



# Hazard Communication

GHS  
Globally Harmonized  
System

---

# Purpose

In order to ensure chemical safety in the workplace, information about the identities and hazards of the chemicals must be available and understandable to workers. OSHA's Hazard Communication Standard requires the development and dissemination of such information.

# The Standard applies to

- Chemical Manufacturers
- Employers
- Employees



# Chemical Manufacturers

- Must determine the physical and health hazards of the products they make and provide that information to users.



# Employers - MSU

- Must determine which workplace materials are hazardous and provide employees with the information, training, and equipment they need to protect themselves and others.

# Employees

- Must use their Right-to-Understand knowledge to stay safe and healthy on the job.



# Why learn about chemicals?

- Chemicals have many valuable uses and are used often.
- But many chemicals also have hazards that can present risks to health and safety when they're used on the job.

# Chemical Hazards

- Health
- Physical





# Health Hazards

- **Acute Health Problems**

- symptoms show up immediately after exposure

- **Chronic Health Problems**

- problems develop gradually from prolonged or repeated exposure



# Health Hazards- Routes of Entry

- Inhalation
- Ingestion
- Injection
- Skin Contact or Absorption

# Physical Hazards

- Sudden release of pressure (explosion)
- Flammable (catches fire easily)
- Reactive (unstable chemicals)



# What is GHS?

- The Globally Harmonized System (GHS) is an international approach to **chemical labels and safety data sheets** (SDS).
- OSHA's Hazard Communication standard has adopted the GHS to improve safety and health of workers through more effective communications on chemical hazards.

# Labeling

- Every container of hazardous chemicals is labeled by the manufacturer.
- Labels make it easy to find at a glance the chemical's possible hazards and basic steps to take to protect yourself against those risks.



# Requirements of a GHS Label

## The Basic Parts of A GHS-Compliant Label

1 →

**n-Propyl Alcohol**

UN No. 1274

CAS No. 71-23-8

2 →

**DANGER**

3 →

Highly flammable liquid and vapor. Causes serious eye damage.  
May cause drowsiness and dizziness.

4 →

Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing fumes/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present. Continue rinsing.

Fill Weight: 18.65 lbs.

Lot Number: B56754434

Gross Weight: 20 lbs.

Fill Date: 6/21/2013

Expiration Date: 6/21/2020

See SDS for further information.

5 →

Acme Chemical Company • 711 Roadrunner St. • Chicago, IL 60601 USA • [www.acmechem.com](http://www.acmechem.com) • 123-444-5567



6 ←

1. **Product Identifier** - Should match the product identifier on the Safety Data Sheet.
2. **Signal Word** - Either use "Danger" (severe) or "Warning" (less severe)
3. **Hazard Statements** - A phrase assigned to a hazard class that describes the nature of the product's hazards
4. **Precautionary Statements** - Describes recommended measures to minimize or prevent adverse effects resulting from exposure.
5. **Supplier Identification** - The name, address and telephone number of the manufacturer or supplier.
6. **Pictograms** - Graphical symbols intended to convey specific hazard information visually.

# Pictograms

- A symbol plus a red diamond border intended to convey specific information about the hazards of a chemical.
- 4 Health Hazard Pictograms
- 5 Physical Hazard Pictograms



# Health Hazard Pictogram- Corrosion



- Skin Corrosion/Burns
- Eye Damage



# Health Hazard Pictogram- Exclamation Mark



- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (non-mandatory)

