

HAZMAT AWARENESS

DISCIPLINE: Fire and First Responder Training

DATE PREPARED: 3/1/2023

TIME REQUIRED: 8 Hours

OVERVIEW and PURPOSE:

- 1) The purpose of this training is to provide firefighters and first responders a basic understanding and awareness of hazardous materials that can be a threat to you and your community.
- 2) Emergency responders at the awareness level shall be trained to meet all competencies of NFPA 472 Chapter 4. In addition, awareness level responders shall receive training to meet applicable United States Department of Transportation (DOT), Environmental Protection Agency (EPA), and Occupational Safety and Health Administration (OSHA) requirements.
- 3) Hazardous materials incidents are not the same as fire suppression or other "normal" emergency operations. For you to respond safely to a hazardous materials incident, you have to be trained and prepared mentally. What you don't know can kill you.
- 4) First responders at the awareness level are persons who, in the normal course of their duties, could be the first on scene of an emergency involving hazardous materials. They are expected to recognize the presence of hazardous materials, protect themselves, call for trained personnel, and secure the area.

OBJECTIVES:

- 1) Given an emergency response, firefighters and first responders shall be able to identify a hazardous materials incident, potential hazards, and initial responsibilities of the first responder.
- 2) Given an emergency response, firefighters and first responders shall be able to describe the initial protective actions, incident size-up, and risk assessment in accordance with IFSTA Essentials of Firefighting (7th edition), IFSTA Hazardous Materials (5th edition), and NFPA 1072.

LEARNING OBJECTIVES:

- 1) Define a hazardous materials incident.
- 2) Describe roles and responsibilities of first responders in hazardous materials incidents.
- 3) Recognize ways that hazardous materials harm people.
- 4) Recognize the seven clues to the presence of hazardous materials.
- 5) Explain how pre-incident plans, occupancy types, and locations may indicate the presence of hazardous materials.
- 6) Identify basic container shapers that indicate the presence and hazards of hazardous materials.
- 7) Describe ways that transportation placards, labels, and markings indicate the presence and hazards of hazardous materials.
- 8) Define the hazard classes.
- 9) Identify other markings and colors that indicate the presence of hazardous materials.
- 10) Describe ways that written resources are used to identify hazardous materials and their hazards.
- 11) Explain the limited role of the five senses for identifying the presence of hazardous materials.
- 12) Explain the use of the *Emergency Response Guidebook (ERG)* at hazardous materials incidents.
- 13) Explain the role of first responders in initiating protective actions.
- 14) Describe the process of size-up and risk assessment.

UN HAZARD CLASSES

Nine Classes of Hazardous Materials

The infographic displays nine classes of hazardous materials, each with a title, list of divisions, and representative hazard labels. Class 1 (Explosives) includes labels for 1.4 Explosives, 1.5 Blasting Agents, and 1.6 Explosives. Class 2 (Gases) includes labels for Oxygen, Non-flammable Gas, and Flammable Gas. Class 3 (Flammable Liquid and Combustible Liquid) includes labels for Gasoline, Flammable, Combustible, and Fuel Oil. Class 4 (Flammable Solid, Spontaneously Combustible, and Dangerous When Wet) includes labels for Flammable, Dangerously Combustible, and a hazard symbol. Class 5 (Oxidizer and Organic Peroxide) includes labels for Organic Peroxide, Oxidizer, and a hazard symbol. Class 6 (Poison (Toxic) and Poison Inhalation Hazard) includes labels for Poison, PG III, and Inhalation Hazard. Class 7 (Radioactive) includes a Radioactive label. Class 8 (Corrosive) includes a Corrosive label. Class 9 (Miscellaneous) includes a hazard symbol. A 'Dangerous' label is also shown. The text 'Revised 06/05' is at the bottom right. The Federal Motor Carrier Safety Administration and U.S. Department of Transportation logos are at the bottom.

Class 1: Explosives
Divisions: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6

Class 2: Gases
Divisions: 2.1, 2.2, 2.3

Class 3: Flammable Liquid and Combustible Liquid

Class 4: Flammable Solid, Spontaneously Combustible, and Dangerous When Wet
Divisions: 4.1, 4.2, 4.3

Class 5: Oxidizer and Organic Peroxide
Divisions: 5.1, 5.2

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

U.S. Department of Transportation
www.fmcsa.dot.gov

Class 1 — Explosive Materials

- 1.1: Products with the potential to create a mass explosion
- 1.2: Products with the potential to create a projectile hazard
- 1.3: Products with the potential to create a fire or minor blast
- 1.4: Products with no significant risk of creating a blast
- 1.5: Products considered very insensitive that are used as blasting agents
- 1.6: Products considered extremely insensitive with no risk to create a mass explosion

Class 2 — Gases

- 2.1: Flammable gases
- 2.2: Nonflammable gases
- 2.3: Toxic gases

Class 3 — Flammable and Combustible Liquids

Class 4 — Flammable Materials

- 4.1: Flammable solids
- 4.2: Spontaneously combustible
- 4.3: Dangerous when wet

