

# *D & D Mechanical Contractors*

Haz Comm and The Globally  
Harmonized System (GHS) of  
Classification

*Jeff Weinz*

*OSHA Certified Trainer C0056263*

*October 11, 2020*



# Today's Agenda



**What Is GHS?**



**Major changes to Haz Com (1994)**



**Implementation Timeline**



**Side – By – Side Comparison,  
Original vs. Revised Haz Comm Standard**



Gallagher Bassett Services, Inc.



# What Is GHS?



# What Is The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)?

- The GHS is an **international** system for standardizing and harmonizing the classification and labeling of chemicals. It is a logical and comprehensive approach to:
  - Defining health, physical and environmental hazards of chemicals;
  - Creating **classification** processes that use available data on chemicals for comparison with the defined hazard criteria; and
  - Communicating hazard information, as well as protective measures, on labels and **Safety Data Sheets (SDS)**.



# Why was the GHS developed?

- The global chemical business is more than a **\$1.7 trillion** per year enterprise.
- In the U.S., chemicals are more than a **\$450 billion** business and exports are greater than **\$80 billion** per year.
- A number of classification and labeling systems, each addressing specific use patterns and groups of chemicals, exist at the national, regional and international levels. The existing hazard classification and labeling systems address potential exposure to chemicals in many different types of use settings.
- The extreme swing in how chemicals can be regulated in different countries can be very confusing for employers – and employees.

# How was the GHS developed?

- At the 1992 United Nations Conference on Environment and Development (UNCED), often called the "Earth Summit". The harmonization of classification and labeling of chemicals was one of six program areas that were endorsed by the United Nations General Assembly to strengthen international efforts concerning **the environmentally sound management of chemicals**.
- It was recognized that an internationally harmonized approach to classification and labeling would provide the foundation for all countries to develop comprehensive national programs to ensure the safe use of chemicals.
- This gave birth to the international mandate.....

## International mandate from UNCED Agenda 21, Chapter 19

*"A globally harmonized hazard classification and compatible labelling system, including material safety data sheets and easily understandable symbols, should be available, if feasible, by the year 2000."*

# Haz Comm Integrating GHS

- On March 26, 2012 OSHA published in the Federal Register a final rule revising the Hazard Communication Standard (HCS) to align with GHS.
- OSHA's Hazard Communication Standard brings the United States into alignment with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
- GHS is being implemented throughout the world by countries including Canada, the European Union, China, Australia, and Japan.
- You may hear the previous version of Haz Comm referred to as "HCS1994", while the revised version will be referred to as "HCS 2012".



# Haz Comm Integrating GHS

- OSHA estimates that **over 5 million workplaces** in the United States would be affected by the revised Hazard Communication Standard (HCS).
- These are all those workplaces where employees—a total of approximately 43 million of them—could be exposed to hazardous chemicals.
- Included among these 5 million workplaces are an estimated 90,000 establishments that create hazardous chemicals; these chemical producers employ almost 3 million workers.
- OSHA estimates that the revised HCS will result in the prevention of **43** fatalities and **585** injuries and illnesses (318 non-lost-workday injuries and illnesses, 203 lost-workday injuries and illnesses, and 64 chronic illnesses) annually. The monetized value of this reduction in occupational risks is an estimated \$250 million a year on an annualized basis.

The background of the slide features a large, semi-transparent globe. The globe is rendered in shades of blue and white, with a grid of latitude and longitude lines. The left side of the globe is more prominent, showing the outlines of continents like North and South America. The right side is more faded and blends into the light blue background.

## **Three Major Changes to Haz Comm 1994**

# Three Major Changes to Haz Comm 1994

- 1. Hazard classification:** The definitions of hazard have been changed to provide specific criteria for classification of health and physical hazards, as well as classification of **mixtures**. These specific criteria will help to ensure that evaluations of hazardous effects are consistent across manufacturers, and that labels and safety data sheets are more accurate as a result.
- 2. Labels:** Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided.
- 3. Safety Data Sheets:** Will now have a specified 16-section format.

# Hazard Classification

- **"Classification"** means to:
  1. Identify the relevant data regarding the hazards of a chemical;
  2. Review the data to ascertain the hazards associated with the chemical;
  3. Decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section.

In addition, classification for health and physical hazards includes the determination of the degree of hazard, where appropriate, by comparing the data with the criteria for health and physical hazards.

- **"Hazardous chemical"** means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

# HCS Pictograms and Hazards

## Health Hazard



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

## Flame



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

## Exclamation Mark



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

## Gas Cylinder



- Gases Under Pressure

## Corrosion



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

## Exploding Bomb



- Explosives
- Self-Reactives
- Organic Peroxides

## Flame Over Circle



- Oxidizers

## Environment

(Non-Mandatory)



- Aquatic Toxicity

## Skull and Crossbones



- Acute Toxicity (fatal or toxic)

# Labels

- Under the current Hazard Communication Standard (HCS), the label preparer must provide the identity of the chemical, and the appropriate hazard warnings.
- This may be done in a variety of ways, and the method to convey the information is left to the preparer.
- Under the revised HCS, once the hazard classification is completed, the standard specifies what information is to be provided for each hazard class and category.
- Labels will require the following elements:

2



# 1 Sulfuric Acid

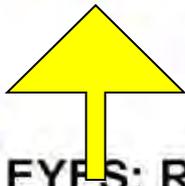
3 **Danger!** May be harmful if swallowed.  
Causes sever skin burns and eye  
4 damage. Fatal if inhaled. Harmful to  
aquatic life.

2



Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

5



IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lens  
CE **pictograms must have red borders.**

In case of fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

See Material Safety Data Sheet for further details regarding safe use of this product.

