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HAZARD COMMUNICATION

*As Part of the OSHA 10 Hour
Training for General Industry*

**Leader's Guide, Fact Sheet
& Quiz**

Item Number: 5062

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This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

- a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.
- b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.
- c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.
- d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the pages containing the answers to the quiz come before the quiz itself.

CONDUCTING THE PRESENTATION

- a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.
- b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.
- c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.
- d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

5062 HAZARD COMMUNICATION
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FACT SHEET

VIDEO LENGTH: 23 MINUTES

COURSE DURATION: 1 HOUR

PROGRAM SYNOPSIS:

This program provides one hour of training on Hazard Communication, which is one of the six mandatory training topics selected by OSHA as part of its 10 Hour Training for General Industry Program. In addition to the six hours of training on required topics, OSHA requires four more hours of instruction on various elective topics. The combination of required training and elective training must total 10 hours. The 23-minute video presentation in this program, when combined with the provided sectional review quiz questions, when combined with the included sectional review quiz questions, will provide approximately one hour of training on Hazard Communication.

The content in this program is not certified by OSHA, but may be used by an organization as part of a training curriculum which is equivalent to that provided in OSHA's 10 Hour General Industry Training.

Hazardous chemicals are found in more than 7 million workplaces and over 55 million employees handle, use or work around these potentially harmful substances throughout North America. While these substances are essential to many work processes in a variety of industries, they can also be very dangerous. Effects from worker exposure to hazardous chemicals can range from mild skin irritation to severe burns to the eyes or skin to death from various types of exposure. Because of the dangers presented by hazardous chemicals, OSHA, developed the Hazard Communication Standard, CFR 1910.1200, that requires companies to develop a written Hazard Communication Program that communicates the hazards of workplace chemicals to all employees. This program provides an in-depth discussion of the Hazard Communication Program and how its policies, procedures and essential elements function to keep employees safe when working with and around hazardous chemicals.

Other topics include The Global Harmonizing System, hazard classification, container labels, pictograms, signal words, hazard and precautionary statements and Safety Data Sheets.

PROGRAM OBJECTIVES:

Upon completion of the program, viewers should be able to explain the following:

- What specific guidelines are contained in the written plan;
- How the Global Harmonization System improves hazard communication;
- How hazardous chemicals are classified;
- What information is conveyed on container labels;
- What the symbols, pictograms and statements on labels and Safety Data Sheets mean;
- What information can be found in the 16 sections of a Safety Data Sheet.

INSTRUCTIONAL CONTENT:

SECTION 1: Introduction to the Regulation

- Hazardous chemicals—they are found in more than 7 million workplaces and over 55 million employees handle, use or work around these potentially harmful substances throughout North America.
- While these substances are essential to many work processes in a variety of industries, they can also be very dangerous.
- Effects from worker exposure to hazardous chemicals can range from mild skin irritation to severe burns to the eyes or skin, to death from various types of exposure.
- Hazardous chemicals can also be highly toxic, flammable or even explosive.
- Because of the dangers presented by hazardous chemicals, The Occupational Safety and Health Administration, OSHA, developed the Hazard Communication Standard, CFR 1910.1200.
- OSHA's regulation requires companies to develop a Hazard Communication Program which communicates the hazards of workplace chemicals to all employees.

- This program provides an overview of the key components of your organization's Hazard Communication Program so you will be better prepared to work safely with and around chemicals in your workplace.

SECTION 2: The Written Plan

- Your organization's Hazard Communication Program must include a written plan. This written plan specifies the policies, procedures and essential elements of the Hazard Communication Program such as container labeling, the collection, storage and availability of Safety Data Sheets and, a listing of all hazardous chemicals on-site as well as their location.
- The written plan will also detail specific guidelines for the training of employees. For example, employees will receive specific training based on the hazardous chemicals to which they may be exposed.
- Some examples of specific chemical training which you may receive include:
 - The methods used for monitoring the presence of hazardous chemicals and the warning signals used to indicate a leak or spill;
 - The physical and health hazards of chemicals used in your work area and the safe work practices and personal protective equipment used to prevent exposure;
 - How to read the important information found on chemical labels and Safety Data Sheets;
 - The locations on-site where safety data sheets and the written plan may be accessed.
- Again, all of this information may be found in your organizations written hazard communication plan.
- The written plan is an important document which all employees have a right to review upon request.

