Movement

Packages containing **any** hazardous material, not permanently attached to a motor vehicle, must be secured against shifting, including relative motion between packages, within the vehicle on which it is transported, under conditions normally incident to transportation. Packages having valves or other fittings must be loaded in such a manner so as to minimize the likelihood of damage during transportation.

After loading, do not open any package during your trip. Never transfer hazardous materials from one package to another while in transit. You may empty a cargo tank and under certain conditions IM or UN portable tanks, but do not empty any other package while it is on the vehicle.

Cargo Heater Rules. There are special cargo heater rules for loading:

Class 1 (EXPLOSIVES)	Division 2.1 (FLAMMABLE GAS)	Class 3 (FLAMMABLE LIQUIDS)
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The rules usually forbid use of cargo heaters, including automatic cargo heater/air conditioner units. Unless you have read all the related rules, don't load the above products in a cargo space that has a heater.

Use closed cargo space. You cannot have overhang or tailgate loads of

Class 1 (EXPLOSIVES)	Class 4 (FLAMMABLE SOLIDS)	Class 5 (OXIDIZERS)
-------------------------	-------------------------------	------------------------

You must load these hazardous materials into a closed cargo space unless all packages are:

- Fire and water resistant, or
- Covered with a fire and water resistant tarp.

Precautions for Specific Hazards

Explosives. Turn your engine off before loading or unloading any explosives. Then check the cargo space. You must:

- Disable cargo heaters. Disconnect heater power sources and drain heater fuel tanks.
- Make sure there are no sharp points that might damage cargo. Look for bolts, screws, nails, broken side panels, and broken floorboards.
- Use a floor lining with Division 1.1, 1.2, or 1.3 (Class A or B explosives). The floors must be tight and the liner must be either non-metallic material or non-ferrous metal.

Use extra care to protect explosives. Never use hooks or other metal tools. Never drop, throw, or roll packages. Protect explosive packages from other cargo that might cause damage.

Do not transfer a Division 1.1, 1.2, or 1.3 from one vehicle to another on a public roadway except in an emergency. If safety requires an emergency transfer, set out red warning reflectors, flags, or electric lanterns. You must warn others on the road.

Never transport damaged packages of explosives. Do not take a package that shows any dampness or oily stain.

Do not transport Division 1.1 or 1.2 in triples or in vehicle combinations if:

- There is a marked or placarded cargo tank in the combination, or
- The other vehicle in the combination contains:
 - Division 1.1 (explosives)
 - Packages of Class 7 (radioactive) materials labeled "Yellow III"
 - Division 2.3 (poisonous gas hazard zone A or B) or Division 6.1 (Liquids, PG I, zone A) materials
 - Hazardous materials in a portable tank, on a DOT Spec 106A or 11 OA tank.

Class 8 (Corrosive) Materials. If loading by hand, load breakable containers of corrosive liquid one by one. Keep them right side up. Do not drop or roll the containers. Load them onto an even floor surface. Stack carboys only if the lower tiers can bear the weight of the upper tiers safely.

Do not load nitric acid with 50 percent or more concentration above any other packaging containing any other material.

Load storage batteries containing electrolyte so their liquid won't spill. Keep them right side up. Make sure other cargo won't fall against or short circuit them.

Do not load corrosive liquids next to or above:

- Division 1.4 (Explosives)
- Division 4.1 (Flammable Solids)
- Division 5.1 (Oxidizers) and 5.2 (Organic peroxide)

Never load corrosive liquids with:

- Division 1.1, 1.2, 1.3, 1.5 (Explosives)
- Division 2.3 (Toxic Inhalation Hazard Zone- A gases)
- Division 4.2 (Spontaneously Combustible Materials)
- Division 6.1, PG I, Zone - A (Toxic Inhalation Liquids)

Class 2 (Compressed Gases) Including Cryogenic Liquids. If your vehicle doesn't have racks to hold cylinders, the cargo space floor must be flat. The cylinders must be:

- Held upright or braced laying down flat, or
- In racks attached to the vehicle, or
- In boxes that will keep them from turning over.

Division 2.3 (Toxic Gases) or Division 6.1 (Toxic Materials) Never transport these materials in containers with interconnections. Never load a package labeled or known to contain TOXIC or POISON INHALATION HAZARD in the driver's cab or sleeper or with food material for human or animal consumption.

Class 7 (Radioactive) Materials. Some packages of Class 7. (radioactive) materials bear a number called the "transport index." The shipper labels these packages Radioactive I or Radioactive III, and prints the package's transport index on the label. Radiation surrounds each package, passing through all nearby packages. To deal with this problem, the number of packages you can load together is controlled. Their closeness to people, animals,, and unexposed film is also controlled. The transport index tells the

degree of control needed during transportation. The total transport index of all packages in a single vehicle must not exceed 50.

