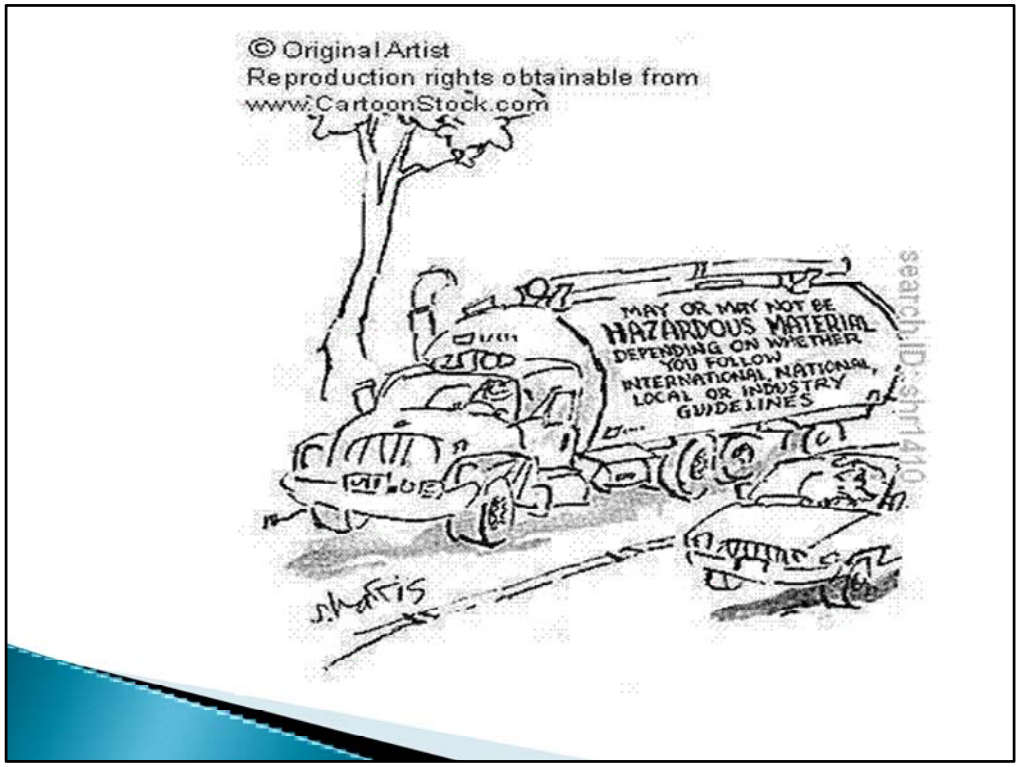
HM 181/DOT HazMat Employee Training Refresher (49CFR 172.704)

Sharon Simpson & Billy Puk
October 29, 2013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MAY OR MAY NOT BE HAZARDOUS MATERIAL DEPENDING ON WHETHER YOU FOLLOW INTERNATIONAL, NATIONAL, LOCAL OR INDUSTRY GUIDELINES
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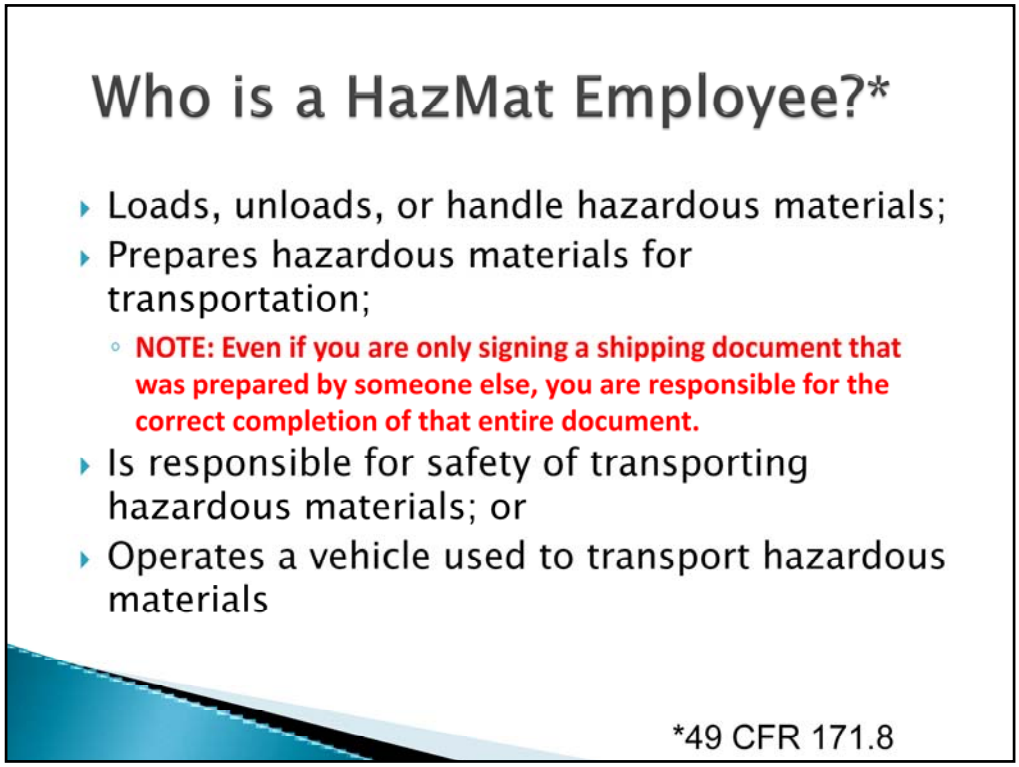


49 CFR 173.30 details the loading and unloading of hazardous materials in a transporting vehicles.

Or Are You a HazMat Employer?*

A person who employs or use at least one employee on a full-time, part time, or temporary basis; and who:

- Causes hazardous materials to be transported in commerce (shipper); or
- Transports hazardous materials in commerce (carrier).

*49 CFR 171.8

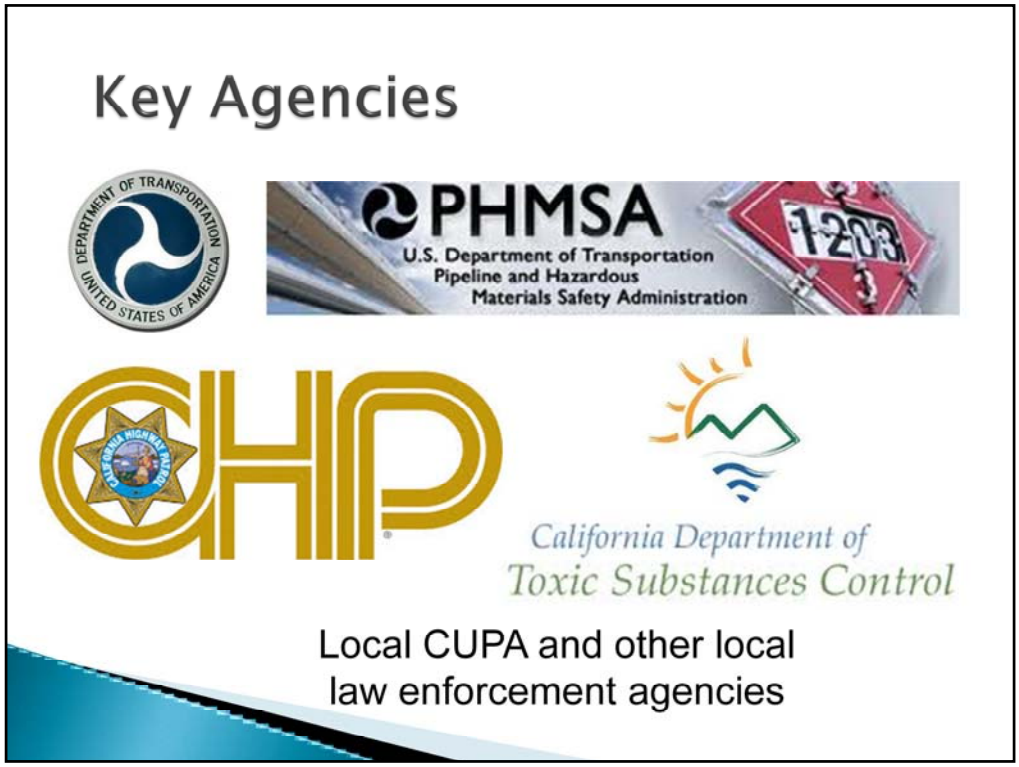
Why training?

Picture cited:

https://www.dot6.state.pa.us/crsapp/html/AA500RefManual/AA_500_Page_C/Hazardous_Materials.htm

Training Objectives

- Key Agencies
- Training Requirements
- Definitions & Abbreviations
- DOT Hazard Classes
- Marking, Labeling & Placarding
- Understanding the Hazardous Materials Table
- Shipping Papers
- Performance Packaging
- Emergency Response & Safety
- Hazardous Materials Security Plans (HM-232)
- Mobile Applications



USDOT - PHMSA

49 CFR 171 – 180 = Hazardous Materials Regulations (HMR)

California Highway Patrol (CHP)

CA Vehicle Code (CVC) 15250, 15275, 15278 & 27903; Title 13 CCR 1150-1167

Department of Toxic Substances Control (DTSC)

Title 22 CCR 66263.10 – 66263.50 (hazardous wastes transporter); Title 22 CCR 66273.50 – 66273.56 (universal waste transporter)

Local law enforecement agencies and applicable ordinances

Training Requirements

- DOT Hazardous Material Regulations have been established for the safe transportation of hazardous materials in commerce.
  - *Safe packaging and transportation*
  - *Hazard communication in the event of an incident.*

Training Requirements

- HAZMAT employers are required to HAZMAT employees regarding the following practices;
  - *-Loading & Unloading*
  - *-Transporting*
  - *-Handling*
  - *-Storing*
  - *-Emergency Preparedness to accidents involving hazardous materials.*

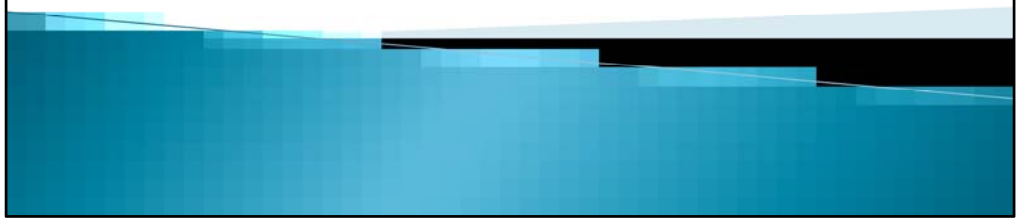
- Training Must Include:
  - General Awareness/Familiarization Training
  - Function Specific Training
  - Safety Training
  - Security Awareness Training

Training Frequency

1) Initial Training
   - Within 90 days of becoming a Hazmat Employee
   - May work under supervision of knowledgeable Hazmat Employee until taking the training

2) Recurrent Training
   - Every 3 years
   - Or as security plan is revised

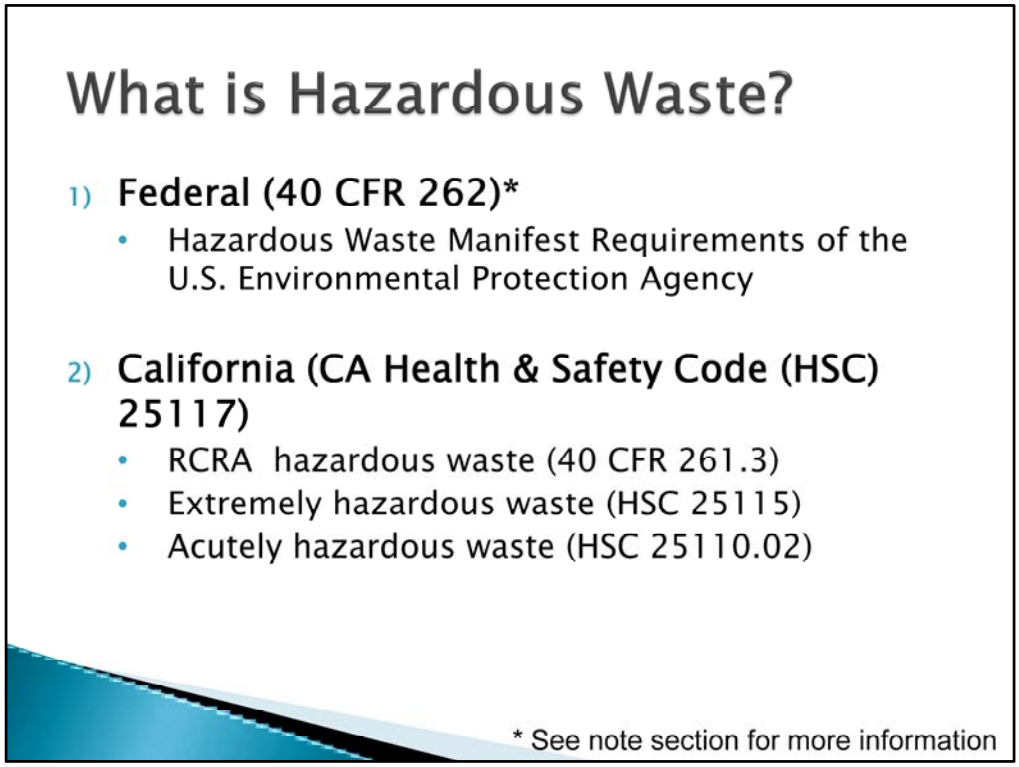
Definitions & Abbreviations



Regulated DOT HazMat

A substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law. The term includes both new products (e.g., gasoline, diesel fuel, paint) as well as hazardous wastes (e.g., asbestos, spent solvents).

