

Hazard Communication - Module 4

Special Warehouse
Worker Hazards
in Structural Steel
Fabricating and
Supply Companies

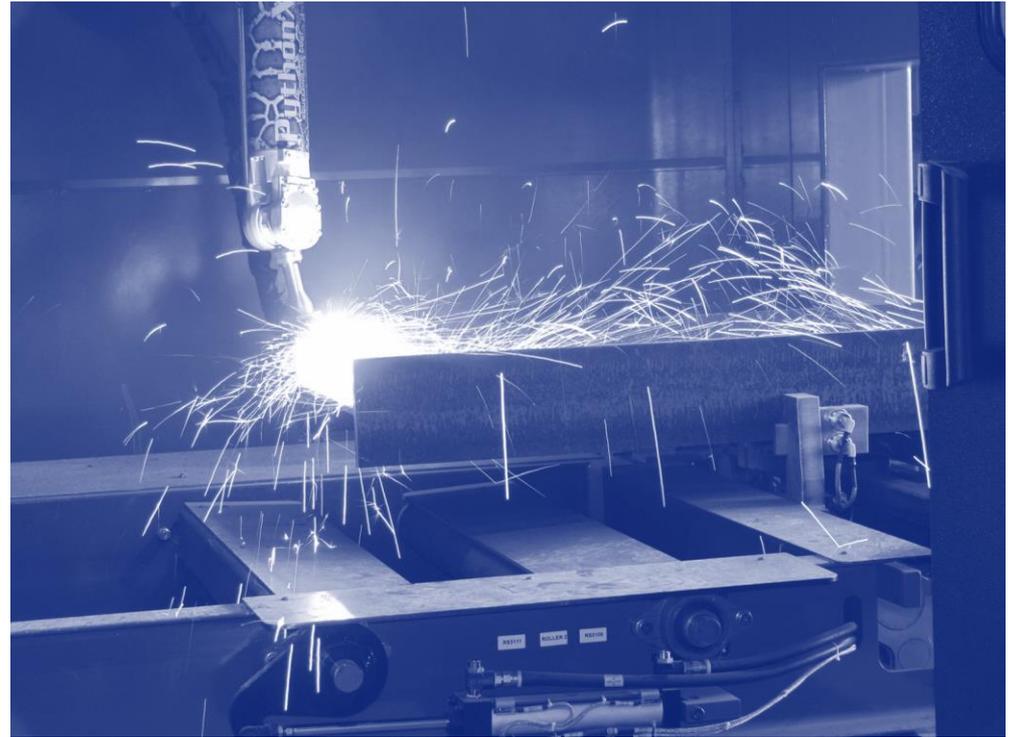


Photo from Douglas Steel Fabricating Corporation

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OSHA Grant Information

This material was produced under grant number SH-26316-SH4 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trades names, commercial products, or organizations imply endorsement by the U.S. Government.

Hazard Communication – Module 4

Program Development

This program was developed by faculty and students in the School of Planning, Design and Construction at Michigan State University in conjunction with the American Institute of Steel Construction - Safety Committee and the University of Puerto Rico

March 2015

MICHIGAN STATE

UNIVERSITY



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Learning Outcomes: Participants shall be able to:

- Demonstrate an understanding of what information is found in an SDS
- Demonstrate an understanding of how to navigate an SDS to locate information
- Demonstrate an understanding of “pictograms”
- Demonstrate an understanding of requirements for secondary containers

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Content Overview

- ❑ Hazard Communication and the Globally Harmonized System (GHS)
- ❑ What is GHS?
- ❑ Overview of the changes to the HazCom Standard
 - ❑ Labeling requirements
 - ❑ Safety Data Sheets (SDS) format – 16 sections
 - ❑ Pictograms
 - ❑ Secondary containers

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OSHA publishes a helpful guide for small entities on hazard Communication

OSHA 3695-03 2014



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Hazard Communication Requirements

- ❑ “OSHA’s HCS, 29 CFR 1910.1200, addresses the informational needs of employers and workers with regard to chemicals.” OSHA 3695-03 2014

