

# Hazard Communication Training Program for Fabricators & Erectors (including GHS revisions)

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Based on OSHA 1910-1200 Subpart Z

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# Hazard Communication and the Globally Harmonized System (GHS) Overview

- What is GHS
- Why OSHA adopted the GHS
- Overview of the changes to the HazCom Standard
  - Labeling requirements
  - Safety Data Sheets (SDS) format – 16 sections
  - Supplemental Employee Training (to be provided by employer)

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## What is GHS?

Globally Harmonized System of Classification and Labeling of Chemicals is a system for standardizing and harmonizing. It is a logical and comprehensive approach to:

- Defining health, physical and environmental hazards of chemicals;
- 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).

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## Why did OSHA align the HCS with GHS?

- GHS is used in over 65 countries
- A common, coherent approach to classifying and communicating chemical hazards.
  - » Harmonized definitions of hazards
  - » Specific criteria for labels
  - » Harmonized format for safety data sheets

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## Organization of the Final Rule

- |   |                                      |
|---|--------------------------------------|
| a) Purpose                              | g) Safety Data Sheets                |
| b) Scope and Application                | h) Employee Information and Training |
| c) Definitions                          | i) Trade Secrets                     |
| d) Hazard Classification                | j) Effective Dates                   |
| e) Written Hazard Communication Program | Appendices A-F                       |
| f) Labels and Other Forms of Warning    |                                      |

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## Appendices

- Appendix A, Health Hazard Criteria (Mandatory) (NEW)
- Appendix B, Physical Hazard Criteria (Mandatory) (NEW)
- Appendix C, Allocation of Label Elements (Mandatory) (NEW)
- Appendix D, Safety Data Sheets (Mandatory) (NEW)
- Appendix E, Definition of “Trade Secret” (Mandatory)
- Appendix F, Guidance for Hazard Classifications re: Carcinogenicity (Non-Mandatory) (NEW)

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## Notable changes

- “Specification” approach rather than a “Performance-Oriented” approach
  - » “Hazard classification” rather than “hazard determination”
- Labels requirements:
  - » Product identifier
  - » Pictogram
  - » Signal word
  - » Hazard statement(s)
  - » Precautionary statement(s)
  - » Name, address, and telephone number

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## Notable changes, cont.

- “Safety data sheet” (rather than “material safety data sheet”) uses a 16-section format.

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## Labels

### Appendix C

New label elements:

- Symbols called “Pictograms”
- Signal Words
- Hazard Statements
- Precautionary Statements
- Product Identification
- Supplier/Manufacturer Identification

**SAMPLE LABEL**










<b>PRODUCT IDENTIFIER</b> CODE _____ Product Name _____	<b>HAZARD PICTOGRAMS</b> 
<b>SUPPLIER IDENTIFICATION</b> Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	<b>SIGNAL WORD</b> <b>Danger</b>
<b>PRECAUTIONARY STATEMENTS</b> Keep container tightly closed. Store in 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 measure 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.	<b>HAZARD STATEMENT</b> <b>Highly flammable liquid and vapor. May cause liver and kidney damage.</b>
<b>First Aid</b> If exposed call Poison Center. If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.	<b>SUPPLEMENTAL INFORMATION</b> <b>Directions for use</b> _____ _____ Fill weight: _____ Lot Number _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

[www.osha.gov/Publications/HazComm\\_QuickCard\\_Labels.html](http://www.osha.gov/Publications/HazComm_QuickCard_Labels.html)

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## HCS Pictograms and Hazards

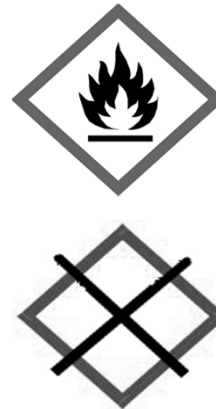
<b>Health Hazard</b>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<b>Flame</b>  <ul style="list-style-type: none"> <li>• Flammables</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 (harmful)</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>

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## Red vs. Black Borders

- OSHA is requiring red borders
- The red borders increase comprehensibility.
- Blank red diamonds are not permitted on a label.
- On SDS's the pictograms are not required but if included they are permitted to have black borders.



