



# HAZMAT SAFETY GUIDELINES



**Evans  
Distribution  
Systems**

**DISCLAIMER:** The purpose of this document is to provide a general knowledge of hazmat safety and should not be used to determine compliance. The information is subject to change by the U.S. Department of Transportation and the Pipeline and Hazardous Materials Safety Administration (PHMSA). For current compliances and regulations visit <https://www.phmsa.dot.gov/>.

# OVERVIEW

Hazardous material storage and transportation operations are regulated by the U.S. Occupational Safety and Health Administration (OSHA), the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the U.S. Department of Transportation (DOT). There may be additional regulations depending on the location and hazardous material being stored and shipped.

## Labeling & Placards

Labels, markings, and placards must be added to packages containing hazardous material to ensure proper storage and transportation. Markings contain important information such as identification number, instructions, cautions or warnings, and package specifications. Labels and placards contain information about the class of hazardous material and what division of that class the material belongs to. Markings, labels, and placards must be securely applied to the outside of the package to stay compliant with the DOT and OSHA guidelines.

## Warehouse Requirements

Workers in a facility that stores hazardous materials are to receive adequate training in both proper handling of materials and safety procedures in case of a hazmat spill. All hazmat products must be properly labeled, and an emergency evacuation plan must be in place that complies with OSHA's standards. The workers in the facility must receive a copy of the safety data sheet (SDS) from the manufacturer or importer. Different classes of hazardous materials may be stored in the same facility but must be stored independently of each other.

## Carrier Responsibilities

It is a joint responsibility of the shipper and carrier that is transporting the hazardous material to be responsible for communication throughout the trip. They must ensure that the proper classification placards are applied to the truck and trailer in accordance to DOT guidelines. The carrier is also responsible for having the proper shipping paperwork and to contact the manufacturer in the event of an emergency.

# HAZARDOUS MATERIAL CLASSES



## Class 1: Explosives

An explosive consists of any substance and article, including a device, which is designed to function by explosion (an extremely rapid release of gas and heat). Explosives are separated into six different divisions based on mass explosion hazard, fire hazard, projection hazard, and ignition causes. Products that would be considered class 1 include ammunition, fireworks, flares, and ignitors.

## Class 2: Gases

Gases are divided into three divisions which are flammable gas, non-flammable, non-poisonous compressed gas, or poisonous by inhalation. The material is considered a gas if it remains a gas at 20 °C (68 °F) or less and 101.3 kPa (14.7psia) of pressure or less. Products that would be considered class 2 include aerosols, fire extinguishers, and propane.



## Class 3: Flammable Liquids

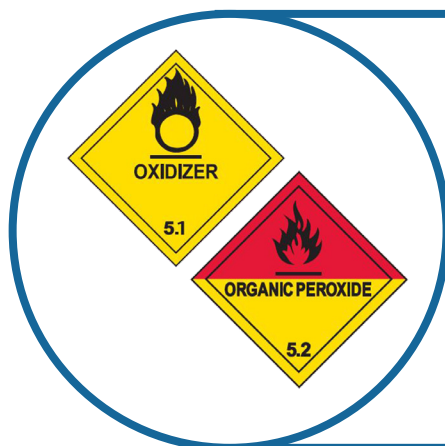
A liquid is considered flammable if it has a flash point of 60-65 °C (140 °F) or lower. The flash point is the temperature at which the liquid gives off sufficient vapor to ignite in air. Products that would be considered class 3 include gasoline, alcohol, and some paints or adhesives.



# HAZARDOUS MATERIAL CLASSES

## Class 4: Flammable Solids, Spontaneously Combustible, and Dangerous When Wet

Flammable solids are divided into three divisions which are desensitized explosives that are combustible while dry, spontaneously combustible material, and dangerous when wet or combustible when it comes in contact with water. Products that would be considered class 4 include sulphur, some metal powders, matches, and activated carbon.