- ❑ *“(b)(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.”*

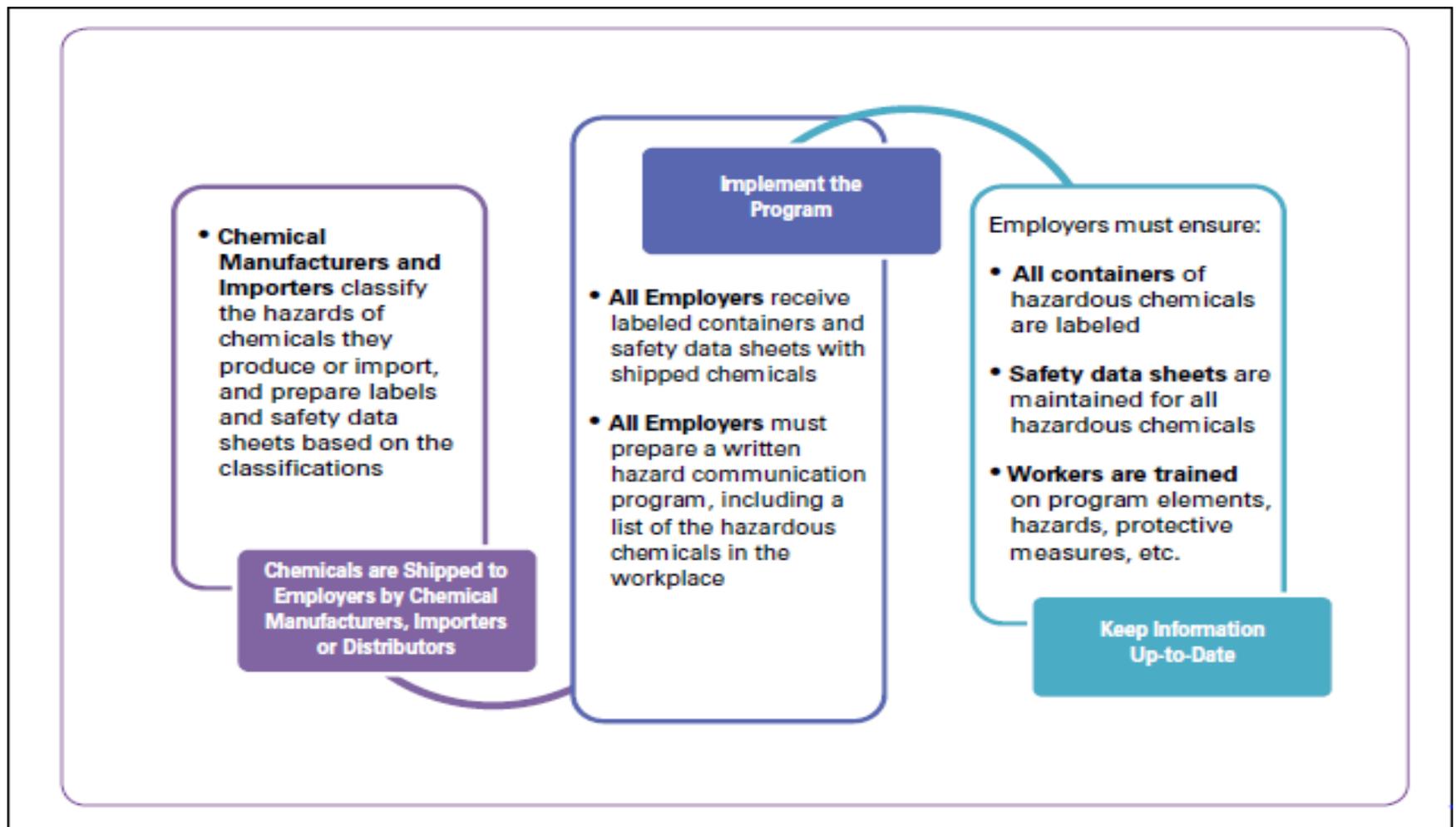
29 CFR 1910.1200

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What is GHS?