Appendix A to this section shows rules for each transport index. It shows how close you can load Class 7 (radioactive) materials to people, animals, or film. For example, you can't leave a package with a transport index of 1.1 within 2 feet of people or cargo space walls.

Mixed loads. The rules require some products to be loaded separately. You cannot load them together in the same cargo space. Figure 9 lists some examples. The regulations (the Segregation and Separation Chart) name other materials you must keep apart.

Figure 9: Prohibited Loading Combinations

Do Not Load...	In the Same Vehicle With...
Division 6.1 (TOXIC) or Division 2.3 (TOXIC INHALATION HAZARD) gas	animal or human food unless the poison package is over packed in an approved way. Foodstuffs are anything you swallow. However, mouthwash, toothpaste, and skin creams are not foodstuff.
Division 2.3 (Toxic Inhalation Hazard Zone- A) gas or Division 6.1, PG I, (Toxic Inhalation Hazard, Zone –A) liquid	Division 5.1 (oxidizers), Class 3 (flammable liquids), Class 8 (corrosive liquids), Division 5.2 (organic peroxides), Division 1.1, 1.2, 1.3, 1.5 (Explosives) and Division 2.1 (flammable gases), Class 4 (flammable solids). Division 4.2 (Spontaneously Combustible)
Corrosive Liquids	Division 1.1 (Explosives).
Class 1 (Explosives)	any other explosives unless specifically authorized.
Division 6.1 (Cyanides or cyanide mixtures)	acids, corrosive materials, or other acidic materials which could release hydrocyanic acid from cyanides. For example: Cyanides , Inorganic, n.o.s. Silver Cyanide Sodium Cyanide
Nitric acid (Class 8)	other materials unless the nitric acid is loaded below any other material transported

Test Your Knowledge

11. Around which hazard classes must you never smoke?
12. Which three hazard classes should not be loaded into a trailer that has a heater/air conditioner unit?
13. Should the floor liner required for Division 1.1 or 1.2 (Explosives) be stainless steel?
14. At the shipper's' dock you're given a paper for 100 cartons of battery acid. You already have 100 lbs. of dry Silver Cyanide on board. What precautions do you have to take?
15. Name a hazard class that uses transport indexes to determine the amount that can be loaded in a single vehicle.

These questions may be on the test. If you are unable to answer all of the questions, re-read

11.5 LOADING AND UNLOADING

11.6 Bulk Packaging Marking, Loading & Unloading

The glossary, starting on page 26, gives the meaning of the word bulk. **Cargo tanks** are bulk packagings permanently attached to a vehicle. Cargo tanks remain on the vehicle when you load and unload them. **Portable tanks** are bulk containers, which are not permanently attached to a vehicle. The product is loaded and, most times, unloaded while the tanks are off the vehicle. Portable tanks are then put on a vehicle for transportation. There are many types of cargo tanks in use. The most common cargo tanks are MC306, MC406 for liquids and MC331 for gases.

Markings

You must display the ID number of the hazardous materials in portable tanks and cargo tanks and other bulk packagings (such as dump trucks). ID numbers are in column 4 of the Hazardous Materials Table. The rules require black 100 mm (3.9 inch) numbers on orange panels, placards, or a white, diamond-shaped background if no placards are required. Specification cargo tanks must show re-test date markings.

Portable tanks must also show the lessee or owner's name. They must also display the shipping name of the contents on two opposing sides. The letters of the shipping name must be at least 2 inches tall on portable tanks with capacities of more than 1,000 gallons and 1 inch tall on portable tanks with capacities of less than 1,000 gallons. The ID number must appear on each side and each end of a portable tank or other bulk packaging that hold 1000 gallons or more and on two opposing sides, if the portable tank holds less than 1,000 gallons. The ID numbers must still be visible when the portable tank is on the motor vehicle. If they are not visible, you must display the ID number on both sides and ends of the motor vehicle.

Tank Loading

The person in charge of loading and unloading a cargo tank must be sure a qualified person is always watching. This person watching the loading or unloading must:

- Be alert
- Have a clear view of the cargo tank
- Be within 25 feet of the tank
- Know of the hazards of the materials involved
- Know the procedures to follow in an emergency
- Be authorized to move the cargo tank and able to do so.

Close all manholes and valves before moving a tank of hazardous materials, no matter how small the amount in the tank or how short the distance. Manholes and valves must be closed to prevent leaks.

Flammable Liquids

Turn off your engine before loading or unloading any flammable liquids. Only run the engine if needed to operate a pump. Ground a cargo tank correctly before filling it through an open filling hole. Ground the tank before opening the filling hole, and maintain the ground until after closing the filling hole.