SECTION 3: The Global Harmonizing System

- OSHA's Hazard Communication Standard was first enacted in 1983; however, recent changes have brought the regulation more in line with international standards.
- One change was the implementation of the Global Harmonizing System, or GHS for short.
- Implementing the Global Harmonizing System helps ensure improved quality and consistency in the classification and labeling of all chemicals. This in turn improves an employee's ability to quickly understand critical safety information.
- Created by the international community and adopted by the United Nations, the Global Harmonizing System provides a single set of harmonized criteria for classifying chemicals and mixtures according to their health, physical and environmental hazards.
- The Global Harmonizing System improves hazard communication by specifying communication elements, such as signal words, pictograms and precautionary statements which are used on container labels or safety data sheets.
- If needed, a reference guide to the GHS, which includes a detailed explanation of this information has been published by the United Nations.
- It is titled, "A Guide to the Globally Harmonized System of Classification and Labeling of Chemicals"; however, it is commonly called "The Purple Book."
- While it is not necessary for chemical workers to have complete understanding of the entire Global Harmonizing System, they must understand the elements of the system used to communicate the hazards presented by the chemicals in their workplace.

SECTION 4: Hazard Classification

- Classification is the process of assigning a chemical or mixture to a hazard or danger category based on its health and physical hazards.
- Physical hazards are the properties of a gas, liquid or solid that could adversely affect you or the workplace in a physical way, such as a fire or explosion.
- Health hazards are determined by the properties of a substance or mixture that can cause illness or injury to the skin, eyes, lungs or other organs and body parts.
- Because there are such a large variety of hazardous chemicals, there are also a large variety of physical and health hazards presented by these chemicals.
- To better communicate the specific information needed by chemical workers, the Global Harmonizing System has created multiple classes of hazards. There are 16 classes of physical hazards and 10 classes of health hazards.

SECTION 5: Physical and Health Hazards

- The 16 classes of physical hazards include explosives, flammable gases, aerosols, oxidizing gases, gases under pressure, flammable liquids, flammable solids and self-reactive substances and mixtures.
- Other physical hazard classes include pyrophoric liquids, pyrophoric solids, self-heating substances and mixtures, substances and mixtures emitting flammable gases when contacting water, oxidizing liquids, oxidizing solids, organic peroxides and substances corrosive to metal.
- The 10 classes of health hazards include acute toxicity, skin corrosion and irritation, serious eye damage or eye irritation, respiratory or skin sensitization and germ cell mutagenicity.
- Other health hazard classes include carcinogenicity, reproductive toxicology, Specific Target Organ Toxicity from a Single Exposure, Specific Target Organ Toxicity from Repeated Exposures and Aspiration Hazard.
- Of course, you may not be familiar with many of these terms and you may never work with or handle chemicals in many of these hazard classes; however, it's important for you to understand that the existence of the various GHS hazard classes makes it easier for you to receive the specific training and important information you need to work safely with the chemicals which are located in your workplace.

SECTION 6: Container Labels

- The second component of the Global Harmonizing System is container labels. Container labels will provide information on the relevant hazard classifications of the chemical.
- The labels which conform to the Global Harmonizing System may be quite different from the traditional labels you may be accustomed to seeing, so it is important to become familiar with them and the important information they deliver.
- As part of the Global Harmonizing System, chemical manufacturers and importers are required to provide a label that includes a pictogram, harmonized signal word, hazard statement and precautionary statements for each hazard class and category.
- Remember, the GHS standardizes all of this information based on hazard category and class to ensure that all workers, worldwide, receive consistent chemical safety information.
- The label will also include the product identifier. The product identifier is the name or number used for a hazardous substance and the label should include the chemical identity of the substance. It should match the same identifier of the Safety Data Sheets for the product.
- Also included on the label will be the supplier identification. The name, address and telephone number should be provided.