- ❑ The Globally Harmonized System of Classification and Labeling of Chemicals
- ❑ A system for standardizing and harmonizing the classification and labeling of chemicals.
 - ❑ Defining health, physical, and environmental hazards of chemicals
 - ❑ Creating classification processes that use available data on chemicals for comparison with the defined hazard criteria
 - ❑ Communicating hazard information, as well as protective measures, on labels and Safety Data Sheets (SDS)

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Employee Information and Training:

HazCom 1994

“Right to Know”

- ☐ Employees need to know the information on the chemicals is 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

[Source: Hazard Communication and the Globally Harmonized System \(GHS\) for Fabricators and Erectors Webinar:](http://www.aisc.org/content.aspx?id=35368)
<http://www.aisc.org/content.aspx?id=35368>

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HazCom 2012- Employee Information and Training:

- ❑ Clarifies that the labels on shipped containers and workplace labels must be explained, as well as SDS format
- ❑ Workers are required to be trained on the new label and SDS formats before all the provisions of the rule are effective
- ❑ Employers were required to train employees regarding the new label elements and Safety Data Sheets format by December 1, 2013

Source: Hazard Communication and the Globally Harmonized System (GHS) for Fabricators and Erectors Webinar:
<http://www.aisc.org/content.aspx?id=35368>

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Training details:

- 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

Source: [Hazard Communication and the Globally Harmonized System \(GHS\) for Fabricators and Erectors Webinar](http://www.aisc.org/content.aspx?id=35368):
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Training details – continued:

- ❑ General understanding of how the elements interact
- ❑ For example - explain there are 2 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.

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Content

- ❑ “Safety Data Sheet” (rather than “Material Safety Data Sheet”) uses a 16-section format.

Labels

- ❑ There are several label elements:
 - ❑ Symbols called “Pictograms”
 - ❑ Signal Words
 - ❑ Hazard Statements
 - ❑ Precautionary Statements
 - ❑ Product Identification
 - ❑ Supplier/Manufacturer Identification

SAMPLE LABEL	
<p>PRODUCT IDENTIFIER</p> <p>CODE _____ Product Name _____</p>	<p>HAZARD PICTOGRAMS</p> <p></p>
<p>SUPPLIER IDENTIFICATION</p> <p>Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____</p>	<p>SIGNAL WORD</p> <p>Danger</p>
<p>PRECAUTIONARY STATEMENTS</p> <p>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. Dispoae of in accordance with local, regional, national, international regulations as specified.</p> <p>In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO₂) fire extinguisher to extinguish.</p> <p>First Aid If exposed call Poison Center. If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.</p>	<p>HAZARD STATEMENT</p> <p>Highly flammable liquid and vapor. May cause liver and kidney damage.</p> <p>SUPPLEMENTAL INFORMATION</p> <p>Directions for use</p> <p>_____</p> <p>_____</p> <p>Fill weight: _____ Lot Number _____</p> <p>Gross weight: _____ Fill Date: _____</p> <p>Expiration Date: _____</p>

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HCS Pictograms and Hazards

<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>Corrosion</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)

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Red-Borders

- Red borders are required
- Red borders increase comprehensibility



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Labels: Pictograms – Health Hazards*



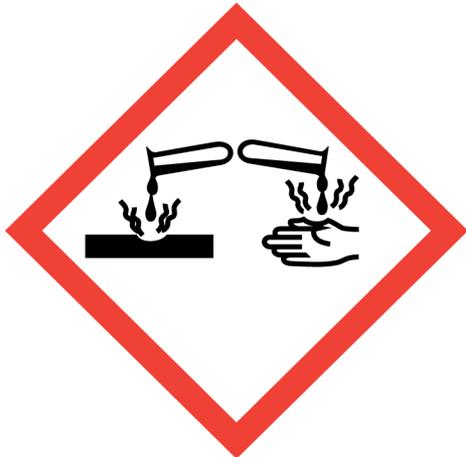
Acute toxicity (Severe)