- ***NOTE: The identification and classification of a hazardous material is the sole responsibility of the shipper.***



* Hazardous waste was further defined by USEPA in 40 CFR 261.3. USDOT follows only the hazardous waste transportation requirement by using hazardous waste manifest set forth in 40 CFR 262.

Bulk Packaging

A packaging, including a transport vehicle or freight container in which hazardous materials are loaded and which has:

- Liquids
  - a maximum capacity greater than 119 gallons.
- Solids
  - a maximum net mass greater than 882 pounds and a maximum capacity greater than 119 gallons.
- Gas
  - a water capacity greater than 1000lbs as a receptacle for gas

Non-Bulk Packing

A package which has:

- Liquids
  - a maximum capacity of 119 gallons or less
- Solids
  - a maximum net mass of 882 pounds or less and a maximum capacity of 119 gallons or less.
- Gas
  - a water capacity of 1,000lbs or less.

Marine Pollutant (MP)

A material, which is listed in appendix B to 49 CFR 172.101 (also see 49 CFR 171.4) and, When in a solution or mixture of one or more marine pollutants, is packaged in a concentration, which equals or exceeds;

- 10% by weight of the solution of mixture for materials listed in the appendix; or
- 1% by weight of the solution or mixture of materials that are identified as severe marine pollutants in the appendix.

NOTE: A MP, if discharged into a water system, may require immediate notification to the National Response Center (NRC) at 800-424-8802.

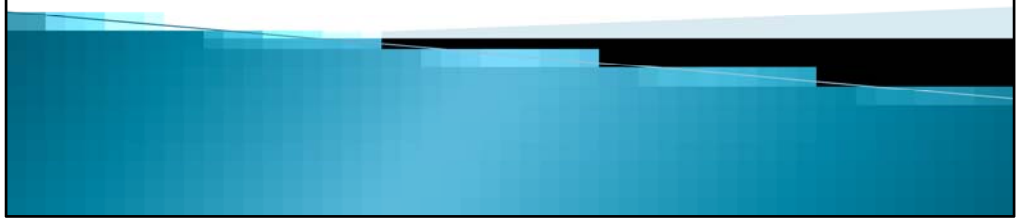
Reportable Quantity Value (RQ)

- A quantity, as set forth in appendix A to 49 CFR 172.101, 40 CFR 302.4, and in appendix A to 40 CFR 355.
- If a spill of discharge of a RQ hazardous material, an immediate notification may be required to the National Response Center (NRC) at 800-424-8802 and the emergency telephone system 911.

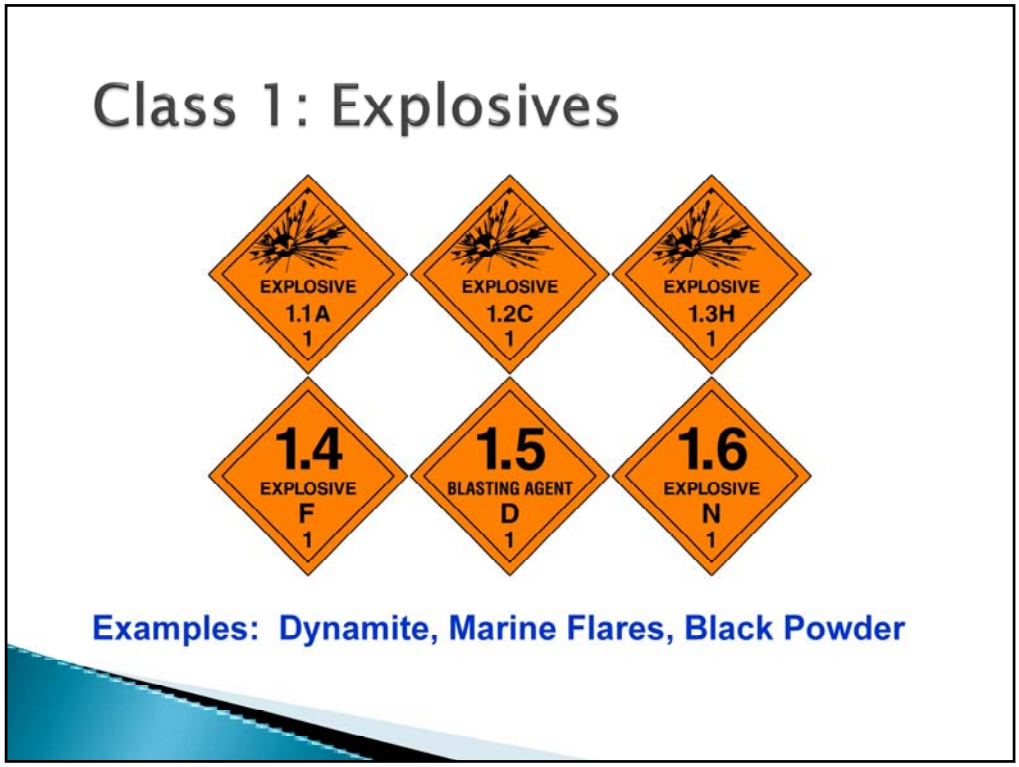
Shipping Paper

- Shipping order
- Bill of lading
- Hazardous waste manifest
- Other shipping document serving a similar purpose and prepared as specified in 49 CFR §172.200–172.205

DOT Hazard Classes



CLASS	DESCRIPTION	DIVISION
1	Explosive	Div. 1.1 - 1.6
2	Gases	Div. 2.1 - 2.3
3	Flammable liquid	$100^{o}F \leq FP \leq 140^{o}F$ ($60^{o}C$)
None	Combustible liquid	$140^{o}F$ ($60^{o}C$) < FP < $200^{o}F$ ($93^{o}C$)
4	Flammable solid	Div. 4.1 - 4.3
5	Oxidizer	Div. 5.1 - 5.2
6	Poison	Div. 6.1 - 6.2
7	Radioactive	Type I, II, III & Fissile
8	Corrosive	None
9	Miscellaneous	HW, HS, MP



Division 1.1 = consists of explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load simultaneously.

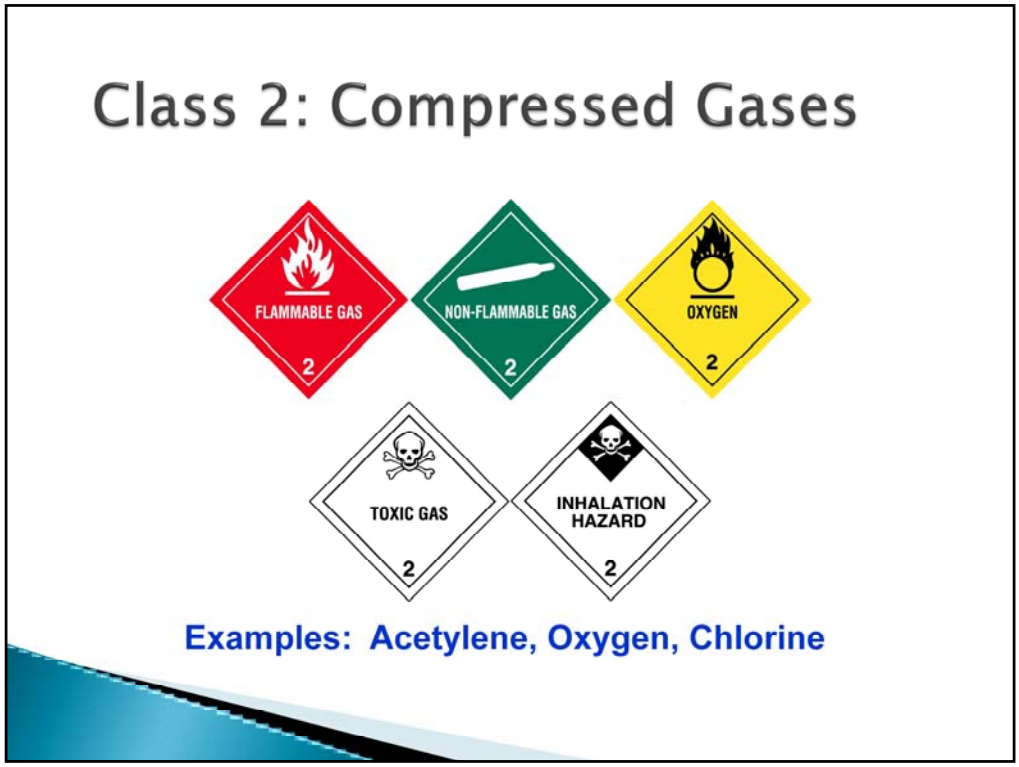
Division 1.2 = consists of explosions that have a projection hazard but not a mass explosion hazard.

Division 1.3 = consists of explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

Division 1.4 = consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is expected. An external fire must not cause virtually instantaneous explosion of almost the entire contend of the package.

Division 1.5 = consists of very sensitive explosives. This division is comprised of substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.

Division 1.6 = consists of extremely insensitive articles which do not have a mass explosive hazard. This division is comprised of articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.



Division 2.1 Flammable = any material which is a gas at 68^0F or less than 14.7 psi of pressure which:

1) is ignitable at 14.7 psi when in a mixture of 13% or less by volume with air: or

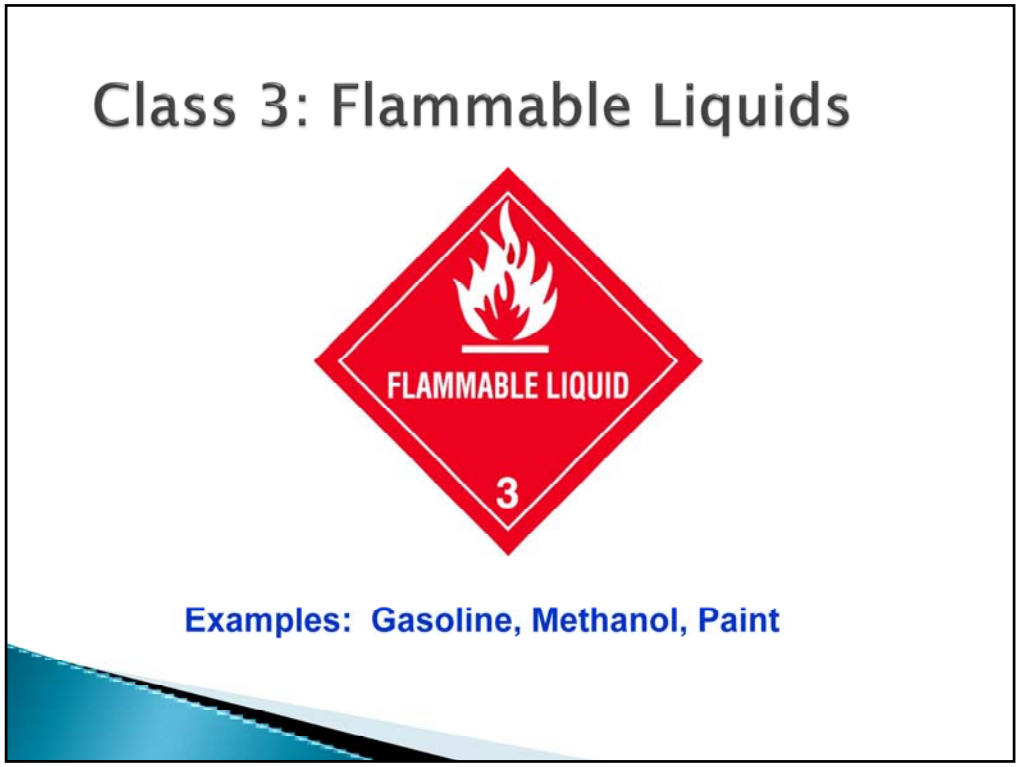
2) has a flammable range of 14.7 psi with air of at least 12% regardless of the lower limit.

Division 2.2 Non-Flammable = any material which exerts in the packaging a gauge pressure of 29.0psig/43.8 psi or greater at 68^oF is a liquefied gas or is a cryogenic liquid, and does not meet the definition of 2.1 or 2.3.

Division 2.3 Poisonous by inhalation = a material which is a gas at 68^oF or less and a pressure of 14.7 psi and which;

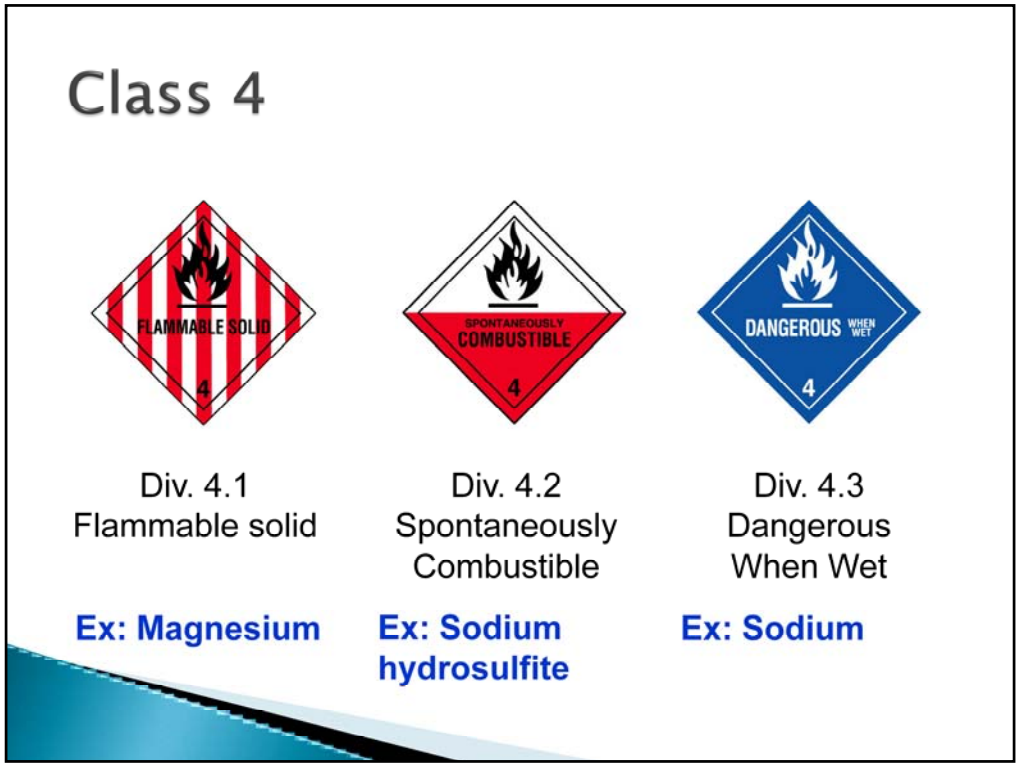
1) is known to be so toxic to humans as to pose a hazard to health during transportation; or

2) In the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has a LC_{50} value of not more than 5000 ml/m^3



Flammable Liquid = a liquid having a flash point of not more than 140°F or any material in a liquid phase with a flash point at or above 100°F that is intentionally heated and offered for transportation or transported at or above its flash point in a bulk packaging (there are 5 exceptions to this listed in 173.120).

