

Regulation Express: Hazard Communication

Working with Hazardous Chemicals

Right to Know

Hazard Communication Program

Chemical Labels

Safety Data Sheets

Review

Congratulations!

Working with Hazardous Chemicals

Right to Know

The Occupational Safety and Health Administration's (OSHA) hazard communication standard (HCS) is based on the concept that employees have a right to know the hazards of the chemicals they are exposed to on the job and how to protect themselves from those hazards.

OSHA requires employers to train personnel on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard is introduced into a work area that employees have not been trained about. Employers must also provide a description of operations in work areas where hazardous chemicals are present.

OSHA also requires employees to be informed about measures they can take to protect themselves from chemical hazards. This must encompass emergency procedures, safe work practices, and personal protective equipment to be used. Additionally, employees must be trained on ways to detect the presence or release of a hazardous chemical in their work areas. This may include monitoring conducted by the employer, continuous monitoring devices, visual appearance, or odors, etc. (Occupational Safety and Health Standards, 2012).

Hazard Communication Program

OSHA requires facilities to have a written hazard communication program (HCP) if their employees may be exposed to hazardous chemicals on the job. This program must include:

- A plan for how requirements will be met for training, hazard assessments, and exposure controls
- A list of hazardous chemicals used by work area
- Safety data sheets (SDS) for chemicals used in the facility

Employees must be informed about the location and availability of the HCP (Occupational Safety and Health Standards, 2012).