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## Labels: Pictograms – Health Hazards



Acute toxicity (Severe)



Acute toxicity (Less Severe):  
Irritant  
Dermal sensitizer  
Acute toxicity (harmful)  
Narcotic effects  
Respiratory tract irritation

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## Labels: Pictograms – Health Hazards (continued)



Skin corrosion  
Serious eye damage/  
Eye irritation




Carcinogen  
Respiratory sensitizer  
Reproductive toxicity  
Target organ toxicity  
Mutagenicity  
Aspiration Hazard


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## Labels: Pictograms – Physical Hazards




Explosives  
Self reactives  
Organic peroxides




Flammables  
Self reactives  
Pyrophorics  
Self heating  
Emits flammable gas  
Organic peroxides

Based on OSHA 1910-1200 Subpart Z 15


## Labels: Pictograms – Physical Hazards (continued)



Corrosive to Metals



Gases under Pressure



Oxidizer

Based on OSHA 1910-1200 Subpart Z 16



## Labels: Signal Word

Indicates the severity of the hazard and alerts employees to the potential hazard.

Only 2 signal words will appear:

- **“DANGER”** (more severe hazard)
- **“WARNING”** (less severe hazard)

Not all labels will have a signal word. Some chemicals are not hazardous enough to require that a signal word appear on the label.

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## Labels: Hazard Statement

Specific hazard statements must appear on the label based on the chemical hazard classification.

Examples:

- Flammable liquid and vapor
- Causes skin irritation
- May cause cancer

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## Label: Precautionary Statements

- Precautionary statements describe *recommended* measures that should be taken to protect against hazardous exposures, or improper storage or handling of a chemical.

### Examples:

- Wear respiratory protection
  - Wash with soap and water
  - Store in a well ventilated place
- 
- Not necessarily a mandate for employees to follow.

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## Label: Other information

Other information that may be included on the label:

- Physical state
- Color
- Hazards not otherwise classified
- Route of exposure
- Storage and disposal
- Hazard prevention and emergency response instructions



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## Label: Sample

Can you identify each label component?

**Pictograms**  
 (Flammable and Acute Toxicity - Severe)

<b>Signal Word</b>	Danger!	<b>Toxic If Swallowed, Flammable Liquid and Vapor</b>	<b>Hazard Statements</b>
Do not eat, drink or use tobacco when using this product. Wash hands thoroughly after handling. Keep container tightly closed. Keep away from heat/sparks/open flame. - No smoking. Wear protective gloves and eye/face protection. Ground container and receiving equipment. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Use only non-sparking tools. Store in cool/well-ventilated place.			
<b>IF SWALLOWED: Immediately call a POISON CONTROL CENTER or doctor/physician. Rinse mouth.</b>			
<b>Precautionary Statements</b> In case of fire, use water fog, dry chemical, CO <sub>2</sub> , or "alcohol" foam.			
<b>Supplemental Information</b>		See Safety Data Sheet for further details regarding safe use of this product.	
MyCompany, MyStreet, MyTown NJ 00000, Tel: 444 966 6666			<b>Supplier Identification</b>

Based on OSHA 1910-1200 Subpart Z 21

## Label Example

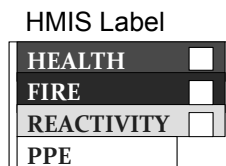
New style Label (GHS)

Xyz... Chemical

Based on OSHA 1910-1200 Subpart Z 22

## Labels: Secondary containers

- Secondary labeling systems are still permitted
- Must be consistent with the revised Haz Com standard
- No conflicting hazard warnings or pictograms.
- May use written materials (e.g., signs, placards, etc.) in lieu of affixing labels to individual stationary process containers.
- Employer can use GHS compliant labels (same as shipping).



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## Workplace Labeling

- OSHA is maintaining the approach used in the current HCS that allows employers to use workplace-specific labeling systems as long as they provide the required information.
- However, such workplace label systems may need to be updated to make sure the information is consistent with the new classifications.
- NFPA/HMIS Systems
  - » (ratings systems v. classification)

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## Label Example



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## Label: Identification

- Product identification (i.e. name of product)
- Supplier identification:
  - Address
  - Telephone number



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## Safety Data Sheets

### HazCom 1994

- Specifies what information is required, but chemical manufacturer or importer can use whatever format or order of information they want.