Compressed Gas

Keep liquid discharge valves on a compressed gas tank closed except when loading and unloading. Unless your engine, runs a pump for product transfer, turn it off when loading or unloading. If you use the engine, turn it off after product transfer, before you unhook the hose. Unhook all loading/unloading connections before coupling, uncoupling, or moving a chlorine cargo tank. Always chock trailers and semi-trailers to prevent motion when uncoupled from the power unit.

Test Your Knowledge

16. What are cargo tanks?

17. How is a portable tank different from a cargo tank?

18. Your engine runs a pump used during delivery of compressed gas. Should you turn off the engine **before** or **after** unhooking hoses after delivery?

These questions may be on the test. If you are unable to answer all of the questions, re-read

11.6 BULK PACKAGING MAKING, LOADING AND UNLOADING

11.7 HAZARDOUS MATERIALS – DRIVING & PARKING RULES

Parking with Division 1.1, 1.2 or 1.3 Explosives

Never park with Division 1.1, 1.2 or 1.3 explosives within 5 feet of the traveled part of the road. Except for short periods of time needed for vehicle operation necessities (e.g., fueling), do not park within 300 feet of:

- A bridge, tunnel, or building
- A place where people gather, or
- An open fire.

If you must park to do your job, do so only briefly.

Don't park on private property unless the owner is aware of the danger. Someone must always watch the parked vehicle. You may let someone else watch it for you only if your vehicle is:

- On the shipper's property
- On the carrier's property
- On the consignee's property.

You are allowed to leave your vehicle unattended in a safe haven. A safe haven is an approved place for parking unattended vehicles loaded with explosives. Designation of authorized safe havens are usually made by local authorities.

Parking a Placarded Vehicle Not Transporting Division 1.1, 1.2 or 1.3 (Explosives)

You may park a placarded vehicle (not laden with explosives) within 5 feet of the traveled part of the road only if your work requires it. Do so only briefly. Unless absolutely necessary, never leave a vehicle loaded with hazardous materials parked unattended on a public street. Do not park within 300 feet of an open fire.

Attending Parked Vehicles

The person attending a placarded vehicle must:

- Be in the vehicle, awake, and not in the sleeper berth, or within 100 feet of the vehicle and have it within clear view
- Be aware of the hazards of the materials being transported
- Know what to do in emergencies
- Be able to move the vehicle, if needed

No Flares!

You might break down and have to use stopped vehicle signals. Use reflective triangles or red electric lights. Never use burning signals, such as flares or fuses, around a:

- Tank used for Class 3 (flammable liquids) or Division 2.1 (flammable gas) whether loaded or empty
- Vehicle loaded with Division 1.1, 1.2, or 1.3 explosives.

Route Restrictions

Some states and counties require permits to transport hazardous materials or wastes. They may limit the routes you can use. Local rules about routes and permits change often. It is your job as the driver to find out if you need permits or must use special routes. Make sure you have all needed papers before starting.

If you work for a carrier, ask your dispatcher about route restrictions or permits. If you are an independent trucker and are planning a new route, check with state agencies where you plan to travel. Some localities prohibit transportation of hazardous materials through tunnels, over bridges, or other roadways. Check before you start.

Whenever placarded, avoid heavily populated areas, crowds, tunnels, narrow streets, and alleys. Take other routes, even if inconvenient, unless there is no other way. Never drive a placarded vehicle near open fires unless you can safely pass without stopping.

If transporting Division 1.1, 1.2, or 1.3 explosives, you must have a written route plan and follow that plan. Carriers prepare the route plan in advance and give the driver a copy. You may plan the route yourself if you pick up the explosives at a location other than your employer's terminal. Write out the plan in advance. Keep a copy of it with you while transporting the explosives. Deliver shipments of explosives only to authorized persons or leave them in locked rooms designed for explosives storage.

A carrier must choose the safest route to transport placarded radioactive materials. After choosing the route, the carrier must tell the driver about the radioactive materials, and show the route plan.

No Smoking

Do not smoke within 25 feet of a placarded cargo tank used for Class 3 (flammable liquids) or Division 2.1 (gases). Also, do not smoke or carry a lighted cigarette, cigar, or pipe within 25 feet of any vehicle, which contains: Class 1 (Explosives); Class 3 (Flammable Liquids); Class 4 (Flammable Solids); Class 4.2 (Spontaneously Combustible).

Refuel with Engine Off

Turn off your engine before fueling a motor vehicle containing hazardous materials. Someone must always be at the nozzle, controlling fuel flow

10 B:C Fire

The power unit of placarded vehicles must have a fire extinguisher with a UL rating of 10 B:C or more.

Check Tires

Make sure your tires are properly inflated. Check all tires on placarded vehicles at the start of each trip and when you park.