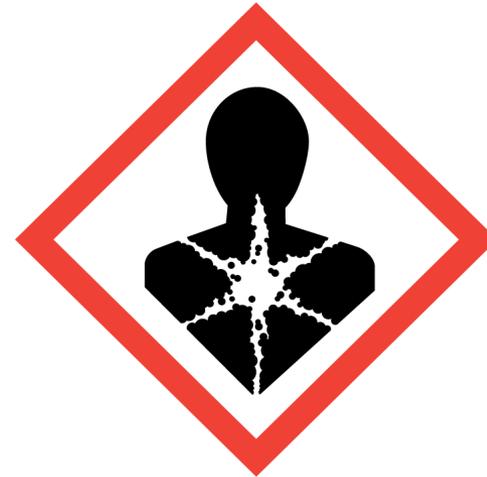
Acute toxicity (Less Severe):
Irritant
Dermal sensitizer
Acute toxicity (harmful)
Narcotic effects
Respiratory tract irritation

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Labels: Pictograms – Health Hazards*



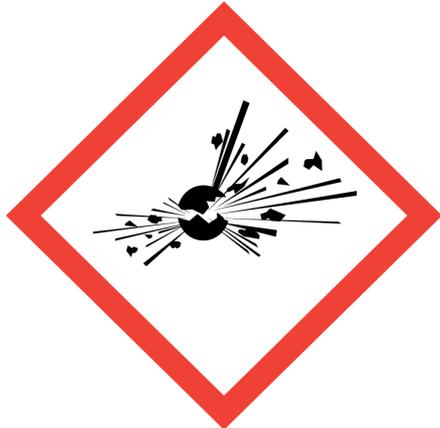
Skin corrosion
Serious eye damage/
Eye irritation
Metal corrosion



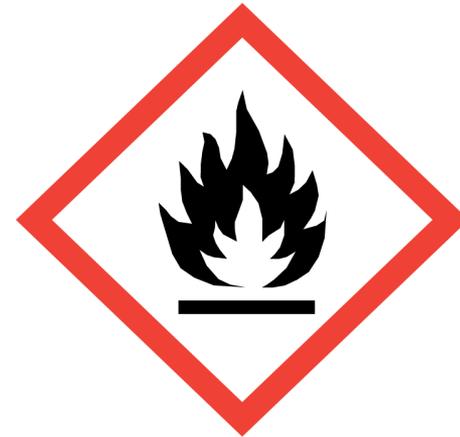
Carcinogen
Respiratory sensitizer
Reproductive toxicity
Target organ toxicity
Mutagenicity
Aspiration hazard

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Labels: Pictograms/ Physical Hazards*



Explosives
Self reactives
Organic peroxides



Flammables
Self reactives
Pyrophorics
Self heating
Emits flammable gas
Organic peroxides

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Labels: Pictograms – Physical Hazards*



Corrosive to Metals



Gases under Pressure



Oxidizer

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Labels: Signal Word*

- These are words used to indicate the severity of the hazard and alert employees to the potential hazard

- Only two 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*

- There are specific hazard statements that 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

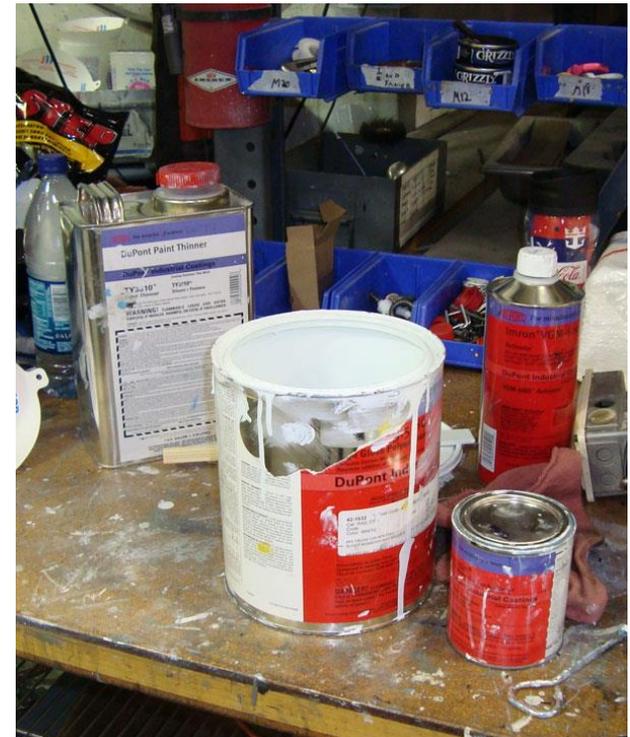
- Not necessarily a mandate for employees to follow