### HazCom 2012

- Mandates 16-section SDS headings, order of information, and what information is to be provided under the headings.
- Will not enforce sections 12-15 that require information outside OSHA's jurisdiction.

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## 16-Section Safety Data Sheet

1. Identification of the substance or mixture and of the supplier
2. Hazards identification
3. Composition/information on ingredients Substance/Mixture
4. First aid measures
5. Firefighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological
12. *Ecological information (non mandatory)*
13. *Disposal considerations (non mandatory)*
14. *Transport information (non mandatory)*
15. *Regulatory information (non mandatory)*
16. Other information including information on preparation and revision of the SDS

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# Appendix D

- Specifies the minimum information to be included in each of the 16 sections.
- Most significant revision in this information are in the final rule:
  - » ACGIH TLVs to be required on the SDS.

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## SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, ISO 11014-1 and ANSI Z400.1

Page:1(4)  
 SDS number:1080/02  
 Date:2009-03-11  
 Product:OK Flux 10.61

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### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: OK Flux 10.61  
 Application: Arc Welding  
 Classification(s): EN 760; SA FB 1 65 DC  
 Supplier: ESAB AB, Box 8004, 402 77 Göteborg, Sweden. sds.esab@esab.se  
 Telephone no.: +46 31 509000  
 Web site: www.esab.com

### 2. HAZARDS IDENTIFICATION

**Emergency Overview:** Granules in varying colours. This product is normally not considered hazardous as shipped. Gloves should be worn when handling to prevent contaminating hands with product dust.

This product contains quartz, but normally not in an inhalable fraction. Quartz can cause silicosis and may cause cancer. Avoid eye contact or inhalation of dust from the product. Skin contact is normally no hazard but should be avoided to prevent possible allergic reactions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device.

When this product is used in a welding process, the most important hazards are welding fumes, heat, radiation and electric shock.

**Fumes:** Welding fumes are normally not a hazard with submerged arc welding, unless the arc burns through the flux bedding. Use enough flux to avoid burn-through. Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait.

**Heat:** Spatter and melting metal can cause burn injuries and start fires.

**Radiation:** Arc rays can severely damage eyes or skin.

**Electricity:** Electric shock can kill.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is an agglomeration of calcined minerals.

Flux Ingredients	Weight %	CAS#	EINECS#	Hazard class <sup>1)</sup>	IARC <sup>2)</sup>	NTP <sup>3)</sup>	OSHA List <sup>4)</sup>
Aluminum oxide	10-15	1344-28-1	215-491-6	No	-	-	-
Aluminum silicate	2-5	12141-46-7	235-253-8	No	-	-	-
Fluorides	20-30	7789-75-5	232-188-7	No	-	-	-
Iron oxide	2-5	1309-37-1	215-168-2	No	-	-	-
Magnesium oxide	30-40	1309-48-4	215-171-9	No	-	-	-
Manganese	<1	7439-96-5	231-105-1	No	-	-	-
Quartz	5-10	14808-60-7	238-878-4	T; R45	1	K	-
Silicates	2-5	1344-09-8	215-661-4	No	-	-	-

(1) Hazard Classification according to European Council Directive 67/548/EEC, for R-phrases see Section 16.  
 (2) Evaluation according to the International Agency for Research on Cancer: 1-Carcinogenic to humans, 2A-Probably carcinogenic to humans, 2B-Possibly carcinogenic to humans.  
 (3) Classification according to the 11th Report on Carcinogens, published by the US National Toxicology Program. K- Known to be a Human Carcinogen, S- Suspect Carcinogen.  
 (4) Carcinogen listing according to OSHA, Occupational Safety & Health Administration (USA)

### 4. FIRST AID MEASURES

**Inhalation:** If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.

**Eye contact:** For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.

**Skin contact:** For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles wash with mild soap and water.


**Electric shock:** Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician.

**General:** Move to fresh air and call for medical aid.

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## SAFETY DATA SHEET

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**5. FIRE FIGHTING MEASURES**

No specific recommendations for welding consumables. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation. Wear self-contained breathing apparatus as fumes or vapors may be harmful.

