



# Hazard Communication

## OSHA 10-Hour General Industry Course

Required Online Topic Time: 60m



# Learning Objectives



## Duration

60 minutes

## Terminal Learning Objective

Given current OSHA and general industry information regarding worksite illnesses, injuries, and/or fatalities, the student will be able to recognize responsibilities related to hazard communications, including Global Harmonizing System (GHS) requirements.

## Enabling Learning Objectives

- Identify the employer's responsibilities under the HCS, including training requirements.
- Identify components of a Hazard Communication program.
- Describe requirements of the different types of Hazard Communication labels.
- Locate pertinent information about chemicals on labels, including other forms of hazard communication, to ensure "right to understanding" provisions of GHS requirements.



# Introduction



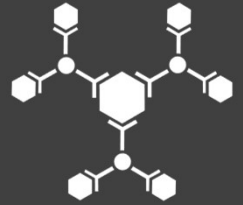
Wherever you are, working safely with **chemicals** is very important.

Chemical exposure may cause or contribute to disorders ranging from skin rashes to more serious conditions like cancer or heart problems.

It is also important to know that some chemicals have the potential to cause *fires, explosions, and other serious incidents.*



# HAZCOM - Basics



## Routes of Entry:

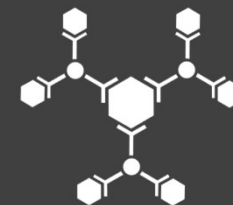
- *Inhalation (breathing)*
- *Ingestion (by mouth)*
- *Absorption (skin or eyes)*
- *Injection (puncture wound)*

## Exposure types:

**Acute Exposure** is a short term of brief exposure that may create an immediate health hazard. For example, if you come in contact with a surface that has a chemical irritant, you could break out in a rash.

**Chronic Exposure** is a repeated or prolonged exposure (over months or years) that may bring about slowly developing symptoms. These exposures do not cause immediate, obvious harm, and a person may not see, feel or smell the danger. Effects, however, may be permanent. An example is developing cancer from a long-term exposure to asbestos or lead.

# HAZCOM - Basics



## Knowledge Key

Remember that any chemical in the workplace can potentially enter your body through inhalation, ingestion, injection, or absorption. Some chemicals can cause short term exposure effects, while others can cause chronic exposure that lasts years.

# Right to Know



The official name of the "Right to Know" law is the **Hazard Communication Standard (HCS)** developed and regulated by OSHA.

This regulation has requirements for manufacturers, importers, and distributors of chemicals, as well as for employers.

Your employer must also maintain a list of all chemicals you may be exposed to AND provide training to minimize exposure to these chemicals.



# Right to Know



Your employer is required to comply with the "Right to Know" law, which includes implementing and maintaining a hazard communication program.

## Safety Data Sheets

Safety Data Sheets for any chemicals in the workplace should always be available AND easily accessible so you can know what your potential risks are at any time.

## Chemical Label

Chemical labels must have standard information used to communicate hazards and warnings for the specific chemical.

## Detection Methods

Methods to detect the presence or release of a chemical (including monitoring equipment, visual appearance, or odor).



# Right to Know



## Knowledge Key

The **Right to Know** law requires anyone who produces or uses chemicals to provide you with the right information to know how to protect yourself, including the potential harm each chemical can do to you. The standard ways of communicating chemical information are safety data sheets and labels. Your employer must also maintain a list of all chemicals you may be exposed to AND provide training to minimize exposure to these chemicals.



# Safety Data Sheets



**Safety Data Sheets (SDSs) and labels are two important components of a HAZCOM program.**

An SDS is designed to identify the hazards of a chemical and explain how you can protect yourself from those hazards.

Your employer must have an SDS for every hazardous chemical in the workplace. The SDS for chemicals in your work area must be fully accessible and available to you the entire time you are at work.

An SDS is designed **to identify the hazards of a chemical** and **explain how you can protect yourself** from those hazards.