Source: Hazard Communication and the Globally Harmonized System (GHS) for Fabricators and Erectors Webinar:
<http://www.aisc.org/content.aspx?id=35368>

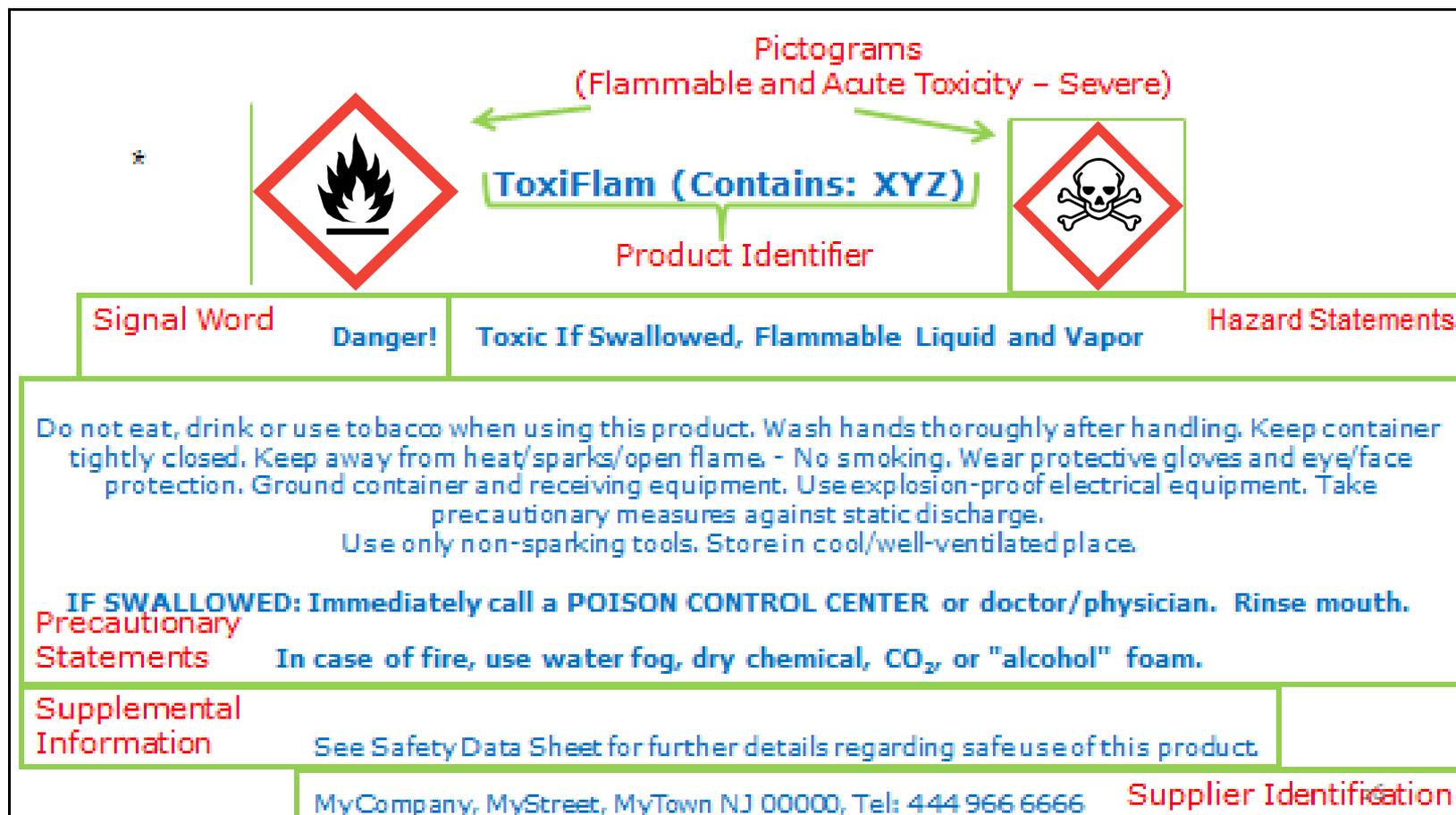
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Label: Other Information*

