OSHA Hazard Communication Awareness Training

INTRODUCTION

Federal rules and regulations that apply to the propane industry are published in a series of books called the Code of Federal Regulations (CFR). An important section pertaining to the propane industry is OSHA’s Hazard Communication Standard, which is found in Title 29 CFR §1910. This regulation is commonly referred to as the “HazCom Standard.”

These regulations exist to protect employees of chemical manufacturers, importers, distributors, and any company whose work involves hazardous chemicals.

After completing this module, you will be able to:

- Understand what a Hazardous Chemical Inventory is.
- Identify the new labeling elements required by the changes to the Hazard Communication Standard (HCS).
- Identify the sections of a Safety Data Sheet (SDS).
- Explain proper labeling procedures.
- Identify the regulatory requirements of your employer’s written hazard communication program.
Lesson 1. Hazardous Chemical Inventory

Introduction

To protect yourself on the job, you must know what chemicals are being used or stored by your company. To ensure safety in the workplace, **OSHA requires your employer to maintain a Hazardous Chemical Inventory, which includes:**

- All hazardous chemicals known to be present.
- Hazardous chemicals that may be transported off-site.
- Hazardous chemicals stored away from the main plant.

Your employer is also responsible for informing you where to find the Hazardous Chemical Inventory at your workplace, and who is responsible for maintaining the inventory.

**After completing this lesson, you will be able to:**

- Identify the different types of chemical hazards.
- Explain how a chemical is placed on the Hazardous Chemical Inventory.
DEFINING CHEMICAL HAZARDS

According to OSHA, a chemical classified as hazardous must have a physical or health hazard associated with its use. Here is how the two hazards are defined:

Physical Hazard
A physical hazard results from a chemical’s physical properties and immediate risks in handling it. For example, certain chemicals may be explosive or flammable and require you to take extra precautions to avoid sources of ignition.

Health Hazard
A health hazard can make you ill. The effects can be either immediate, such as a chemical that causes a burn or rash, or they can be long-term or chronic, such as lung cancer after years of working with asbestos.

In some cases, a chemical may present both a physical hazard and a health hazard. The Hazardous Chemical Inventory is to identify these hazards so you can determine how to safely handle the chemicals you work with.
HAZARDOUS CHEMICAL INVENTORY

The following steps explain how a chemical is placed on the Hazardous Chemical Inventory:

1. The manufacturer or importer evaluates every chemical for hazardous properties.
2. The hazards found are listed on container labels and SDS provided to your company.
3. Your company designates someone to review the information and update the Hazardous Chemical Inventory.

Any chemical with a hazard warning label must be listed. There may be one hazardous chemical list for an entire building or separate inventories for each work area.

Some common household chemicals found in the workplace, such as cleaning solutions, aerosols, and wasp spray, do not have to be listed on the Hazardous Chemical Inventory. You should, however, always follow any safety precautions specific to those chemicals.
CHECK FOR UNDERSTANDING

Let’s take a moment to check how well you understand the information presented in this lesson. Select the appropriate answer for the following question. Check your work on page 46.

Hazardous chemicals stored away from the main plant are not required to be placed in the Hazardous Chemical Inventory?

a  True
b  False
Lesson 2. Safety Data Sheets

INTRODUCTION

A Safety Data Sheet (SDS) provides information about chemical hazards. Anyone who might come into contact with the hazardous chemical should read about potential dangers and how to safely handle the product.

Each chemical is evaluated for potential hazards by the manufacturer or importer. This information is then placed on an SDS.

The SDS must be readily available in any work area where employees handle or may come into contact with hazardous chemicals.

The SDS must be updated when significant changes are made to the chemical compound or previously unknown health and physical hazards are discovered.

After completing this lesson, you will be able to:

- Identify the changes to the SDS under the new Hazard Communication Standard (HCS).
- Identify why and how an SDS is used.
- Identify the different sections of an SDS.
THE PURPOSE OF AN SDS

An SDS is a required document that informs employees of the chemical nature of materials they work with. SDSs must be easily accessible at all times in any work area where hazardous materials are present. Your supervisor should inform you where the SDSs are located and who is responsible for keeping them up-to-date.