Propane	
Safety Data Sheet	
<b>Section 1: Identification of the substance or mixture</b>	
Product Name:	Propane
SOS Number:	169570
Synonyms/Other Means of Identification	Commerical Popane C3(All) HDS Propane LP-Gas Liquified Petroleum Gas Odorized Propane Propane (unstenced) Propane Commerical Unodorized Propane Fuel
Intended Use:	
Manufacturer:	ABCCo. 1234 Chemical Way Houston, Texas 77071-1234
Emergency Health and Safety Number:	ABCCo: 1-800-555-9300
SDS Information:	Phone: 855-555-0762 Email: SOS@abcco.com
<b>Section 2: Hazards Identification</b>	
<b>Classification</b> H220 -- Flammable gasses -- Category 1 H280 -- Gasses under pressure -- Liquefied Gas	
Label Elements	
 	
<b>DANGER</b> Extremely flammable gas. (H220)* Contains gas under pressure. May explode if heated. (H280)* Gas may reduce oxygen in confined spaces.	
-----	
169570 - Propane Date of Issue: 17-Ain-2012	Page 1/9 Status: <b>FINAL</b>

# Safety Data Sheets



## OSHA requires each SDS to be:

- Completely legible.
- Updated when new information is available.
- Printed in English (other languages may be provided, but English must be provided).

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<b>DANGER</b>	
Extremely flammable gas. (H220)*	
Contains gas under pressure. May explode if heated. (H280)*	
Gas may reduce oxygen in confined spaces.	
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169570 - Propane	Page 1/9
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# Safety Data Sheets



## Knowledge Key

An SDS is a document that each chemical manufacturer, distributor, or importer must provide for each hazardous chemical. It contains detailed information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical. An SDS must be in a uniform format and there must be an SDS for every hazardous chemical in the workplace.

# Chemical Container Labels



Remember that a label is **attached to the container itself** and must always be present on all chemical containers in the workplace. Each label must contain the following information:

- *Name, Address, and Telephone Number*
- *Product Identifier*
- *Signal Words*
- *Hazard Statements*
- *Precautionary Statements*
- *Pictograms*

The HCS requires that **each container** holding a hazardous chemical have a **warning label**.

**Lacquer Thinner**  
CAS #: Mixture

**Danger**  
Extremely Flammable  
Acute Toxicity

Keep away from heat/sparks/open flames and sources of ignition. No smoking.  
Vapors may cause flash fire or ignite explosively.  
This material is an eye irritant. It may be absorbed through the skin.  
May be fatal or cause blindness. Chronic exposure may lead to neurological or physiological damage.

**First Aid:**  
IF IN YOUR EYES: Flush with large quantities of water for at least 15 minutes and seek immediate attention.  
IF ON SKIN: Wash with soap and large quantities of water and seek immediate medical attention.  
IF INHALED: If user experiences breathing difficulty, move to air free of vapors. Administer oxygen or artificial medical assistance can be rendered.  
IF SWALLOWED: Call your local poison control center, hospital room, or physician immediately for instructions to induce vomiting.

ABC Company, 1234 Chemical Way, XX, XX, XX Telephone: (888) 123-4567

# Chemical Container Labels



## The blue bar indicates health hazards

0 = no significant risk

1 = possible irritation or minor injury (reversible condition)

2 = temporary or minor injury may occur

3 = major injury likely without prompt action/medical treatment

4 = life-threatening, major, or permanent damage may result due to single exposure or repeated exposures.

There are two spaces in the health bar; the second space is used to signify chronic health hazards, which is indicated by the presence of an asterisk (\*), and warns of health problems due to long-term exposure.