**6. ACCIDENTAL RELEASE MEASURES**

Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.  
 Personal precautions: refer to section 8.  
 Environmental precautions: refer to section 13.

**7. HANDLING AND STORAGE**

**Handling:** Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identify labels.

**Storage:** Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust.

**Engineering measures:** Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Keep working place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.

**Personal protective equipment:** Use respirator or air supplied respirator when welding or brazing in a confined space, or where local exhaust or ventilation is not sufficient to keep exposure values within safe limits. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry.

Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance. Unless

noted, all values are for 8 hour time weighted averages (TWA). For information about welding fume analysis refer to Section 10.

Substance	CAS#	ACGIH TLV <sup>1</sup> mg/m <sup>3</sup>	OSHA PEL <sup>2</sup> mg/m <sup>3</sup>
Aluminum oxide	1344-28-1	1 <sup>***</sup>	15 <sup>2</sup> ; 5 <sup>***</sup>
Aluminum silicate	12141-46-7	1 <sup>***</sup>	15 <sup>2</sup> ; 5 <sup>***</sup>
Fluorides	7789-75-5	2.5(F)	2.5(F)
Iron oxide	1309-37-1	5 <sup>***</sup>	10(f)
Magnesium oxide	1309-48-4	10 <sup>***</sup>	15 <sup>2</sup>
Manganese	7439-96-5	0.2	5(ceil)
Quartz	14808-60-7	0.025 <sup>***</sup>	10mg/m <sup>3</sup> (%SiO <sub>2</sub> +2) <sup>***</sup>
Silicates	1344-09-8	-	-

(1) Threshold Limit Values according to American Conference of Governmental Industrial Hygienists, 2009  
 (2) Permissible Exposure Limits according to the Occupational Safety & Health Administration (USA).  
 (3) \*Total dust, \*\*Respirable fraction, \*\*\*Inhalable fraction (f) fume, (d) dust, (m) mist, (ceil) ceiling.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** Granules, non-volatile with varying color  
**Melting point:** >1000°C / >1800°F


**10. STABILITY AND REACTIVITY**

**General:** This product is only intended for normal welding purposes.  
**Stability:** This product is stable under normal conditions.  
**Reactivity:** Contact with chemical substances like acids or strong bases could cause generation of gas.

When this product is used in a welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in section 3 and those from the base metal and coating.  
 Fumes are normally not generated in submerged arc welding, provided that a sufficient flux bedding is used to prevent the arc from burning through. If the arc burns through the flux bedding, reasonably expected fume constituents of this product would include fluorides and oxides of metals such as iron, manganese, magnesium, sodium, aluminum and silicon.  
 Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 8. Manganese has a low exposure limit, in some countries, that may be easily exceeded.  
 Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

Based on OSHA 1910-1200 Subpart Z

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## SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, ISO 11014-1 and ANSI Z400.1

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**11. TOXICOLOGICAL INFORMATION**

Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

**Acute toxicity:** Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.

**Chronic toxicity:** Overexposure to welding fumes may affect pulmonary function. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait. Inhalable quartz is a respiratory carcinogen however the process of welding converts crystalline quartz to the amorphous form which is not considered to be a carcinogen.

**12. ECOLOGICAL INFORMATION**

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

**13. DISPOSAL CONSIDERATIONS**

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations. Use recycling procedures if available.  
 USA RCRA: This product is not considered hazardous waste if discarded.  
 Residues from welding consumables and processes could degrade and accumulate in soils and groundwater.

**14. TRANSPORT INFORMATION**

No international regulations or restrictions are applicable.

**15. REGULATORY INFORMATION**

Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.  
**WARNING:** Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation.

**ELECTRIC SHOCK** can kill.  
**ARC RAYS** and **SPARKS** can injure eyes and burn skin.  
 Wear correct hand, head, eye and body protection.

**Canada:** WHMIS classification: Class D; Division 2, Subdivision A  
 Canadian Environmental Protection Act (CEPA): All constituents of this product are on the Domestic Substance List (DSL).