Read the SDS for each chemical you are using and pay special attention to the fire, health, and safety risk sections. You should also consult your company’s Personal Protective Equipment (PPE) policy for further information on how to best protect yourself.

Hazardous chemical distributors are required to provide an SDS upon request. If you cannot find an SDS for a certain chemical, inform your supervisor immediately so the missing document can be obtained.

HOW TO READ AND UNDERSTAND AN SDS

Although each SDS may look a bit different, they must provide the same information. An SDS must explain, in English, how to safely use, handle, and store a hazardous chemical. Other important safety information is provided on an SDS to protect you and the people around you. This knowledge can also save valuable time in the event of an accident or incident.

To ensure your safety, it is important to know and understand all of the sections of an SDS prior to working with any hazardous chemical. Let’s review each section of an SDS in detail. All SDSs will contain the same basic sections.
SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consist of:

- Product identifier used on the label and any other common names or synonyms by which the substance is known.

- The name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.

- Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on its use (including recommendations given by the supplier).

**Note:** Chemical, as defined in the HCS, is any substance or mixture of substances.
SECTION 2: HAZARD(S) IDENTIFICATION

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

- The hazard classification of the chemical (e.g., flammable gas, category).
- Signal word.
- Hazard statement(s).
- Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).
- Precautionary statement(s). Note: The precautionary statement on an SDS will be the same statement found on a label under the new HCS.
- Description of any hazards not otherwise classified.
- For a mixture that contains an ingredient(s) with unknown toxicity, a statement how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. This is a total percentage of the mixture and not tied to the individual ingredient(s).

GHS Compliant Pictograms with Descriptions

<table>
<thead>
<tr>
<th>Exclamation Mark</th>
<th>Flame</th>
<th>Health Hazard</th>
<th>Environment (Non-Mandatory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritant (skin and eye)</td>
<td>Flammables</td>
<td>Carcinogen</td>
<td>Aquatic Toxicity</td>
</tr>
<tr>
<td>Skin Sensitizer</td>
<td>Pyrophorics</td>
<td>Mutagenicity</td>
<td>Gas Cylinder</td>
</tr>
<tr>
<td>Acute Toxicity</td>
<td>Self-Heating</td>
<td>Reproductive Toxicity</td>
<td>Gases Under Pressure</td>
</tr>
<tr>
<td>Narcotic Effects</td>
<td>Emits Flammable Gas</td>
<td>Respiratory Sensitizer</td>
<td></td>
</tr>
<tr>
<td>Respiratory Tract Irritant</td>
<td>Self Reactives</td>
<td>Target Organ Toxicity</td>
<td></td>
</tr>
<tr>
<td>Hazardous to Ozone Layer (Non-Mandatory)</td>
<td>Organic Peroxides</td>
<td>Aspiration Toxicity</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corrosion</th>
<th>Flame Over Circle</th>
<th>Exploding Bomb</th>
<th>Skull and Crossbones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/Burns</td>
<td>Oxidizers</td>
<td>Explosives</td>
<td>Acute Toxicity (fatal or toxic)</td>
</tr>
<tr>
<td>Eye Damage</td>
<td></td>
<td>Self-Reactives</td>
<td></td>
</tr>
<tr>
<td>Corrosive to Metals</td>
<td></td>
<td>Organic Peroxides</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

- Chemical name.
- Common name and synonyms.
- Chemical Abstracts Service (CAS) number and other unique identifiers.
- Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

**Mixtures**

- Same information required for substances.
- The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
  - A trade secret claim is made.
  - There is batch-to-batch variation.
  
  or

- The SDS is used for a group of substantially similar mixtures.

**NOTE:** If “Trade Secret” appears on an SDS, it means the manufacturer is exercising their right to avoid releasing sensitive product information. However, in an emergency, this information must be provided immediately to your company, emergency responders, or any healthcare professionals involved.
SECTION 4: FIRST AID MEASURES

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

- Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).
- Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
- Recommendations for immediate medical care and special treatment, when necessary.

Different hazardous chemicals will require different emergency and first aid procedures if overexposed or ingested. Read this section for any hazardous chemicals you work with or may be exposed to.