Do not drive with a tire that is leaking or flat except to the nearest safe place to fix it. Remove any overheated tire. Place it a safe distance from your vehicle. Don't drive until you correct the cause of the overheating. Remember to follow the rules about parking and attending placarded vehicles. They apply even when checking, repairing, or replacing tires.

Papers for Division 1.1, 1.2 or 1.3 Explosives

A carrier must give each driver transporting Division 1.1, 1.2, or 1.3 explosives a copy of Federal Motor Carrier Safety Regulations (FMCSR), Part 397. The carrier must also give written instructions on what to do if delayed or in an accident. The written instructions must include:

- The names and telephone numbers of people to contact (including carrier agents or shippers).
- The nature of the explosives transported.
- The precautions to take in emergencies such as fires, accidents, or leaks.

Drivers must sign a receipt for these documents. You must be familiar with, and have in your possession while driving, the:

- Shipping papers
- Written emergency instructions
- Written route plan
- A copy of FMCSR, Part 397.

Equipment for Chlorine

A driver transporting chlorine in cargo tanks must have an approved gas mask in the vehicle. The driver must also have an emergency kit for controlling leaks in dome cover plate fittings on the cargo tank.

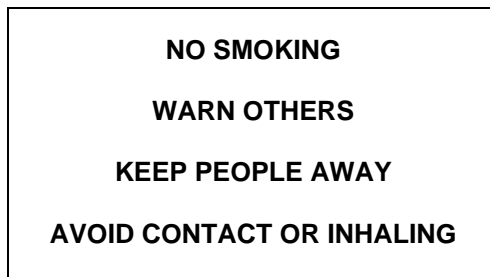
Stop Before Railroad Crossings

Stop before a railroad crossing if your vehicle:

- Is placarded
- Carries any amount of chlorine
- Has cargo tanks, whether loaded or empty, used for hazardous materials.

You must stop 15 to 50 feet before the nearest rail. Proceed only when you are sure no train is coming. Don't shift gears while crossing the tracks.

11.8 HAZARDOUS MATERIALS – EMERGENCIES



North American Emergency Response Guidebook (NAERG)

The Department of Transportation has a guidebook for firefighters, police, and industry workers on how to protect themselves and the public from hazardous materials. The guide is indexed by proper shipping name and hazardous materials identification number. Emergency personnel look for these things on the shipping paper. That is why it is vital that the proper shipping name, ID number, label, and placards are correct.

Accidents/Incidents

As a professional driver, your job at the scene of an accident is to:

- Keep people away from the scene.
- Limit the spread of material, **only if you can safely do so.**
- Communicate the danger of the hazardous materials to emergency response personnel.
- Provide emergency responders with the shipping papers and emergency response information.

Follow this checklist:

- Check to see that your driving partner is okay
- Keep shipping papers with you
- Keep people far away and upwind
- Warn others of the danger
- Send for help
- Follow your employer's instructions.

Fires

You might have to control minor truck fires on the road. **However, unless you have the training and equipment to do so safely, don't fight hazardous materials fires.** Dealing with hazardous materials fires requires special training and protective gear.

When you discover a fire, send for help. You may use the fire extinguisher to keep minor truck fires from spreading to cargo before firefighters arrive. Feel trailer doors to see if they are hot before opening them. If hot, you may have a cargo fire and should not open the doors. Opening doors lets air in and may make the fire flare up. Without air, many fires only smolder until firemen arrive, doing less damage. If your cargo is already on fire, it is not safe to fight the fire. Keep the shipping papers with you to give to emergency personnel as soon as they arrive. **Warn other people of the danger and keep them away.**

If you discover a cargo leak, identify the hazardous materials leaking by using shipping papers, labels, or package location. **Do not touch any leaking material - many people injure themselves by touching hazardous materials.** Do not try to identify the material or find the source of a leak by smell. Toxic gases can destroy your sense of smell and can injure or kill you even if they don't smell. Never eat, drink, or smoke around a leak or spill.

If hazardous materials are spilling from your vehicle, do not move it any more than safety requires. You may move off the road and away from places where people gather, if doing so serves safety only move your vehicle if you can do so without danger to yourself or others.

Never continue driving with hazardous materials leaking from your vehicle in order to find a phone booth, truck stop, help, or similar reason. Remember, the carrier pays for the cleanup of contaminated parking lots, roadways, and drainage ditches. The costs are enormous, so don't leave a lengthy trail of contamination. If hazardous materials are spilling from your vehicle:

- Park it
- Secure the area
- Stay near the scene but keep a safe distance
- Send someone else for help.

When sending someone for help, give that person:

- A description of the emergency
- Your exact location and direction of travel
- Your name, the carrier's name, and the name of the community or city where your terminal is located
- The proper shipping name, hazard class, and ID number of the hazardous materials, if you know them.