Class 5 — Oxidizer and Organic Peroxide

- 5.1: Oxidizing substances
- 5.2: Organic peroxides

Class 6 — Poisons

- 6.1: Toxic substances
- 6.2: Infectious substances

Class 7 — Radioactive Materials

Class 8 — Corrosive Materials

Class 9 — Miscellaneous Materials

PLACARD COLORS

Hazardous Placard Colors



 1 Explosives Orange Explosive Materials	 3 FLAMMABLE Red Flammable	 2 NON-FLAMMABLE GAS Green Non-Flammable	 2 OXYGEN Yellow Oxidizers	 6 INHALATION HAZARD White Poisonous and Bio-hazards	 4 DANGEROUS WHEN WET Blue Flammable when exposed to water
 4 SPONTANEOUSLY COMBUSTIBLE Half Red and White Flammable when exposed to air	 4 FLAMMABLE SOLID Red and White Stripes Flammable Solids	 5.2 ORGANIC PEROXIDE Red and White Flammable Organic Peroxide	 7 RADIOACTIVE Yellow and White Radioactive	 8 CORROSIVE Half White and Black Corrosive	 White and Black Stripes various nonclassified dangerous goods

GHS HAZARD SYMBOLS



Skull and Crossbones
 Acute toxicity via oral, dermal, or inhalation



Flame Over Circle
 Oxidising substances



Health Hazard
 Aspiratory or respiratory hazard, carcinogenicity, mutagenicity



Environment
 Hazardous to the environment



Exploding Bomb
 Explosives, self-reactive substances, organic peroxides



Gas Cylinder
 Compressed, liquefied, or dissolved gases



Flame
 Flammable, pyrophoric, self-heating substances, water reactive

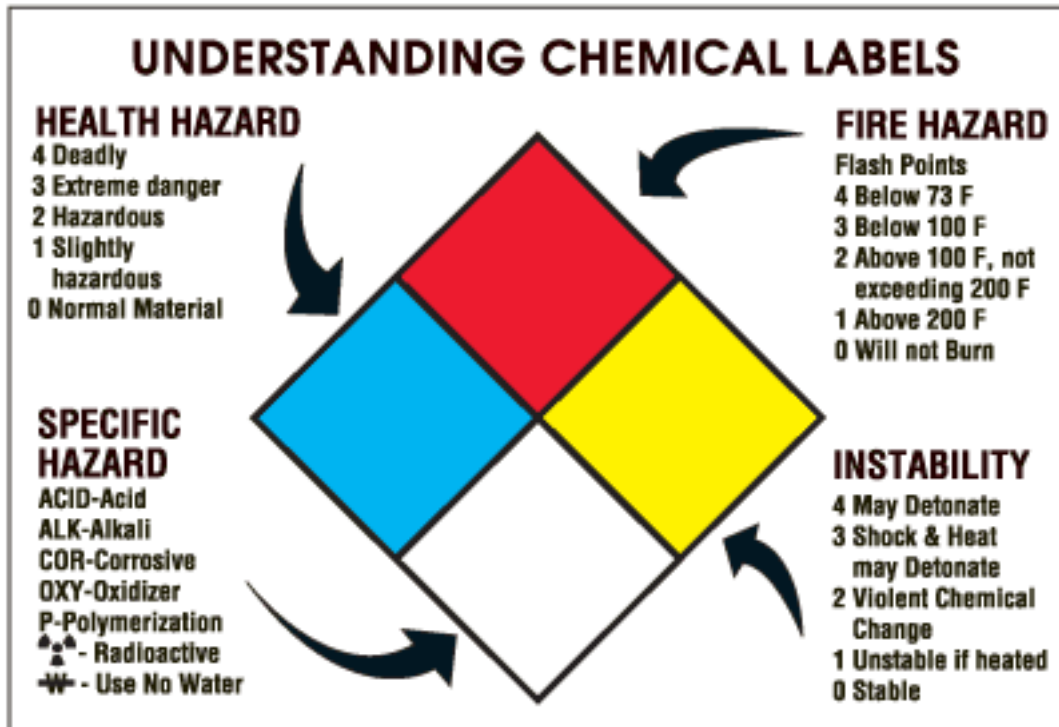


Corrosion
 Corrosive, skin damage, eye damage



Exclamation Mark
 May cause immediate health effect - eye, skin, respiratory

NFPA 704



DOT HAZMAT MARKINGS

HAZARDOUS MATERIALS MARKINGS

Package Orientation (Red or Black)  § 172.312(a)	Keep Away from Heat  § 172.317	Overpack Mark  § 173.25(a)(4)	Fumigant Marking  § 172.302(g) and § 173.9	Material Poisonous by Inhalation  § 172.313(a)
Elevated Temperature Material  § 172.325	UN ID Number Mark  § 172.332(a)	Biological Substances, Category B  § 173.199 (a)(5)	Lithium Battery Handling Mark  § 173.185	Marine Pollutant  § 172.322
Limited Quantity All other Modes  § 172.315	Biohazard Mark  § 172.323	Petroleum Sour Crude Oil  § 172.327	Excepted Quantity  § 173.4a(g)	

MILITARY MARKINGS



Mass Explosion/



Explosive with



Mass Fire



Moderate Fire



Wear Breathing



Apply No Water



Wear Full Protective Clothing – “Red is Dead”

Indicates the presence of highly toxic chemical agents that may cause death or serious damage to body functions.



Wear Full Protective Clothing – “Yellow, You’re Mellow”

Indicates the presence of harassing agents (riot control and smokes)



Wear Full Protective Clothing – “White is Bright”

Indicates the presence of white phosphorus and other spontaneously combustible material.