**USA:** Under the OSHA Hazard Communication Standard, this product is considered hazardous.  
 This product contains or produces a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et seq.) United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.  
**CERCLA/SARA Title III**  
 Reportable Quantities (RQs) and/or Threshold Planning Quantities (TPQs):

Ingredient name	RQ (lb)	TPQ (lb)
No ingredients listed in this section		

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to your Local Emergency Planning Committee.

**Section 311 Hazard Class**

As shipped: Immediate  
 In use: Immediate delayed

**EPCRA/SARA Title III 313 Toxic Chemicals**  
 The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA 313 reporting. See Section 3 for weight percent.

Ingredient name	Disclosure threshold
Manganese	1.0% de minimis concentration

**16. OTHER INFORMATION**

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format. This SDS supersedes... 1080/01.

Based on OSHA 1910-1200 Subpart Z

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## Employee Information and Training

### HazCom 1994

- “Right to Know”
  - Employees need to know the information on the chemicals are available and how to get the information on the hazards involved.

### HazCom 2012

- “Right to Understand”
  - Employees need to understand and identify the hazards related to a chemical by pictogram and reading the label on the product.

Based on OSHA 1910-1200 Subpart Z

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## Employee Information and Training

### HazCom 1994

- Requires employee information and training before a worker is exposed to the hazardous chemicals in the workplace, and whenever the hazard changes.

### HazCom 2012

- Clarifies that the labels on shipped containers and workplace labels must be explained, as well as SDS format.
- Workers will have to be trained on the new label and SDS formats before all the provisions of the rule are effective.

Based on OSHA 1910-1200 Subpart Z

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## Training

- Employers shall train employees regarding the new label elements and safety data sheets format by December 1, 2013.

Based on OSHA 1910-1200 Subpart Z

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## Training, cont.

- Label elements
  - » Train employees on the type of information that the employee would expect to see on the new labels.
  - » How they might use that information.
    - Product identifier, Signal word, Hazard statement(s), Pictogram(s), Precautionary statement(s), and Name, address and phone number of the responsible party.
  - » General understanding how the elements interact.
    - For example, explain there are two signal words: Danger means a more severe hazard within a hazard class. Warning is for the less severe hazard
- Safety Data Sheet Format
  - » Train the employees on the standardized 16 section format and the type of information they would find in the various sections.

Based on OSHA 1910-1200 Subpart Z

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## Supplemental Employee Training

### Details of the **facility specific** hazard communication program:

- Location and availability of written program and SDSs
- Physical hazards, health hazards and hazards not otherwise classified (HNOC) of the chemicals in the work area
- Chemical list, location and use of hazardous chemicals
- Secondary container labeling system
- Specific procedures to protect employees from the chemical hazards
- Methods used to detect the presence or release of hazardous chemicals (sensor alarms, odors, visual other monitoring devices)

Based on OSHA 1910-1200 Subpart Z

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## Effective Dates and Requirements

Effective Completion Date	Requirement(s)	Responsible Party
December 1, 2013	Train employees on the new label elements and SDS format	Employers
June 1, 2015	Compliance with all modified provisions of the final rule except:	Chemical manufacturers, importers, distributors, and employers
December 1, 2015	The distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Distributor
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified hazards [and affected vertical standard specific signage]	Employer
Transition Period: 10/2012 to the effective completion dates noted above	Comply with either 29 CFR 1910.1200 (this final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers

Based on OSHA 1910-1200 Subpart Z

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## Other Affected Standards

Based on OSHA 1910-1200 Subpart Z

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## Health Standards

- The substance-specific standards generally pre-date the HCS, and do not have a comprehensive approach to hazard communication.
- The final rule references HazCom 2012 in each of these standards to ensure they have all the protections of the rule.
- In addition, OSHA updated the provisions regarding what is to be communicated to workers to ensure the health effects are consistent with the GHS criteria.
- Regulated area signs will need to be updated to reflect the new language.
- Employers have until June 1, 2016 to update the signs.