This is a lot for someone to remember. It is a good idea to write it all down for the person you send for help. The emergency response team must know these things to find you and to handle the emergency. They may have to travel miles to get to you. This information will help them to bring the right equipment the first time, without having to go back for it.

Never move your vehicle, if doing so will cause contamination or damage the vehicle. Keep downwind and away from roadside rests, truckstops, cafes, and businesses. Never try to repack leaking containers. Unless you have the training and equipment to repair leaks safely, don't try it. Call your dispatcher or supervisor for instructions and, if needed, emergency personnel.

Responses to Specific Hazards

Class 1 (Explosives). If your vehicle has a breakdown or accident while carrying explosives, warn others of the danger. Keep bystanders away. Do not allow smoking or open fire near the vehicle. If there is a fire, warn everyone of the danger of explosion.

Remove all explosives before separating vehicles involved in a collision. Place the explosives at least 200 feet from the vehicles and occupied buildings. Stay a safe distance away.

Class 2 (Compressed Gases). If compressed gas is leaking from your vehicle, warn others of the danger. Only permit those involved in removing the hazard or wreckage to get close. You must notify the shipper if compressed gas is involved in any accident.

Unless you are fueling machinery used in road construction or maintenance, do not transfer a flammable compressed gas from one tank to another on any public roadway.

Class 3 (Flammable Liquids). If you are transporting a flammable liquid and have an accident or your vehicle breaks down, prevent bystanders from gathering. Warn people of the danger. Keep them from smoking.

Never transport a leaking cargo tank farther than needed to reach a safe place. Get off the roadway if you can do so safely. Don't transfer flammable liquid from one vehicle to another on a public roadway except in an emergency.

Class 4 (Flammable Solids) and Class 5 (Oxidizing Materials). If a flammable solid or oxidizing material spills, warn others of the fire hazard. Do not open smoldering packages of flammable solids. Remove them from the vehicle if you can safely do so. Also, remove unbroken packages if it will decrease the fire hazard.

Class 6 (Poisonous Materials and Infectious Substances). It is your job to protect yourself, other people, and property from harm. Remember that many products classed as poison are also flammable. If you think a Division 2.3 (toxic gases) or Division 6.1 (toxic materials) might be flammable, take the added precautions needed for flammable liquids or gases. Do not allow smoking, open flame, or welding. Warn others of the hazards of fire, of inhaling vapors, or coming in contact with the poison.

A vehicle involved in a leak of Division 2.3 (Toxic Gases) or Division 6.1 (Toxic) must be checked for stray toxins before being used again.

If Division 6.2 (infectious substances) package is damaged in handling or transportation, you should immediately contact your supervisor. Packages, which appear to be damaged or shows signs of leakage should not be accepted.

Class 7 (Radioactive Materials). If radioactive material is involved in a leak or broken package, tell your dispatcher or supervisor as soon as possible. If there is a spill, or if an internal container might be damaged, do not touch or inhale the material. Do not use the vehicle until it is cleaned and checked with a survey meter.

Class 8 (Corrosive Materials). If corrosives spill or leak during transportation, be careful to avoid further damage or injury when handling the containers. Parts of the vehicle exposed to a corrosive liquid must be thoroughly washed with water. After unloading, wash out the interior as soon as possible before reloading.

If continuing to transport a leaking tank would be unsafe, get off the road. If safe to do so, try to contain any liquid leaking from the vehicle. Keep bystanders away from the liquid and its fumes. Do everything possible to prevent injury to others.

Required Notification

The National Response Center helps coordinate emergency response to chemical hazards. It is a resource to the local police and firefighters. It maintains a 24-hour toll-free line. You or your employer must phone when **any** of the following occur as **a direct result of a hazardous materials incident**:

- A person is killed
- An injured person requires hospitalization
- The general public is evacuated for one or more hours
- One or more major transportation arteries or facilities are closed or shut down for one hour or more
- The operational flight pattern or routine of an aircraft is altered
- Fire, breakage, spillage, or suspected radioactive contamination occurs
- Fire, breakage, spillage or suspected contamination occurs involving shipment of etiologic agents (bacteria or toxins)
- There has been a release of a marine pollutant in a quantity exceeding 119 gallons for liquids, or 882 pounds for solids
- A situation- exists of such a nature (e.g., continuing danger to life exists at the scene of an incident) that, in the judgment of the carrier, should be reported.

National Response Center (800) 424-8802

Persons telephoning the National Response Center should be ready to give:

- Their name
- Name and address of the carrier they work for
- Phone number where they can be reached
- Date, time, and location of incident
- The extent of injuries, if any
- Class or Division, proper shipping name and quantity of hazardous materials involved, if such information is available.
- Type of incident and nature of hazardous materials involvement and whether a continuing danger to life exists at the scene.

