

## **PRESENTER'S GUIDE**

# **"INTRODUCTION TO GHS (THE GLOBALLY HARMONIZED SYSTEM) ... FOR CONSTRUCTION WORKERS"**

**Part of the Construction Safety Kit Series**

# **OUTLINE OF MAJOR PROGRAM POINTS**

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The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Chemicals! By itself the word can be frightening.**
  - But chemicals help produce the food that we eat and the water that we drink.
  - In fact, virtually everything that we use is produced with the aid of chemicals.
  
- **But there is good reason that the word "chemicals" can put us on edge. Because we know that chemicals can be hazardous.**
  - Around the world over 400,000 people die each year as a result of occupational exposure to hazardous chemicals.
  
- **To help protect employees from these hazards, in 1983 OSHA created the Hazard Communication Standard.**
  - Now, for the first time since it was implemented, the Hazard Communication Standard is undergoing some significant changes.
  - OSHA is incorporating the "Globally Harmonized System of Classification and Labeling of Chemicals" (GHS for short) into the Standard.
  - And we need to understand what this means to us.
  
- **This program will answer questions about the GHS such as:**
  - What is the Globally Harmonized System?
  - What does the GHS change in the Hazard Communication Standard?
  - Why did OSHA decide to adopt the GHS?
  - What are the major requirements that the GHS brings to the HAZCOM Standard?
  - What are the phase-in dates for the GHS?

- **Many countries have chemical hazard regulations.**
  - However, since they were developed independently of one another there can be significant differences in how they work.
  
- **The GHS was developed by the United Nations, with the help of hazard communication experts from many countries and organizations.**
  - Its aim is to help standardize the way chemical information is provided... anywhere in the world.
  
- **The GHS is a logical and comprehensive approach to:**
  - Defining chemicals' health, physical and environmental hazards.
  - Classifying chemicals, using definitive and uniform criteria.
  - Communicating chemicals' hazard information, as well as the protective measures that should be taken when working with them.
  
- **It's important to remember that in the U.S. the GHS doesn't replace the Hazard Communication Standard, nor does it change the essence of the regulation.**
  - Businesses in the United States still have to adhere to all of the original requirements in the HAZCOM Standard.
  
- **What the GHS does is change the way some of the Standard's requirements must be met. While the Standard still defines what needs to be done in areas such as...**
  - Describing and classifying chemicals based on their hazards.
  - Creating a document describing a chemical.
  - Labeling containers with hazard information...

**The GHS describes specifically how to do these things.**
  
- **This is a distinct change in approach for HAZCOM. When OSHA originally created the Standard it was "performance based".**
  - This meant that while the Standard described what companies needed to accomplish, it left them free to decide exactly how they would do it.

- **There are several important reasons that OSHA adopted the Globally Harmonized System.**
- **The first reason that OSHA adopted the GHS is to...**
  - Standardize descriptions and classifications of hazardous chemicals domestically.
  - Bring this information into conformance with what much of the rest of the world is doing.
- **Because the Hazard Communication Standard has allowed companies to use different approaches to meet the requirements in the Standard, there are significant variations in the materials that have been used to comply with the Standard.**
  - For instance, while the Standard has required that Material Safety Data Sheets contain specific pieces of information, companies have been able to present this information in any format that they liked.
  - This has caused some significant confusion among employees as they try to find specific types of information on various MSDS's... which can be catastrophic in an emergency situation.
- **The GHS standardizes all of this.**
- **Likewise, while HAZCOM has required specific hazard information to appear on container labels, three or four different types of labeling systems have been created to convey this information.**
  - This has also caused a lot of confusion among employees who handle the containers.
  - The GHS specifies exactly how this information should be depicted and presented on labels and placards.

- **The second reason that OSHA is adopting the GHS is to make the information that employees see about the hazardous chemicals that they work with clearer and easier to understand.**
  - Because under the HAZCOM Standard chemicals could be described and classified in various ways, not all companies who created MSDS's and labeling systems used the clearest language.
  - So not only have employees had to cope with different systems and formats, they have often had to try and decipher language that was difficult to understand.
- **The third reason that OSHA adopted the GHS is to make it easier for U.S. companies to compete in the international market.**
  - Because many countries are already requiring that Safety Data Sheets and labels follow the GHS guidelines, U.S. companies have often had to create multiple versions of these materials to do business both here and abroad.
  - This can be costly.
- **By incorporating the GHS into the Hazard Communication Standard, U.S. companies will be able to use one set of materials, cost-effectively, and be more competitive in other markets.**
- **There are four major areas that the GHS changes in the Hazard Communication Standard:**
  - Hazard Classification.
  - Container Labeling.
  - Safety Data Sheets.
  - Information and training.
- **The first thing that the GHS deals with is "hazard classification", the starting point for hazard communication.**

- **The HAZCOM Standard originally allowed the evaluation of a chemical's hazards to be relatively subjective.**
  - Under the GHS there are specific criteria for each health and physical hazard, along with detailed instructions for hazard evaluation.
  