Combustible Liquid = any liquid that does not meet the definition of any other hazard class specified in the subchapter and has a flash point above 140°F and below 200°F.



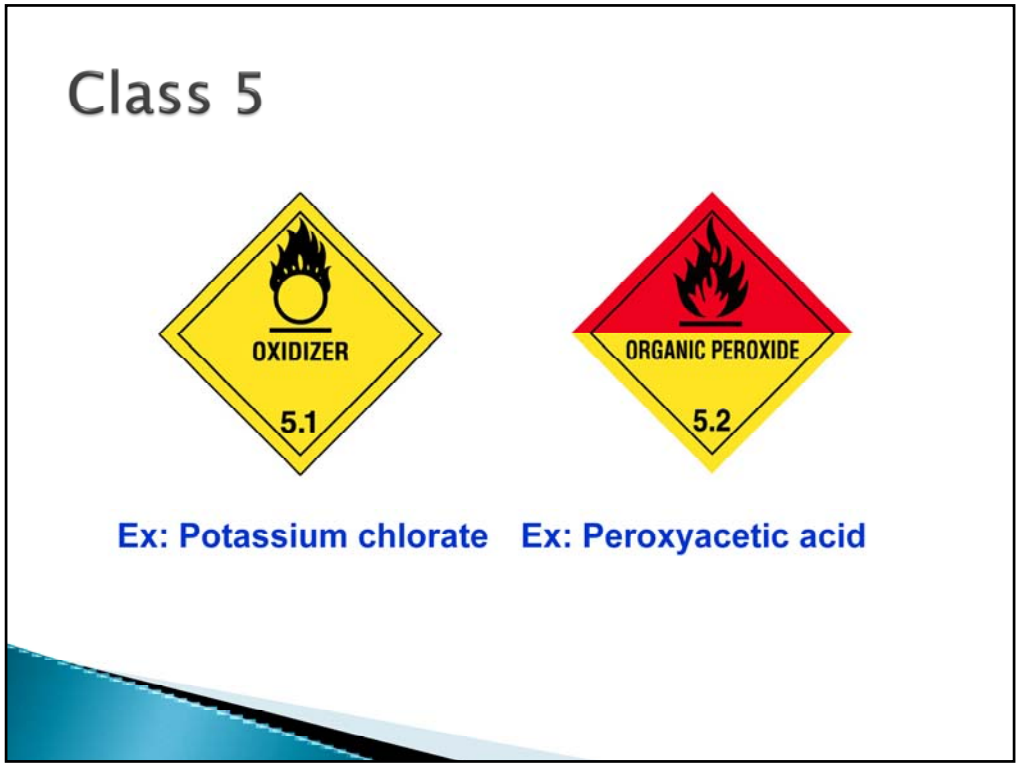
4.1 Flammable Solid = any of the following materials;

1) Wetted explosives
2) Self-reactive materials
3) Readily Combustible solids

4.2 Spontaneous Combustible = any of the following materials;

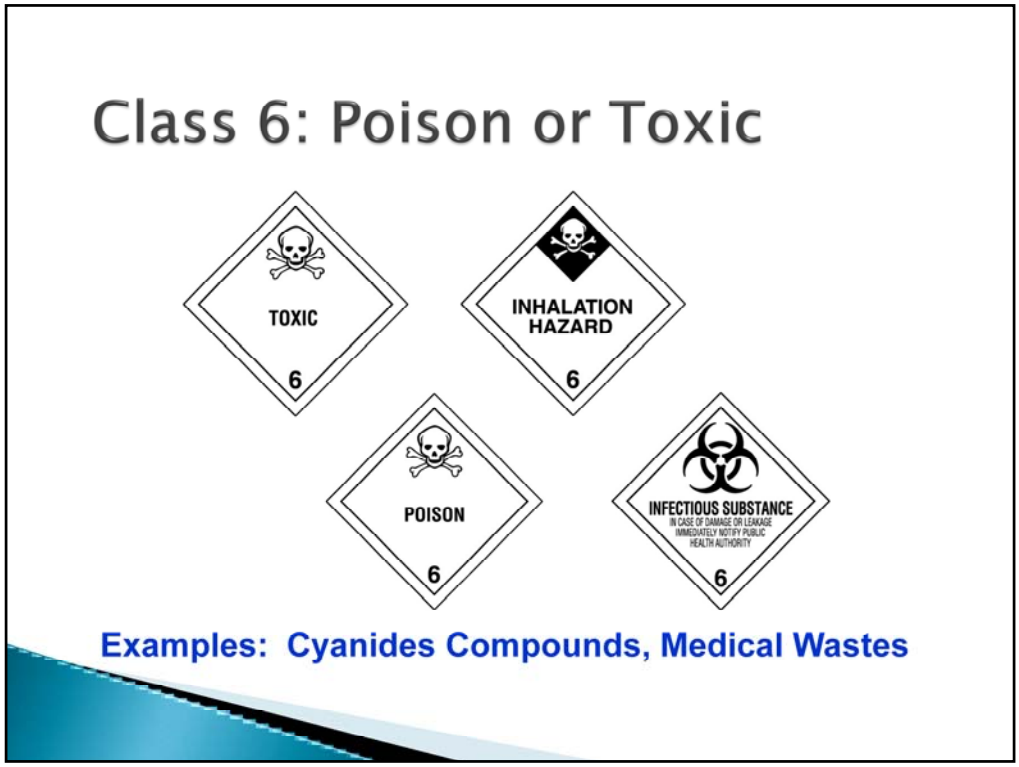
1) Pyrophoric material
2) A self heating material

4.3 Dangerous When Wet = a material that when in contact with water is liable to become spontaneously flammable or give off flammable or toxic gas at a rate greater than 1L per kg of the material, per hour, when tested in accordance with UN manual of Tests and Criteria.



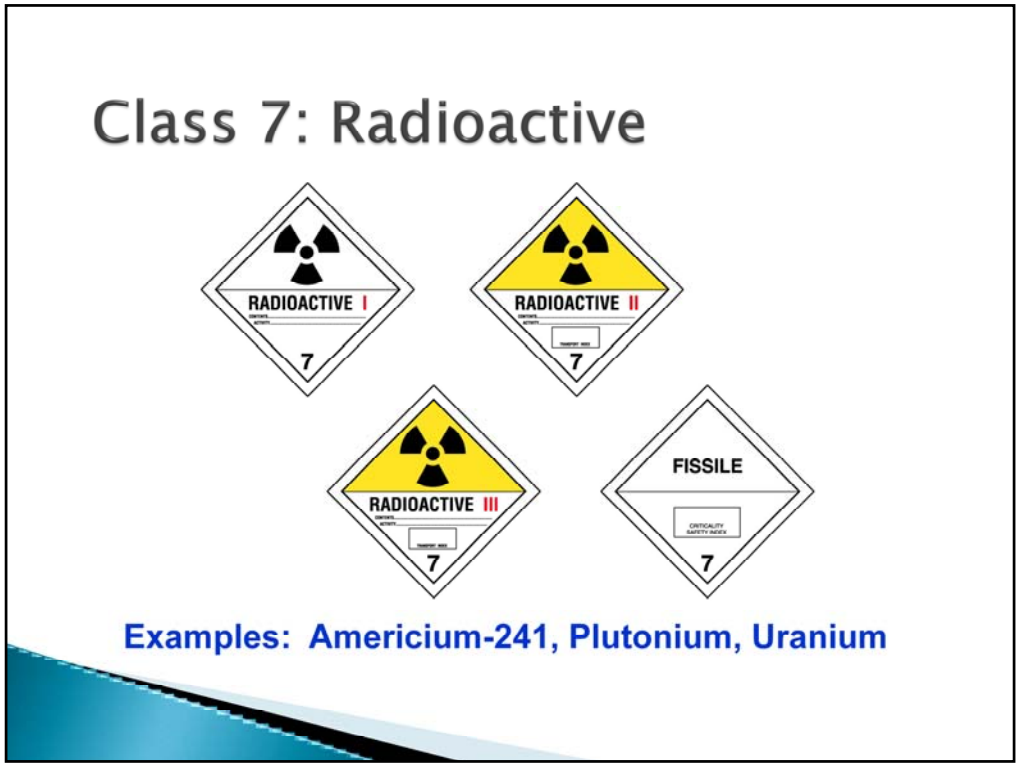
5.1 Oxidizer = a material that may, generally by yielding oxygen, cause or enhance the combustion of other materials.

5.2 Organic Peroxide = any organic compound containing to oxygen in the bivalent –O-O- structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals, unless one of the 4 conditions listed in 173.128 (a) exist.



6.1 Poison = a material, other than gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity is presumed to be toxic based on animal test data.

Division 6.2 Infectious substance = a material known to or reasonably expected to contain a pathogen.

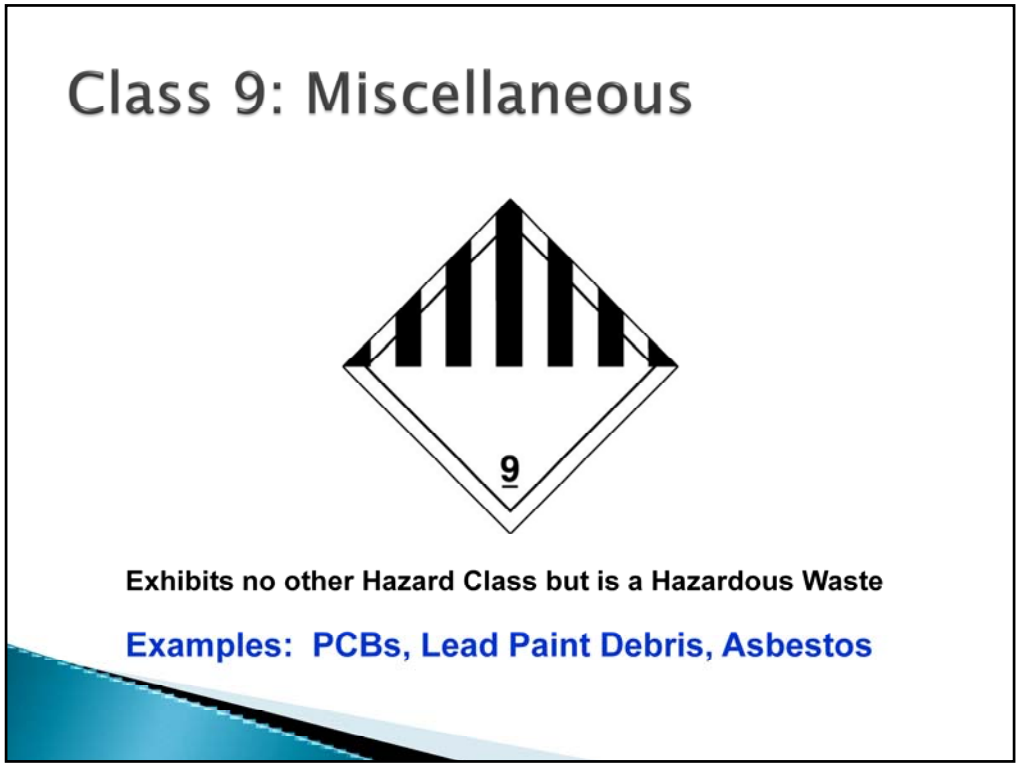


Radioactive = Any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in the table in 173.436 or values derived according to the instruction on 173.433

Class 8: Corrosive

Examples: hydrochloric acid (HCl), sulfuric acid (H_2SO_4), Sodium hydroxide (NaOH)

Corrosive = a liquid or a solid that causes full thickness destruction of human skin at the site of contact within a specified period of time. A liquid, or a solid which may become liquid during transportation, that has a severe corrosion rate on steel or aluminum based on the criteria in 173.137(c)(2) is also a corrosive material.



