



## Globally Harmonized System (GHS)

The much-anticipated revision to the Occupational Safety and Health Administration's (OSHA's) Hazard Communication Standard (29 Code of Federal Regulations (CFR) 1910.1200) was published in the Federal Register on March 26, 2012 (with an effective date of 60 days thereafter). One of the most significant changes in this revision is OSHA's adoption of the United Nations' Globally Harmonized System (GHS) of Classification and Labeling of Chemicals.

The revised standard, which OSHA is calling HazCom 2012, is expected to affect every U.S. workplace with exposure to hazardous chemicals. These changes will ultimately impact over five million facilities and over 40 million workers. OSHA anticipates the revised standard will prevent 43 fatalities and 521 injuries and illnesses annually, with a net annualized savings of over \$507 million a year.

### History

Since 1985, the Hazard Communication Standard (HCS) has been the primary tool for providing employers and employees with information about the chemical hazards in their workplaces. The performance-orientated standard has allowed chemical manufacturers and importers to convey information on labels and material safety data sheets in whatever format they desire. While the information has been helpful, a more standardized approach to classifying the hazards and conveying the information will more effectively protect workers.

Born out of the United Nations 'Earth Summit' of 1992, GHS is an international approach to the classification of hazardous chemicals and the communication of hazards to workers via labels and safety data sheets. It is not a law; rather it is a system with components that countries can adopt into their own systems. GHS affects everyone in the chemical lifecycle, with special responsibilities for chemical manufacturers and employers that handle, use and store hazardous materials.

### Unchanged Provisions

The parts of the HCS not related to the GHS—basic framework, scope and exemptions—have remained largely unchanged. There have been some minor terminology modifications to align the revised HCS language with that used in the GHS. For example, the term "hazard determination" has been changed to "hazard classification" and "material safety data sheet" (MSDS) has changed to "safety data sheet" (SDS).

### Major Changes

The three major areas of change are hazard classification, labels and safety data sheets.

The definitions of hazard have been changed to provide specific criteria for classification of health and physical hazards and for the classification of mixtures. These will help ensure that evaluations of hazardous effects are consistent across the board and labels and safety data sheets are therefore more accurate.

Chemical manufacturers and importers will be required to provide a harmonized label that has six standardized elements for classified hazards:

- Product Identifier—Must match product identifier on safety data sheet.
- Manufacturer Contact Information—including name, phone number, and address.
- Hazard Pictograms—There are nine pictograms used to convey the health, physical and environmental hazards. HCS requires eight of these pictograms, the exception being the environmental pictogram as environmental hazards are not within OSHA's jurisdiction. These pictograms will have a black symbol on a white background with a red diamond frame (see illustrations below):



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

- Signal Word—Either DANGER or WARNING depending upon hazard severity.
- Hazard Statements—Standardized sentences that describe the level of the hazards.
- Precautionary Statements—Steps employees can take to protect themselves.

OSHA has indicated that it will continue to give employers the flexibility to determine what types of workplace labels will be required. Employers have the ability to choose to label workplace containers either with the same label that the chemical manufacturer or importer used on shipped containers or with alternate labels that meet the requirements of the standard. Safety data sheets (SDS) remain the backbone of HCS. With the revision there is a name and formatting change. The M is dropped from MSDS and more importantly a standardized 16 section format with a required ordering of sections is mandatory. This format is essentially the American National Standard for Hazardous Workplace Chemicals—Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation, ANSI Z400.1/Z129.1-2010. The sections, in order, are:

1. Identification
2. Hazard(s) Identification
3. Composition/Ingredient Information
4. First-Aid Measures
5. Fire-Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Control/Personal Protection
9. Physical & Chemical Properties
10. Stability & Reactivity



- 11. Toxicological Information
- 12. Ecological Information
- 13. Disposal Considerations
- 14. Transport Information
- 15. Regulatory Information
- 16. Other Information

To be compliant, an SDS needs all 16 sections; however, OSHA will not be enforcing sections 12-15, which fall outside their jurisdiction.

**Effective Dates**

Employers must train workers on the new label elements and SDS format by December 1, 2013. Chemical manufacturers, importers, distributors, and employers must comply with all modified provisions of the final rule by June 1, 2015. However, distributors may ship products labeled by manufacturers under the old system until December 1, 2015. By June 1, 2016, employers must update alternative workplace labeling and hazard communication programs as necessary, and provide additional worker training for new identified physical and health hazards.

The table below summarizes the phase-in dates required under the revised Hazard Communication Standard (HCS):

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and safety data sheet (SDS) format.	Employers
June 1, 2015* December 1, 2015	Compliance with all modified provisions of this final rule, except: The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200(the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers



During the transition period, all chemical manufacturers, importers, distributors, and employers may comply with either the current, revised or both 29 CFR 1910.1200 standards.

When HCS first took effect in 1985, employees got the right-to-know what their potential exposure to hazards might be. With this revision, employees not only know about the potential hazards, they also have a better understanding of what the warnings mean, what to do if exposed and how to protect themselves. All employees will be provided with the same information in the same format.

**Q. Are employers required to maintain two sets of labels and safety data sheets during the transition period?**

**A.** No, during the transition period, all chemical manufacturers, importers, distributors, and employers may comply with either the existing HCS or the revised HCS, or both. During this time hazard communication programs may go through a period where labels and safety data sheets under both standards will be present. OSHA considers this acceptable and two sets of labels and safety data sheets are not required.

**Q. Why must training be conducted prior to the compliance effective date?**

**A.** Many countries are in the process of implementing GHS. Therefore, it is possible that workplaces may begin to receive GHS compliant labels and safety data sheets much before December 1, 2015. When employees begin to see the new labels and safety data sheets, they must understand the information that is being provided.

### Sources

OSHA Web Site - <http://www.osha.gov/dsg/hazcom/index2.html>

United Nation's Globally Harmonized System of Classification and Labeling of Chemicals (GHS)–The Purple Book

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