

A woman with short grey hair, wearing a grey blazer and a pink scarf, stands in front of a whiteboard. She is smiling and looking towards the camera. The whiteboard has the word "Safety" written on it. In the foreground, the back of a person's head and shoulders is visible, looking towards the whiteboard. The background shows a window with greenery outside.

Safety

Globally Harmonized System-Hazard Communication

Part of the Avitus Group 5-in-1
Safety Training Series



AVITUS GROUP[®]
Simplify, Strengthen and Grow Your Business

Introduction

Section 1: Introduction to Globally Harmonized System-Hazard Communication

Section 2: Hazardous Chemicals Defined

Section 3: Safety Data Sheets and the Properly Labeled Container

Section 4: Container Labels

Contact Information

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The materials and accompanying video provide general information on the subject with practical application for use in the workplace. These materials are designed to increase education and awareness to help the learner identify situations when they need to get their supervisor or employer involved. It is the on-site employer's responsibility to make sure the employees are trained in proper safety practices and that those practices are followed. Avitus Group always recommends contacting a certified Safety professional and/or legal counsel that specializes in the Safety laws specific to your state.

Safety laws and regulations change often at the federal, state, and local level, therefore some information may not be current. Because of the constant changes to the law, these materials repeatedly recommend contacting your Safety department or your Avitus Group representative for help.

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Our purpose: Fast, effective, and practical training that improves productivity in the workplace.

Tips: Each section only take a few minutes. If multiple section are to be covered, keep the fast pace going. First watch the video content for the selected section. Stop the video and answer the questions at the end of the section. If watching in a group, each learner should answer the questions in the manual first and then discuss the answers with the group.

SECTION 1

Introduction to Globally Harmonized System – Hazard Communication

The Globally Harmonized System of Classification and Labeling of Chemicals basically accomplished two things:

1. It eliminates confusion created by conflicting national and international requirements.
 2. It increases worker safety through more effective communication.
- “Right-to-Know” You have a right to know about the chemicals you may encounter on the job and how to protect yourself from the hazards associated with these chemicals and prevent any accidental contact.

The Employer’s Responsibilities

It is the employer’s responsibility to develop a written Hazard Communication program. Once developed the company or employer must instruct employees on the standard and explain how it is implemented into the workplace.

The Employee’s Responsibilities

As an employee, you must understand the chemicals you work with and encounter on a routine basis. That means you need to read and understand container labels and Safety Data Sheets.

It is also the employee’s responsibility to let your supervisor know if you have any doubts or concerns about the chemicals you work with. When it comes to chemicals, there are no stupid questions.

SUMMARY: The Globally Harmonized System of Classification and Labeling of Chemicals was created to eliminate confusion in both national and international labeling requirements and to improve worker safety through more effective communication. The employer must have a written Hazard Communication program and must teach the employees how it is implemented into the workplace. The employee must understand the chemicals in the workplace by reading the container labels and Safety Data Sheets and the employee must notify their supervisor when they have questions about the chemicals they work with.

SECTION 1

Questions

Questions:

1. The Hazard Communication (HAZCOM) Standard can be found in the OSHA Federal Register under:
 - a. 29 CFR 1910.1200
 - b. 30 CFR 1910.1201
 - c. 25 CFR 1910.1240
 - d. 19 CFR 1910.1272

2. As an employee, your responsibilities as they relate to Hazard Communication are to:
 - a. Read and understand the Safety Data Sheet
 - b. Read and understand container labels.
 - c. Notify your supervisor when you have doubts or concerns about the chemicals you work with.
 - d. All of these.

SECTION 2

Hazardous Chemicals Defined

OSHA now defines a hazardous chemical as one that is a physical or health hazard, a simple asphyxiation, combustible dust, phosphoric gas, or hazard not otherwise classified.

OR

Any chemicals that can affect your ability to breathe are considered hazardous.

Any chemicals that can ignite are considered hazardous whether it is in the form of a dust or a gas.

Hazard not otherwise classified: Some chemicals that may not ordinarily be considered hazardous could actually be hazardous in certain work environments and need to be included as part of your Safety Data Sheets and HazCom training.

A hazardous chemical inventory should be created, maintained, and included in the written communication program. Detailed, specific training should be completed for employees using chemicals reflected in the hazardous chemical inventory.