- **The GHS also establishes both "Hazard Classes" and "Hazard Categories".**
  - Many of the Hazard Classes are further divided into categories, which often reflect the relative severity of the hazard.
  - This is something the original HAZCOM Standard didn't do.
  
- **There are two major groups of hazard types under the GHS:**
  - Physical Hazards.
  - Health and Environmental Hazards.
  - Each group contains a number of specific types of hazards.
  
- **Physical hazards include everything from explosives and oxidizers to pyrophorics.**
  
- **As we've discussed, new with the GHS is the concept of "Hazard Categories".**
  
- **For example, where the Hazard Communication Standard has a single Physical Hazard Class of "Gases Under Pressure", the GHS uses "Hazard Categories" to further separate these types of gases into four categories:**
  - Liquefied Gases.
  - Compressed Gases.
  - Refrigerated Gases.
  - Dissolved Gases.
  
- **The second group of hazards under the GHS is "Health and Environmental" hazards.**
  - These hazards are also divided into a number of classes and categories, often depending on the level of toxicity of the chemical.

- **The first group of Health and Environmental hazards that are addressed by the GHS include materials that are:**
  - Irritants.
  - Corrosives.
  - Toxic.
  - Cancer causers.
  - Environmental hazards.
- **As with Physical Hazards, these classifications are also further divided into "categories". For instance, the "Skin Corrosion/Irritation" classification has three categories, based on the hazard's severity...**
  - Category 1... Skin Corrosion.
  - Category 2... Skin Irritation.
  - Category 3... Mild skin irritation.
- **It's important to remember that under the GHS all of the hazard classes and their categories are very specifically defined.**
  - Definitions, testing recommendations and other valuable hazard information can be found in the GHS master document, (often referred to as "The Purple Book"), which has been published by the United Nations.
- **Like the Hazard Communication Standard, the Globally Harmonized System requires manufacturers of potentially hazardous chemicals to create a written document providing important information about the chemicals, their hazards and how to handle them safely.**
  - In fact, the name of this document under the GHS is similar to the HAZCOM Standard's "Material Safety Data Sheet".
  - The GHS version is called the "Safety Data Sheet" (SDS).
- **The GHS Safety Data Sheet also "looks and feels" much like a Material Safety Data Sheet.**
  - It addresses the same types of information about a chemical, and uses virtually the same format that many U.S. workers have become familiar with... the ANSI MSDS format.

- **To recap, the first eight sections of the GHS Safety Data Sheet cover areas including:**
  - The identity of the substance or mixture and the supplier.
  - Its hazards.
  - First aid measures
  - Handling and storage.
  - Exposure controls and personal protection.
- **The last eight sections of the Safety Data Sheet cover topics such as:**
  - Physical and chemical properties.
  - Stability and reactivity
  - Disposal and transport information.
- **Even though the sections of the Safety Data Sheets are virtually the same as those on the HAZCOM Standard's MSDS, there are several important differences between the two.**
- **First, following the philosophy that information should be standardized, the GHS is very specific regarding what must appear in each section of the SDS.**
- **Second, there is both new and more detailed information required in the "Hazard Identification Section" of the SDS. It includes:**
  - The GHS classification for the chemicals.
  - The GHS pictograms that are required on the chemical's container labels.
  - The appropriate GHS "Signal Word".
  - The standard GHS "Hazard Statement" that applies to the chemical.
  - A "Precautionary Statement" that describes the measures that should be used to minimize or prevent adverse effects when using the chemical.

- **Remember, unlike in the HAZCOM Standard, the GHS hazard statements are standardized and uses specific phrases that have been created to describe the hazards that were found when the chemical was classified. For example, depending on the severity of its hazards, a toxic chemical could have hazard statements of...**
  - "Fatal if swallowed".
  - "Toxic if swallowed".
  - "Harmful if swallowed".
  - "May be harmful if swallowed".
- **As with other aspects of the U.S. Hazard Communication Standard, one of the problems with labeling containers of hazardous chemicals under HAZCOM has been the "performance" nature of the standard.**
  - In this case, OSHA told manufacturers and distributors of potentially hazardous chemicals what type of information should appear on their container labels, but left the question of how to convey that information up to the individual companies.
  - As a result, a number of different types of labeling systems were created, the most common being the National Fire Protection Association (NFPA) system and the Hazardous Materials Information System (HMIS).
- **As with other aspects of the GHS System, GHS labels standardize the information that must appear on a label, as well as how it is presented.**
- **But in addition to standardizing things there was an additional challenge to creating the GHS labeling system.**
  - The labels had to convey information to workers around the world who use many different languages.
  - As a result, GHS labels use a combination of pictograms and text to convey information.

