



**US Army Corps  
of Engineers®**

# ENGINEERING AND CONSTRUCTION BULLETIN

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**Subject:** Globally Harmonized System of Classification and Labeling of Chemicals

**Applicability:** Information and Guidance. This document is applicable to US Army Corps of Engineers (USACE) districts with a mission for support and oversight on USACE Construction projects.

**1. Purpose:** The purpose of this document is to provide the necessary information to recognize changes in OSHA's Hazard Communication Standard (HAZCOM) that align with the Globally Harmonized System (GHS) system of chemical hazard information imparted using pictograms and symbols.

## **2. References:**

a. 29 CFR 1926.59 and 1910.1200, Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HAZCOM).

b. Army Regulation (AR) 385-10, "The Army Safety Program," dated 07 November 2008.

c. Army Corps of Engineers Manual (EM) 385-1-1, "Safety and Health Requirements," dated 15 September 2008.

**3. Background:** In 2003, the United Nations published the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) to strengthen international efforts concerning the environmentally sound management of chemicals. The GHS required chemical manufacturers to classify hazardous chemicals and mixtures into physical, health, and environmental hazards. GHS required manufacturers to provide a label that included a harmonized signal word, pictogram, and hazard statement for each hazard class and category.

OSHA adopted the GHS chemical classification and pictogram display for chemical hazards in 2011. OSHA's adoption of the GHS did not change the framework and scope of the Hazard Communication Standard (HAZCOM), but ensured improved quality and consistency in the classification and labeling of all chemicals. The new standard required all individuals who work with, or who could be exposed, to chemicals to be trained in the new safety data sheets and chemical hazard classification system by December 2013. You may already have seen some of the new safety

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data sheets. This document will help you recognize changes in the HAZCOM, but it is not a substitute for the required training.

**4. Hazard Classification:** Two hazard classifications in the GHS, physical hazards and health hazards, are within the scope of OSHA's Hazard Communication Standard, but environmental hazards classification is not a requirement of HAZCOM. Environmental hazard regulation in the US is outside the jurisdiction of OSHA, i.e., the responsibility of the US Environmental Protection Agency. The goal of the GHS is to provide easy to understand information identifying the intrinsic hazards found in chemical substances and mixtures that may pose a health, physical, or environmental hazard during normal handling and use. See the attached table (Table 1) containing the list of OSHA adopted GHS physical hazards and health hazards. View OSHA's HAZCOM – GHS alignment information at <http://www.osha.gov/dsg/hazcom/index.html>.

**5. Labeling:** For labeling purposes, the GHS system has chosen ONLY two words, “Danger” and “Warning”, to inform the chemical user of the severity of the hazard(s) of the chemical. This use of just two signal words has been adopted by OSHA to simplify warning and labeling. The new labeling system consists of seven required elements with three of the seven elements required to be grouped together on the label. The three grouped elements are: 1) Hazard pictograms, 2) Signal words, and 3) Hazard statements. See the attached OSHA Quick Card (Figures 1 and 1.1) for sample HAZCOM labels, pictograms and hazards.

**6. Safety Data Sheets:** Material Safety Data Sheets (MSDS) will be simplified upon implementation of the GHS and are to be referred to as Safety Data Sheets (SDS). A new standardized SDS format will also be implemented to make finding hazard and chemical information on the SDS easier for both the employer and employee. Hazards Not Otherwise Classified (HNOC), include hazards currently covered by the Hazard Communication Standard that have yet to be addressed by the GHS. Such examples are simple asphyxiants or combustible dusts. This information will be required to be included on the Safety Data Sheets in Section 2. Hazard information on the label is not mandatory, but is provided under supplementary information. All hazards must be addressed in worker training. See the attached Quick Card (Figure 2) for the standard SDS format.

**7. Training:** The Hazard Communication Standard is now aligned with the GHS. USACE, in accordance with OSHA 29 CFR 1910.1200, will require training on the GHS to be completed by December 1, 2013 for all employees covered by HAZCOM. Also reference <http://www.osha.gov/Publications/OSHA3642.pdf> for OSHA's Fact Sheet.