If a reportable quantity of hazardous substance was involved, the caller should give the name of the shipper and the quantity of the hazardous substance discharged.

Be prepared to give your employer the required information as well. Carriers must make detailed written reports within 30 days of an incident.

CHEMTREC (800) 424-9300

The Chemical Transportation Emergency Center (CHEMTREC) in Washington also has a 24-hour toll-free line. CHEMTREC was created to provide emergency personnel with technical information about the physical properties of hazardous materials. The National Response Center and CHEMTREC are in close communication. If you call either one, they will tell the other about the problem when appropriate.

Test Your Knowledge

19. On placard vehicles, when should you check your tires?
20. What is a safe haven?
21. How close to the traveled part of the roadway can you park with Division 1.2 or 1.3 (Explosives)?
22. How close can you park to a bridge, tunnel, or building with the same load?
23. What type of fire extinguisher must placarded vehicles carry?
24. You're hauling 100 lbs of **Division 4.3 (dangerous when wet)** material. Do you need to stop before railroad crossings?
25. At a rest area you discover your hazardous materials shipments slowly leaking from the vehicle. There's no phone around. What should you do?
26. What is the North American Emergency Response Guide (NAERG)?

These questions may be on the test. If you are unable to answer all of the questions, re-read **11.7 HAZOURDOUS MATERIALS – DRIVING & PARKING RULES AND 11.8 HAZARDOUS MATERIALS - EMERGENCIES**

11.9 REQUIREMENTS FOR COMMERCIAL DRIVERS LICENSE HOLDERS TO ADD OR RENEW THE HAZARDOUS MATERIALS ENDORSEMENT

In accordance with the USA PATRIOT ACT, all CDL-holders who wish to add or renew a Hazardous Materials endorsement are required to undergo a security threat assessment to determine eligibility for the endorsement. This means the Connecticut DMV will not renew your CDL with the endorsement if you have not received clearance from the Transportation Security Administration based on the criminal history check. In order to comply with this requirement, each applicant for renewal of a Hazardous Materials endorsement must follow the "4-Step Application and Fingerprinting Process" outlined below. You must be a U.S. citizen or a lawful permanent resident to qualify for the endorsement.

1. Filling Out the Application

Drivers can complete the TSA HAZPRINT driver application on the TSA Web site at www.hazprints.com, or by calling the Driver Service Center at 1-877-HAZPRINT (1-877-429-7746). The operator at the Driver Service Center will guide you through the process and ensure the application is completed correctly. You can also call the Service Center at any time if you have questions about the web site. **IMPORTANT- YOU MUST COMPLETE THE APPLICATION ON-LINE OR BY CALLING THE DRIVER SERVICE CENTER BEFORE YOU VISIT THE FINGERPRINT CAPTURE LOCATION.** Part of the application process is your payment. There are two forms of payment accepted. You can pay this fee by credit card directly on the web site or by providing the information to the operator at the Driver Service Center. Electronic payment is the most secure and convenient and should save time for you at the fingerprint collection site. If you choose not to pay on-line using your credit card, you must bring a money order payable to Integrated Biometric Technology, LLC, to the fingerprint collection site.

2. Getting Fingerprinted

Your fingerprints can be collected at any of over 100 fixed and mobile collection sites in the United States. The www.hazprints.com Web site and the Driver Service Center (1-877-429-7746) are the best sources for information on current fingerprinting locations, hours of operation and driving directions to each collection site. Connecticut license-holders can be fingerprinted at locations in any participating state. You will be required to present two forms of identification before being fingerprinted – please refer to the List of Acceptable Forms of Identification below for details. In addition to being fingerprinted, you will be asked to review and electronically sign the application to verify the accuracy of the information provided.

Connecticut Fingerprint Collection Location

EMSI

2257 Silas Deane Highway

Rocky Hill, CT 06067

Open Monday – Friday, 9:00 a.m. – 4:30 p.m.

List of Acceptable Identification for HAZPRINT

All applicants must provide one primary and one secondary form of identification **or** two primary forms of identification.