**NOTE:** If your physician requires information about the chemicals you are or may be exposed to, you should provide him or her with the SDS for those chemicals.
SECTION 5: FIRE-FIGHTING MEASURES

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

- Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.

- Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.

- Recommendations on special protective equipment or precautions for firefighters.

Remember, fire-fighting techniques are important even if a hazardous chemical is not directly involved. It is always critical to stop fires from spreading to sensitive storage and staging areas.
SECTION 6: ACCIDENTAL RELEASE MEASURES

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

- Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
- Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
- Methods and materials used for containment (e.g., covering the drains and capping procedures).
- Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; absorbent materials; and/or equipment required for containment/clean up).
SECTION 7: HANDLING AND STORAGE

This section provides guidance on the safe handling practices and conditions for the safe storage of chemicals. The required information consists of:

- Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, smoking in work areas is prohibited).

- Recommendations on the condition for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements).

Because many workplaces have different storage considerations and hazards on site, be sure to read your company-specific SDS for the chemical you will be working with.
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:

- OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

- Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).

- Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).

- Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

Wear appropriate PPE to protect yourself when working with chemicals that present health hazards. You must make sure you take proper precautions at all times when working with hazardous chemicals in order to protect yourself from exposure.

More information about PPE can be found elsewhere in this training program. In addition, you should always consult your company’s PPE policy for any further instructions.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- Appearance (physical state, color, etc.)
- Upper/lower flammability or explosive limits
- Odor
- Vapor pressure
- Odor threshold
- Vapor density
- pH
- Relative density
- Melting point/freezing point
- Solubility(ies)
- Initial boiling point and boiling range
- Flash point
- Evaporation rate
- Flammability (solid, gas)
- Upper/lower flammability or explosive limits
- Vapor pressure
- Vapor density
- Relative density
- Solubility(ies)
- Partition coefficient: n-octanol/water
- Auto-ignition temperature
- Decomposition temperature
- Viscosity

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust’s explosive potential.

It is important to always know the physical and chemical properties of all hazardous chemicals with which you work.
SECTION 10: STABILITY AND REACTIVITY

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other. The required information consists of:

- **Reactivity**: Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

- **Chemical stability**: Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.

  Description of any stabilizers that may be needed to maintain chemical stability.

  Indication of any safety issues that may arise should the product change in physical appearance.

- **Other**: Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.

- **List of all conditions that should be avoided** (e.g., static discharge, shock, vibrations, or environmental conditions that may lead to hazardous conditions).

- **List of all classes of incompatible materials** (e.g., classes of chemicals or specific substances) with which the chemical could react to produce a hazardous situation.

- **List of any known or anticipated hazardous decomposition products** that could be produced because of use, storage, or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.)
SECTION 11: TOXICOLOGICAL INFORMATION

This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

- Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.

- Description of the delayed, immediate, or chronic effects from short- and long-term exposure.

- The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.

- Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.

- Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA.
Section 12: Ecological Information (non-mandatory by OSHA)

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment.

Section 13: Disposal Considerations (non-mandatory)

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS.

Section 14: Transport Information (non-mandatory)

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea.

Section 15: Regulatory Information (non-mandatory)

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS.

Section 16: Other Information.

This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

The SDS must contain Sections 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other agencies. Although they are not widely used, it is recommended that you review these sections, if present, to complete your understanding of the chemical.
CHECK FOR UNDERSTANDING

Let's take a moment to check how well you understand the information presented in this lesson. Select the appropriate answer for the following question. Check your work on page 46

Which of the following statements is true?

a. An SDS must be kept in a secure location accessible only to managers and security personnel.

b. An SDS must be updated on an annual basis.

c. The SDS must be readily available in any work area where employees handle or may come into contact with hazardous chemicals.

d. Reading the SDS makes you qualified to work with a chemical.
Lesson 3. Labeling

INTRODUCTION

OSHA requires the manufacturer, importer, or distributor to evaluate each chemical it produces and determine potential hazards. The revised Hazard Communication Standard (HCS) requires that information about chemical hazards be conveyed on labels using quick visual notations to alert the user, providing immediate recognition of the hazards. Labels must also provide instructions on how to handle the chemical so that chemical users are informed about how to protect themselves.