6 Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA Telephone : +18003255832

1 Product Identifier

4 Hazard Statements

2 Pictograms

5 Precautionary Statements

3 Signal word, "Danger!"

6 Supplier Information

# Labels

Chemical manufacturers, importers, distributors, or employers *who become newly aware of any significant information* regarding the hazards of a chemical shall:

1. Revise the labels for the chemical *within six months of becoming aware* of the new information; and
2. Ensure that labels on containers of hazardous chemicals shipped after that time contain the new information.

# Safety Data Sheets

(no longer “Material”)

- Section 1. Identification
- Section 2. Hazard(s) identification
- Section 3. Composition/information on ingredients
- Section 4. First-Aid measures
- Section 5. Fire-fighting measures
- Section 6. Accidental release measures
- Section 7. Handling and storage
- Section 8. Exposure controls/personal protection
- Section 9. Physical and chemical properties
- Section 10. Stability and reactivity
- Section 11. Toxicological information
- Section 12. Ecological information
- Section 13. Disposal considerations
- Section 14. Transport information
- Section 15. Regulatory information
- Section 16. Other information, including date of preparation or last revision



## Fluorocell™ RET Safety Data Sheet

According to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

<b>1. Identification</b>
<b>1.1 Product Identifier</b> Trade Name: <u>Fluorocell RET</u> Article Number: 0740
<b>1.2 Application of the Substance/Preparation:</b> Chemicals for synthesis
<b>1.3 Manufacturer or Distributor:</b> Sysmex America, Inc., 577 Aptakisic Road, Lincolnshire, IL 60069, 1-800-379-7639
<b>1.4 Emergency Telephone Number:</b> Contact CHEM-TEL at 1-800-255-3924 or 1-813-248-0585 Sysmex's CHEM-TEL # MIS0004042
<b>2. Hazards Identification</b>
<b>2.1 Classification of the Substance or Mixture</b> Classification according to Regulation (EC) No 1272/2008: <div style="margin-top: 10px;">  GHS02 flame                      Flam. Liq. 3 H226 Flammable liquid and vapor                 </div> <div style="margin-top: 10px;">  GHS08 health hazard                      STOT SE 2 H371 May cause damage to organs                 </div> <div style="margin-top: 10px;">  GHS07                      Acute Tox. 4 H302 Harmful if swallowed                      Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects                      Classification according to Directive 67/548/EEC or Directive 1999/45/EC:                     <div style="margin-top: 5px;">  Xn; Harmful                          R20/21/22-68/20/21/22: Harmful by inhalation, in contact with skin and if swallowed.                          Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.                     </div> </div>
<b>Information concerning particular hazards for human and environment:</b>

The product has to be labeled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

**Classification System:**

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

**2.2 Label Elements**

**Labeling according to Regulation (EC) No 1272/2008:**

The product is classified and labeled according to the CLP Regulation

**Hazard pictograms:**



**Signal Word:** Warning

**Hazard-determining Components of Labeling:**

Ethandiol

Methanol

**Hazard Statements:**

H226 Flammable liquid and vapor

H302 Harmful if swallowed

H371 May cause damage to organs

H412 Harmful to aquatic life with long lasting effects

**Precautionary Statements:**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking

P241 Use explosion-proof electrical/ventilating/lighting/equipment

P260 Do not breathe dust/fume/gas/mist/vapors/spray

P280 Wear protective gloves/protective clothing/eye protection/face protection

P240 Ground/bond container and receiving equipment

P233 Keep container tightly closed

P242 Use only non-sparking tools

P273 Avoid release to the environment

P243 Take precautionary measures against static discharge

P264 Wash thoroughly after handling

P270 Do not eat, drink or smoke when using this product

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

# Implementation Timeline



# GHS Timeline

- 1992 United Nations Conference on Environment and Development (UNCED)- GHS endorsed by United Nations General Assembly
- March 11, 1994 – Hazard Communication 1910.1200 published into Federal Register
- September 2009 - OSHA published a Notice of Proposed Rulemaking to update the Hazard Communication Standard
- March 2010 – Public hearings held
- February 12, 2012 - GHS cleared the regulatory review by the White House Office of Management and Budget (OMB)
- March 20, 2012 - Final revised standard published into Federal Register

# Implementation Timeline

- OSHA's final rule requires employers to train employees on the new label elements and safety data sheet format by **December 1, 2013**.
- All other provisions are to be in effect by **June 1, 2015**, with two exceptions.
  - #1, distributors will be given an **extra six months** to ensure all manufacturer labels are updated.
  - #2 all employers will **have an additional year** to ensure that updated workplace signs, hazard communication program, and auxiliary training necessary for newly identified physical or health hazards, are in place.



# Side By Side Comparison

<http://www.osha.gov/dsg/hazcom/side-by-side.html>

# Support Materials

- Copy of this presentation
- Materials from OSHA website:
  - Side-By-Side Comparison HCS 1994 HCS 2012 (GHS)
  - Haz Comm GHS FAQ
  - Hazard Communication Standard Final Rule Fact Sheet
  - OSHA Quick Cards (great for training)
    - Labeling
    - Pictograms
    - Safety Data Sheets

# Things to Do

- Secure support materials
- Begin update/replacement of MSDS files (NOTE: retain old MSDS information for 30 years)
- Develop/deliver/document employee training on the required elements by 12/1/13:
  - New label changes (wording and pictograms)
  - Safety Data Sheet (SDS) content changes
  - Update/amend your existing, new employee Haz Com safety training to meet current requirements

# *Questions ???*

**Jeff Weinz**

*[jweinz@ddmech.com](mailto:jweinz@ddmech.com)*

*804-536-5530*