# Health Hazard Pictogram- Health Hazard



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

# Health Hazard Pictogram- Skull & Crossbones



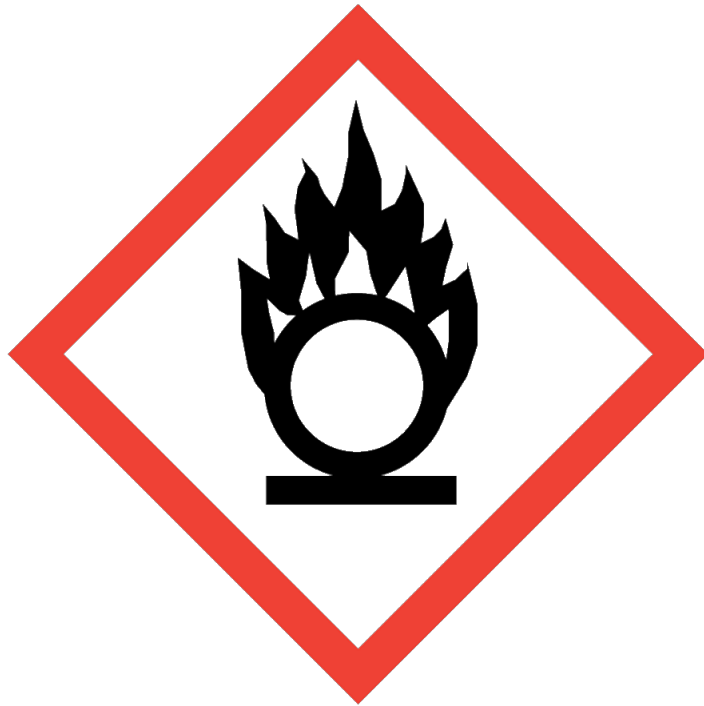
- Acute Toxicity  
(fatal or toxic)

# Physical Hazard Pictogram- Flame



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

# Physical Hazard Pictogram- Flame Over Circle



- Oxidizer –  
a substance that is not necessarily combustible, but may, generally by yielding oxygen, cause or contribute to the combustion of other material

# Physical Hazard Pictogram- Gas Cylinder



- Gases under pressure

# Physical Hazard Pictogram- Exploding Bomb



- Explosives
- Self-Reactives
- Organic Peroxides

# Physical Hazard Pictogram- Corrosion



- Corrosive to Metals



# Non-mandatory Pictogram- Environment



- Aquatic Toxicity

# Signal Words

- “Danger” – more severe hazards
- “Warning” – less severe hazards



# HMIS/NFPA Labeling Systems

- **Blue** - Health
- **Red** – Flammability
- **Yellow** – Reactivity
- **White** – Protective Equipment and Other

- Scale 0-4  
0 = No danger  
4 = Highest danger



CHEMICAL NAME	
2	HEALTH
4	FLAMMABILITY
1	REACTIVITY
	PROTECTIVE EQUIPMENT
HAZARD RATING	
4 EXTREME	1 SLIGHT
3 SERIOUS	0 MINIMAL
2 MODERATE	

# OSHA Classification System

- Scale 1-4
  - 1= Most severe hazard
  - 4 = Least severe hazard
- Numbers are used to CLASSIFY hazards to determine what label information is required
- Hazard category numbers are NOT on labels, but are found in Section 2 on SDS

# Safety Data Sheets (SDS)

- SDS are multi-page documents that contain more detailed information about a chemical than the container label.
- The revised HazCom standard requires that the information on the SDS is presented using consistent headings in a specific order.

# Safety Data Sheets

- Detailed information sheet prepared by manufacturer or importer
- Available for every hazardous chemical or substance
- Contains information that:
  - Enables you to prepare for safe day-to-day use
  - Enables you to respond in emergencies

# 16-Section SDS Format

1. Identification
2. Hazard(s) Identification
3. Composition/Information on Ingredients
4. First-Aid Measures
5. Fire-Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Controls/Personal Protection

# 16-Section SDS Format

- 9. Physical and Chemical Properties
- 10. Stability and Reactivity
- 11. Toxicological Information
- 12. Ecological Information
- 13. Disposal Considerations
- 14. Transport Information
- 15. Regulatory Information
- 16. Other Information



# Location of SDS

- In your work area
  - Your supervisor will inform you of the specific location
- Office of Environmental Safety and Health

# Written Program

- Hardcopy available upon request from ESH
- Available on MSU website



**MURRAY STATE**  
UNIVERSITY

# Conclusion

- Workers have the right to *know* and *understand* the hazardous chemicals they use and how to work with them safely.
- Always read the chemical label and make sure you understand the information before working with a chemical in the workplace.
- For more information, refer to the Safety Data Sheet.