

HAZARD COMMUNICATION (HAZ-COM) IS MORE THAN “SDSs” (part 2)

Before the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) was created there were several different regulations on hazard classification in use in different countries, resulting in multiple standards. The estimated amount of international buying and selling of chemicals, is about 2 trillion dollars annually. The cost of compliance with so many different systems became extremely costly and practically unmanageable. Developing of a worldwide standardized system is an opportunity to reduce cost and would improve compliance and give workers information about chemicals they work with.

GHS, is not new, development began at the 1992, by the United Nations (UN), at the Rio Conference on the Environment also called 1992 Earth Summit. Various governments and other private entities agreed that "A globally harmonized system with compatible labelling, easily understandable symbols, revising the Data Sheets, should be available by the year 2000".

In 2002 the Globally Harmonized System was officially developed, and endorsed by the UN. In 2003 the first edition of GHS was published; it was originally referred to as the Purple Book. The Purple Book established hazard classification and explanations on how the system should be implemented.

In 2005, OSHA announced that the Hazard Communication Standard (HCS) was to be updated and it would adopt many of the GHS components. In 2007, the Department of Transportation adopted GHS standards; they were the first United States regulatory agencies the GHS.

In 2012, OSHA officially revised the Hazard Communication Standard to adapt the GHS and adopted new hazardous chemical labeling requirements as a part of its revision of the, 29 CFR 1910.1200 (HCS), As a result, workers will have more information on the safe handling, labeling and use of hazardous chemicals. Implementation of the GHS was planned to take place over four years with key dates being:

- **December 1, 2013:** Employers are required to train employees on how to read GHS formatted labels and safety data sheets.
- **June 1, 2015:** Chemical manufacturers and distributors need to complete hazard reclassification and produce GHS-compliant labels and safety data sheets. Distributors however, have a six-month grace period.
- **December 1, 2015:** Grace period ends, and distributors must fully comply with Hazard Communication Standards.
- **June 1, 2016:** Employers are required to be in full compliance with revised HCS and completely aligned with GHS. This includes training of

employees on new hazards and/or revisions to workplace hazard communication program.

Note: *Employers may discard a material safety data sheet “MSDS”, if the new data sheet “SDS” includes the same hazardous chemical information as the original MSDS formulation. If the formulation on the SDS is different, employers must maintain both data sheets for at least 30 years. OSHA standard, 29 CFR 1910.1020,*

With the implementation of GHS, several changes to the Hazard Communication standard were adapted. The primary changes were:

- SDSs replaced MSDSs
- Signal Words – the word “Caution” is not used in GHS
- Hazard Statements
- 9 Pictograms

Safety Data Sheets “SDS”

Prior to GHS, there was no standardized system for the development of MSDSs; there no specified number or order of sections and there were no radially recognized symbols to communicate hazards. SDSs replaced MSDSs and ushered in a standardized format. SDSs must contain 16 specific sections that must appear in the same order; with the same basic information in each section.

Section 1: Product and Company information

- Includes product identifiers, manufacturer or distributor name, address, phone number, emergency phone number, recommended use, and restrictions on use.

Section 2: Hazards Identification

- Includes all hazards associated with the chemical and required label elements

Section 3: Composition Information

- Includes information on chemical ingredients and trade secret claims

Section 4: First-aid Measures

- Includes important symptoms, effects, acute, delayed or required treatment

Section 5: Fire Fighting Measures

- Includes the suitable extinguishing techniques and equipment
- Chemical reactions as a result of fire

Section 6: Accidental Release Measures

- Includes emergency procedures
- Correct PPE
- Proper methods of clean up and containment

Section 7: Handling and Storage

- Includes precautions for safe handling and storage including incompatibilities

Section 8: Exposure Controls / Personal Protection

Includes:

- OSHA's Permissible Exposure Limits (PEL)
- Threshold Limit Values (TLV)
- Appropriate engineering controls
- Personal Protective Equipment