Primary

1. U. S. Passport (current and valid)
2. Certificate of Naturalization (INS Form N-550 or N-570)
3. Unexpired foreign passport with I-551 stamp or attached INS Form I-94 indicating unexpired employment authorization
4. Driver's license or ID card issued by a state provided it contains a photograph or information such as name, date of birth, gender, height, eye color and address

5. U.S. Military/Retiree ID Card
6. Military dependent ID Card
7. ID card issued by federal, state or local government agency or entity, provided it contains a photograph or information such as name, date of birth, gender, height, eye color and address
8. Certificate of U.S. Citizenship (INS Form N-560 or N-561)
9. Permanent Resident Card or Alien Registration Receipt Card with photograph (INS Form I-151 or I-551)

Secondary

1. Voter Registration Card
2. U.S. Coast Guard Merchant Mariner Card
3. U.S. Social Security Card issued by the SSA (other than a card stating “not valid for employment”)
4. Original or certified copy of a birth certificate issued by a state, county, municipal authority or outlying possession of the United States bearing an official seal
5. U.S. Citizen ID Card (INS Form I-197)
6. Certificate of Birth Abroad issued by the Dept. of State (Form FS-545 or Form DS-1350)
7. Native American tribal document
8. U.S. Military Discharge papers DD-214
9. Civil Marriage Certificate
10. U.S. Adoption Papers
11. U.S. DOT Medical Card

3. Security Threat Assessment

Based on the data provided on the HAZPRINT application, the Transportation Security Administration (TSA) will perform a threat assessment for each applicant. The results of the assessment will be provided directly to the applicant’s state Department of Motor Vehicles. You will also receive a letter from TSA indicating the results of the assessment.

4. Status

Approximately two weeks after you have been fingerprinted, information on the status of your application should be available at the Driver Service Center at 1-877-429-7746.

HAZARDOUS MATERIALS TABLES

Table A – Radioactive Separation Table

(Note: You will not be tested on the numbers in this table)

Do not leave radioactive yellow - II or yellow - III labeled, packages near people, animals, or film longer than shown in this table.

Total Transport Index	Minimum Distance in Feet to Nearest Undeveloped Film					To People or Cargo Compartment Partitions (in feet)
	0-2 Hours	2-4 Hours	4-8 Hours	8-12 Hours	Over 12 Hours	
None	0	0	0	0	0	0
0.1 to 1.0	1	2	3	4	5	1
1.1 to 5.0	3	4	6	8	11	2
5.1 to 10.0	4	6	9	11	15	3
10.1 to 20.0	5	8	12	16	22	4
20.1 to 30.0	7	10	15	20	29	5
30.1 to 40.0	8	11	17	22	33	6
40.1 to 50.0	9	12	19	24	36	7

Table B - Table of Hazard Class Definitions

(Note: You will not be tested on this table.)

Hazardous materials are categorized into nine numbered hazard classes and additional categories for consumer commodities and combustible liquids. The classes of hazardous materials are as follows

Class	Class Name	Example
1	Explosives	Ammunition, Dynamite, Fireworks
2	Gases	Propane, Oxygen, Helium
3	Flammable	Gasoline Fuel, Acetone
4	Flammable Solids	Matches, Fuses
5	Oxidizers	Ammonium Nitrate, Hydrogen Peroxide
6	Poisons	Pesticides, Arsenic
7	Radioactive	Uranium, Plutonium
8	Corrosives	Hydrochloric Acid, Battery Acid
9	Miscellaneous Hazardous Materials	Formaldehyde, Asbestos
None	ORM-D (Other Regulated Material-Domestic)	Hair Spray or Charcoal
None	Combustible Liquids	Fuel Oils, Lighter Fluid

Note: For additional and in-depth information concerning the rules and regulations governing hazardous materials transportation throughout North America, consult <http://hazmat.dot.gov>.

HAZARDOUS MATERIALS GLOSSARY

This glossary presents definitions of certain terms used in this section. A complete glossary of terms can be found in the federal **Hazardous** Materials Rules (49 CFR 171.8). You should have an up-to-date copy of these rules for your reference.

Note: You will not be tested on this glossary.

Sec. 171.8 Definitions and abbreviations.

Bulk Packaging

Packaging, other than a vessel, or a barge, including a transport vehicle or freight container, in which hazardous materials are loaded with no intermediate form of containment and which has:

- (1) A maximum capacity greater than 450 L (119 gallons) as a receptacle for a liquid;
- (2) A maximum net mass greater than 400 kg (882 pounds) or a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid; or
- (3) A water capacity greater than 454 kg (1000 pounds) as a receptacle for a gas as defined in Sec. 173.115.

Cargo Tank

Bulk packaging which:

- (4) Is a tank intended primarily for the carriage of liquids or gases and includes appurtenances, reinforcements, fittings, and closures (for "tank," see 49 CFR 178.345-1(c), 178.337-1, or 178.338-1, as applicable);
- (5) Is permanently attached to or forms a part of a motor vehicle, or is not permanently attached to a motor vehicle but which, by reason of its size, construction, or attachment to a motor vehicle is loaded or unloaded without being removed from the motor vehicle; and
- (6) Is not fabricated under a specification for cylinders, portable tanks, tank cars, or multi-unit tank car tanks.

Carrier

A person engaged in the transportation of passengers or property by:

- (7) Land or water as a common, contract, or private carrier, or
- (8) Civil aircraft.