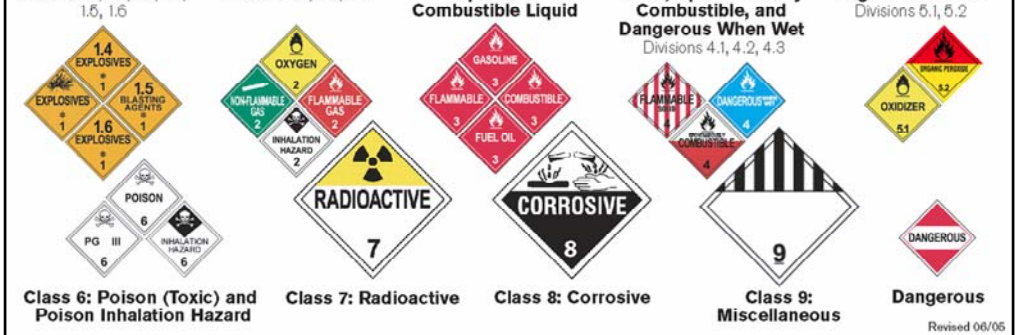
Miscellaneous = a material which presents a hazard during transportation but which does not meet the definition of any other hazard class. This includes;

1) any material which has an anesthetic property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duty; or

2) Any material that meets the definition in 171.8 of this subchapter for an elevated temperature material, a hazardous substance, a hazardous waste, or a marine pollutant.

Summary

Nine Classes of Hazardous Materials



Simple Exercises

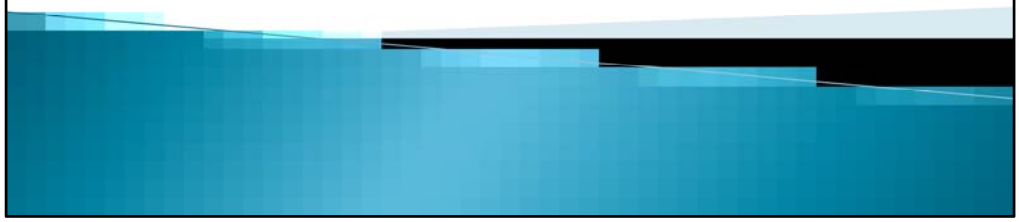


Photo cited:

Increased Penalties Take Effect for Knowingly Violating Hazmat Regs

April 24, 2013

http://www.truckinginfo.com/channel/owner-operators/news/story/2013/04/increased-civil-penalties-take-effect-for-those-who-knowingly-violate-federal-hazmat-laws-and-regul.aspx

Photo cited:
Santa Barbara County Fire Drill
http://my.firefighternation.com/forum/topics/889755:Topic:1326989?commentId=889755%3AComment%3A2759184&q=xn%2Fdetail%2F889755%3AComment%3A2759184

Notice the DOT and EPA labeling on the drums and truck.

It indicates that the truck is carrying a flammable solid.

Notice the wet ground next to the truck.

Emergency response most likely used water to handle whatever problem that was occurring on the truck (most likely a fire, as the label indicated it was a flammable solid). However, with the excessive smoking, applying water has caused another problem. We can say that the wrong placard was used.

The truck should have been labeled with a blue background placard to indicate that the material would be dangerous when wet.

Note: in fact, the material on the truck was UN1714 = zinc phosphide, which reacts with water. This emphasizes the need for proper labeling.

IMPORTANT NOTE: Due to 49 CFR 177.804 refers the compliance of FMCS regulations (49 CFR 383, 390 – 397) but with an exception stated in 49 CFR 390.3(f), which states: "*Exceptions.* Unless otherwise specifically provided, the rules in this subchapter do not apply to—

Slide 33 on the DOT-HazMat Refresher, October 29, 2013

Photo cited:
Santa Barbara County Fire Drill
http://my.firefighternation.com/forum/topics/889755:Topic:1326989?commentId=889755%3AComment%3A2759184&q=xn%2Fdetail%2F889755%3AComment%3A2759184

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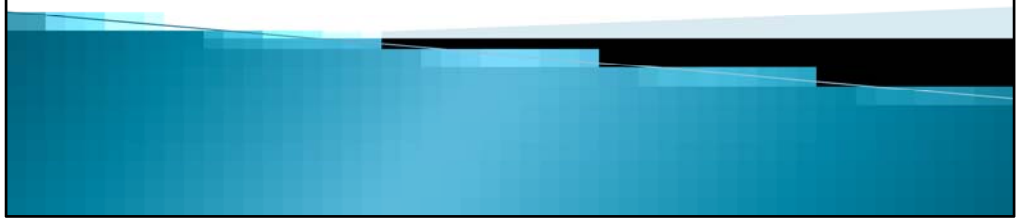
(2) Transportation performed by the Federal government, a State, or any political subdivision of a State, or an agency established under a compact between States that has been approved by the Congress of the United States."

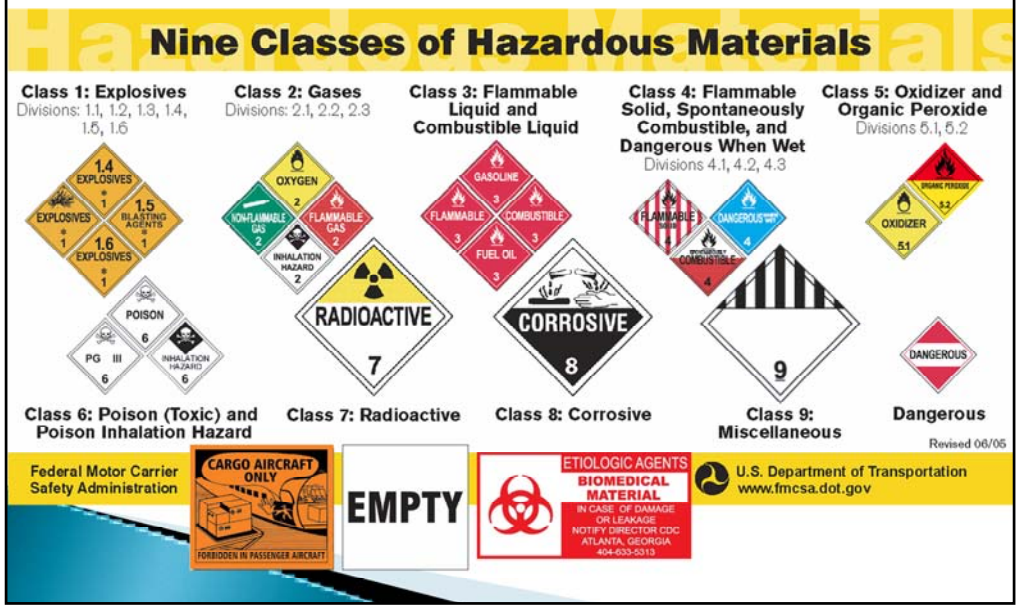
And 49 CFR 171.1(d), "*Functions not subject to the requirements of the HMR.* The following are examples of activities to which the HMR do not apply:
(5) Transportation of a hazardous material in a motor vehicle, aircraft, or vessel operated by a Federal, state, or local government employee solely for noncommercial Federal, state, or local government purposes."

As a result, if this vehicle is transporting hazardous materials (including HW) for sole governmental purpose(s), the operator as well as the vehicle does not need to follow HMR per both 49 CFR 171.1(d)(5) and 49 CFR 390.3(f)(2).

DOT Labeling, Marking & Placarding



DOT Labels


Nine Classes of Hazardous Materials
Class 1: Explosives
Divisions: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6
1.4 EXPLOSIVES
1.5 BLASTING AGENTS
1.6 EXPLOSIVES
Class 2: Gases
Divisions: 2.1, 2.2, 2.3
OXYGEN
NON-FLAMMABLE GAS
FLAMMABLE GAS
INHALATION HAZARD
Class 3: Flammable Liquid and Combustible Liquid
GASOLINE
FLAMMABLE
COMBUSTIBLE
FUEL OIL
Class 4: Flammable Solid, Spontaneously Combustible, and Dangerous When Wet
Divisions 4.1, 4.2, 4.3
FLAMMABLE
DANGEROUS WHEN WET
SPONTANEOUSLY COMBUSTIBLE
Class 5: Oxidizer and Organic Peroxide
Divisions 5.1, 5.2
ORGANIC PEROXIDE
OXIDIZER
POISON
PG III
INHALATION HAZARD
RADIOACTIVE
CORROSIVE
DANGEROUS
Class 6: Poison (Toxic) and Poison Inhalation Hazard
Class 7: Radioactive
Class 8: Corrosive
Class 9: Miscellaneous
Dangerous
Revised 06/05
Federal Motor Carrier Safety Administration
CARGO AIRCRAFT ONLY
FORBIDDEN IN PASSENGER AIRCRAFT
EMPTY
ETIOLOGIC AGENTS
BIOMEDICAL MATERIAL
IN CASE OF DAMAGE OR LEAKAGE
NOTIFY DIRECTOR CDC
ATLANTA, GEORGIA
404-633-5313
U.S. Department of Transportation
www.fmcsa.dot.gov

DOT Marking

Everything else that is adhered or marked on a package that is not DOT label.

- For example seen in circles:

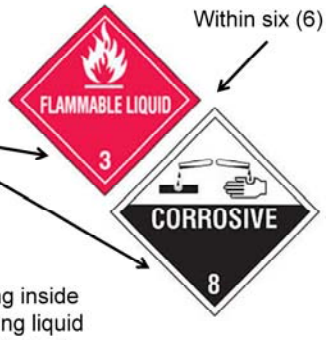
DOT Marking (Haz Waste Label)

- Make sure all areas are completed on the label using permanent marking pen.
- Once waste is placed inside a container the accumulation date must be entered.
- In California, you must also state the physical state and properties of the hazardous waste.
- California has separate waste codes. Make sure the correct code is chosen. One code per waste stream only.

Label Placement

Within six (6) inches*

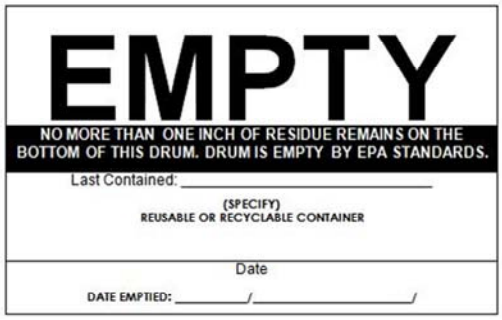
The primary and Subsidiary hazard class label as specified in column 3 and 6 must display the hazard class in the lower corner



All packages having inside packaging containing liquid hazardous materials must be marked according to 49 CFR 172.312 with two (2) orientation labels on opposite sides of the package.

*49 CFR 172.406(c); additional requirement see 49 CFR 172.402

Other DOT Labeling & Marking



Note: Empty labels are for containers that once held waste, not intended for new containers.

Other Marking Requirements

- **RQ** – each substance containing an RQ amount must be notated with "RQ"
- **Inhalation Hazards** – must be marked "Poison Inhalation Hazard – Hazard Zone _"
- **Poisons** – non-bulk plastic outer packaging used as a single or composite packaging for materials of Division 6.1 shall be permanently marked with the word "Poison" in letters at least 0.25 in. height.
- **Marine Pollutants** – Bulk packages containing material classed as Marine Pollutants must be marked on opposing sides with the marine pollutant mark.
- **Bulk packaging** – must be marked with the ID# either in orange panels, placards, or white square-on-point panels.

Placarding

Any quantity of hazardous material listed in Table 1 (49 CFR §172.504)

Category of material (Hazard class or division number and additional description, as appropriate	Placard name	Placard design section reference
1.1	EXPLOSIVE 1.1	172.522
1.2	EXPLOSIVE 1.2	172.522
1.3	EXPLOSIVE 1.3	172.522
2.3	POISON GAS	172.54
4.3	DANGEROUS WHEN WET	172.548
5.2 (Organic peroxide, Type B, liquid or solid, temperature controlled)	ORGANIC PEROXIDE	172.552
6.1 (material poisonous by inhalation see 171.8 of this subchapter)	POISON INHALATION HAZARD	172.555
7 (Radioactive Yellow III label only)	RADIOACTIVE	172.556

Placarding

If aggregate gross weight of all Table 2 hazardous materials on the transport vehicle or freight container is 1,001 pounds or more (from separate facilities) requires placarding. All vehicles containing bulk packages must be placarded.

Category of material (Hazard class or division number and additional description, as appropriate	Placard name	Placard design section reference
1.4	EXPLOSIVE 1.4	172.523
1.5	EXPLOSIVE 1.5	172.524
1.6	EXPLOSIVE 1.6	172.525
2.1	FLAMMABLE GAS	172.532
2.2	NON-FLAMMABLE GAS	172.528
3	FLAMMABLE GAS	172.542
Combustible Liquid	COMBUSTABLE	172.544
4.1	FLAMMABLE SOLID	172.546
4.2	SPONTANEOUSLY COMBUSTABLE	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 material poisonous by inhalation)	POISON	172.554
6.2	(NONE)	NA
8	CORROSIVE	172.558
9	CLASS 9 (see 172.504(f)(9))	172.56
ORM-D	(none)	NA

Dangerous Placard

- For non-bulk packages only
- 2 or more categories in Table 2 are loaded in the same transport vehicle.
  - If any materials aggregate weight reaches 2,205lbs at one facility, It must be individually placarded.

49 CFR 172.504(b)

Tired of the Reg Yet?

Hazardous Materials Table
49 CFR §172.101

Hazardous Materials Table

Purpose of the Table

- Lists the hazardous materials for transportation
- Identifies the hazard class, proper shipping name, or directs the user to the proper shipping name.
- Identifies materials that are forbidden for transport
- Specifies or references requirements to properly package, label, and special quantity limits for aircraft and vessel storage.