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**Table 1**

Physical Hazards
Explosives
Flammable Gases
Oxidizing Gases
Gases Under Pressure
Flammable Liquids
Flammable Solids
Self-Reactive Substances
Pyrophoric Liquids
Pyrophoric Solids
Self-Heating Substances
Substances which, in contact with water, emit flammable gases
Oxidizing Liquids
Oxidizing Solids
Organic Peroxides
Corrosive to Metals

Health Hazards
Acute Toxicity
Skin Corrosion/Irritation
Serous Eye Damage/Eye Irritation
Respiratory or Skin Sensitization
Germ Cell Mutagenicity
Carcinogenicity
Reproductive Toxicology
Target Organ Systemic Toxicity – Single Exposure
Target Organ Systemic Toxicity – Repeated Exposure
Aspiration Toxicity

Figure 1

## OSHA® QUICK CARD™

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### Hazard Communication Standard Labels

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed.

**For more information:**

**Occupational Safety and Health Administration**

(800) 321-OSHA (6742)

[www.osha.gov](http://www.osha.gov)

**SAMPLE LABEL**

**Product Identifier**

CODE \_\_\_\_\_  
 Product Name \_\_\_\_\_

**Supplier Identification**

Company Name \_\_\_\_\_  
 Street Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_  
 Postal Code \_\_\_\_\_ Country \_\_\_\_\_  
 Emergency Phone Number \_\_\_\_\_

**Hazard Pictograms**

**Signal Word**

Danger

**Hazard Statements**

Highly flammable liquid and vapor.  
 May cause liver and kidney damage.

**Precautionary Statements**

Keep container tightly closed. Store in a cool, well-ventilated place that is locked.  
 Keep away from heat/sparks/open flame. No smoking.  
 Only use non-sparking tools.  
 Use explosion-proof electrical equipment.  
 Take precautionary measures against static discharge.  
 Ground and bond container and receiving equipment.  
 Do not breathe vapors.  
 Wear protective gloves.  
 Do not eat, drink or smoke when using this product.  
 Wash hands thoroughly after handling.  
 Dispose of in accordance with local, regional, national, international regulations as specified.

**Supplemental Information**

In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO<sub>2</sub>) fire extinguisher to extinguish.

**First Aid**

If exposed call Poison Center.  
 If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

**Directions for Use**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Supplemental Information**

Fill weight: \_\_\_\_\_ Net Number: \_\_\_\_\_  
 Gross weight: \_\_\_\_\_ Fill Date: \_\_\_\_\_  
 Expiration Date: \_\_\_\_\_

OSHA 3492-02 2012

Figure 1.1

# OSHA<sup>®</sup> QUICK CARD<sup>™</sup>

## Hazard Communication Standard Pictogram

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

### HCS Pictograms and Hazards










<p style="text-align: center;"><b>Health Hazard</b></p> <div style="text-align: center;"></div> <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>	<p style="text-align: center;"><b>Flame</b></p> <div style="text-align: center;"></div> <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>	<p style="text-align: center;"><b>Exclamation Mark</b></p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>
<p style="text-align: center;"><b>Gas Cylinder</b></p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	<p style="text-align: center;"><b>Corrosion</b></p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> <li>• Skin Corrosion/ Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<p style="text-align: center;"><b>Exploding Bomb</b></p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p style="text-align: center;"><b>Flame Over Circle</b></p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<p style="text-align: center;"><b>Environment (Non-Mandatory)</b></p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<p style="text-align: center;"><b>Skull and Crossbones</b></p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>

Figure 2



As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

- Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
- Section 2, Hazard(s) identification** includes all hazards regarding the chemical; required label elements.
- Section 3, Composition/information on ingredients** includes information on chemical ingredients; trade secret claims.
- Section 4, First-aid measures** includes important symptoms/effects, acute, delayed; required treatment.
- Section 5, Fire-fighting measures** lists suitable extinguishing techniques, equipment; chemical hazards from fire.
- Section 6, Accidental release measures** lists emergency procedures; protective equipment; proper methods of containment and cleanup.
- Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.
- Section 8, Exposure controls/personal protection** lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
- Section 9, Physical and chemical properties** lists the chemical's characteristics.
- Section 10, Stability and reactivity** lists 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\*
- Section 13, Disposal considerations\*
- Section 14, Transport information\*
- Section 15, Regulatory information\*
- Section 16, Other information**, includes the date of preparation or last revision.

\*Note: Since other Agencies regulate this information, OSHA will not be primarily responsible for enforcing Sections 12 through 15, (29 CFR 1910.1200(g)(2)).