Consignee

The business or person to whom a shipment is delivered.

Division

A subdivision of a hazard class.

EPA

U.S. Environmental Protection Agency.

FMCSR

The Federal Motor Carrier Safety Regulations.

Freight Container

A reusable container having a volume of 64 cubic feet or more, designed and constructed to permit being lifted with its contents intact and intended primarily for containment of packages (in unit form) during transportation.

Fuel Tank

A tank, other than, a cargo tank, used to transport flammable or combustible liquid or compressed gas for the purpose of supplying fuel for propulsion of the transport vehicle to which it is attached, or for the operation of other equipment on the transport vehicle.

Gross Weight or Gross Mass

The weight of a packaging plus the weight of its contents.

Hazard Class

The category of hazard assigned to a hazardous material under the definitional criteria of Part 173 and the provisions of the Sec. 172.101 Table. A material may meet the defining criteria for more than one hazard class but is assigned to only one hazard class.

Hazardous Materials

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. The term includes hazardous substances, hazardous wastes, marine pollutants, and elevated temperature materials as defined in this section, materials designated as hazardous under the provisions of Sec. 172.101 and 172.102, and materials that meet the defining criteria for hazard classes and divisions in Part 173.

Hazardous Substance

A material, including its mixtures and solutions, that:

- (9) Is listed in Appendix A to Sec. 172.101;
- (10) Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in Appendix A to Sec. 172.101; and
- (11) When in a mixture or solution –
 - (i) For radionuclides, conforms to paragraph 6 of Appendix A to Sec. 172.101.
 - (ii) For other than radionuclides, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material, as shown in the following table:

RQ Pounds (KILOGRAMS)	CONCENTRATION BY WEIGHT	
	PERCENT	PPM
5,000 (2270)	10	100,000
1,000 (454)	2	20,000
100 (45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.454)	0.002	20

This definition does not apply to petroleum products that are lubricants or fuels (see 40 CFR 300.6).

Hazardous Waste

Any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR Part 262.

Limited Quantity

When specified as such in a section applicable to a particular material, means the maximum amount of a hazardous materials for which there may be specific labeling or packaging exception.

Marking

The descriptive name, identification number, instructions, cautions, weight, specification, or UN marks or combinations thereof, required by this subchapter on outer packaging of hazardous materials.

Mixture

A material composed of more than one chemical compound or element

Name of Contents

The proper shipping name as specified in Sec. 172.101.

Non-Bulk Packaging

Packaging which has:

- (12) A maximum capacity of 450 L (119 gallons) or less as a receptacle for a liquid;
- (13) A maximum net mass of 400 kg (882 pounds) or less or a maximum capacity of 450 L (119 gallons) or less as a receptacle for a solid; or
- (14) A water capacity of 454 kg (1,000 pounds) or less as a receptacle for a gas as defined in Sec. 173.115.

N.O.S.

Not otherwise specified.

Outage or Ullage

The amount by which a packaging falls short of being liquid full, usually expressed in percent by volume.

PHMSA

Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington, DC 20590

Portable Tank

Bulk packaging (except a cylinder having a water capacity of 1000 pounds or less) designed primarily to be loaded onto, or on, or temporarily attached to a transport vehicle or ship and equipped with skids, mountings, or accessories to facilitate handling of the tank by mechanical means. It does not include a cargo tank, tank car, multi-unit tank car tank, or trailer carrying 3AX, 3AAX, or 3T cylinders.

Proper Shipping

The name of the hazardous materials shown in Roman print (not italics) in Sec. 172.101.

P.S.I. or PSI

Pounds per square inch.

P.S.I.A. or PSIA

Pounds per square inch absolute.

Reportable Quantity (RQ)

The quantity specified in Column 3 of the Appendix to Sec. 172.101 for any material identified in Column I of the Appendix.

Shipper's Certification

A statement on a shipping paper, signed by the shipper, saying he/she prepared the shipment' properly according to law.

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 or the Department of Transportation. "

or

"I hereby declare that the contents of this consignment are fully and accurately described above the proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by according to applicable international and national government regulations."*

*words may be inserted here to indicate mode of transportation (rail, aircraft, motor vehicle, vessel)

Shipping Paper

A shipping order, bill of lading, manifest, or other shipping document serving a similar purpose and containing the information required by Sec. 172.202, 172.203, and 172.204.

Technical Name

A recognized chemical name or microbiological name currently used in scientific and technical handbooks, journals, and texts.

Transport Vehicle

A cargo-carrying vehicle such as an automobile, van, tractor, truck, semi-trailer, tank car, or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, rail car, etc.) is a separate transport vehicle.

UN Standard Packaging

A specification packaging conforming to the requirements in Subpart L and M of Part 178.

UN

United Nation

Notes

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