Chemical Health Hazards

A chemical is considered hazardous if it can produce reactions within the body. The types of reactions and the health hazards that can result are:

Carcinogens

Toxins

Reproductive Toxins

Irritants

Corrosives

Sensitizers

The previous health problems can be either Acute or Chronic.

Chemical Properties

These reactive chemicals that should NEVER be mixed together:

SECTION 2

Hazardous Chemicals Defined

Alkali metals such as calcium, sodium, and potassium should never be mixed with water. Alkali metals also react with alcohols. Alkali metals also react with phenols the most common known as carbolic acid. If you see any of these chemicals listed in the product's ingredients never combine with another product and follow the directions or use from the manufacturer carefully.

Acetic acid should never be combined with chromic acid, nitric acid, and hydroxyl containing compounds.

Never combine oxygen with oils, greases, hydrogen, flammable liquids, solids and gases. Spontaneous combustion is a real danger. The higher the Oxygen content in the air surrounding a combustible material, the lower the temperature at which it will combust. Pure oxygen combined with oil and grease will combust at room temperature.

Never mix bleach and ammonia, which creates a chlorine gas.

The four rules and the acronym UMPH.

- | | |
|---------------------|---|
| 1. U is for Use | Use chemicals only for their intended purpose or use. |
| 2. M is for Mix | Never mix incompatible chemicals |
| 3. P is for Protect | Use appropriate Personal Protective Equipment |
| 4. H is for Hygiene | Practice good hygiene when using chemicals |

SECTION 2

Questions

Questions:

1. Proper hygiene is not critical to preventing chemical ingestion.
 True False

2. An acute health condition is one that causes health problems over a long period of time.
 True False

3. Employers do not need to have a Safety Data Sheet on file for every chemical that is used in their workplace.
 True False

SECTION 3

Safety Data Sheets and the Properly Labeled Container

Manufacturers have a responsibility to disclose the physical and health hazards of each product they make. Manufacturers are required to provide this information to users in two forms:

Safety Data Sheet (SDS) and a Properly Labeled Container

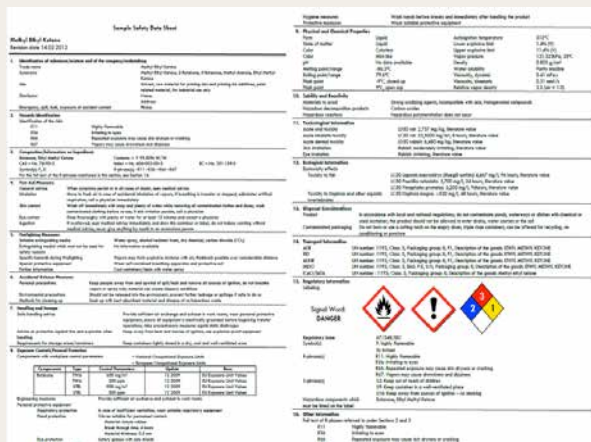
The SDS is your primary tool for obtaining detailed information on the chemical. The SDS should be readily available to everyone who is routinely exposed to those chemicals. Before working with any chemicals, employees must know how to read and understand the chemical's corresponding Safety Data Sheet. The SDS lists the following:

Physical dangers

Safety procedures

Emergency response procedures (should someone become exposed)

Your employer must have one SDS available in English for every chemical and hazardous product contained in the workplace.



To sum up the Safety Data Sheet, it is vital that before working with any type of chemical you:

1. Know the location of the Safety Data Sheet for that chemical.
2. Understand how to read the Safety Data Sheet.
3. Practice the precautions listed on the Safety Data Sheet when working with that chemical.

Finally, always consult your supervisor if you have any questions as to the location of the Safety Data Sheets or the information contained within them.

SECTION 3

Questions

Questions:

1. Container labeling will supply you with the following information:
 - a. The identity of the chemical
 - b. Appropriate hazard warnings
 - c. The name and address of the manufacturer or importer
 - d. All of these










2. The following are all sections of a typical Safety Data Sheet: Identification, Composition/Information on Ingredients, First-Aid Measures, Accidental Release Measures, Physical and Chemical Properties, Toxicological Information.
 True False

3. The acronym PEL is mandated by OSHA to reflect the maximum amount of a given chemical an employee can be exposed to in the workplace.
PEL stands for:
 - a. Permissible Exposure Limit
 - b. Probable Explosion Liability
 - c. Permissible Exposure Law
 - d. Probable Environmental Limit