The label provides information to the workers on the specific hazardous chemical. While labels provide important information for anyone who handles, uses, stores, and transports hazardous chemicals, they are limited by design in the amount of information they can provide. Safety Data Sheets (SDSs), which must accompany hazardous chemicals, are the more complete resource for details regarding hazardous chemicals.

All hazardous chemicals shipped after June 1, 2015 must be labeled with specified elements including pictograms, signal words and hazard and precautionary statements.

After completing this lesson, you will be able to:

- Explain why and how labels are used
- Identify what information must be included on a label
- Identify labeling and relabeling responsibilities.
OSHA LABELING REQUIREMENTS

Labels, as defined in the HCS, are an appropriate group of written, printed or graphic informational elements concerning a hazardous chemical that are affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging. The HSC requires chemical manufacturers, importers, or distributors to ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked with the following information:

- 1 = product identifier,
- 2 = signal word,
- 3 = hazard statement(s),
- 4 = precautionary statement(s),
- 5 = pictogram(s) and,
- 6 = name, address and telephone of the chemical manufacturer, importer, or other responsible party.

To develop labels under the revised HCS, manufacturers, importers, and distributors must first identify and classify the chemical hazard(s). Appendices A, B, and C of the HCS are all mandatory. The classification criteria for health hazards are in Appendix A and the criteria for physical hazards are presented in Appendix B of the revised HCS. After classifying the hazardous chemical, the manufacturer, importer, or distributor then consults Appendix C to determine the appropriate pictograms, signal words, and hazard and precautionary statement(s), for the chemical label. Once this information has been identified and gathered, then a label may be created.

The HCS now requires the following elements on labels of hazardous chemicals.

Required Label Elements for Hazardous Chemicals

- **Name, Address and Telephone Number** of the chemical manufacturer, importer or other responsible party.
- **Product Identifier** is how the hazardous chemical is identified. This can be the chemical name, code number or batch number. The manufacturer, importer or distributor can decide the appropriate product identifier. The same product identifier must be both on the label and in section 1 of the SDS.
- **Signal Words** are used to indicate the relative level of severity of the hazard and alert the reader to a potential hazard on the label. There are only two words used as signal words, “Danger” and “Warning.” Within a specific hazard class, “Danger” is used for the more severe hazards and “Warning” is used for the less severe hazards. There will only be one signal word on the label no matter how many hazards a chemical may have. If one of the hazards warrants a “Danger” signal word and another warrants the signal word “Warning”, then only “Danger” should appear on the label.
- **Hazard Statements** describe the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard. For example: “Causes damage to kidneys through prolonged or repeated exposure when absorbed through the skin.” All of the applicable hazard statements must appear on the label. The hazard statements are specific to the hazard classification categories, and chemical users should always see the same statement for the same hazards no matter what the chemical is or who produces it.

(Continued on next page.)
Required Label Elements for Hazardous Chemicals (continued)

- **Precautionary Statements** describe recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to the hazardous chemical or improper storage or handling. There are four types of precautionary statements: prevention (to minimize exposure); response (in case of accidental spillage or exposure emergency response, and first-aid); storage; and disposal. Precautionary statements may be combined on the label to save on space and improve readability. For example, “Keep away from heat, spark, and open flames,” “Store in a well-ventilated place,” and “Keep cool” may be combined to read: “Keep away from heat, sparks, and open flames and store in a cool, well-ventilated place.” Where a chemical is classified for a number of hazards and the precautionary statements are similar, the most stringent statement must be included on the label.

- **Supplementary Information.** The label producer may provide additional instructions or information that it deems helpful. It may also list any hazards not otherwise classified under this portion of the label. This section must also identify the percentage of ingredients of unknown acute toxicity when it is present in a concentration of (plus or minus symbol here) 1% (and the classification is not based on testing the mixture as a whole).

- **Pictograms** are graphic symbols used to communicate specific information about the hazards of a chemical. On hazardous chemicals being shipped or transported from a manufacturer, importer or distributor, the required pictograms consist of a red square frame set at a point with a black hazard symbol on a white background, sufficiently wide to be clearly visible. A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label. OSHA will enforce the use of 8 different pictograms even though the GHS uses a total of nine pictograms. Figure 1.

