

## What is Global Harmonization (GHS)?

GHS stands for the Globally Harmonized System of Classification and Labeling of Chemicals. GHS is a system that defines and classifies the hazards of chemical products, and communicates health and safety information on labels and material safety data sheets (called Safety Data Sheets, or SDSs, in GHS). The goal is that the same set of rules for classifying hazards, and the same format and content for labels and safety data sheets (SDS) will be adopted and used around the world. An international team of hazard communication experts developed GHS.



## Shipping Label

Manufacturers and distributors are required to provide a label with six key components.

**Product Identifier** - The name or number used for a hazardous chemical on a label or on the Safety Data Sheet. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

**Pictograms** - A symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Nine pictograms are designated under GHS for application to a hazard category. (See next page for more information.)

**Signal Word** - A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "danger" and "warning". "Danger" is used for more severe hazards, while "warning" is used for the less severe.

**Hazard Statements** - A statement assigned to a hazard class and category that describes the nature of the hazard(s) of the chemical, including, where appropriate, the degree of hazard. Example: Fatal if swallowed.

**Precautionary Statements** - A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling. Example: Do not eat, drink, or smoke when using this product.

**Supplier Information** - The name, address, and telephone number of the manufacturer, importer, or other responsible party.

<b>2</b> 	<b>1</b> Sulfuric Acid	<b>2</b> 
	<b>3</b> Danger! May be harmful if swallowed. Causes severe skin burns and eye damage. Fatal if inhaled. Harmful to aquatic life.	
	Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.	
<b>5</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.	
	In case of fire Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.	
	See Material Safety Data Sheet for further details regarding safe use of this product.	
<b>6</b>	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA Telephone : +18003255832	
<b>1</b>	Product Identifier	<b>4</b> Hazard Statements
<b>2</b>	Pictograms	<b>5</b> Precautionary Statements
<b>3</b>	Signal word, "Danger!"	<b>6</b> Supplier Information

## Pictograms

There are nine pictograms under the GHS to convey the health, physical and environmental hazards. The final Hazard Communication Standard (HCS) requires eight of these pictograms, the exception being the environmental pictogram, as environmental hazards are not within OSHA's jurisdiction. The hazard pictograms and their corresponding hazards are shown below.



## HCS PICTOGRAMS & HAZARDS

### Health Hazard



- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

### Flame



- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides

### Exclamation Mark



- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non Mandatory)

### Gas Cylinder



- Gases under pressure

### Corrosion



- Skin Corrosion/ burns
- Eye Damage
- Corrosive to Metals

### Exploding Bomb



- Explosives
- Self-Reactives
- Organic Peroxides

### Flame over Circle



- Oxidizers

### Environment (Non-mandatory)

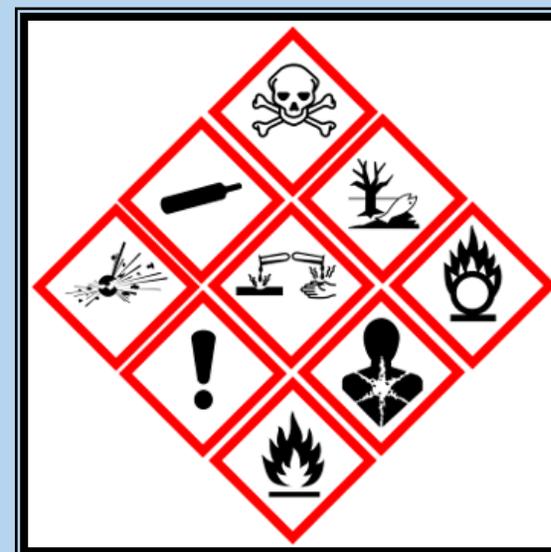


- Aquatic Toxicity

### Skull & Crossbones



- Acute Toxicity (fatal or toxic)



# Workplace Label Requirements

The current standard provides employers with flexibility regarding the type of system to be used in their workplaces and OSHA has retained that flexibility in the revised Hazard Communication Standard (HCS). Employers may choose to label workplace containers either with the same label that would be on shipped containers for the chemical under the revised rule, or with alternative labels that meet the requirements for the standard. Alternative labeling systems such as the National Fire Protection Association (NFPA) 704 Hazard Rating and the Hazardous Material Information System (HMIS) are permitted for workplace containers. However, the information supplied on these labels must be consistent with the revised HCS, e.g., no conflicting hazard warnings or pictograms.