(1) Symbols *	(2) Hazardous Materials Descriptions and Proper Shipping Names Check 172.101©, 172.200, 172.202 & 172.203©(k)(l)(m)	(3) Hazard Class or Division Check 173.3 & 173.2a	(4) Identification Numbers Check 172.101 (e)	(5) PG Check 173.2 & 172.101(f)	(6) Label Codes Check 172.402 (a)&(b)	(7) Special Provisions Check 172.102 & 172.203 (m) (1-2) & 172.505	(8) Packaging (173.***)			(9) Quantity Limitations (see 173.27 & 175.75)		(10) Vessel Stowage	
							Exceptions (8A)	Non-Bulk (8B)	Bulk (8C)	Passenger Aircraft/Rail Check 171.11 (9A)	Cargo Aircraft Only (9B)	Location (10A)	Other (10B)
RQ	Nitric Acid *other than red fuming, with more than 70 percent nitric acid*	8	UN2031	I	8, 5.1	A3, B47, B53, T10, TP2, TP12, TP13	None.....	158.....	243....	Forbidden	2.5L	D	44, 66, 89, 90, 110, 111
RQ	Nitric Acid *other than red fuming, with not more than 20 percent nitric acid*	8	UN2031	II	8	A6, B2, B47, B53, IB2, TP2, TP12	None.....	158.....	242....	1 L	30 L	D	....

Column 1
+ fixes the shipping description to the material
A requirements for shipping by air
W requirements for shipping by water
D Shipping description is appropriate when shipping domestically only
I Shipping description is appropriate when shipping internationally
G one or more technical names must be entered in parenthesis in association with its basic description
RQ item may be a reportable quantity. Appendix A must be checked
MP item may be a marine pollutant. Appendix B must be checked

Column 2
Proper Shipping name is listed in Roman type. Additional information used to pick the correct shipping name is listed in *italics*.
WASTE must be added in front of the proper shipping name for Hazardous Waste shipments (HHW generated waste is exempt from this requirement).

Column 3 = Primary Hazard Class

Column 4
UN appropriate for international and domestic transport.
NA only for domestic transport

Column 5 = packing group
PGI great danger.
PGII medium danger
PGIII minor danger

Column 6 = Required Hazard Labels. Subsidiary hazard classes are listed in () after the primary class in the complete shipping description.

Column 7 = Special provisions/requirements

Column 8 = Packaging Exemptions & Specifications

Column 9 & 10 = Special transportation requirements for transport by air, rail, and vessel.

Proper Shipping Name (PSN)

- Always pick the PSN that **best describes** the item for transport. Below are some rules to help with this.
- **Mixtures and Solutions**: If a hazardous material is mixed with a non-hazardous material and the properties of the hazardous material do not change, the qualifying words mixture or solution shall be used in association with the PSN.
  - Example: Mixture of Sulfuric acid and orange juice would be – UN2796, Sulfuric Acid Solution, 8, PGII

Other PSNs

- **Generic PSN**
  - when an appropriate technical name is not listed. Below is the hierarchy for selecting the most appropriate shipping descriptions.
    - Chemical Family (example; Alcohol, n.o.s.)
    - Application (example; Coating Solution)
    - Hazard Class (example; Flammable Liquids, n.o.s)

- **California**
  - Materials not regulated by EPA or DOT but considered hazardous in California are described as
    - "Non RCRA Hazardous Waste, Liquid" or
    - "Non-RCRA Hazardous Waste, Solid."

Proper Shipping Description (PSD)

When writing the complete PSD you want to denote it as written below:

UN#, Proper Shipping Name, (NOS description), Primary Hazard Class (Subsidiary hazard class), PG
Example: UN3098, Oxidizing Liquid, Corrosive, N.O.S, (Potassium Dichromate, Sodium Bisulfate), 5.1 (8), PGII

OR

UN#, Proper Shipping Name, Primary Hazard Class (Subsidiary hazard class), PG, (NOS description)
Example: UN3098, Oxidizing Liquid, Corrosive, N.O.S, 5.1 (8), PGII, (Potassium Dichromate, Sodium Bisulfate)

Other Requirements

- **Polychlorinated biphenyls (PCB's)** have special manifesting requirements (40 CFR 761.180(b)). These must appear on the manifest (this can be in the Special handling Section of Manifest):
  - out of service date
  - weight in kilograms
  - unique serial numbers
- **Inhalation hazards** are required to be identified in the shipping description (Example; "Inhalation Hazard – Zone A"). Codes 1-4, in Special Provisions/column 7, denote inhalation hazards, zone A-D.
- **Poison/Toxic materials** must be noted in the shipping description if not present (Example; UN1679, Potassium cuprocyanide, 6.1, PGI (Toxic))

Other Requirements (Cont.)

- **Generic Descriptions / n.o.s.** must give the two main Chemical constituents in the proper shipping description. However, the chemical constituents are not required for lab packs if they do not contain a regulated quantity of a hazardous substance or are not an inhalation hazard. If a material within the package “RQ” the shipping description then that material would be one of the notated chemical constituent.
- **Marine Pollutant s** must denote "Marine Pollutant“ in the shipping description if criteria in 49 CFR 172.101 appendix B, is met. This requirement only applies to Bulk packaging's and any package shipped aboard a vessel.
- **RQ** is required to be inserted in front of the proper shipping name if criteria in 49 CFR 172.101 appendix A, is met.

Shipping Papers

- Except for Hazardous Waste, there is no specific shipping form required for hazardous materials shipment. Some exemptions may exist that also allow for certain wastes to be exempted from a Uniform Manifest. (i.e., Propane if sent for reclamation is no longer a waste and is able to be shipped on a BOL)
- As of September 5, 2006 states that had their own manifests, no longer do and are required to use the new uniform manifest. However specific state rules and codes regarding manifest still exist and must be used, example is California and the new supplemental California manifest instructions.
- "Materials of Trade" Exception

  DOT authorizes certain hazardous materials to be shipped as "materials of trade" without a shipping document if and when:
  - The amount of material shipped is below the quantity threshold,
  - The containers are properly marked and labeled,
  - The materials are transported in a company-owned vehicle by a company employee, and
  - The materials are secured during transportation to protect them from damage.

Uniform Hazardous Waste Manifest

- After you (the "generator") sign, you must…Send a copy of the manifest to:
  DTSC
  P.O. Box 400
  Sacramento, California 95182
- A signed copy must be received from the TSDF within 45 days of original shipment. If a signed copy is not received within 45 days, you must file an exception report with DTSC.

Uniform Hazardous Waste Manifest

1) The Generators EPA twelve-digit identification number or the state generator identification number if site does not have an EPA number.

2) Page number and the total pages of the manifest.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-003

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CA#########	2	1-800-424-9300	#########JJK

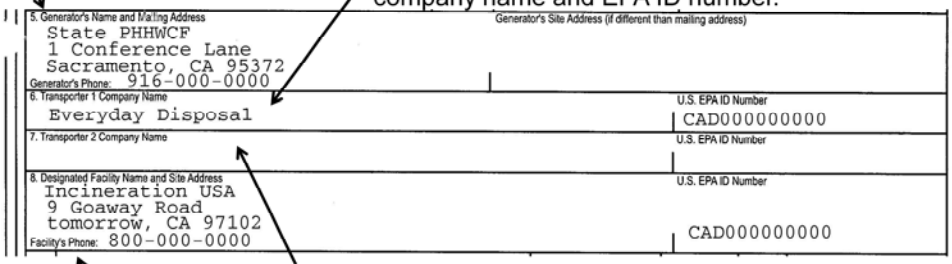
3) Phone number in which emergency response information can be obtained in the event of an incident during transportation. This number must be monitored 24 hours a day. The person must also have knowledge of the shipment and emergency response knowledge for the material being shipped.

4) Manifest Tracking number- This is a unique number pre-printed on the manifest by the forms printer. The last letters represent the printer (ex. JJK = J.J. Keller).

Uniform Hazardous Waste Manifest

5) This is the generators information such as the name, mailing address, and phone number. If the site address is different from the mailing address this must also be entered in the space provided.

6) First transporter information; such as their company name and EPA ID number.



7) Second transporter information; such as company name and EPA ID number. Note: this does not mean second driver for the same company.

8) Designated facility information; such as company name, site address, facility phone number, and US EPA ID number.

Uniform Hazardous Waste Manifest

9a) If the wastes identified in 9b consists of both hazardous and nonhazardous wastes then identify the hazardous materials with an X in this area.

9b. Enter the UN/NA number, Proper shipping name, hazard class, and packing group in the area as identified by 49 CFR 172.

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN1263, Paint Related Material, 3, PGII	1	DM	50	G	612		
	2.							

10) Container numbers and type. You may only use the abbreviation types listed in Table 1 below.

TABLE I – Type of Containers

BA = Burlap, cloth, paper, or plastic bags.	DT = Dump truck
CF = Fiber or plastic boxes, cartons, cases.	DW = Wooden drums, barrels, kegs
CM = Metal boxes, cartons, cases (including roll offs)	HG Hopper or gondola cars.
CW = Wooden boxes, cartons, cases.	TC = Tank cars
CY = Cylinders	TP = Portable Tanks
DF = Fiberboard or plastic drums, barrels, kegs	TT = Cargo tanks (tank trucks)
DM = metal drums, barrels, kegs	

Uniform Hazardous Waste Manifest

11) Total quantity of waste must be entered here in whole numbers. You must use the most appropriate units of measurement in order to achieve the closest quantity in whole numbers.

13) Enter up to six federal and state waste codes. The federal waste code is from 40 CFR 261.21-24 and 40 CFR 261.31-33. The State codes can be found on the Supplemental California Manifest instructions; only one state code should be used.

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN1263, Paint Related Material, 3, PGII	1	DM	50	G	612		
	2.							

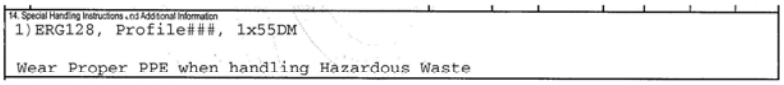
12) Unit of measurement used is placed into this area using the appropriate abbreviation from table II.

TABLE II – Unit of Measure

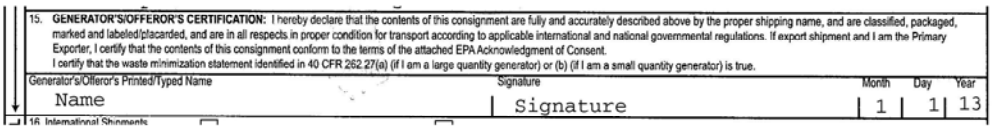
G = Gallons (liquids only)	N = Cubic meters
K = Kilograms	P = Pounds
L = liters (liquids only)	T= Tons (2000 pounds)
M = metric tons (1000 kilograms)	Y = Cubic Yards

Uniform Hazardous Waste Manifest

14) Special handling instructions and additional information. This area can be used for any information necessary for the proper management or tracking of the materials listed on the manifest. Some examples of this are; profile numbers, container codes, bar codes, response guide numbers. The space may also be used for requirements with which there is no specific area for, examples; more federal codes, PCB out of service dates, manifest tracking number of the original manifest of rejected loads, and alternate facility designations.



Uniform Hazardous Waste Manifest



15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
Name	Signature	1	1	13

16. International Shipments

This is what you are signing…

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

Uniform Hazardous Waste Manifest

16) International Shipments. If the imported or exported the correct box must be marked and the port and date leaving must be entered.

17)Transporter acknowledgement. This is the area where the First and Second transporter signs in order to acknowledge that they have accepted the material.

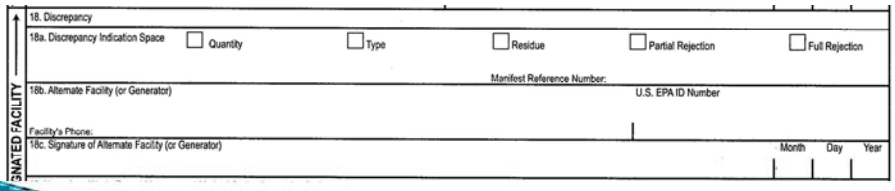
Uniform Hazardous Waste Manifest

18) Discrepancies

a) If a discrepancy is found by the TSDF then the correct box must be checked. If the rejection is a partial rejection or a full rejection but a new manifest is requested then the manifest tracking number must be referenced. This area can also be used for any additional information on the rejected load.

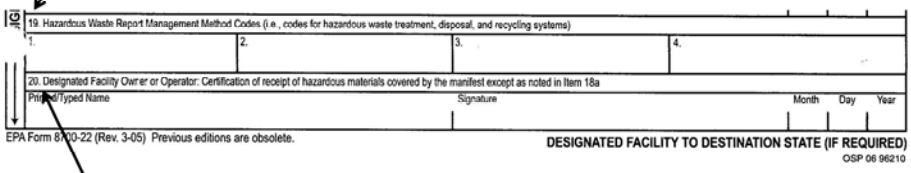
b) If the entire load is rejected and the same manifest used, than the alternate TSDF information, such as their facility name and EPA ID number is entered here. If the fully rejected load is sent back to the generator than their name and EPA ID number is entered.

c) Once fully rejected load is accepted by the alternate facility or back to generator, they must sign in this space.



Uniform Hazardous Waste Manifest

19) Hazardous waste report management codes. The first treatment, storage, or TSDF that receives the waste must enter the code that best describes the way in which the waste is to be managed when received by TSDF.



20) Designated facility owner or operator certification of receipt. The TSDF must sign here acknowledging receipt of material, even if the load ultimately gets rejected.

Correcting a Manifest

DON'T get caught, correct the mistake before getting charged $20 per manifest. To submit a letter, please provided the manifest corrections on company letterhead, and include the following information:

1. Manifest Tracking Number
2. Generator date; the date the generator signed the manifest.
3. Generator EPA ID number.
4. The incorrect or incomplete item number from the manifest.
5. The corrected information.
6. Signature, title, mailing address, and phone number of person submitting the correction.