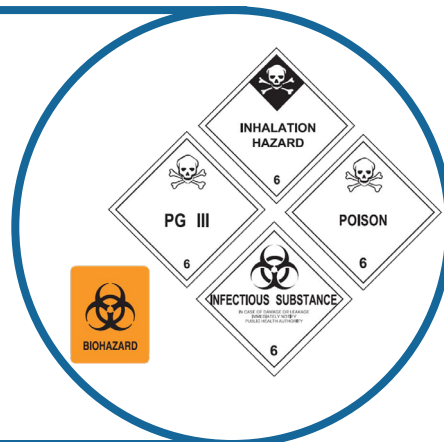


## Class 5: Oxidizers/Organic Peroxides

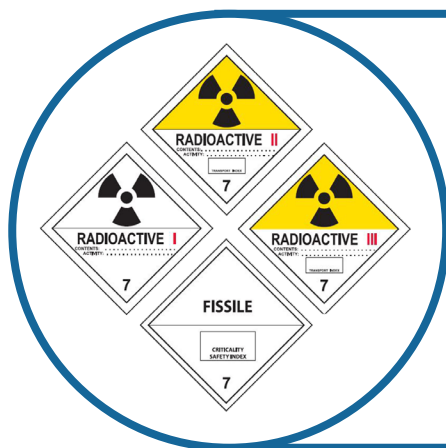
Organic peroxides or oxidizers are organic compounds that contain oxygen in the bivalent -O-O- structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals, except with a few exceptions. Organic peroxides are assigned to a generic system which are divided by Type A-Type G. Products that would be considered class 5 include sodium nitrate, fertilizers, and ammonium nitrate.

## Class 6: Poison (Toxic), Poison Inhalations Hazard, and Infectious Substances

Toxic and infectious substances are materials other than gas, that are known to be so toxic to humans as to afford a hazard to health during transportation, or meet the criteria of toxicity from oral ingestion, is inhaled, or comes in contact with skin. Infectious substances are materials that are known or likely to contain pathogens that can cause disease in humans. Products that would be considered class 6 include acids, medical waste, and some pesticides.



# HAZARDOUS MATERIAL CLASSES

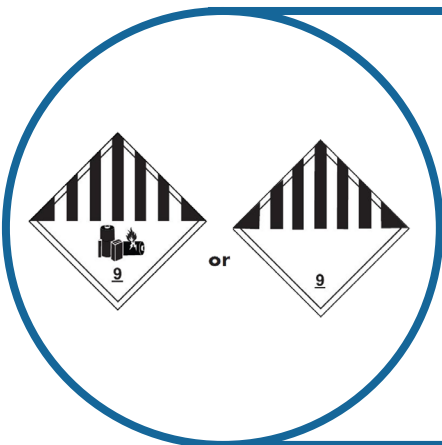


## Class 7: Radioactive

Radioactive material means any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified. The radiation emitted from these materials can be very dangerous to human health. Products that would be considered class 7 include spent nuclear fuel, medical isotopes, and radioactive metals such as uranium.

## Class 8: Corrosive

Corrosives are liquids or solids that have a severe corrosion rate to steel or can cause severe damage to human skin. These materials can disintegrate other materials through contact which requires them to be stored in specific containers to avoid chemical reactions. Products that would be considered class 8 include strong acids, strong bases, and wet-cell batteries.



## Class 9: Miscellaneous Hazardous Material

Miscellaneous materials are classified as materials that present a hazard during transportation but does not meet the definition of any other hazard class. This includes material has an anesthetic, noxious, or similar property that would cause extreme discomfort. It also includes materials that meet the definition for an elevated temperature material, hazardous substance, hazardous waste, or a marine pollutant. Products that would be considered a class 9 include dry ice, asbestos, and lithium-ion batteries.

# SAFETY DATA SHEETS (SDS)

Under OSHA's Hazard Communication Standard, a safety data sheet (SDS) is a document for each hazardous material that requires chemical manufacturers, distributors, or importers to provide to downstream users. The information in the SDS is required to be presented in a consistent and user-friendly 16-section format. OSHA has set standards on the information that must be provided in each section, with some sections allowing the provider to give additional information if desired.