Section 9: Physical and Chemical Properties

- Includes the Chemical characteristics

Section 10: Stability and Reactivity

- Includes chemical stability and possibility of hazardous reactions

Section 11: Toxicological Information Includes:

- Routes of exposure
- Related symptoms
- Acute and chronic effects
- Numerical measures of toxicity

Section 12: Ecological Information

- Includes information to evaluate the environmental impact if it were released into the environment

Section 13: Disposal Considerations

- Includes guidance on proper disposal practices
- Recycling or reclamation of the chemical or its container
- Safe handling procedures

Section 14: Transport Information

- Includes guidance on classification information for shipping, transporting hazardous chemicals by:
 - Road
 - Air
 - Rail
 - Sea

Section 15: Regulatory Information

- Includes the safety, health and environmental regulations specific for the product that is not indicated anywhere else on the SDS

Section 16: Other Information

- Includes the date of preparation or last revision of the SDS

Signal Words

Signal words help people immediately assess the level of risk associated with a hazardous chemical. There are only two approved GHS signal words that are to be used.

- **“Danger”** is used when the chemical can cause an immediate “acute” serious health risk, including death or long term “chronic” health problems.
- **“Warning”** is used when a prolonged exposure to a chemical result in health issues.

NOTE: The word **“Caution”** is not used as a designated signal word in GHS

Hazard Statements and Precautionary statements

Hazard Statements are used to describe the nature of the chemical hazard and potentially the degree of the hazard. Example: "*Fatal if Swallowed*"










Precautionary Statements are phrase that describes recommended measures that should be taken to prevent adverse effects from exposure to hazardous chemicals or improper storage or handling; for example, "*Avoid breathing – dust/fume/gas/mist/vapors*":

Pictograms

Pictograms are a visual system created to convey information about dangerous chemicals in a way that everyone could understand, regardless of the language they speak. Pictograms are helpful in facilities where employees speak different languages. It is even more important, however, in situations where chemicals are sent to locations throughout the world. Rather than having to put multiple labels on a container, pictograms are ideal way to communicate hazards.

Pictograms are used to alert users of the chemical hazardous that they may come in contact with. They

- Consists of a symbol on a white background surrounded by a red diamond.
- The pictograms are determined by the chemical hazard classification.
- There are 8 pictograms that are required by GHS and 1 that is optional

<p>Health Hazard</p>  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<p>Flame</p>  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<p>Exclamation Mark</p>  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (Harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none"> • Gases Under Pressure 	<p>Corrosive</p>  <ul style="list-style-type: none"> • Skin Corrosion/Burns • Eye Damage • Corrosive to Metals 	<p>Exploding Bomb</p>  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
<p>Flame Over Circle</p>  <ul style="list-style-type: none"> • Oxidizers 	<p>Environment (Non-Mandatory)</p>  <ul style="list-style-type: none"> • Aquatic Toxicity 	<p>Skull and Crossbones</p>  <ul style="list-style-type: none"> • Acute Toxicity (Fatal or Toxic)

GHS Labels

Labels are a simple task that only takes a few minutes if you have an industrial label printer. There is software that will help to create hazard signs, hazard symbols, biohazard symbols, poison symbols, radiation symbols, and many others which makes it reactively easy to print your own labels.

Companies that do not yet have a label printer on site will be able to order pre-made warning symbols that can be used as needed. These premade safety symbols can come as stick on labels.

When printing off custom GHS labels, they should maintain the diamond shape that has the actual image in the middle. In situations where multiple pictograms are needed for one chemical, they should be printed in a diamond shape so up to four different symbols can be placed in one area.

The four-diamond layout standard is a very recognizable part of the overall GHS system. It is possible to make the pictograms larger or smaller based on the amount of space that is available on the container that is being used.

Pipe Labeling / Pipe Marking does not fall directly within the Hazard Communication Standard or in the GHS, however pipe labeling is included in the 29CFR 1910.119 PSM standard.

Staying Compliant with GHS Labeling

In order to be compliant, each and every GHS label on a chemical container must have the same four components:

- a signal word,
- a GHS pictogram,
- a hazard statement,
- and a precautionary statement.