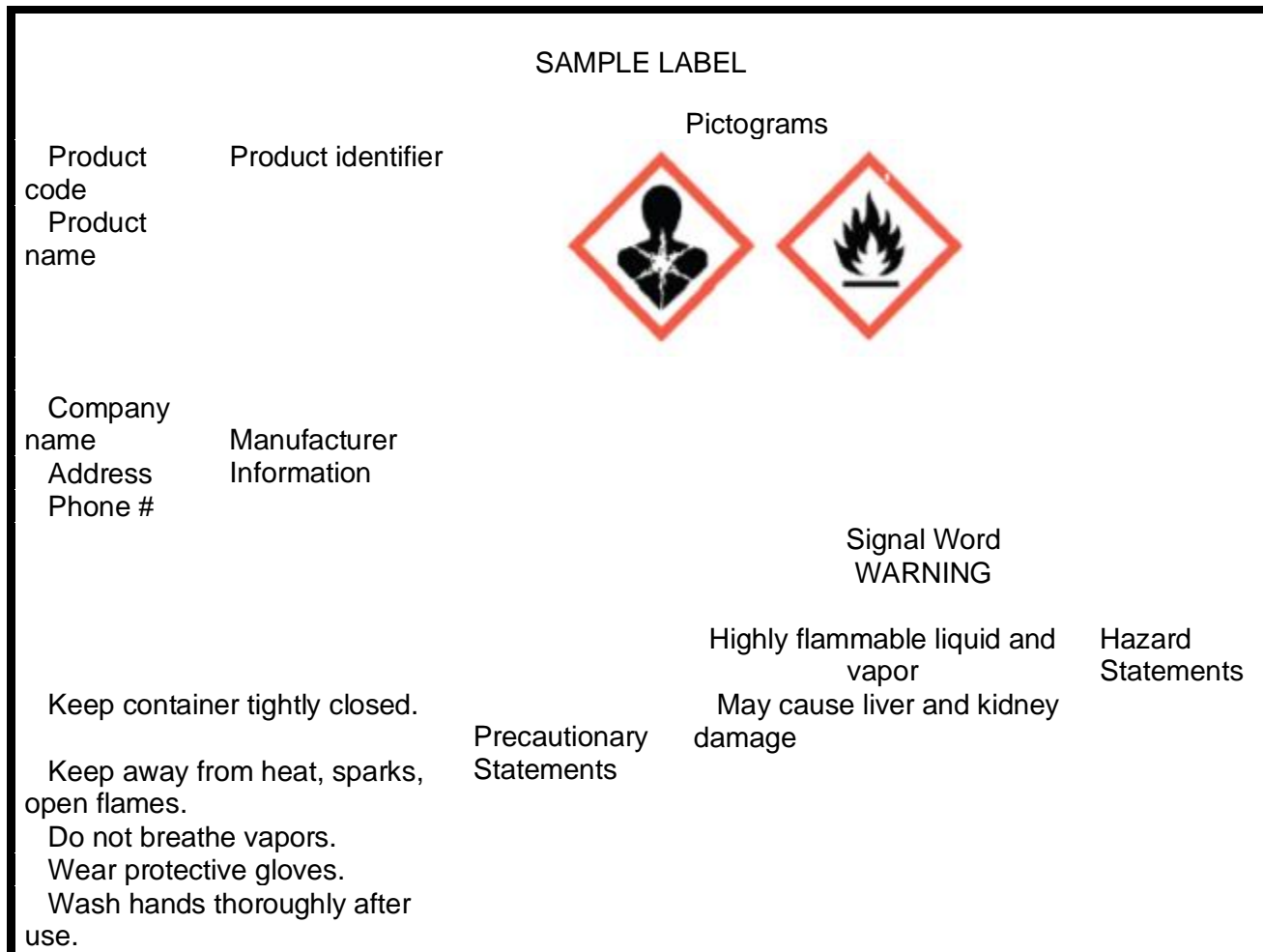
Chemical Labels

OSHA requires information about chemicals to always be available to employees through labels and SDSs (Occupational Safety and Health Standards, 2012). Chemical labels provide brief information about hazards and precautions and must include:

- Name and contact information of the manufacturer
- Product name and/or identifier

Regulation Express: Hazard Communication

- Signal word
- Hazard statements
- Precautionary statements
- Pictograms



Signal Word

There are two signal words that alert the user about the level of severity of the chemical's hazards.

- **DANGER.** Chemicals with the DANGER word have the most severe hazards.
- **WARNING.** Chemicals with the WARNING word have less severe hazards.

Hazard Statements

OSHA requires employers to inform personnel about the hazards of the chemicals in their work areas (Occupational Safety and Health Standards, 2012). A label's hazard statement describes the specific types of harm that can come from working with or around the chemical. The two main types of hazards are physical and health-related (OSHA, 2016a).

The following are classes of physical hazards:

- **Explosives:** May produce gas at a high temperature and pressure, which can result in an

Regulation Express: Hazard Communication

explosion

- Flammable gases, liquids, solids, and aerosols: Can catch on fire if ignited
- Oxidizing gases, liquids, solids: Can speed up a fire and make it more intense
- Self-reactive chemicals: May react vigorously or explode under certain circumstances
- Self-heating chemicals: May increase in temperature on their own
- Organic peroxides: May become explosive and are sensitive to impact or friction
- Corrosive to metals: May damage or destroy metals
- Emits flammable gas with water contact
- Pyrophoric chemicals: Can catch on fire on their own or when exposed to air. Some are ignited with water contact.
- Gases under pressure: Can explode with high temperatures. If a valve on a gas cylinder breaks, the sudden release of compressed gas can turn the cylinder into a lethal projectile. Leaking of any gas (except oxygen) inside a confined space can cause oxygen to be depleted, resulting in asphyxiation. If an oxygen cylinder leaks into an enclosed space, the air becomes a fire hazard.

Classifications of health hazards include the following:

- Acute toxicity: May cause serious harm including death from a single exposure or from multiple exposures in a short period of time (usually less than 24 hours)
- Skin corrosion: Can cause skin irritation and burns
- Serious eye damage: May cause serious eye irritation and damage
- Respiratory or skin sensitization: May cause allergic reactions with skin and respiratory tract contact
- Gene mutagenicity: May cause genetic defects
- Carcinogenicity: May cause cancer
- Reproductive toxicity: May cause serious harm to the reproductive system
- Target organ toxicity: Can cause serious harm to body organs
- Aspiration: If inhaled, can result in serious harm to the respiratory system
- Asphyxiants: Gases and vapors can cause the removal of oxygen in the atmosphere resulting in suffocation, unconsciousness, and death.

Precautionary Statements

Precautionary statements are short phrases that describe the measures to take to prevent adverse physical or health effects of chemicals. For example, a statement might say, "Wear protective gloves and face protection, keep away from heat or sparks. If on the skin, rinse immediately with cold water."