Based on OSHA 1910-1200 Subpart Z

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## Substance-Specific Health

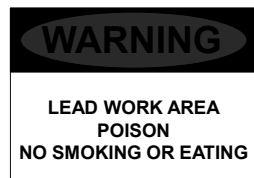
Standard	Substance	Original signs	Final Changes
1910.1001 1915.1001	Asbestos Regulated areas Where the use of respirators and protected clothing is required	DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA	DANGER ASBESTOS MAY CAUSE CANCER CAUSES DAMAGE TO LUNGS AUTHORIZED PERSONNEL ONLY WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

Based on OSHA 1910-1200 Subpart Z

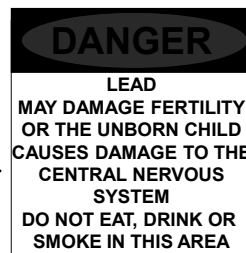
41

## Other Standards Affected - Signage Requirements

- Asbestos
- Carcinogens
- Vinyl Chloride
- Inorganic Arsenic
- Lead
- Chromium (VI)
- Benzene
- Coke Oven Emissions
- Acrylonitrile
- Ethylene Oxide
- Formaldehyde
- Methylenedianiline
- 1,3-Butadiene
- Methylene Chloride



New Sign  
"LEAD"



Based on OSHA 1910-1200 Subpart Z

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## Health Standards

- Asbestos (1910.1001; 1926.1101; 1915.1001)
- 13 Carcinogens (1910.1003)
- Vinyl Chloride (1910.1017)
- Inorganic Arsenic (1910.1018)
- Lead (1910.1025; 1926.62)
- Chromium (VI) (1910.1026; 1926.1126; 1915.1026)
- Cadmium (1910.1027; 1926.1127)
- Benzene (1910.1028)
- Coke Oven Emissions (1910.1029)
- Cotton Dust (1910.1043)
- 1,2-dibromo-3-chloropropane (1910.1044)
- Acrylonitrile (1910.1045)
- Ethylene Oxide (1910.1047)
- Formaldehyde (1910.1048)
- Methylenedianiline (1910.1050; 1926.60)
- 1,3-Butadiene (1910.1051)
- Methylene Chloride (1910.1052)
- Occupational exposure to hazardous chemicals in laboratories (1910.1450)

Based on OSHA 1910-1200 Subpart Z

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## Safety Standards

- OSHA updated a number of safety standards to be consistent with the criteria in the HazCom 2012.
- The manner in which this was done depended on the provisions of the standard being considered, and approaches varied.
- In some cases, it was decided that changes could not be made at this time given the source of the standard or other constraints.
- OSHA sought to minimize the impact on the scope or substantive provisions of the standards that were updated.

Based on OSHA 1910-1200 Subpart Z

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## Safety Standards

- Flammable Liquids (1910.106; 1926.52)
- Spray finishing using flammable and combustible materials (1910.107)
- Process safety management of highly hazardous chemicals (1910.119; 1926.64)
- Hazardous waste operations and emergency response (1910.120; 1926.65)
- Dipping and coating operations: Coverage and definitions (1910.123)
- General requirements for dipping and coating operations (1910.124)
- Additional requirements for dipping and coating operations that use flammable liquids or liquids with flashpoints greater than 199.4 °F (93 °C) (1910.125)
- Welding, Cutting, and Brazing (1910.252)

Based on OSHA 1910-1200 Subpart Z

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## The Workplace by December 1, 2013

- For Employers
  - » Initial employee training on the label elements
  - » Initial employee training on identifying hazards by use of Pictograms and Signal Words
  - » Minimal training on new SDS format
  - » Continue to maintain the updated SDSs
  - » Review current hazard communication program and update as necessary

Based on OSHA 1910-1200 Subpart Z

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## Guidance & Outreach

- Press Release: US Department of Labor's OSHA publishes final rule to update the Hazard Communication Standard (HCS)
- Guidance
  - » OSHA Briefs
  - » Fact Sheet
  - » Quick Cards



### 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, in silver on the right. Supplemental information can also be provided on the label as needed.



### Hazard Communication Safety Data Sheets




The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as the hazards of hazardous chemical products). 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.