Each of these four components are there to effectively communicate to workers how dangerous the chemical they're handling is, the risk associated and the proper precautions the worker must take when working with that specific chemical.

Safety Data Sheets are another important component, and these sheets are used to communicate specific hazards related to chemicals.

Chemicals play an important part in our business and likewise are a necessary part of many workplace operations. Few workplaces exist where there is not some potential exposure to hazardous chemicals.

Pipe Labeling

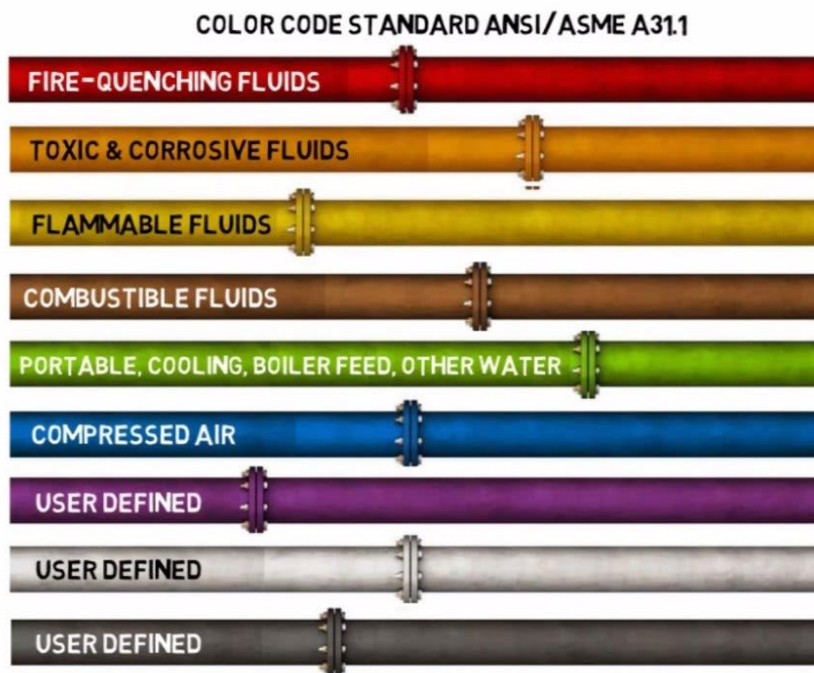
Pipe labeling is not contained in the OSHA 1910.1200 Hazard Communication Standard or the GHS. However, pipe labeling is incorporated by reference in OSHA 1910.119 Process Safety Management, from:

- ANSI – American National Standards Institute and

- ASME – American Society of Mechanical Engineers.

ANSI-A13.1 is a consensus standard adapted by OSHA. It is intended to establish a common system to identify hazardous chemicals conveyed by piping.

“Consensus Standards” are developed with the input of thousands of representatives from companies, government agencies, industry, labor, and trade associations, consumer groups, academics, and others voluntarily participate in the development of standards through the work of approximately 240 voluntary consensus standards bodies accredited by ANSI. The inclusiveness and integrity of the ANS process encourages participation by the broadest range of subject-matter experts, resulting in high-quality standards that protect the public and foster fair commerce and innovation.



When it's all said and done, the primary goal of Haz-Com, GHS, and Labeling, boils down into one word... COMMUNICATION OF HAZARDS. The more workers know about the chemicals they handle, use and store, the better equipped they will be to work safely.

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References:

American National Standards Institute (ANSI) <https://www.ansi.org/>

American Society of Mechanical Engineers (ASME) <https://www.asme.org>

Occupational Safety & Health Administration – OSHA – <https://www.osha.gov>

[Or contact your Safety Manager and/or Safety Consultant.](#)

Stay tuned Part #3:

Hazard Communication at Home. What's Under Your Sink?

Many household chemicals posse the same types of hazards faced in the workplace. However, at home, there is much less training and information about chemicals and the hazards our loved ones are exposed to. Part 3 will take a look at what hazards may be lurking under the sink.