4. Deadly	4. Below 73°F
3. Extreme Danger	3. Below 100°F
2. Hazardous	2. Above 100°F not exceeding 200°F
1. Slightly Hazardous	1. Above 200°F
0. Normal Material	0. Will not burn

**FIRE HAZARD**  
Flash Points

**HEALTH HAZARD**

**REACTIVITY**

**SPECIFIC HAZARD**

ACID	Acid	4. May Detonate
ALK	Alkali	3. Shock & Heat may detonate
COR	Corrosive	2. Violent Chemical Change
OXY	Oxidizer	1. Unstable if heated
	Radioactive	0. Stable
	Use No Water	

(name of chemical)

HEALTH	<input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
PHYSICAL HAZARD	<input type="checkbox"/>
PERSONAL PROTECTION	<input type="checkbox"/>

**TOLUENE**

HEALTH	2
FLAMMABILITY	3
REACTIVITY	0
PERSONAL PROTECTION	J

PERSONAL PROTECTIVE EQUIPMENT

DO NOT HANDLE THIS CHEMICAL WITHOUT PROPER TRAINING

REFER TO SAFETY DATA SHEET

**TOLUENE / TOLUÈNE** 162 kg

**TOLUENE / TOLUÈNE**  
UN1294

**Hazardous Materials Identification System**

<b>HAZARD INDEX</b>	<b>PERSONAL PROTECTION INDEX</b>
4 Severe Hazard	A
3 Serious Hazard	B
2 Moderate Hazard	C
1 Slight Hazard	D
0 Minimal Hazard	E
	F
	G

- ◆ If labeling is not possible the employer can use signs, placards, process sheets, batch tickets, operating procedures or other written materials rather than putting labels on stationary process containers, if that method identifies containers and gives the required hazard information.
- ◆ The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.
- ◆ The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.
- ◆ The employer shall ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

## Safety Data Sheets (SDS)

### Formerly known as Materials Safety Data Sheets (MSDS)

The information required on the safety data sheet (SDS) will remain essentially the same as it has been. The standard prior to these revisions indicated what information has to be included on an SDS, but did not specify a format for presentation or order of information. The revised Hazard Communication Standard requires that the information on the SDS be presented using specific headings in a specified sequence. The SDS format is the same as the ANSI standard format which is widely used in the U.S. and is already familiar to many employees.

The format of the 16-section SDS mandates the following sections:

#### OSHA or PESH Enforced Sections:

Section 1. Identification

Section 2. Hazard(s) Identification

Section 3. Composition/Information on Ingredients

Section 4. First-Aid Measures

Section 5. Fire-Fighting Measures

Section 6. Accidental Release Measures

Section 7. Handling and Storage

Section 8. Exposure Controls/Personal Protection

Section 9. Physical and Chemical Properties

Section 10. Stability and Reactivity

Section 11. Toxicological Information

Section 16. Other Information

(Including date of preparation or last revision).

#### Enforced by Other Agencies:

Section 12. Ecological Information

Section 13. Disposal Considerations

Section 14. Transport Information

Section 15. Regulatory Information



### GHS Compliance Dates

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and SDS format.	Employers
June 1, 2015*	Comply with all modified provisions of this final rule, except:	Chemical manufacturers, importers, distributors and employers
December 1, 2015	Distributors may ship products labeled by manufacturers under the old system until December 1, 2015.	
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period	Comply with either 29 CFR 1910.1200 (this final standard), or the current standard, or both.	All chemical manufacturers, importers, distributors and employers