Mail to:
DTSC
Generator Information Services Section
Attention: Manifest Corrections
P.O. Box 806
Sacramento, CA 95812-0806

Consolidated Manifests

- **This allows for a waste stream from multiple generators to be combined.**
- **What Wastes?** Used Oil, Antifreeze, Asbestos, Brake Fluid, School Labpacks, and Solids contaminated with oil.
- **How?** Individual generators receive a receipt with the final manifest number referenced. Hauler completes at the end of the day with them at the end of the day.
- **Notifications?** Generator receives no TSDF verification.
- ***NOTE:** EPA ID Number is still required.*

BOL & Non-Haz Manifest

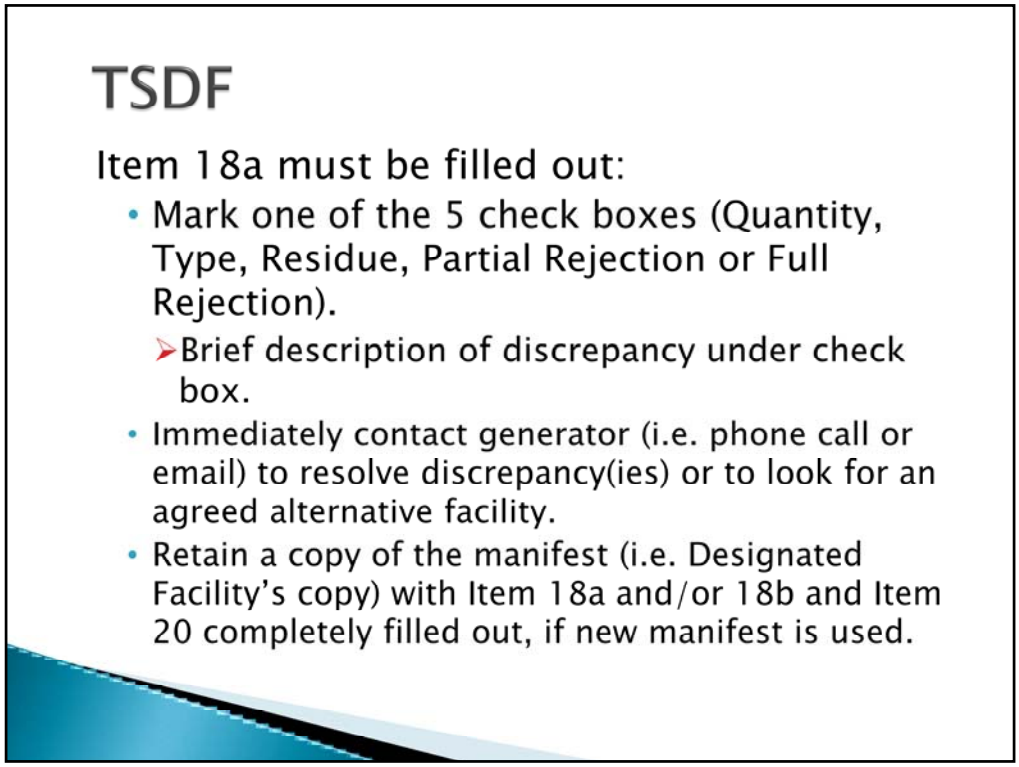
- **This is a less stringent form of Shipping Paper.**
- **What Wastes?** These can be used for certain Recyclable wastes, Universal Waste, and Hazardous Materials with specific allowances. These include: Fluorescent Lights, Batteries (Car & Household), Propane tanks, Electronic Waste, and other Universal Wastes.
- **How?** Must be legible with following information. Shipper info, Recipient info, proper shipping description (name, class, PG, ID#), emergency phone number, and certification.
- **Notifications?** Generator does not send to DTSC but it is a good practice to request verification from TSDF.

Record Keeping

- **Training Record = 3 years**
- Must include: employee name, training completion date, description (can be copy or location of training material used), name and address of person providing training, certification that the hazmat employee has been trained and tested.
- **Manifest** = 3 years
- **BOL/Non-Haz Manifest** = 2 years, unless its Universal Waste which is 3 years.

NOTE: Recommended that these be kept indefinitely

Check out the handout example!



Title 22 CCR 66264.72 and 66265.72

Discrepancy Notification

TSDF Notifies DTSC:

- If the discrepancy discovery cannot be resolved within 15-days and
- Must submit a letter to DTSC describing the discrepancy and attempt to reconcile along with a copy of the manifest to:

DTSC Report Repository
Generator Information Services Section
PO Box 806
Sacramento, CA 95812-0806

Partial/Full Rejection

Within 60 days or permit allowed, whichever is shorter, TSDF* must send:

- the rejected waste or residue to an agreed alternative facility or
- the rejected waste or residue back to the generator.

* 22 CCR 66264.72(d)(1)

Partial Rejection

- TSDF MUST fill out Item 19 and Item 20.
  - TSDF has option to use new manifest.
- Alternative facility (not generator) must fill out Item 18c and Item 19.

Full Rejection

- TSDF may use
  - the original manifest with alternative facility information listed and complete Item 20;
  - or use a new manifest
- Alternative facility (not generator) must fill out Item 18c and Item 19.

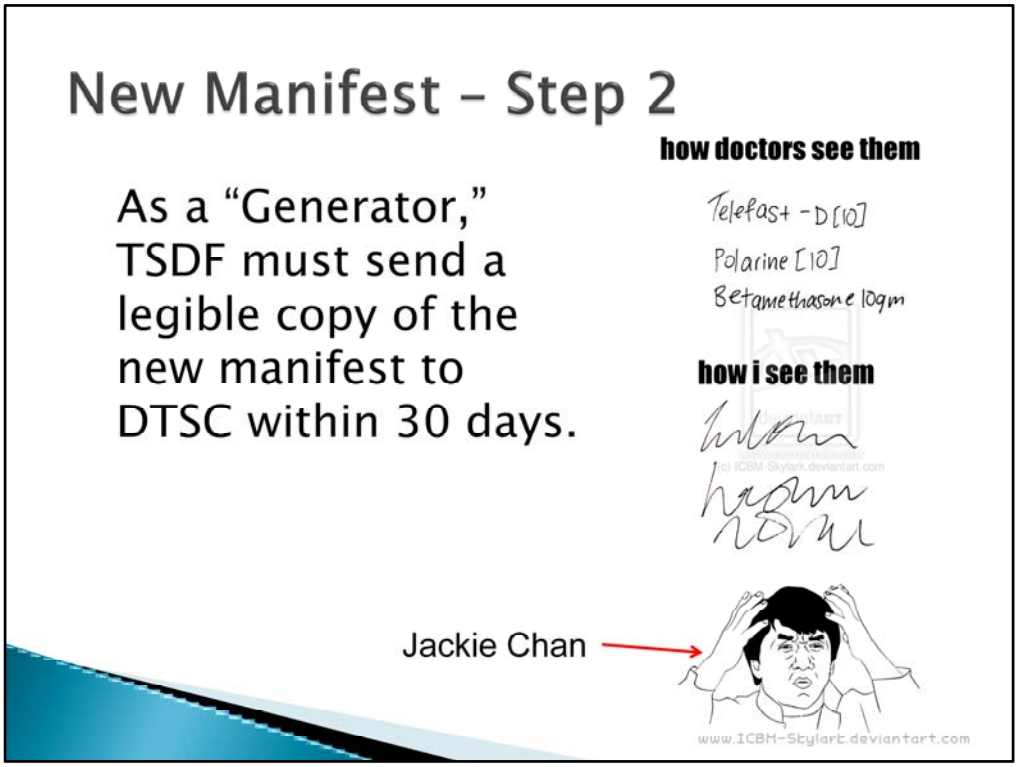
New Manifest – Step 1

TSDF must fill out:

- Item 18a of original manifest (i.e. Manifest Reference Number = Manifest Tracking Number (Item 4)).
- Nothing in Item 18b of the original manifest.
- Item 20 of original manifest.
- Item 14 of new manifest with the original manifest tracking number for cross reference.
- All required information as a Rejected Load Offeror in Generator Section on new manifest (Items 1 – 15).

New Manifest – Step 2

As a "Generator," TSDF must send a legible copy of the new manifest to DTSC within 30 days.



New Manifest – Step 3

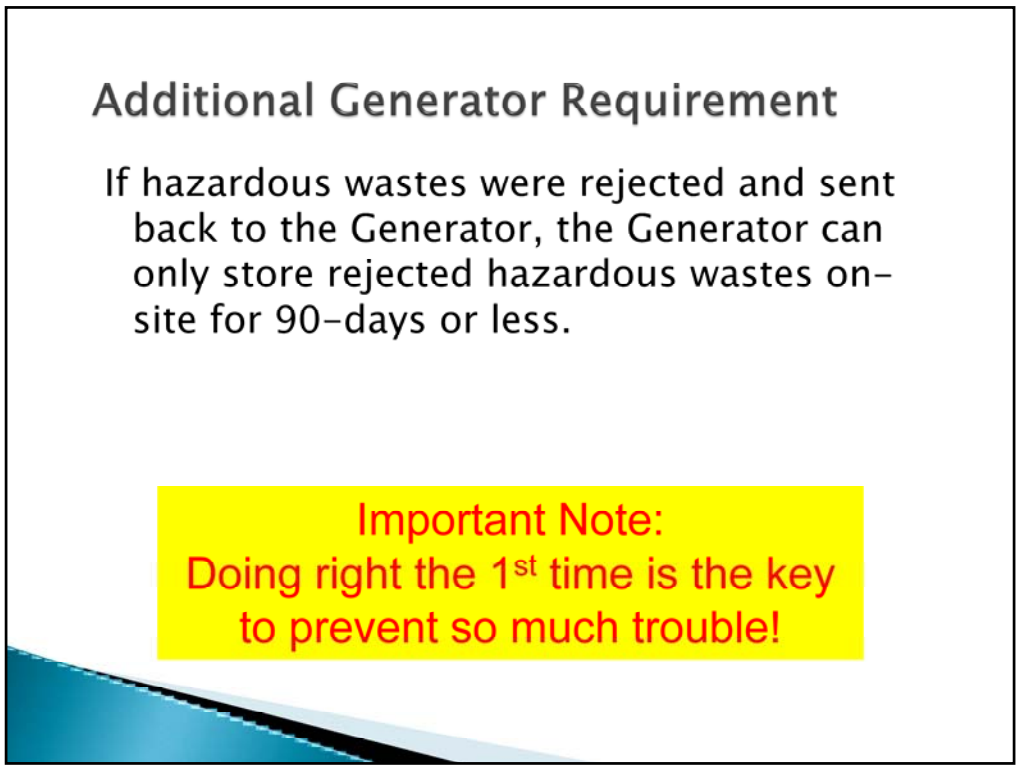
Alternative Facility, including Generator:

- As a TSDF, sign Item 20.
- Send the "Designated Facility to Destination State" copy of the manifest within 30-day of receipt of rejected load to:

DTSC Facility Manifests
PO Box 3000
Sacramento, CA 95812-3000

New Manifest – Step 4

- Alternative Facility must send a "Designated Facility to Generator" to the original Generator of the HW's within 30 days after the delivery of wastes. Or
- The original Generator must send a "Designated Facility to Generator" to the original TSDF within 30 days after the delivery of HW's.



Title 22 CCR 66262.34(g)


Performance
Packaging

UN Performance Oriented Packaging

- Manufactured and tested to UN Standards
- Certified by competent authority (DOT (49 CFR 178) or equivalent)
- Packaging designs must meet specific performance criteria
  - Drop test
  - Hydrostatic pressure test
  - Leak test
  - Stacking test
  - Vibration standard

Packing Group (PG)*

Each material is assigned to a PG based on its relative level of hazard:

- PG I = great danger
- PG II = medium danger
- PG III = minor danger

Increase relative hazard of material

*49 CFR 172.101(f)

Performance Packaging Standard (PPS)*

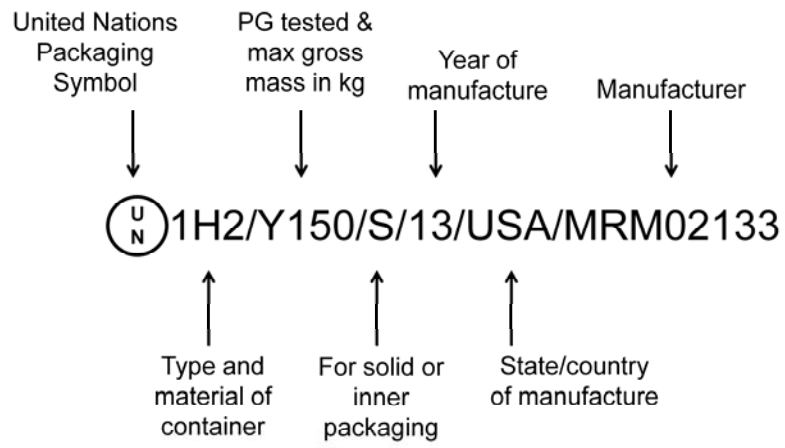
PPS designed to contain PG:

- X = PG I, II, III
- Y = PG II, III
- Z = PG III

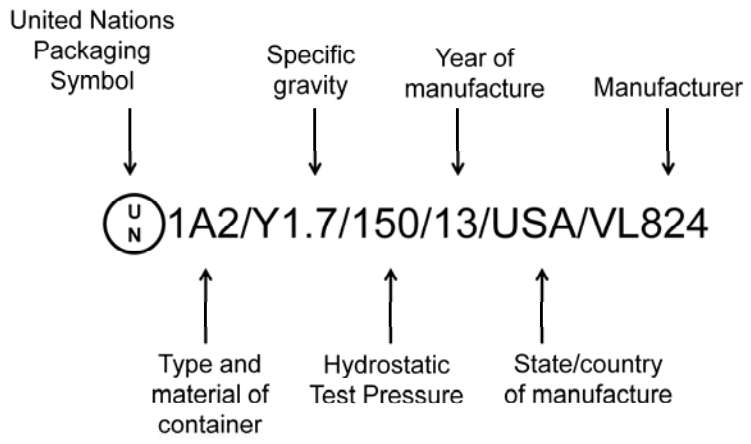
Increase relative hazard of material
Increase strength of packaging