- 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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*Modified from <https://www.osha.gov/dsg/hazcom/ghs.html>

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Label Example:

New style Label (GHS)

Xyz... Chemical







WARNING
Flammable Liquid and vapor
Harmful if swallowed
May cause damage to organs (liver)
May cause damage to organs through prolonged or repeated exposure (heart)
Suspected of damaging fertility

Keep away from heat, sparks, open flames and hot surfaces - No smoking. Do not breathe vapors. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use protective equipment as required. Wear protective gloves and eye protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Keep container tightly closed. Ground container and receiving equipment. Use explosion-proof electrical, ventilating, lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Store locked up in a well ventilated place. Keep cool. Dispose of contents and container in accordance with local, state and federal regulations.

First Aid:
If swallowed: Call a doctor if you feel unwell, Rinse mouth.
If on skin or hair: Remove immediately all contaminated clothing. Rinse skin with water.
If exposed or if you feel unwell: call a doctor.

Fire:
In case of fire: Use water spray foam, dry chemical or carbon dioxide (CO₂) for extinction

GHS Company, 123 Global Drive, Cincinnati, OH

telephone (800) 555-8888

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Labels: Secondary containers*

- ❑ Secondary labeling systems are still permitted
- ❑ Must be consistent with the revised HazCom 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)

HMIS Label



NFPA Label



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Workplace Labeling*

- ❑ The current HCS 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*

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Label Example:

New style Label (GHS)

Xyz... Chemical

WARNING
Flammable Liquid and vapor
Harmful if swallowed
May cause damage to organs (liver)
May cause damage to organs through prolonged or repeated exposure (heart)
Suspected of damaging fertility

Keep away from heat, sparks, open flames and hot surfaces - No smoking. Do not breathe vapors. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use protective equipment as required. Wear protective gloves and eye protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Keep container tightly closed. Ground container and receiving equipment. Use explosion-proof electrical, ventilating, lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Store locked up in a well ventilated place. Keep cool. Dispose of contents and container in accordance with local, state and federal regulations.

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Label: Identification



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Safety Data Sheets - HazCom 2012

- ❑ Mandates 16-section SDS headings, order of information, and what information is to be provided under the headings
- ❑ Sections 12-15 are non-mandatory

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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

[Hazard Communication and the Globally Harmonized System \(GHS\) for Fabricators and Erectors](http://www.aisc.org/content.aspx?id=35368)

Webinar: <http://www.aisc.org/content.aspx?id=35368>



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

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. ¹	IARC ²	NTP ³	OSHA List ⁴
Aluminum oxide	10-15	1344-28-1	215-691-6	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	215-687-4	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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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 identity 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 ¹ mg/m3	OSHA PEL ² mg/m3
Aluminum oxide	1344-28-1	1**	15*, 5**
Aluminum silicate	12141-46-7	1**	15*, 5**
Fluorides	7789-75-5	2,5(F)	2,5(F)
Iron oxide	1309-37-1	5**	10(f)
Magnesium oxide	1309-48-4	10***	15*
Manganese	7439-96-5	0,2	5(ceil)
Quartz	14808-60-7	0,025**	10mg/m3/(%SiO2+2)**
Silicates	1344-09-8	-	-

(1) Threshold Limit Values according to American Conference of Governmental Industrial Hygienists, 2008

(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.

Source: Hazard Communication and the Globally Harmonized System (GHS) for Fabricators and Erectors Webinar;

<http://www.aisc.org/content.aspx?id=35368>



SAFETY DATA SHEET

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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.