When a chemical has multiple hazards, different pictograms are used to identify the various hazards. You would see on the label the appropriate pictogram for the corresponding hazard class.
LABELS IN THE WORKPLACE

Information provided on a label may be used to ensure proper storage of the hazardous chemical. For example: The Precautionary Statement on a specific label may indicate to store a flammable gas away from heat, spark, and open flames.

Label information may be used to quickly locate information on first aid when needed. For example: Liquefied gases may cause cryogenic burns or injury. Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. Seek immediate medical attention.

OTHER LABELS

The OSHA pictograms do not replace the diamond-shaped labels that the U.S. Department of Transportation (DOT) requires for the transport of chemicals, including chemical drums, chemical totes, tanks or other containers. Those labels must be on the external part of a shipped container and must meet the DOT requirements set forth in 49 CFR 172, Subpart E.

Labels must be legible, in English, and prominently displayed. Other languages may be displayed in addition to English.

Employers may continue to use rating systems such as National Fire Protection Association (NFPA) diamonds or HMIS requirements for workplace labels as long as they are consistent with the requirements of the HCS and the employees have immediate access to the specific hazard information. Employers that use the NFPA or NIMS labeling must, through training, ensure that its employees are fully aware of the hazards of the chemicals used.

No matter what labeling system is used, it is important that you read the chemicals packaging for hazard warning information. Contact your supervisor if you have any questions about any hazardous chemical label at your workplace.
DOT SHIPPING LABELS

OSHA requires that all hazardous material containers that are to be transported in commerce be labeled according to DOT regulations and include the proper shipping name and material hazard class.

These shipping labels may use colored diamonds, numbers, words, and pictures to identify and describe potential hazards.

Containers that remain at the workplace do not fall under DOT jurisdiction and are not required to comply with this labeling standard.

DOT requirements for hazard identification and shipping labels will be discussed in detail later in this course.
NFPA 704 LABELS

The NFPA 704 standard labeling system identifies the health, fire, and chemical reactivity hazards of liquids stored in drums or bulk tanks.

NFPA 704 uses a series of diamonds with colors and numbers to label hazards.

These labels may be used as long as:

- The information is consistent with the revised HCS.
- The SDS is immediately available to employees in the workplace.

Colors show the type of hazard:

- **Blue** indicates a health hazard. The contents could be harmful to your health.
- **Red** indicates a fire hazard. Contents of the container could be flammable.
- **Yellow** indicates a chemical’s reactivity, such as explosiveness or adverse reactions in certain situations.
- **White** indicates special instructions that must be followed to safely handle the chemical.

Numbers designate the degree of risk:

- **0** – Minimal risk.
- **1** – Slight risk.
- **2** – Moderate risk.
- **3** – Serious risk.
- **4** – Severe risk.

For example, a methanol label shows the chemical has a slight health risk of 1, a serious risk for flammability, and no chemical reactivity or special instructions.
HMIS LABELS

Similar to the NFPA 704 standard, the Hazardous Materials Information System (HMIS) labeling system uses colors and numbers to identify hazards. These labels are intended to convey full health warning information.

These labels may be used as long as:

- The information is consistent with the revised HCS.
- The SDS is immediately available to employees in the workplace.

The colored bars on an HMIS label provide information about the following areas:

- **Blue** indicates health hazards.
- **Red** indicates the degree of flammability.
- **Yellow** indicates the potential reactivity.
- **Orange** indicates physical hazards.
- **White** indicates required personal protection.

In the third edition of HMIS, the orange colored bar indicating physical hazards replaces the yellow colored bar indicating reactivity. Although both versions are correct, the American Coatings Association (ACA) encourages companies to follow the most recent standard.

HMIS labels also use the numbers zero through four to convey the degree of hazard, with four indicating the highest hazard level.

Under health hazards, an asterisk is added to the rating if the effects could result in a chronic condition.

A letter in the Personal Protection section of an HMIS label provides information on the type of PPE to use when handling this material.