*49 CFR 178.503(a)(3)

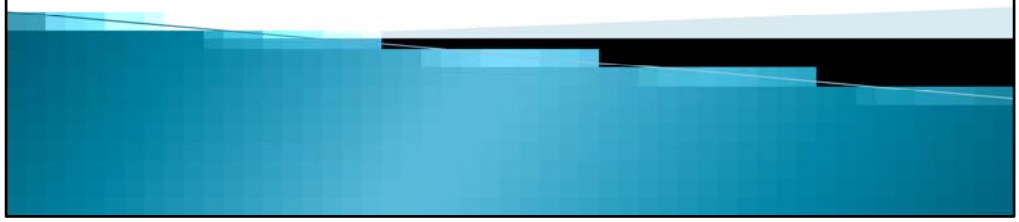
UN Packaging Mark



UN Packaging Mark



Packaging Types



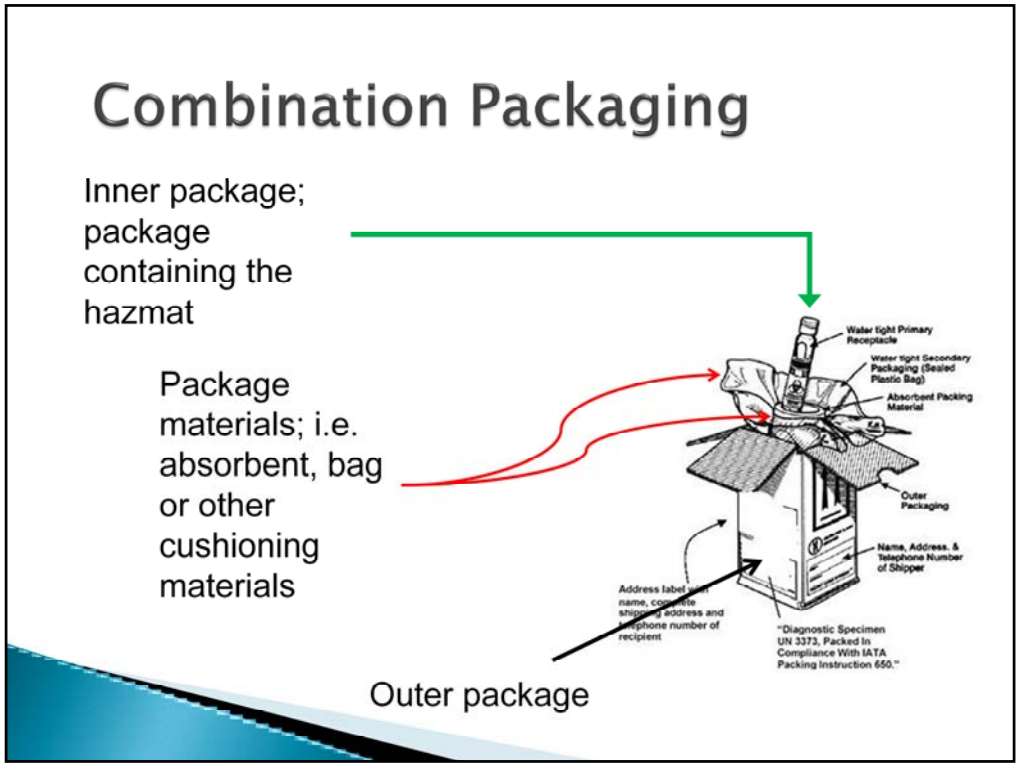


Image cited:

http://www.cdc.gov/sars/lab/packing.html

Single Packaging

- Commonly found in HHW consolidation operation, i.e. paint and solvents
- Non-bulk packaging other than composite packing, i.e. 55-gal steel drum.

Composite Packaging

Packaging consisting of an outer and inner packaging so that the constructed form an integral packaging

Example: consists of a plastic inner and steel outer 55-gal drum (6HA1)

Salvage Packaging

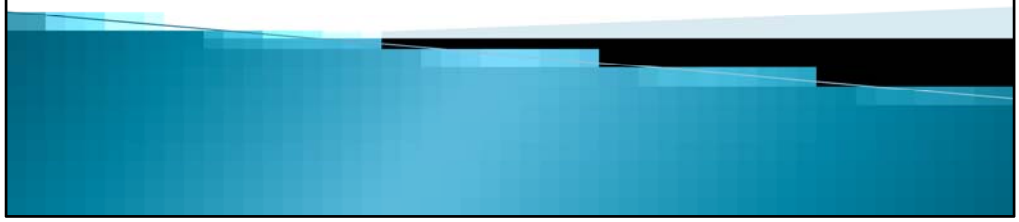
An outer container used for shipping a leaking damaged or non-compliant package containing hazardous materials.

Labpacks*

- Combination packaging for hazardous waste in which small amounts of compatible chemicals are packaged together
  - Inner packagings
    - 1 gallon max for glass and
    - 5 gallons max for other containers (metal/plastic)
  - Itemized inventory sheet
  - Must be packed with absorbent material that will absorb all liquid contents
- Total gross weight ≤ 205 kg (452 lbs)

*49 CFR 173.12(b)

Emergency Response & Safety



Emergency Response

All shipping documents for Hazardous Materials/Waste must include an Emergency Response Phone Number.

1) Must be monitored at ***all*** times!
2) The person must know the:
   - Hazard/Risks
   - Hazardous Material Reaction
   - Emergency Response Information
   - Accident Mitigation Information or immediate access to a person who has this knowledge.
3) ER info must be available for use away from the package of material.

Emergency Response

- **Basic information is required to assist emergency personnel. This information is typically found in MSDS/SDS and/or emergency response guidebook. This information should be printed in English. Informational items include:**
  - The description of the hazardous material required by 172.202 & 172.203.
  - Immediate hazards to health.
  - Risk of fire or explosion.
  - Immediate precautions to be taken in the event of an accident or incident.
  - Immediate methods for handling spills or leaks in the absence of fire.
  - Preliminary first aid measures.

Emergency Response

- **Shipping papers and Emergency response information are required to be kept:**

1) Immediately accessible to drivers, flight, or train crew.

2) Immediately accessible to facility personnel. Example: is at a warehouse or shipping dock.

Safety

- 172.704(a)(3) Each hazmat employee shall receive training concerning;
  - Emergency response information
  - Protective measures from exposure of hazardous materials in the work place. Including specific measures implemented by employer to protect employees.
  - Methods and procedures for avoiding accidents. (i.e. Proper handling procedures)

Safety

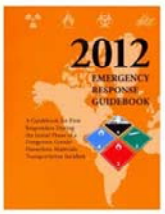
- **There are two aspects to always remember:**

1) Chemical Hazard & how to protect yourself.
   - For example:
     - Is it a Liquid, Solid, or Gas
     - How will it react
     - What PPE is best for handling the material

2) Physical Hazards & what is the smartest way of handling.
   - For example:
     - What tool is best used for loading/unloading
     - What are my pinch points
     - Do I have a loading dock or do I need other equipment.

Safety

Understanding the ERG Guide Book



1) Section 1 (Yellow border) = Lists items numerically by ID number.
2) Section 2 (Blue border) = Lists items alphabetically by material name.
3) Section 3 (Orange border) = Gives important information by ERG number. This includes potential hazards, Public Safety info, and Emergency Response Information.
4) Section 4 (Green border) = Lists isolation distances for Toxic Inhalation Hazard Materials by ID#.

Safety

Drivers during transport

- Be in vehicle or sleeper berth.
- Must be within 100 feet of the vehicle and have it within clear view.
- Be aware of the hazard
- Know what to do in an emergency
- Be able to move the vehicle if necessary.

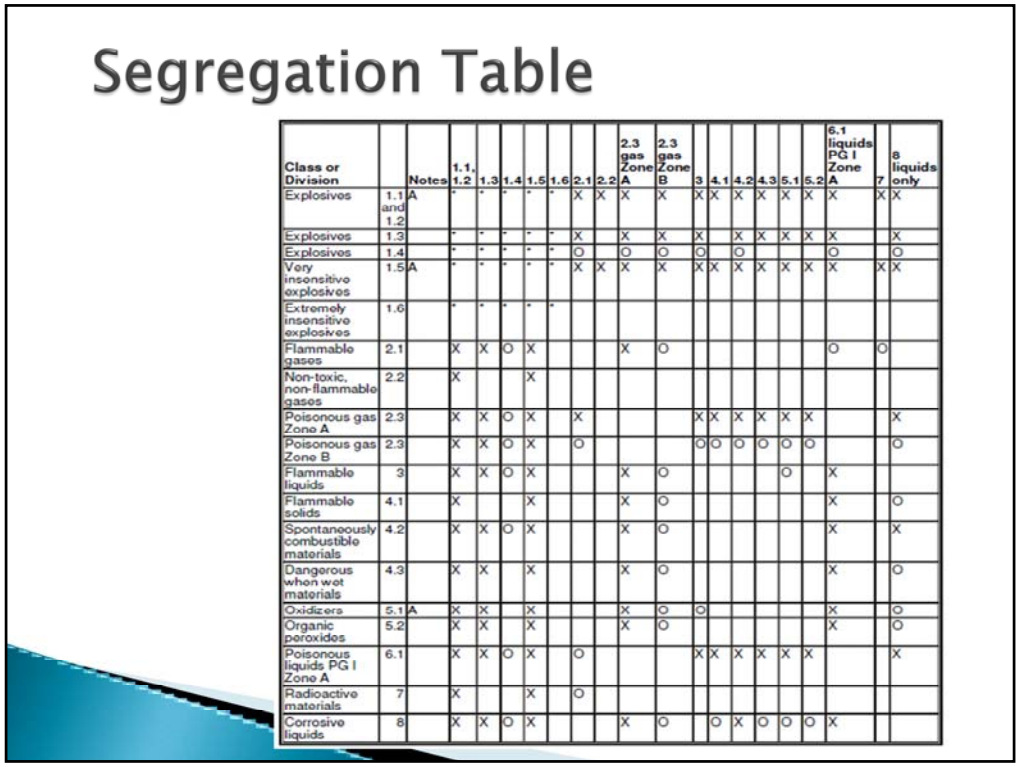
Safely Loading

Key Items:

❖NO SMOKING

❖Secure Against Movement

❖Use Proper Segregation



Class or Division		Notes	1.1, 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 gas Zone A	2.3 gas Zone B	3	4.1	4.2	4.3	5.1	5.2	6.1 liquids PG I Zone A	7	8 liquids only
Explosives	1.1 and 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.3		*	*	*	*	*	X		X	X	X		X	X	X	X	X		X
Explosives	1.4		*	*	*	*	*	O		O	O	O		O				O		O
Very insensitive explosives	1.5	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives	1.6		*	*	*	*	*													
Flammable gases	2.1		X	X	O	X				X	O							O	O	
Non-toxic, non-flammable gases	2.2		X			X														
Poisonous gas Zone A	2.3		X	X	O	X		X				X	X	X	X	X	X			X
Poisonous gas Zone B	2.3		X	X	O	X		O				O	O	O	O	O	O			O
Flammable liquids	3		X	X	O	X				X	O					O		X		
Flammable solids	4.1		X			X				X	O							X		O
Spontaneously combustible materials	4.2		X	X	O	X				X	O							X		X
Dangerous when wet materials	4.3		X	X		X				X	O							X		O
Oxidizers	5.1	A	X	X		X				X	O	O						X		O
Organic peroxides	5.2		X	X		X				X	O							X		O
Poisonous liquids PG I Zone A	6.1		X	X	O	X		O				X	X	X	X	X	X			X
Radioactive materials	7		X			X		O												
Corrosive liquids	8		X	X	O	X				X	O		O	X	O	O	O	X		

Whenever transporting hazardous materials, placarding is just the beginning. Loading the material is also key to keeping everyone safe. Make sure that the Segregation table is used when loading trucks.

49 CFR 174.81(d)

Class 1 Segregation Table

Compatibility group	A	B	C	D	E	F	G	H	J	K	L	N	S
A		X	X	X	X	X	X	X	X	X	X	X	X
B	X		X	4	X	X	X	X	X	X	X	X	4/5
C	X	X		2	2	X	6	X	X	X	X	3	4/5
D	X	4	2		2	X	6	X	X	X	X	3	4/5
E	X	X	2	2		X	6	X	X	X	X	3	4/5
F	X	X	X	X	X		X	X	X	X	X	X	4/5
G	X	X	6	6	6	X		X	X	X	X	X	4/5
H	X	X	X	X	X	X	X		X	X	X	X	4/5
J	X	X	X	X	X	X	X	X		X	X	X	4/5
K	X	X	X	X	X	X	X	X	X		X	X	4/5
L	X	X	X	X	X	X	X	X	X	X	1	X	X
N	X	X	3	3	3	X	X	X	X	X	X		4/5
S	X	4/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5	X	4/5	

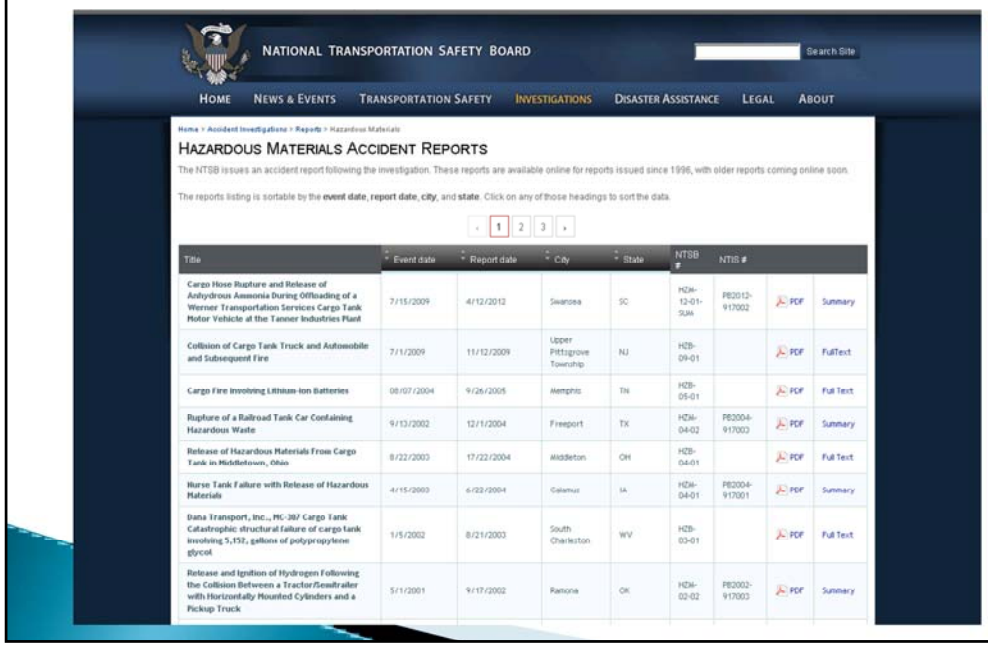
49 CFR 174.81(f)

Why is this important?