Hazard Communication - Module 4

Supplemental Employee Training*

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

- Location and availability of written program and SDS's
- Physical hazards, health hazards and hazards not otherwise classified (HNOC) of chemicals in 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)

Hazard Communication - Module 4

Final Steps to complete training - Supplemental Training (to be provided by employer)*

- Employers must provide employees with the details of the facility specific hazard communication program:
 - Location and availability of written program and SDSs
 - Specific information related to chemicals in the facility
 - Physical Hazards
 - Health Hazards
 - Hazards not otherwise classified

Hazard Communication - Module 4

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

Source: Hazard Communication and the Globally Harmonized System (GHS) for Fabricators and Erectors Webinar:
<http://www.aisc.org/content.aspx?id=35368>

Hazard Communication - Module 4

Other Effected Standards

- Signage standards are also impacted

Hazard Communication - Module 4

Health Standards

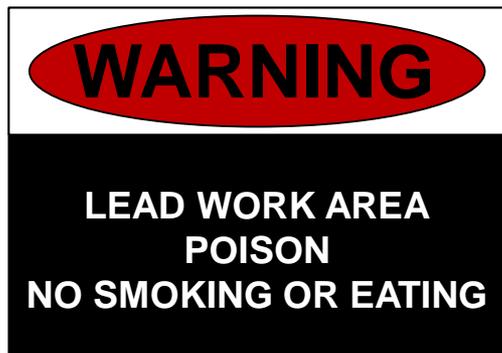
- ❑ The substance-specific standards generally pre-date the HCS, and do not have a comprehensive approach to hazard communication.
- ❑ The final rule references HazCom 2012 in each standard to ensure they have all the protections of the rule.
- ❑ Regulated area signs will need to be updated to reflect the new language.
- ❑ Employers have until June 1, 2016 to update the signs.

Hazard Communication - Module 4

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



Source: Hazard Communication and the Globally Harmonized System (GHS) for Fabricators and Erectors

Webinar: <http://www.aisc.org/content.aspx?id=35368>

Hazard Communication - Module 4

Know where your company SDSs are located and if they are accessible!

- Where is the specific location?

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Other Sources

<https://www.osha.gov/dsg/hazcom/ghs.html>

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 framed within a red border and represents a distinct hazard. The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards

<ul style="list-style-type: none"> • Carcinogen • Mutagenic • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<ul style="list-style-type: none"> • Flammable • Pyrophoric • Self Heating • Self Heats/Exothermic Eff. • Self Reactives • Organic Peroxides 	<ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (Hazard) • Neurotoxic Effects • Respiratory Tract Irritant • Hazardous to Ocean Life (Seafood)
<ul style="list-style-type: none"> • Gas Under Pressure 	<ul style="list-style-type: none"> • Skin Corrosion/Irritant • Eye Damage • Corrosive to Metals 	<ul style="list-style-type: none"> • Explosives • Self Reactives • Organic Peroxides
<ul style="list-style-type: none"> • Oxidizers 	<ul style="list-style-type: none"> • Aquatic Toxicity 	<ul style="list-style-type: none"> • Acute Toxicity (Hazard)

For more information:
OSHA Occupational Safety and Health Administration
 U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)

OSHA QUICK CARD

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:
OSHA Occupational Safety and Health Administration
 (800) 321-OSHA (6742)
www.osha.gov

SAMPLE LABEL

Product Name: _____
 Product Identifier: _____

Supplier Identification: _____
 Supplier Name: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Emergency Phone Number: _____

Hazard Pictograms:

Signal Word: **Danger**

Hazard Statements: **Highly Flammable Liquid and vapor. May cause liver and kidney damage.**

Precautionary Statements: _____

Supplemental Information: _____

Additional Information: _____

Net Weight: _____ Lit. Number: _____
 Net Volume: _____ PZ Code: _____
 Expiration Date: _____

OSHA DATOS RÁPIDOS

Etiquetas para la norma sobre la comunicación de peligros

De acuerdo con su norma de comunicación de peligros (HCS, por sus siglas en inglés), la OSHA ha actualizado los requisitos para las etiquetas de los productos químicos peligrosos. A partir del 1^o de junio de 2015, se exigirá que todas las etiquetas incluyan pictogramas, una palabra de advertencia, indicaciones de peligro, consejos de prudencia, identificación del proveedor y la identificación del proveedor. A la derecha se presenta la muestra de una etiqueta modificada de acuerdo con la HCS, que indica los elementos obligatorios. La etiqueta puede contener también información suplementaria según sea necesario.