You may find additional information to the left of the colored bars, such as route of entry, specifics on health and physical hazards, and which organs are most susceptible to these hazards.
CONSUMER LABELS

Many propane companies attach a warning label to cylinders that will be handled by consumers. This type of label is primarily for customers who will be handling portable, refillable propane containers weighing 100 lb or less, without supervision of a trained propane employee.

Consumer labels generally provide hazard information and operating instructions in clear, nonindustry specific terms to help the customer safely handle propane.

Consumer labels vary depending on company policy, but should clearly indicate both potential hazards and how to minimize risk. All propane container labels must be legible.

[Image of a propane gas label with hazard warnings and instructions]
COMBINATION LABELS

Sometimes a company will decide that one type of standard labeling system does not suit its needs and may develop a label combining multiple standards with its own additional information. It must, however, always meet the requirements set forth by OSHA and DOT.

Within the industry, a combination label may also be called a 3-in-1 label or 4-in-1 label.

The label in the example combines information from ANSI, DOT, and NFPA labels, while including additional details that the company requires. This label is intended to help customers understand how to safely connect their propane cylinder.

Make sure you understand your company's specific system for labeling.
RELABELING PROCEDURES

When a chemical shipment reaches your company, a designated employee checks for labels before accepting the shipment. Unlabeled containers must either be returned to the manufacturer or relabeled.

Labels must be consistent with the revised HCS and the SDS must be immediately available to employees handling the chemical in the workplace.

The most common reasons for relabeling are:

- To replace soiled, unreadable, or missing labels.
- To label smaller containers of product transferred from a larger container that will not be used immediately by the same employee who conducted that transfer.
- The chemical being stored within a container has changed.

Always check to make sure you are complying with any additional policies your company may have concerning labeling and relabeling. If smaller containers are for immediate use by the person transferring the product, there is no need to label the container.
EXCEPTIONS TO LABELING

Occasionally, labels are not necessary. The following are examples where labeling may not be required.

When chemicals are shipped by cargo tank or railcar, DOT placards are on the vehicle and serve as the required DOT hazard warning. More information on placarding can be found later in this course.

Federal regulations do not require the labeling of pipes or piping systems, but some states do. The recommended industry practice for labeling propane bulk facility piping and cargo tank vehicle piping systems is to label the termination points of pipes and hoses with the word “Liquid” or “Vapor.”

If smaller containers are for immediate use by the person transferring the product, there is no need to label the container.

OSHA hazard communication labels are not required when using products regulated by other agencies. However, those other agencies may have their own labeling requirements. Examples of this exception could include certain pesticides and consumer household products with which you may work.
CHECK FOR UNDERSTANDING

Let's take a moment to check how well you understand the information presented in this module. Select the appropriate answer for the following question. Check your work on page page 46.

Which of the following is a reason to relabel a container?

- **a** To replace soiled, unreadable, or missing labels.
- **b** To label smaller containers of product transferred from a larger container that will not be used immediately by the same employee who conducted that transfer.
- **c** The chemical being stored within a container has changed.
- **d** All of the above.
Lesson 4. Employee Information and Training

INTRODUCTION

As a propane industry employee, it is important for you to understand that there are a number of hazardous chemicals in your workplace. Although propane is the chemical you will most often be working with, you should always be mindful of other chemicals such as solvents, methanol, gasoline, diesel fuel, and various paint products that may also pose a risk.

Because maintaining safety in your workplace is essential, OSHA requires your company to provide information and training about all hazardous chemicals you may be exposed to and how to safely handle them.

Under the revised OSHA HCS, employees must be trained by December 1, 2013 on the new label elements and the Safety Data Sheets (SDSs). This training is needed early in the transition process since workers are already seeing the new labels and SDS. The revised HCS will need to be fully implemented by the phase-in period date of June 1, 2016. The December 1, 2013 training deadline date is only one of the compliance dates OSHA is requiring during the phase-in period.

After completing this lesson, you will be able to:

- Identify the two hazard groups.
- Explain general safety tips for working with hazardous chemicals.
- Explain what is required of your company’s written program.
TRAINING REQUIREMENTS

OSHA’s HazCom Standard requires all employees to be trained on how to work with the hazardous chemicals involved with their job. It states:

“Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.”