- In 2012 PHMSA reported **15,434** incidents resulting in **$79 million** in damages during transportation (this included transit, in transit storage, loading, & unloading). This includes a total of 12 fatalities.
- In 2012 PHMSA collected **$2,663,539** in fines.
- You can receive a Maximum penalty
  Civil - up to $27,500 per violation
  Criminal – up to $500,000 &/or up to 5 years imprisonment

NOTE: California Highway Patrol enforced – On road and at facility!

NTSB – HazMat Report



http://www.ntsb.gov/investigations/reports_hazmat.html

If your company gets into an accident, NTSB would have the right to investigate and publish on their publicly available database. Such negative publication would surely impact your operation negatively!


Security Plan

Security Plan Requirement

1) If you offer for transportation or
2) Transport materials of interest in listed quantities (see 49 CFR 172.800):
   - Listed divisions of explosives
   - Any amount of listed toxics, 4.3 materials, and specified 5.2 materials
   - Listed hazard classes/divisions in "large bulk quantities" (>6,614 pounds for solids or >792 gallons for liquids and gases)
   - Select agents or toxins regulated by the CDC under 42 CFR 73

Security Plan*

The Security Plan must cover:

- Personnel security
- Unauthorized access
- En route security

*49 CFR 172.802

General Security Procedure

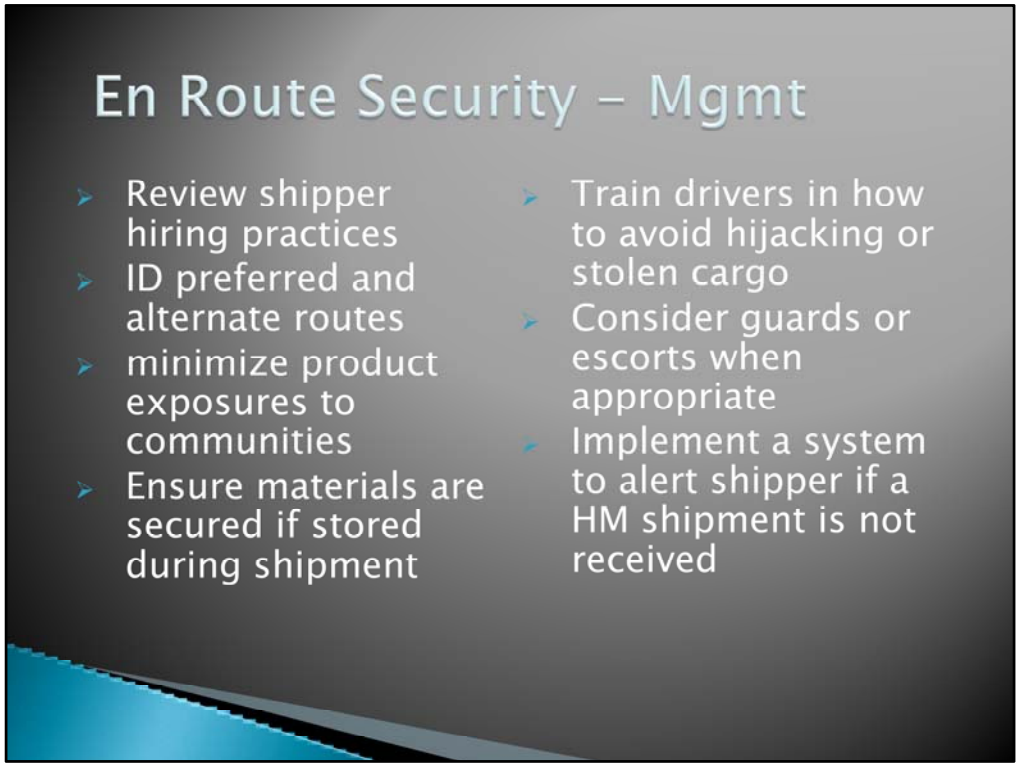
Personnel Security

- Report all suspicious incidents or events
- Conduct routine security inspections
- Convene regular meetings on security measures and awareness
- Be aware of what you say and to whom


Unauthorized Access (UA) – Mgmt
Establish partnerships with local law officials and other public safety agencies
Review of the facility and security program by local law enforcement
Check adequacy of locks and other protective equipment
Place limits on visitor access
Restrict availability of information related to facility and materials handled
Install additional lighting, alarms or cameras
Use tamper-resistant or tamper-evident seals or locks
Keep records of security incidents

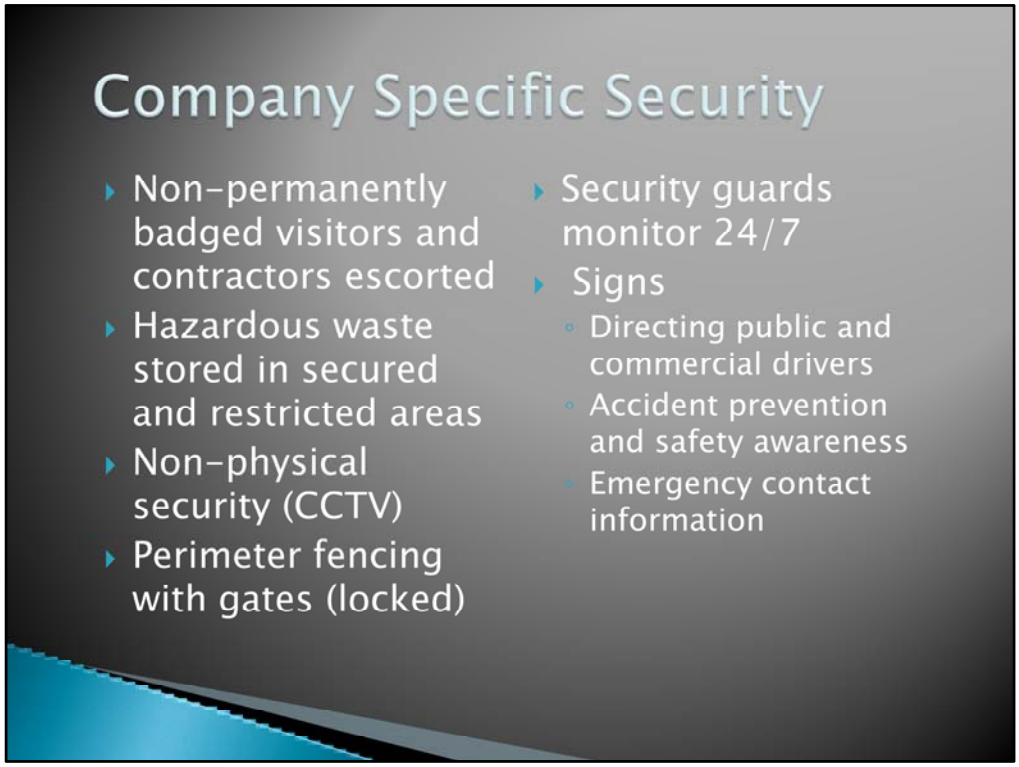
UA – Employees

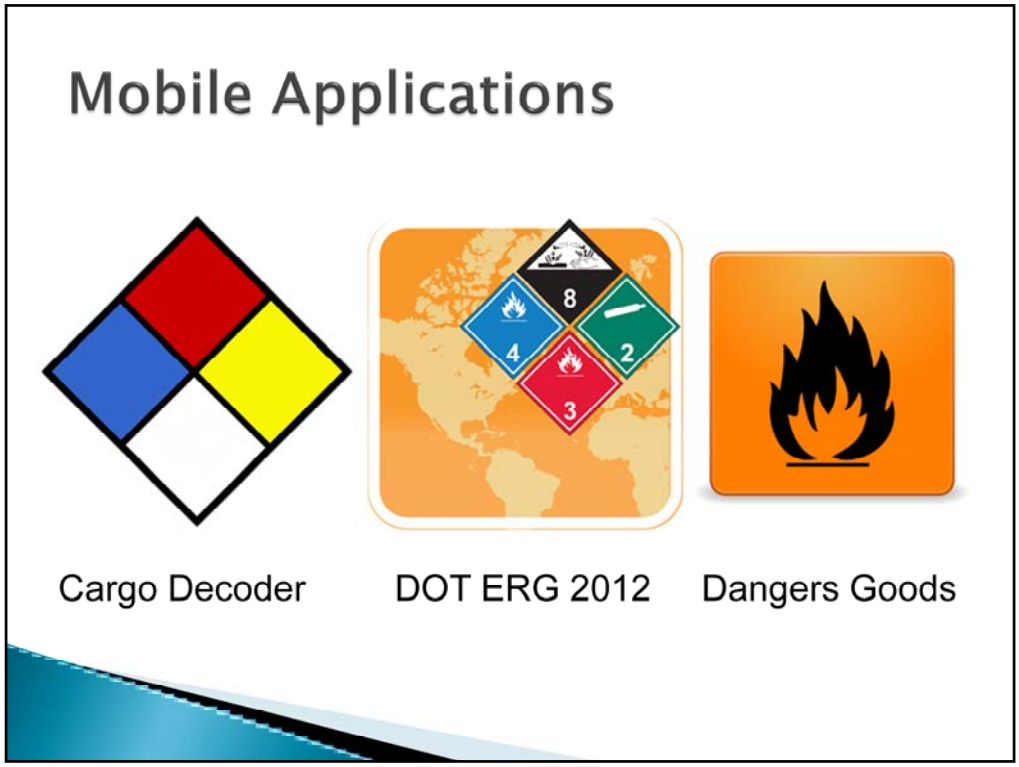
- Secure valves and other fixtures on transportation equipment when not in use
- Secure hazardous materials in locked areas
- Periodically inventory quantity of hazardous materials
- Report suspicious incidents or individuals


En Route Security – Mgmt
Review shipper hiring practices
ID preferred and alternate routes
minimize product exposures to communities
Ensure materials are secured if stored during shipment
Train drivers in how to avoid hijacking or stolen cargo
Consider guards or escorts when appropriate
Implement a system to alert shipper if a HM shipment is not received

En Route Security – Employees

- Verify ID of the carrier and/or driver prior to loading.
- Ask driver for photo ID and commercial drivers license.
- Minimize stops en route; review any required stops and tunnels.
- Check products when delivered; check carrier's ID with shipping documents provided by the shipper.


Company Specific Security
Non-permanently badged visitors and contractors escorted
Hazardous waste stored in secured and restricted areas
Non-physical security (CCTV)
Perimeter fencing with gates (locked)
Security guards monitor 24/7
Signs
Directing public and commercial drivers
Accident prevention and safety awareness
Emergency contact information



Cargo Decoder

Android: https://play.google.com/store/apps/details?id=com.strategiesinsoftware.erg

Apple App:

https://itunes.apple.com/us/app/cargo-decoder-plus/id520387030?mt=8 ($1.99)

DOT ERG 2012

Android: https://play.google.com/store/apps/details?id=gov.nih.nlm.erg2012

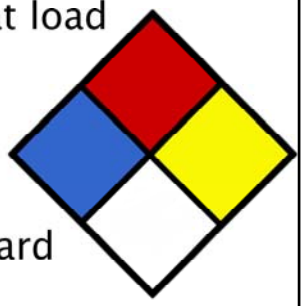
Apple App: https://itunes.apple.com/us/app/erg-2012-for-iphone/id592158838?mt=8

Dangers Goods

Android: https://play.google.com/store/apps/details?id=at.knorre.dangerousgoods

Cargo Decoder

- Fastest way to look up a hazmat load
- Search by UN or name
- Provide relevant ERG
- Provide ERG# to each DOT placard
- Only available in 3 languages



English, Spanish and French

DOT ERG 2012

- Complete 2012 version
- Publicly available via USDOT in January 2013
- Similar to Cargo Decoder but different interface

Mobile release announcement:

http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=dbf6ac81d8e4c310VgnVCM1000001ecb7898RCRD&vgnextchannel=d248724dd7d6c010VgnVCM10000080e8a8c0RCRD

Dangerous Goods

- Intended for international transportation of HazMat
- GHS Pictograms
- Similar search functions
- No ERG
- Multi-language selection
- Only Android version

Goal Reach?

" I'm tired, but it's a good tired. "

Questions?

Sharon: ssimpso4@wm.com
(916)437-9032
Billy: cpuk@recology.com
(415)657-4030