## **Section 1: Identification**

This section identifies the chemical on the SDS. It also provides essential contact information for the chemical supplier. This will include product identifier and other common name of the product; the responsible party's name, address, phone number, and emergency contact; and recommended use of the chemical, as well as any restrictions.

## **Section 2: Hazards Identification**

This section identifies the hazards of the chemical and the warning information associated with those hazards. The required information in this section includes hazard classification, signal word, hazard statements, pictograms or hazard symbols, precautionary statements, and if toxicity is unknown the provider must have a statement describing the percentage of ingredients with unknown toxicity.

## **Section 3: Composition/Information on Ingredients**

This section identifies the ingredients contained in the product, including impurities and stabilizing additives. The required information in this section for substances includes chemical name and synonyms, Chemical Abstracts Service number and other unique identifiers, impurities, and stabilizing additives. For mixtures you need all the information provided in substances, and the chemical name and concentration of all hazardous ingredients including health risks or concentration limits.

## **Section 4: First-Aid Measures**

This section describes the care that should be provided by untrained responders if an individual has been exposed to the chemical. The required information for this section includes first-aid instructions, a list of symptoms, and immediate medical care needed.

## **Section 5: Fire-Fighting Measures**

This section provides recommendations on what to do in the case of a fire. The required information for this section includes recommended extinguishing equipment, specific hazards that are the result of the chemical burning, and recommendations for protective equipment or precautions for firefighters.

## **Section 6: Accidental Release Measures**

This section provides recommendations on how to respond to leaks and spills of the listed chemical. This includes containment, clean up, and suggestions to reduce exposure to people. The required information for this section includes personal precaution, PPE, emergency procedures, methods and materials used for containment, and cleanup procedures.

## **Section 7: Handling and Storage**

This section provides instructions on safe storage and handling practices for the chemical. The required information for this section includes recommendations for safe handling, reducing the risk of release, hygiene practices after handling the product, and any storage requirements.

# SAFETY DATA SHEETS (SDS)

## **Section 8: Exposure Controls/Personal Protection**

This section provides details on exposure limits and personal protective measures to limit exposure to workers. The required information for this section includes exposure limits provided by OSHA, American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and recommended limits from the manufacturer, importer, or employer; engineering controls for any applicable systems like exhaust ventilation; PPE recommendations; and any special requirements.

## **Section 9: Physical and Chemical Properties**

This section identifies the physical and chemical properties of the substance or mixture. Some information that is required by OSHA may not be available or applicable depending on the product. The required information for this section includes (but is not limited to) odor, appearance, flash point, melting point, freezing point, evaporation rate, etc.

## **Section 10: Stability and Reactivity**

This section identifies the hazardous reactions, chemical stability, and any incompatible materials or hazardous situations not listed in the other two categories of this section. The required information for this section includes (but is not limited to) specific test data, whether the chemical is stable or unstable, and list of all conditions that should be avoided.

## **Section 11: Toxicology Information**

This section includes the toxicology information and health effects based on the type of exposure to the hazardous material. The required information for this section includes the type of exposures to the material, the description of effects from long-term and short-term exposure, and a description of symptoms caused by exposure to the material.

## **Section 12: Ecological Information**

This section provides a description of the ecological effect the material would have on the environment if it were released. Some examples of what could be included are toxicity tests, biodegradation information, and any adverse effects to the environment.

## **Section 13: Disposal Considerations**

This section provides guidelines of proper disposal and safe handling practices of the hazardous material. Some examples of what could be included are proper disposal containers, disposal methods, and any special precautions that should be taken.

## **Section 14: Transport Information**

This section provides guidance on classification information for shipping and transporting the hazardous material. Some examples of what could be included are UN number, transport hazard class, guidance on transport, and any special precautions that are recommended.

## **Section 15: Regulatory Information**

This section identifies the safety, health, and environmental regulations for the product that is not indicated anywhere else on the SDS. This can include any national or regional regulations.

## **Section 16: Other Information**

This section indicates when the SDS was prepared and when the last revision was made. It may also include where revisions were made or any other additional information at the preparer's discretion.



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