SECTION 4

Container Labels

GHS Symbols or Pictograms. These symbols are designed to quickly warn anyone visually of the hazards associated with the contents of the container. There are nine hazard communication pictograms and they reflect what can happen if the product is not handled properly.

| Hazard Symbols (to be used in pictograms for substances of the particular class) | | |
|--|--|---|
|  |  |  |
| FLAME OVER CIRCLE—USED FOR THESE CLASSES : <ul style="list-style-type: none"> ▪ Oxidizers | FLAME—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Flammables ▪ Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides | EXPLODING BOMB—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Explosives ▪ Self Reactives ▪ Organic Peroxides |
|  |  |  |
| SKULL & CROSSBONES—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Acute toxicity (severe) | CORROSION—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Corrosives | GAS CYLINDER—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Gases Under Pressure |
|  |  |  |
| HEALTH HAZARD—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity | ENVIRONMENTAL HAZARD—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Environmental Toxicity | EXCLAMATION MARK—USED FOR THESE CLASSES: <ul style="list-style-type: none"> ▪ Irritant ▪ Dermal Sensitizer ▪ Acute toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract Irritation |

SECTION 4

Container Labels

Container labels do not provide the detail found on Safety Data Sheets.

They should never be the sole source of information on that chemical.

Container labeling will supply you with the following information:

The identity of the chemical

Appropriate hazard warnings

The name and address of the manufacturer or importer

Secondary Containers

1. You must properly label the container with the products name and hazards.
2. Include any special precautions for handling.

GHS Label Elements

The first element are the symbols or the hazard pictograms that convey health, physical, and environmental hazard information.

The second element are the signal Words "Danger" or "Warning" are used to emphasize hazards with "Danger" used for more severe hazards and "Warning" for less severe hazards.

The third element are Hazard Statements or standard phrases assigned to a hazard class and category.

Other GHS label elements include:

Precautionary Statements and Pictograms are measures taken to minimize or prevent adverse effects.

Product Identifier or ingredient disclosure: Name or number used for hazardous product on a label or in the SDS.

Supplier Identifications: Name, address and telephone number.

Supplemental Information

Labeling Requirements

The Label must be legible and in good condition.

For containers that may be hard to label, signs or placards may be used.

Be sure you are trained on the labeling system that your organization uses.

Labeling Systems

SECTION 4

Container Labels

How to Read an NFPA Label

The NFPA diamond label is used to warn firefighters and other emergency responders of the hazards they would be exposed to in a fire or chemical spill situation.

Colors indicate the type of hazard
Numbers indicate the degree of hazard

Flammability Hazard

- 0 = Will not burn.
- 1 = Must be considerably pre-heated to ignite.
- 2 = Must be moderately heated or exposed to high ambient temperatures to ignite.
- 3 = Capable of igniting under most ambient conditions.
- 4 = Easily ignites, or ignites spontaneously in air.

Health Hazard

- 0 = Materials that offer no hazard beyond that of ordinary combustible materials.
- 1 = Materials that can cause significant irritation.
- 2 = Materials that can cause temporary incapacitation or residual injury.
- 3 = Materials that can cause serious or permanent injury.
- 4 = Materials that can be lethal.

Instability Hazard

- 0 = Normally stable even under fire conditions.
- 1 = Normally stable materials that can become unstable at elevated temperatures and pressures.
- 2 = Materials that readily undergo violent chemical change at elevated temperatures and pressures.
- 3 = Materials capable of detonation, or explosive decomposition, or explosive reaction, but that require a strong initiating source, or that must be heated under confinement before initiation.
- 4 = Materials readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures.

Other Hazards

- W = water reactive
- OX = oxidizer
- COR = corrosive
- ACID = acidic
- ALK = alkaline or caustic
- = radioactive

If you need assistance in understanding the meaning of these labels, contact your supervisor or ES&H Team.

These are examples; other symbols may be present.

The National Fire Protection Association (NFPA) system is designed to disseminate the fire hazard information associated with a product in a quickly and alert the user to investigate the proper handling and usage. The color coded diamond represents:

Health hazard = BLUE

Flammability = RED

Reactivity = YELLOW

Special precautions = WHITE

Followed by a Numbering System on a scale of 0-4 with 4 being the most dangerous.