SECTION 7: Pictograms

- Pictograms are standardized graphics, sometimes called harmonized hazard symbols, which are assigned to a specific hazard class or category.
- Pictograms on a GHS label may convey health, physical or environmental hazard information; however, keep in mind that there is not a unique pictogram for each individual hazard within each class.
- In other words, one pictogram may be used to represent several hazards within a class.
- There are five pictograms displayed on GHS labels to represent the physical hazards of a chemical.
- The exploding bomb pictogram is used to signify a material as explosive, unstable explosive, organic peroxide or a self-reactive substance or mixture.
- The flame pictogram is used for flammable gases, liquids, solids, and aerosols, as well as self-reactive substances. It may also indicate a material is an organic peroxide, pyrophoric liquid or solid.
- A self-heating substance or mixture or emits flammable gases when it makes contact with water.
- The flame over circle or oxidizer pictogram appears on a label when a chemical is an oxidizing gas, liquid, or solid.
- The gas cylinder pictogram is exhibited when a substance is decompressed, liquefied, refrigerated liquefied or dissolved gas.
- The corrosion pictogram indicates that a material is corrosive to metal.
- The corrosion pictogram is also used to denote the health hazards of skin corrosion and serious eye damage.
- Besides corrosion, there are three other health hazard pictograms.
- The skull and crossbones is used when a chemical is acutely toxic to the skin, lungs, or digestive system.
- The health hazard pictogram, sometimes called the chronic health hazard pictogram denotes respiratory sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity or an aspiration hazard.

- It is also used when a substance can cause specific target organ toxicity following a single or repeated exposures.
- The exclamation point pictogram is used for the health hazards of acute toxicity, skin irritation, eye irritation, skin sensitization, and specific target organ toxicity following a single exposure in the form of narcotics effects or a respiratory tract infection.
- A third type of pictogram is used to indicate environmental hazards. This single pictogram is used when a substance poses acute or chronic hazards to the aquatic environment.
- Pictograms are also used when chemicals are being transported; however, the pictograms used during transport are different from those found on labels.
- Transportation pictograms still feature the harmonized hazard symbols however the background, border and colors used on the transport pictogram come from the United Nations Recommendations on the Transport of Dangerous Goods.
- Your specific chemical training, as well as your company's written plan, will include an explanation of the pictograms associated with the chemicals in your work environment.
- This knowledge helps workers quickly identify a chemical's hazards and is the first step to taking proper precautions to work safely.

SECTION 8: Signal Words

- The words "Danger" or "Warning" are used to emphasize hazards and indicate the relative level of severity of the hazard.
- The signal word "Danger" represents a more severe hazard than the signal word "Warning".
- Only one signal word, corresponding to the class of the most severe hazard, should be used on a chemical label.

SECTION 9: Hazard and Precautionary Statements

- Other standardized communication elements found on GHS container labels are Hazard Statements and Precautionary Statements.
- Hazard Statements are standard phrases assigned to a hazard class and category that concisely describe the nature of the hazard.
- For products which pose more than one risk, an appropriate hazard statement for each GHS hazard will be included on the chemical label.
- Chemical labels will also contain Precautionary Statements. Precautionary Statements are standardized explanations of the measures to be taken to minimize or prevent adverse effects.
- There are five types of precautionary statements for each hazard class: General, Prevention, Response, Storage and Disposal.
- Some examples of Prevention precautionary statements include: "Do not allow contact with water" and "Wear Protective Gloves".
- Some examples of Response precautionary statements include: "If on skin wash with plenty of water" and "If inhaled remove person to fresh air".
- Some examples of Storage precautionary statements include: "Store in well ventilated place" and "Protect from sunlight".
- Disposal precautionary statements typically state to: "Dispose in accordance to local regulations..." Disposal precautions are an area the United Nations plans to further develop in the future.

SECTION 10: Safety Data Sheets

- All Safety Data Sheets will have the following 16 sections, in specific order, so workers will always know which section will provide which data no matter what chemical you are referencing.
- Section 1: *Product and Company Identification*. This section provides the product name and use, the manufacturer and a number to call in case of an emergency.
- Section 2: *Hazards Identification*. Health, environmental and physical hazards are listed in this section. Also shown are the GHS standard and transport pictograms as well as the hazard and precautionary statements found on the container label.
- Section 3: *Composition/Information on Ingredients*. This section gives the components of the substance and their concentration as well as their Chemical Abstract Service numbers, European Commission numbers and European Chemical Agency numbers.