- **There are six major pieces of information on a GHS label.**
  - A product/chemical identifier.
  - A supplier identifier.
  - Hazard pictograms.
  - A "Signal Word".
  - Hazard Statements.
  - Precautionary information.
- **Some of these are "text" elements and some are "visual".**
- **While the GHS does not require a specific label format, it does have a recommended order and positioning of the elements on the label.**
- **The "Product/Chemical Identifier" is simply the name of the chemical as it appears on the Safety Data Sheet (and most likely as it has appeared on the product's MSDS).**
  - This appears at the top of a GHS label.
- **The next element on the label is the chemical's "Signal Word".**
  - It is either "Warning" or "Danger", depending on the severity of a chemical's hazards.
- **Appearing next on a GHS label is the "Hazard Statement". As we've discussed, the GHS includes a set of standardized Hazard Statements.**
  - These are used based on a chemical's class and category.
  - They can be found in the GHS "Purple Book".
- **The next element on the label is the chemical's "Precautionary Statement". This discusses:**
  - Exposure prevention.
  - How to respond in case of spill or exposure.
  - Safe storage practices.
  - How to dispose of the chemical.

- **The last element of text on a GHS label is the "Supplier Identifier".**
  - This is the name, address and telephone number (including the Country Code) of the producer or distributor of the chemical.
  
- **The only "visual" elements on a GHS label are the pictograms that apply to that class and category of chemical.**
  - Like the "Hazard Statements", the pictograms reflect any health, physical and environmental hazard information that is applicable to the chemical, based on its GHS hazard class and category.
  
- **There are nine standard pictograms that are used in the GHS.**
  - The first is a "health hazard" pictogram (the image of a person's upper body with a "star" inside it).
  
- **A flame indicates that the chemical may be:**
  - Flammable.
  - Pyrophoric.
  - Another type of fire hazard.
  
- **An exclamation point indicates that the chemical may be:**
  - An irritant.
  - A sensitizer.
  - Toxic.
  - Narcotic.
  - Hazardous to the ozone layer.
  
- **A picture of a gas cylinder indicates that the chemical is a "gas under pressure".**
  
- **The image of test-tubes dripping a liquid on a bar of metal and a hand indicate that the chemical is corrosive.**
  
- **An image of an "explosion" tells workers that the substance is:**
  - Explosive.
  - A "self-reactive".
  - Or an organic peroxide.

- **A picture of a flame over a circle indicates that the chemical is an oxidizer.**
- **Images of a tree and fish indicate that the chemical is an environmental hazard and has "aquatic toxicity".**
- **And the image of a "skull and crossbones" tells workers that the chemical is "acutely toxic" and that exposure can be toxic or even fatal.**
- **There is one important exception to having to use GHS labels.**
  - Companies can still use other labeling systems to label "in-house" containers.
  - But these "alternative workplace labels" must contain all the information that is required by the GHS system.
- **Like the Hazard Communication Standard, the Globally Harmonized System stresses the importance of training employees regarding a number of things, including:**
  - Safety Data Sheets.
  - Container labels.
  - How to protect yourself from chemicals hazards.
  - What to do in case of an incident involving a hazardous chemical.
- **The training requirements that are defined under the OSHA Hazard Communication Standard are still enforced under GHS.**
  - This means that employees must still be trained regarding the hazardous chemicals that they may be exposed to before they start their jobs.
- **Employees must also be given additional training...**
  - When a new chemical is introduced to their work area.
  - If they change jobs and could be exposed to chemicals that they have not previously worked with.

- **Additionally, all employees must undergo periodic "refresher" training to keep their knowledge current.**
- **Realizing that the changes that the GHS makes to the HAZCOM Standard cannot be incorporated overnight, OSHA has given companies a good deal of time to begin using the Globally Harmonized System.**
  - The agency has established a series of "phase-in" dates for various aspects of compliance.
- **Because some manufacturers will begin using GHS Safety Data Sheets and labels fairly quickly, OSHA is requiring that all employees are trained regarding these materials by December 1, 2013.**
- **By June 1st 2015, companies must be in compliance with all of the provisions that the GHS adds to the HAZCOM Standard.**
  - Except that chemical distributors can continue ship containers of chemicals labeled with "old" types of warning labels until December 1st of that year.
- **By June 1, 2016 users of potentially hazardous chemicals must have updated any "alternative workplace labeling" that they are using, as well as incorporated the elements of the GHS into their written Hazard Communication Programs.**
  - They must also have provided employees with any additional training that the employees need about chemicals that have newly identified physical or health hazards based on GHS criteria.
- **During these phase-in times, companies are permitted to use either their current approaches to complying with the HAZCOM Standard or the new, GHS approaches.**

**\*\*\* SUMMARY \*\*\***

- **The Globally Harmonized System standardizes the classification and labeling of chemicals worldwide.**
- **The GHS doesn't replace OSHA's Hazard Communication Standard, it "enhances" the Standard.**
- **The GHS first divides chemicals into "Hazard Classes", then into "Hazard Categories".**
- **"Safety Data Sheets" are much like ANSI Material Safety Data Sheets.**
- **GHS labels use both text and pictograms to transmit hazard information.**
- **All employees who may be exposed to hazardous chemicals must be trained on how to use GHS Safety Data Sheets and Labels.**
- **The Globally Harmonized System will make working with chemicals easier for everyone... and help all of us to go home safe and sound at the end of the day!**