Para más información:
OSHA Administración de Seguridad y Salud Ocupacional
 (800) 321-OSHA (6742)
www.osha.gov

ETIQUETA DE MUESTRA

Identificación del producto: _____
 Nombre del proveedor: _____
 Dirección: _____
 Ciudad: _____ Estado: _____ Código Postal: _____
 Teléfono de Emergencia: _____

Identificación del proveedor: _____

Pictogramas de peligro:

Palabra de advertencia: **Peligro**

Indicaciones de peligro: **Extremadamente inflamable líquido y vapor. Puede causar daño a los riñones y al hígado.**

Consejos de prudencia: _____

Información suplementaria: _____

Información adicional: _____

Peso Neto: _____ Volumen Líquido: _____
 Peso Bruto: _____ Fecha de Expiración: _____
 Fecha de Emisión: _____

OSHA DATOS RÁPIDOS

Pictograma para la norma sobre la comunicación de peligros

A partir del 1^o de junio de 2015, la norma de comunicación de peligros (HCS, por sus siglas en inglés) exigirá 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 enmarcado con un borde rojo. La clasificación del peligro químico determina el pictograma que muestra la etiqueta.

Pictogramas y peligros según la HCS

<ul style="list-style-type: none"> • Carcinogeno • Mutagenicidad • Toxicidad para la reproducción • Toxicidad específica de órganos diana • Peligro por aspiración • Perjuicio orgánico 	<ul style="list-style-type: none"> • Inflamable • Piróforico • Calentamiento espontáneo • Inestabilidad inducida • Reacción espontánea • Perjuicio orgánico 	<ul style="list-style-type: none"> • Irritante (para la piel) • Sensibilizante cutáneo • Toxicidad Aguda (letal) • Efecto nocivo • Irritante de ojos • Peligro para la capa de ozono (de algunos gases)
<ul style="list-style-type: none"> • Gases a presión 	<ul style="list-style-type: none"> • Corrosión a gases • Corrosión a líquidos • Corrosión a metales 	<ul style="list-style-type: none"> • Explosivos • Perjuicio orgánico • Inestabilidad inducida • Perjuicio orgánico
<ul style="list-style-type: none"> • Oxidantes 	<ul style="list-style-type: none"> • Toxicidad acuática 	<ul style="list-style-type: none"> • Toxicidad Aguda (letal)

Para más información:
OSHA Administración de Seguridad y Salud Ocupacional
 Departamento de Trabajo de los EE. UU.
www.osha.gov (800) 321-OSHA (6742)



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 312.670.2400 www.aisc.org

Hazard Communication - Module 4

**In class exercise-learning
Activity**

***Part A-Group Activity-
Navigate an SDS and
extract key information***

***Part B-Create an SDS
Locator for your shop***



Photo from OSHA 3686-09 2010

Hazard Communication - Module 4

Group Learning Objectives:

Participants shall be able to navigate an SDS and extract key information.

Hazard Communication - Module 4

Group Learning Activity Part A

In groups of 4-5 navigate the SDS provided and answer the questions about the product.

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Group Learning Activity Part B

You are informing a co-worker of where SDS's are located in your shop. In groups of 4-5 discuss and describe where your SDS's can be found in your shop.

Where can they be found? Create an SDS locator to document your answer on the template provided.

Hazard Communication - Module 4

Activity Materials Provided

Part A

Question and Answer Template

Sample SDS

Part B

SDS Locator Template

Hazard Communication - Module 4

Appendix B-2 <https://www.osha.gov/dsg/hazcom/ghs.html#b2>, visited 3/22/2015

Chemical Stuff

(GHS MSDS Example)

GHS SAFETY DATA SHEET

1. Identification

Product Name: Chemical Stuff

Synonyms: Methyltoxy Solution

CAS Number: 000-00-0

Product Use: Organic Synthesis

Manufacturer/Supplier: My Company

Address: My Street, Mytown, TX 00000

General Information: 713-000-0000

Transportation Emergency Number: CHEMTREC: 800-424-9300 FREE

2. Hazards Identification

GHS Classification:

Health	Environmental	Physical
Acute Toxicity - Category 2 (inhalation), Category 3 (oral/dermal)		
Eye Corrosion - Category 1		

Source Appendix B-2 <https://www.osha.gov/dsg/hazcom/ghs.html#b2>, visited 3/22/2015