Employees need to be made aware of the OSHA HCS regulations, any operations in their work area where hazardous chemicals are present, and the location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and safety data sheets required by the regulations.

Do not hesitate to inform your employer if you feel you need additional training.

Whatever method of training is used, it must include:

- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.

- The physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area.

- The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

- The details of the hazard communication program developed by the employer, including an explanation of the labels received on shipped containers and the workplace labeling system used by their employer; the safety data sheet, including the order of information and how employees can obtain and use the appropriate hazard information.
WORKING SAFELY WITH HAZARDOUS CHEMICALS

When working with hazardous chemicals, you must be aware of whether those chemicals require engineering controls, such as ventilation and guards, or administrative controls, such as regulated areas or danger zones. In either case, you must reduce your risk of exposure when working with these chemicals by following your company’s safety rules and by wearing the proper PPE.

The PPE your company selects must protect you from workplace hazards, at least at the level required by law.

**PPE most commonly protects:**

- Face and eyes.
- Hands and arms.
- Lungs (respiration).

Be sure to read the SDS to determine which PPE is necessary, and follow your company’s own PPE requirements.
GENERAL SAFETY GUIDELINES

The following are some general safety guidelines for you to remember when working with hazardous chemicals:

- Always wear proper face and eye protective gear. If you wear prescription glasses, you can use fitted goggles or prescription eye protection.

- Make sure all safety gear is clean and returned to its proper place after use.

- Inspect your PPE regularly. Defective, damaged, or worn PPE will not protect you and should be replaced.

- Wash hands thoroughly after working with hazardous chemicals.

- Refrain from eating, drinking, smoking, or using personal items in an area where hazardous chemicals are present.

- Dispose of hazardous chemicals properly. Do not mix chemical wastes.

- Know where emergency shower and eyewash stations are located and how to properly operate them.

- Know your company’s policy for handling hazardous chemical spills or leaks.

Later in this course, you will learn more about safe work practices, emergency procedures, and PPE pertaining to hazardous materials.

As always, you are ultimately responsible for your own safety and should take every precaution to protect yourself. If you have a question about a particular situation, always seek the advice of your supervisor.
WRITTEN PROGRAM

Your company is required to have a comprehensive written program in place that details how it protects its workers from hazardous chemicals. The following information will help you understand the major elements of a written program.

The written program must describe:

- How your company determines which chemicals are hazardous.
- Your company’s labeling system.
- How SDSs are received and kept.
- The Hazardous Chemical Inventory.
- How hazardous chemical training is provided.

The hazardous chemical training section of the program must include:

- The name of the person responsible for conducting the training.
- The training methods used.
- The safety precautions to be taught.
- The emergency and first aid training given.
- The type of additional training given for “non-routine” tasks.

Always let your employer know if you feel your training was confusing or incomplete. If you notice errors within your company’s required documentation, immediately alert the person responsible for maintaining them.
Quiz: OHSA Hazard Communication Awareness Training

Directions: Let’s take a moment to check how well you understand the information presented in this module. Select the appropriate answer for each of the following questions. Check your work on page 46.

1. Which of the following develops and maintains the Hazard Communication Standard?
   a. Department of Transportation.
   b. Environmental Protection Agency.
   c. Occupational Safety and Health Administration.
   d. Mine Safety and Health Administration.

2. Which sections of the SDS are required and enforced by OSHA?
   a. All sections
   b. Sections 1 through 12
   c. Sections 1 through 10
   d. Sections 1 through 8 and 12 through 16

3. A ____________ hazard is one that has an immediate risk of fire or explosion, if handled improperly.
   a. health
   b. chronic
   c. biochemical
   d. physical

4. Certain household products such as cleaning solutions, aerosols, and wasp spray must be listed on the Hazardous Chemical Inventory.
   a. True.
   b. False.
5. Which of the following best describes a Safety Data Sheet (SDS)?
   a. A list of all hazardous chemicals in the workplace.
   b. A document that must be carried on-board a Commercial Motor Vehicle (CMV).
   c. A document that provides information about a chemical’s properties and hazards.
   d. A document that only provides information about first aid procedures for a chemical.