# Chemical Container Labels



## Red indicates flammability hazards

0 = will not burn

1 = liquids, solids, and semi-solids that can ignite if preheated: flashpoint above 200°F

2 = ignition can occur if the material is moderately heated or exposed to high ambient temperatures: flashpoint at or above 100°F but below 200°F

3 = ignition can occur under most normal temperatures: flammable liquids with a flashpoint below 73°F and boiling points above 100°F, and liquids with flashpoints between 73°F and 100°F

4 = ignition can spontaneously occur with air: flammable gases or very volatile flammable liquids with flashpoints below 73°F and boiling points below 100°F



# Chemical Container Labels



## Orange indicates physical hazards

0 = non-explosive; normally stable (even under fire); will not react with water, polymerize, decompose, condense, or self-react

1 = normally stable, but can become unstable with high temperatures and pressures; may react non-violently with water; hazardous polymerization may occur in the absence of inhibitors

2 = unstable materials; under normal temperatures and pressures, violent chemical changes may occur and there is a low risk for explosion; violent reactions may occur with water; peroxides may form when exposed to air

3 = explosive mixtures may form with water that can detonate or have explosive reaction with strong initiating source; under normal temperatures and pressures, polymerization, decomposition, self-reaction, or other chemical changes may occur with a moderate risk of explosion

4 = at normal temperature and pressure can have readily explosive water reaction, detonation or explosive decomposition, polymerization, or self-reaction.

<i>(Product Identifier)</i>	
HEALTH	<input type="checkbox"/> <input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
PHYSICAL HAZARD	<input type="checkbox"/>
PERSONAL PROTECTION	



# Chemical Container Labels



**White indicates personal protective equipment requirements for safe handling – letter codes and icons correspond to required PPE**

A = safety glasses

B = safety glasses and gloves

C = safety glasses, gloves, and apron

D = face shield, gloves, and apron

E = safety glasses, gloves, and dust respirator

F = safety glasses, gloves, apron, and dust respirator

G = safety glasses, gloves, and vapor respirator

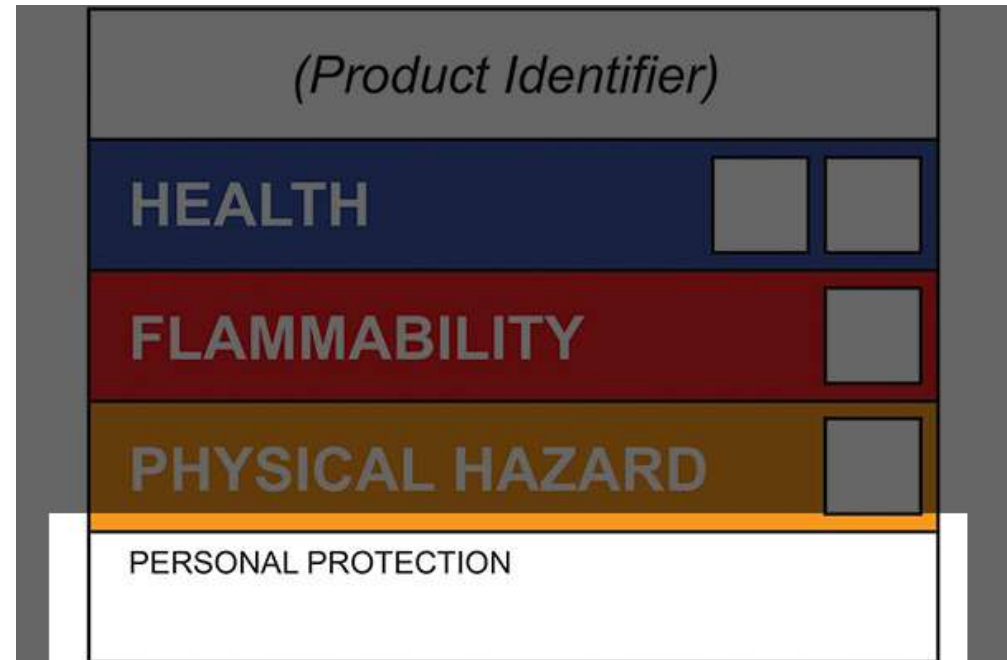
H = splash goggles, gloves, apron, and vapor respirator

I = safety glasses, gloves, dust, and vapor respirator

J = splash goggles, gloves, apron, dust and vapor respirator

K = air-line hood or mask, gloves, full suit, and boots

X = ask supervisor or safety specialist about special handling requirements



# Chemical Container Labels



## Knowledge Key

All hazardous chemicals in the workplace must contain a label that includes critical information you need to identify what the chemical is and the warnings you need to be aware of. The label should be clearly legible and marked on the container.

