



Loading and Unloading Hazardous Materials

MODULE 7





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Module 7 Loading and Unloading Hazardous Materials

Introduction

Safety is just as important during loading and unloading operations, as it is during actual transportation. In this module we'll review the loading and unloading safety procedures contained in the Hazardous Material Regulations (HMR), as well as the requirements for segregating, separating and securing hazardous materials for transportation.

Basic Safety Procedures

The following rules apply for loading and unloading hazardous materials:

- Secure packages, including palletized loads, against shifting within a vehicle during transportation. Securing can be accomplished through tying, blocking and bracing the load. Secure bottles of compressed gases to prevent damage to their valves.
- Load packages with orientation marks (up arrows) so that the marks remain pointed up.
- Do not allow any smoking or any source of ignition on or near the vehicle when loading/unloading flammable (classes 3 and 4) or oxidizing (classes 5 and 2.1) materials.
- Set the handbrake on the vehicle before loading/unloading. (Note: OSHA regulations require chocking truck wheels before loading/unloading.)



Segregation and Separation

Because of their hazards, some hazardous materials may not be loaded, transported or stored together in the same transport vehicle. In other cases, the materials may be on the same vehicle as long as they are separated so that if any of the packages leak during transport, the leaked material would not commingle with other hazardous materials.

The *Segregation Table for Hazardous Materials*, shown on the next page, sets out the segregation restrictions for hazardous materials.

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Segregation Table for Hazardous Materials

Instructions for using the table are as follows:

- A blank space means that no restriction applies (e.g., Class 3 flammable liquids and class 8 liquid corrosive — there is no requirement for segregating flammable inkjet inks/solvents and corrosive photochemicals)
- The letter X means that these materials may not be transported on the same vehicle (e.g., Class 8 corrosive liquids cannot be transported on the same vehicle as a class 4.2 spontaneously combustible material)
- The letter O means that these materials must be separated when on the same vehicle so that material leaked from any package would not commingle with the other type of hazardous material (e.g., Class 8 corrosive liquids must be separated from class 4.1 flammable solids)
- Class 9 does not appear on the table, meaning there are no segregation or separation requirements for transporting waste silver-bearing photo processing chemicals and other class 9 hazardous materials.

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 1 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	X
Explosives, 1.3		*	*	*	*	*	*	X		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	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		



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Summary

Safety is important during loading and unloading of hazardous materials. In addition to some basic safety procedures, the HMR stipulate when hazardous materials are to be segregated and separated for transportation. Using the *Segregation Table for Hazardous Materials*, the hazmat employer can determine the requirements for shipping different classes of hazardous materials on the same vehicle.

Test your understanding of this section by answering the self-quiz questions on the next page.

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Self Quiz Questions

1. The handbrake on a vehicle must be set before loading or unloading materials.
 - a) true
 - b) false
2. When loading or unloading flammable materials, smoking is:
 - a) allowed only when 20 feet or more from the vehicle
 - b) not allowed on or near the vehicle
 - c) allowed only if there is an ashtray in the immediate area
 - d) all of the above
3. According to OSHA, truck wheels must be chocked before loading or unloading.
 - a) true
 - b) false
4. Packages must be loaded with the orientation marks:
 - a) facing any direction
 - b) facing the front of the truck
 - c) pointing upward at all times
 - d) are not important in loading a vehicle since there are for storage only
5. According to the Segregation Table for Hazardous Materials on page 2 of this module, flammable liquids must not be transported with:
 - a) Class 1.4 materials
 - b) Class 8 materials
 - c) Class 6.1 materials
 - d) all of the above
6. A blank space in the Segregation Table means:
 - a) there is no restriction for segregating materials
 - b) the materials may not be transported on the same vehicle
 - c) the materials must be separated on the same vehicle
 - d) the information is unknown