- Section 4: *First Aid Measures*. Treating chemical exposures such as contact with the eyes and skin, inhalation and ingestion are covered in this section.
- Section 5: *Firefighting Measures*. This section lists the appropriate and inappropriate fire extinguisher agents to be used in the event of a fire and the personal protection to be worn by firefighters.
- Section 6: *Accidental Release Measures*. Personal precautions, environmental precautions and methods for clean up in the event of a spill are explained in this section.
- Section 7: *Handling and Storage*. This section provides the procedures for safe handling and storage of the chemical.
- Section 8: *Precautions to Control Exposure/Personal Protection*. Exposure limits and the controls and monitoring required to prevent exposure above these limits are listed in this section. Also, the necessary personal protection needed to prevent exposure is also included.
- Section 9: *Physical and Chemical Properties*. This section contains the various properties of the substance, such as appearance, odor, flash point, specific gravity, flammability limits and vapor density.
- Section 10: *Stability and Reactivity*. Such issues as stability, hazardous decomposition products, conditions to avoid and incompatible materials are discussed in this section.
- Section 11: *Toxicological Information*. This section explains the routes of entry to the human body as well as the symptoms and effects of exposure to the chemical.
- Section 12: *Ecological Information*. Provided in this section is information on the product's effect on plants or animals and its ultimate environmental disposition.
- Section 13: *Waste Disposal Considerations*. This section discusses how to safely dispose of the chemical.
- Section 14: *Transport Information*. The proper shipping name, hazard class, UN Identification Number, Transport Label required and other information required for transporting the product are listed in this section.
- Section 15: *Regulatory Information*. This section documents the chemical's classification under federal regulations such as the Toxic Substances Control Act, the Clean Water Act and the Superfund Amendments and Reauthorization Act among others. It may also include applicable state and international regulations as well as European Union classification and EU risk and safety phrases.
- Section 16: *Other Information*. The final section allows chemical manufacturers to provide information not found in the first 15 sections. This may include such things as the manufacturer's email address, the intended use of product, what agency issued the data sheet, date of issue, a full explanation of risk and safety phrases, just to name a few.
- Your facility maintains a Safety Data Sheet for every chemical in the workplace as part of its Hazard Communication Program.
- You should review the SDS before working with any chemical or anytime you have concerns about safety issues.
- Always ask your supervisor if you have any questions about a chemical label or Safety Data Sheet.
- Of course, always wear the proper protective equipment specified by the container label or Safety Data Sheet. This often includes wearing gloves, protective clothing and goggles with a face shield. Respiratory protection may also be required to avoid breathing in hazardous fumes.
- If you are unsure about the required PPE for any chemical, stop and ask your supervisor.

SECTION 11: Conclusion

- In this program, we have discussed OSHA's Hazard Communication Standard and its requirement for employers to create a written Hazard Communication Program.
- We also discussed OSHA's requirements related to container labels, Safety Data Sheets and employee training.
- In addition, we explained the hazard categories and classes of the Global Harmonizing System and discussed the communication elements of the GHS such as pictograms, signal words, hazard statements and precautionary statements found on chemical labels.
- Perhaps most importantly, we have made it clear that all workers have a "Right-To-Know" about the chemical hazards in their workplace and that the Hazard Communication Program is designed to do just that.

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ANSWERS TO THE REVIEW QUIZ

SECTION 1: Introduction to the Regulation

1. c

2. a

SECTION 2: The Written Plan

1. e

2. a

3. b

SECTION 3: The Global Harmonizing System

1. a

2. c

3. a

SECTION 4: Hazard Classification

1. b

2. b

3. a

SECTION 5: Physical and Health Hazards

1. c

2. e

3. a

SECTION 6: Container Labels

1. a

2. b

3. a

SECTION 7: Pictograms

1. b
2. c
3. b
4. a

SECTION 8: Signal Words

1. a
2. a

SECTION 9: Hazard and Precautionary Statements

1. b
2. b
3. d

SECTION 10: Safety Data Sheets

1. c
2. a
3. d
4. a

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REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name _____ Date _____

SECTION 1: Introduction to the Regulation

1. Over _____ employees handle, use or work around hazardous chemicals throughout North America.
 - a. 25 million
 - b. 40 million
 - c. 55 million

2. OSHA's Hazard Communication Standard requires companies to develop a Hazard Communication Program which communicates the hazards of workplace chemicals to all employees.
 - a. True
 - b. False

SECTION 2: The Written Plan

1. Which of the following is included in your organization's Hazard Communication written plan?
 - a. Container labeling requirements
 - b. Storage and availability of Safety Data Sheets
 - c. Listing of all hazardous chemicals onsite
 - d. Guidelines for employee training
 - e. All of the above