# Pictograms



OSHA's Pictograms:



# Pictograms



The Health Hazard pictogram represents the following hazards:

- *Carcinogen*
- *Mutagenicity*
- *Reproductive Toxicity*
- *Respiratory Sensitizer*
- *Target Organ Toxicity*
- *Aspiration Toxicity*



The Flame pictogram represents the following hazards:

- *Flammables*
- *Pyrophorics*
- *Self-Heating*
- *Emits Flammable Gas*
- *Self-Reactives*
- *Organic Peroxides*



The Exclamation Mark pictogram represents the following hazards:

- *Irritant (skin and eye)*
- *Skin Sensitizer*
- *Acute Toxicity (harmful)*
- *Narcotic Effects*
- *Respiratory Tract Irritant*
- *Hazardous to Ozone Layer (Non-Mandatory)*



The Gas Cylinder pictogram represents a hazard from Gases Under Pressure.



# Pictograms



The Corrosion pictogram represents the following hazards:

- *Skin Corrosion/Burns*
- *Eye Damage*
- *Corrosive to Metals*



The Exploding Bomb pictogram represents the following hazards:

- *Explosives*
- *Self-Reactives*
- *Organic Peroxides*



The Flame Over Circle pictogram hazard represents a hazard from oxidizers.



The Skull and Crossbones represents pictogram Acute Toxicity (fatal or toxic).



# Pictograms



## Knowledge Key

Become familiar with all nine standard pictogram symbols to easily identify the types of hazards in chemicals in your workplace, including those that pose chemical, physical, health, and environmental hazards. Beware that the environmental pictogram is not required according to the GHS so be cautious when using any chemicals in the environment.

# Employer Responsibilities



**Employers must ensure** that all containers of hazardous chemicals are labeled, safety data sheets are maintained for all hazardous chemicals, and that workers are trained on program elements, hazards, protective measures, etc.





# Employer Responsibilities



## Knowledge Key

It's your employer's responsibility to develop, implement, and maintain a written hazard communication program. That means keeping a list of all chemicals in the workplace, making sure each chemical has a Safety Data Sheet that is easily accessible, that each container has a label that is not defaced, and that you are trained on the chemicals with which you will be working.

# Conclusion



## To stay safe when working around hazardous chemicals:

- *Review your employer's list of all the hazardous chemicals in your workplace*
- *Become familiar with the SDS and warning labels for each hazardous chemical you may encounter*
- *Follow the precautions found on each SDS and warning label*
- *Wear the required personal protective equipment*
- *Receive the proper training before working in an area with hazardous chemicals*

Always keep in mind the job you have to do, the potential hazards that may exist, and the ways to ensure you and others StaySafe.

# Practice Questions



1. Which route of entry could a chemical use to enter through the body's airways?

- a. Ingestion
- b. Inhalation
- c. Injection
- d. Absorption

2. A(n) \_\_\_\_\_ exposure is a short term or brief exposure that may create an immediate health hazard.

- a. Acute
- b. Chronic
- c. Emergency
- d. Short

3. BCD Chemical Distributors has prepared a barrel of hazardous chemicals to be shipped to your employer. Select from the options to determine which items must be in place before it can be shipped. [Select all that apply.](#)

- a. SDS
- b. Price Tag
- c. Warning Label
- d. Shipping Item Sheet

4. Who is the manufacturer of the material listed on the Data Sheet?

- a. U.S. Department of Labor
- b. OSHA Hazard Department
- c. ABC Co.

# Practice Questions



5. As part of a hazard communication program, what is your employer required to have? [Select all that apply.](#)

- a. Safety Data Sheets
- b. Labels on each container
- c. Training
- d. List of all employees
- e. List of all chemicals

6. When working with propane in situations of oxygen deficiency, unknown exposure concentrations, or situations that are immediately dangerous to life or health, what should you always utilize?