### 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.

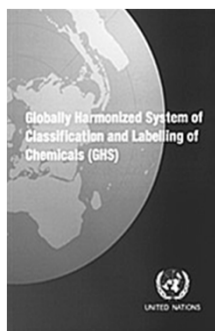
#### HCS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark
 <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>	 <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>	 <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>

Based on OSHA 1910-1200 Subpart Z

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## UN GHS Links & Information



- United Nations Economic Commission for Europe GHS Subcommittee
- [http://www.unece.org/trans/danger/publi/ghs/ghs\\_welcome\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html)

Based on OSHA 1910-1200 Subpart Z

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## OSHA Hazard Communication Globally Harmonized System (GHS)

### OSHA QUICK CARD 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 hazard within a red border and is presented in a diamond shape. The pictogram on the label is determined by the chemical hazard classification.

Health Hazard	Flame	Explosive Bomb
<ul style="list-style-type: none"> <li>Corrosive</li> <li>Flammable Gases</li> <li>Flammable Liquids</li> <li>Flammable Solids</li> <li>Acute Toxic</li> </ul>	<ul style="list-style-type: none"> <li>Flammable</li> <li>Highly Flammable</li> <li>Extremely Flammable</li> </ul>	<ul style="list-style-type: none"> <li>Explosive</li> <li>Highly Explosive</li> <li>Organic Peroxide</li> </ul>

For more information:  
**OSHA** Administration of Occupational Safety and Health  
 2000 L Street, NW  
 Washington, DC 20548  
 www.osha.gov

### OSHA QUICK CARD Hazard Communication Standard Labels

OSHA has updated the requirements for labeling of hazardous materials under the 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:  
**OSHA** Administration of Occupational Safety and Health  
 2000 L Street, NW  
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### OSHA DATOS RÁPIDOS Pictogramas para la norma sobre la comunicación de peligros

A partir del 1° de junio de 2015, la norma de comunicación de peligros (HCS) requerirá pictogramas en las etiquetas para advertir a los usuarios de los peligros químicos a los que pueden estar expuestos. Cada pictograma representa un peligro definido y consiste en un símbolo sobre un fondo blanco presentado con un borde rojo. La clasificación del peligro químico determina el pictograma que muestra en la etiqueta.

Peligro por salud	Flama	Esfera de explosión
<ul style="list-style-type: none"> <li>Corrosivo</li> <li>Flamable Gases</li> <li>Flamable Líquidos</li> <li>Flamable Sólidos</li> <li>Toxicidad Aguda</li> </ul>	<ul style="list-style-type: none"> <li>Flamable</li> <li>Altamente Flamable</li> <li>Extremadamente Flamable</li> </ul>	<ul style="list-style-type: none"> <li>Explosivo</li> <li>Altamente Explosivo</li> <li>Peroxido Orgánico</li> </ul>

Para más información:  
**OSHA** Administración de Seguridad y Salud en el Trabajo  
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 Washington, DC 20548  
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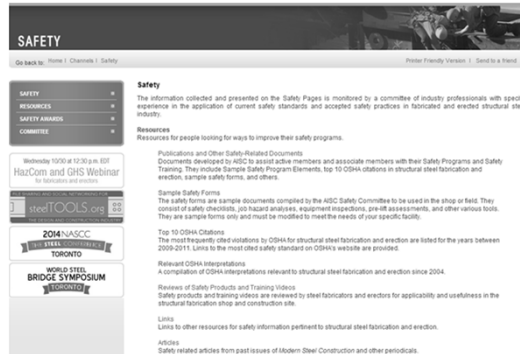
Based on OSHA 1910-1200 Subpart Z 49

Any questions?  
 THANK YOU!

Based on OSHA 1910-1200 Subpart Z

## Safety Resources

- AISC Safety Website – [www.aisc.org/safety](http://www.aisc.org/safety)
- Sample Safety Program Elements
- Safety Awards Program
- Sample Safety Forms
- Top 10 OSHA Citations
- OSHA Interpretations
- Safety Product Reviews
- Safety Details or 'Tool Box Talks'
- Daily Safety Focus
- And more



## Future Safety Webinars

The next webinar topic will be on welding safety and it is in development for a January/February broadcast.

We select safety webinar topics based on feedback provided by webinar participants. If you would like to see a certain topic presented in the future, make sure to respond to the feedback survey and also receive a free laminated GHS poster delivered to the address you provided during registration.