Pictograms

Pictograms provide a quick way to see a chemical's hazards. Labels may contain a single or multiple pictograms. Chemical hazard classifications, such as flammable, oxidizing, acute toxicity, skin corrosion, etc., are used to determine what pictograms are used. There are nine standardized pictograms which include the following (OSHA, 2016c):

Health Hazard

Labels with this pictogram will also include specific information in the hazard statement

Regulation Express: Hazard Communication

about potential health-related harm. For example, the statement for a chemical with this pictogram might say, "Harmful if inhaled or swallowed. May cause dizziness. Causes serious eye irritation. May cause damage to the liver or kidneys with prolonged or repeated inhalation."

Flame

Chemicals with the flame pictogram are flammable.

Exclamation Mark

Chemicals with the exclamation mark pictogram may cause skin, eye, and/or respiratory tract irritation. They can also cause poisonous effects, along with drowsiness, loss of coordination, impaired judgment, fatigue, and headaches. Look for specific information about these hazards on the label.

Corrosion

The corrosion pictogram means that the chemical can cause burns and/or destruction to skin, eyes, and/or metal.

Skull and Crossbones

Chemicals with the skull and crossbones pictogram may cause poisonous effects and/or death from a single exposure or from multiple exposures in a short period of time (usually less than 24 hours). This includes exposures to the skin, mouth, and airway if inhaled.

Flame Over Circle

This pictogram means the chemical is an oxidizer. Oxidizers can speed up the development of a fire and make it more intense. They should be kept away from heat, sparks, or open flames.

Exploding Bomb

The exploding bomb pictogram is used for chemicals that are highly explosive.

Gas Cylinder

The gas cylinder pictogram is used on containers of compressed, liquified, or dissolved gases. Gas cylinders can explode when exposed to high temperatures. If a valve on a cylinder breaks, the sudden release of compressed gas can turn the cylinder into a lethal projectile. Leaking of any gas (except oxygen) inside a confined space can cause the area to become oxygen deficient and possibly flammable. If an oxygen cylinder leaks into an enclosed space, the air can become a fire hazard.

Environment

This pictogram is used to indicate hazards to plants and animals that live in oceans, rivers, and lakes.

Safety Data Sheets

Safety data sheets (SDS) are developed by manufacturers of chemicals to provide detailed, comprehensive information about potential hazards and safe use. An updated chemical inventory and SDS for every hazardous chemical must be readily available at each worksite. (OSHA, 2016b). The first ten OSHA-required sections of an SDS cover especially important information a person working in a healthcare setting may look for. They include the following:

Regulation Express: Hazard Communication

1. Identification includes the product name, what it does or is intended to be used for, and manufacturer information.
2. Hazards identification includes all hazard classifications and descriptions, pictograms, and signal word.
3. Composition includes chemical names and concentrations.
4. First-aid measures include symptoms, side effects, and required treatment should it be needed.
5. Fire-fighting measures include appropriate extinguishing types, hazardous combustion products, and protective measures for firefighters.
6. Accidental release measures include guidance for handling an accidental release, including protective equipment, clean-up, and containment of spills.
7. Handling and storage includes guidance on safe handling and storage.
8. Exposure controls and personal protection describes measures to minimize exposure, such as personal protective equipment (PPE), engineering controls, and exposure limits.
9. Physical and chemical properties include appearance and other physical characteristics.
10. Stability and reactivity include possibilities of hazardous reactions and conditions to avoid.

Review

Where should you look for information about how to clean up and contain a chemical spill?

- A. Label
- B. Safety Data Sheet

Feedback [Safety data sheets (SDS) are developed by manufacturers of chemicals to provide detailed, comprehensive information about potential hazards and safe use. An OSHA-required section of an SDS is Accidental Release Measures. This section provides guidance for handling an accidental chemical release, including protective equipment, clean-up, and containment of spills.]

Congratulations!

You have finished viewing the course content.

Exam and BrainSparks

Q #	Question
1	What is the term for a substance that can cause serious harm or death from one or more exposures in a short time?
a	Carcinogenicity
b	Aspiration hazard
c	Acute toxicity
d	Target organ toxicity
2	What information must be on safety data sheets for hazardous chemicals?
a	The hazard classification(s) of the chemical

Regulation Express: Hazard Communication

b	A description of the odor of the chemical
c	The lot number of the container
d	The quality control number on the package