SECTION 4

Container Labels

| | |
|----------------------------|---|
| Chemical Name | |
| HEALTH | 0 |
| FLAMMABILITY | 0 |
| PHYSICAL HAZARD | 0 |
| PERSONAL PROTECTION | 0 |

Another commonly used and perfectly acceptable labeling system is known as the Hazardous Material Identification System or HMIS. The color scheme follows the same that is used by the National Fire Protection Association:

BLUE = Health





































RED = Flammability

ORANGE = Physical hazard/reactivity

WHITE = Personal Protective Equipment

SECTION 4

Container Labels

| HMIS® Letter | Required Equipment | | | | |
|--------------|--|---|---|---|--|
| A |  Safety Glasses | | | | |
| B |  Safety Glasses |  Gloves | | | |
| C |  Safety Glasses |  Gloves |  Protective Apron | | |
| D |  Face Shield |  Gloves |  Protective Apron | | |
| E |  Safety Glasses |  Gloves |  Dust Respirator | | |
| F |  Safety Glasses |  Gloves |  Protective Apron |  Dust Respirator | |
| G |  Safety Glasses |  Gloves |  Vapor Respirator | | |
| H |  Splash Goggles |  Gloves |  Protective Apron |  Vapor Respirator | |
| I |  Safety Glasses |  Gloves |  Dust Respirator |  Vapor Respirator | |
| J |  Splash Goggles |  Gloves |  Protective Apron |  Dust Respirator |  Vapor Respirator |
| K |  Air Line Mask or Hood |  Gloves |  Full Suit |  Boots | |
| L through Z | Site-specific label. Ask your supervisor or safety specialist for handling instructions | | | | |

SECTION 4

Container Labels

The Numbering System is the same for the blue, red, and orange section 0-4 but the protective equipment section uses a letter system and often a pictogram of the PPE that should be used.

Secondary Containers

Labels must be consistent with the revised HazCom standard.

No conflicting hazard warnings or pictograms.

May use written materials (signs, placard) in lieu of affixing labels to individual stationary process containers.

Employer can use GHS compliant labels (same as shipping).

Must include notation of chronic health effects.

To summarize this section, make it a habit to read labels carefully before using a product but do not rely only on that information. Read the Safety Data Sheet carefully because it offers much more detailed information about the product and its hazards. Secondary container labeling is very important and must adhere to the OSHA standard so always use the labels your employer provides, preferably the GHS compliant label.

To summarize this training:

It is your responsibility to read and understand container labeling and the appropriate Safety Data Sheets for the chemicals that you will work with.

It is your responsibility to take the necessary steps in protecting not only yourself, but also your co-workers.

If you have any questions or doubts about working with a particular product or chemical do not hesitate to ask your supervisor. Never leave chemical safety to chance.

Questions

1. The Hazard Communication (HAZCOM) Standard can be found in the OSHA Federal Register under:
 - a. 29 CFR 1910.1200
 - b. 30 CFR 1910.1201
 - c. 25 CFR 1910.1240
 - d. 19 CFR 1910.1272

2. As an employee, your responsibilities as they relate to Hazard Communication are to:
 - a. Read and understand the Safety Data Sheet
 - b. Read and understand container labels.
 - c. Notify your supervisor when you have doubts or concerns about the chemicals you work with.
 - d. All of these.

3. Proper hygiene is not critical to preventing chemical ingestion.
() True () False

4. An acute health condition is one that causes health problems over a long period of time.
() True () False

5. Employers do not need to have a Safety Data Sheet on file for every chemical that is used in their workplace.
() True () False

Questions

6. Container labeling will supply you with the following information:
- The identity of the chemical
 - Appropriate hazard warnings
 - The name and address of the manufacturer or importer
 - All of these
7. The following are all sections of a typical Safety Data Sheet: Identification, Composition/ Information on Ingredients, First-Aid Measures, Accidental Release Measures, Physical and Chemical Properties, Toxicological Information.
- () True () False
8. The acronym PEL is mandated by OSHA to reflect the maximum amount of a given chemical an employee can be exposed to in the workplace. PEL stands for:
- Permissible Exposure Limit
 - Probable Explosion Liability
 - Permissible Exposure Law
 - Probable Environmental Limit
9. Container labels should always be the sole source of information on a chemical.
- () True () False
10. On the National Fire Protection Association labeling system, a rating of four means that the chemical is:
- Not dangerous
 - Mildly dangerous
 - Very dangerous
 - None of these