- a. Safety glasses
- b. A NIOSH-approved, self-contained apparatus
- c. Safety glasses with a face shield

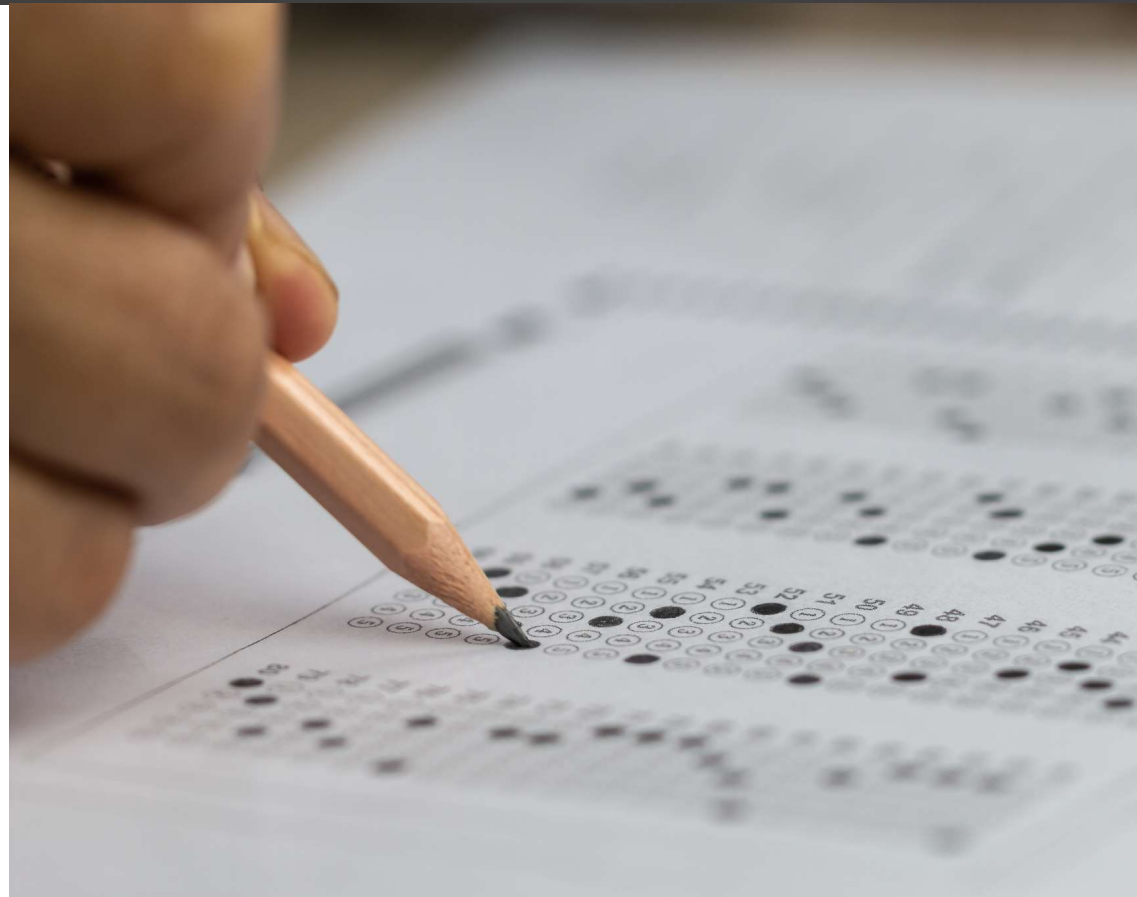
7. The shipping department at Great Chemical Company has printed this label. As you are looking at the label, you notice that it is incomplete. You need to tell the shipping department what information is missing. From the list below, choose the required element to complete the label.

- a. Product Identifier
- b. Pictogram(s)
- c. Signal Word
- d. Precautionary Statement(s)

# Practice Questions Answer Key



1. B
2. A
3. A,C
4. C
5. A,B,C,E
6. B
7. C



# Conclusion



## Great Job!

You have now completed the Hazard Communication Construction Industry topic.