2. Your chemical training will include information on the physical and health hazards of chemicals used in your work area and the safe work practices and personal protective equipment used to prevent exposure.
 - a. True
 - b. False

3. Only those employees who work with highly hazardous chemical are permitted to review the written plan upon request.
 - a. True
 - b. False

SECTION 3: The Global Harmonizing System

1. Implementing the Global Harmonizing System helps ensure improved quality and consistency in the classification and labeling of all chemicals.
 - a. True
 - b. False

2. The reference guide published by the United Nations that details Global Harmonizing System information is commonly called the _____.
 - a. Blue Book
 - b. Red Book
 - c. Purple Book

3. Chemical workers don't need to have complete understanding of the entire Global Harmonizing System, but they must understand the elements of the system used to communicate the hazards presented by the chemicals in their workplace.

- a. True
- b. False

SECTION 4: Hazard Classification

1. Classification is the process of assigning a chemical or mixture to a hazard or danger category based on its physical appearance.

- a. True
- b. False

2. _____ are determined by the properties of a substance or mixture that can cause illness or injury to the skin, eyes, lungs or other organs and body parts.

- a. Physical hazards
- b. Health hazards

3. To better communicate the specific information needed by chemical workers, the Global Harmonizing System has created multiple classes of hazards.

- a. True
- b. False

SECTION 5: Physical and Health Hazards

1. Which of the following is NOT one of the 16 classes of physical hazards?

- a. Explosives
- b. Flammable solids
- c. Acute Toxicity
- d. Oxidizing liquids

2. _____ is one of the 10 classes of health hazards.

- a. Germ cell mutagenicity
- b. Carcinogenicity
- c. Skin corrosion
- d. Aspiration hazard
- e. All of the above

3. Understanding the hazard classes makes it easier for you to receive the specific training and important information you need to work safely with the chemicals that are located in your workplace.

- a. True
- b. False

SECTION 6: Container Labels

1. The container labels that conform to the Global Harmonizing System may be quite different from the traditional labels you may be accustomed to seeing.

- a. True
- b. False

2. Container labels that include a pictogram, harmonized signal word, hazard statement and precautionary statements are optional as long as the labels convey the appropriate hazard information.
- True
 - False
3. The product identifier on a container label should match the same identifier of the Safety Data Sheet for the product.
- True
 - False

SECTION 7: Pictograms

1. There is a unique pictogram for each individual hazard within each class.
- True
 - False
2. The _____ pictogram appears on a label when a chemical is an oxidizing gas, liquid, or solid.
- Exploding bomb
 - Flame
 - Flame over circle
 - Corrosion
3. The _____ pictogram can indicate either a physical or health hazard on a label or Safety Data Sheet.
- Exploding bomb
 - Corrosion
 - Exclamation point
 - Skull and cross bones
4. The pictograms used during the transport of hazardous chemicals are different from those found on labels.
- True
 - False

SECTION 8: Signal Words

1. Which signal word represents a more severe hazard?
- Danger
 - Warning
2. Only one signal word, corresponding to the class of the most severe hazard, should be used on a chemical label.
- True
 - False

SECTION 9: Hazard and Precautionary Statements

1. For products that pose more than one risk, only the hazard statement for the most severe GHS hazard will be included on the chemical label.
- True
 - False

2. _____ are standardized explanations of the measures to be taken to minimize or prevent adverse effects.
- Hazard Statements
 - Precautionary Statements
3. Some examples of _____ precautionary statements include “Do not allow contact with water” and “Wear Protective Gloves”.
- Disposal
 - Response
 - Storage
 - Prevention

SECTION 10: Safety Data Sheets

1. All Safety Data Sheets contain _____ in specific order.
- 8 sections
 - 10 sections
 - 16 sections
 - 20 sections
2. Section 2, the Hazards Identification section of a Safety Data Sheet, contains the hazard and precautionary statements for a chemical that are found on the container label.
- True
 - False
3. Your facility maintains a Safety Data Sheet for _____ in the workplace as part of its Hazard Communication Program.
- The most hazardous chemicals
 - The most frequently used chemicals
 - Chemicals stored in large quantities
 - Every chemical
4. You should review the SDS before working with any chemical or anytime you have concerns about safety issues.
- True
 - False