6. SDSs must be readily available in any work area where employees handle or may come into contact with hazardous chemicals.
   a. True.
   b. False.

7. Who is typically responsible for creating an SDS?
   a. The chemical’s manufacturer or importer.
   b. OSHA.
   c. EPA.
   d. Your company.

8. A hazardous chemical with a permissible exposure limit (PEL) of 250 is much more hazardous than a chemical with a PEL of 1.
   a. True.
   b. False.

9. Which of the following documents would you refer to if you have a question about personal protective equipment (PPE)?
   a. Shipping paper.
   b. Hazardous Chemical Inventory.
   c. Proof of Insurance.
   d. SDS.
10. Which of the following is NOT a requirement for labels found on hazardous chemical containers?
   a. Your company’s logo.
   b. Signal words.
   c. Hazard statement.
   d. Pictogram(s).

11. If you transfer a chemical from a large container to a small, portable container, you don’t have to label the smaller container if:
   a. You hand off that container to another worker for use at a later time.
   b. You leave it overnight in your work area.
   c. You immediately use the product transferred.
   d. You have to label the smaller container in all circumstances.

12. On an NFPA 704 label, the number “1” within a colored triangle means the chemical is more hazardous than a chemical with a “4” in the same area.
   a. True.
   b. False.

13. Chemical containers such as cargo tanks and railcars don’t require labels because these containers are placarded and have other means to warn individuals of the product being transported.
   a. True.
   b. False.

14. Which of the following is NOT a type of PPE:
   a. Face and eye protection.
   b. Head protection.
   c. Hand and arm protection.
   d. Fire extinguisher.
15. Which of the following is a requirement of your company’s written program?
   a. How to identify hazardous chemicals and a system for labeling them.
   b. How SDSs and the Hazardous Chemical Inventory are maintained.
   c. How hazardous chemical training is provided.
   d. All of the above.
Certificate of Training

OSHA & DOT
Employee Hazmat Training

__________________________ has successfully completed

OHSA Hazard Communication Awareness Training

Training Requirements

To be filled in by the Employee:

This is to certify that on __________________, I, ________________________________

Employee’s Signature

completed the Module: OHSA Hazard Communication Awareness Training. I understand the training, I have had an opportunity to ask questions, and all of my questions were properly answered.

To be filled in by the Employer or the Trainer:

This is to certify that on __________________, the above-named employee completed the Module: OHSA Hazard Communication Awareness Training. The training materials used to meet the training requirements are available at the employer’s office.

__________________________  __________________________
Employer  Trainer’s Signature

__________________________
Address of Person Providing the Training
Lesson 1: Check for Understanding

a. True. With the exception of some common household products of lesser amounts, all hazardous chemicals being used or stored by your company must be placed on the Hazardous Chemical Inventory. See Hazardous Chemical Inventory Overview to find out more.

Lesson 2: Check for Understanding

c. The SDS must be readily available in any work area where employees handle or may come into contact with hazardous chemicals. An SDS must be accessible at all times for anyone who might come into contact with the hazardous chemical. See Safety Data Sheets Overview to find out more.

Learning Activity: Identify Sections of the SDS for Odorized Propane

Section 6: Accidental Release Measures — Lists the proper disposal and containment methods for propane in the event of a leak or spill.

Section 8: Exposure Controls and Personal Protection — Lists protective measures to follow when handling propane, such as PPE required.

Section 4: First Aid Measures — Lists first aid and emergency information specific to exposure to propane.

Section 7: Handling and Storage — Lists precautions for safely using propane, such as required distances from flammable or other hazardous chemicals.

Section 5: Fire-Fighting Measures — Describes how to safely extinguish a fire involving propane, including the type of fire extinguisher to use.

Lesson 3: Check for Understanding

d. All of the above. Proper labeling must be present if a hazardous chemical is to be stored at the plant, not in immediate use by the employee, or if the chemical in a container has changed. See Relabeling Procedures to find out more.

Quiz Answers:

1. C
2. B
3. D
4. B
5. C
6. A
7. A
8. B
9. D
10. A
11. C
12. B
13. A
14. D
15. D