

# Hazard Communication



# You Have A Right To Know

- This standard was designed to protect employees who use hazardous materials on the job
- The HCS states that companies which use hazardous materials must provide their employees with information and training on the proper handling and use of these materials
- So how does the Hazard Communications Program work?

**Ingestion (Swallowing):**

This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. Do not induce vomiting. Do not give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is unconscious or drowsy, place on the left side with the head down. Seek immediate medical attention.

# HazCom 2012

## Old Standard vs. New Standard

- Old standard allowed chemical manufacturers/suppliers to convey hazard information on labels and material safety data sheets in whatever format they chose (performance-oriented requirements)
- New standard provides a single set of harmonized criteria for classifying chemicals and specifies hazard communication elements for labeling and safety data sheets

# HazCom 2012

## Major changes of HazCom 2012

- HCS aligned with the Global Harmonization System
- Specific criteria for classification of hazards for chemical manufacturers/suppliers
- Chemical manufacturers/suppliers are now required to adopt the GHS labeling system and the six standard labeling elements
- All Safety Data Sheets are to be organized into 16 mandatory sections with strict ordering

# Key Elements of Hazard Communication

Hazard Communications is composed of five key elements

- 1. Materials Inventory** - A list of the hazardous materials/chemical products present in your work area
- 2. Safety Data Sheets** - A detailed description of each hazardous material listed in the Materials Inventory
  - The SDS book is available (list locations)
- 3. Labeling** - Containers of hazardous materials must have labels which identify the material and warn of its potential hazard to employees

# Key Elements of the OSHA Hazard Communication Standard

4. **Training** - All employees must be trained to identify and work safely with hazardous materials
  - Training should be conducted upon initial assignment, and whenever a new chemical hazard has been introduced into the work area
  
5. **Written Program** - A written program must be developed which ties all of the above together
  - The written program is available upon request (Contact Supervisor)

# Labeling

## Knowing & Recognizing Hazards

### What Do I Need to Know?

When dealing with chemicals, employees should ask themselves the following questions:

1. How can this material hurt me?
2. What can I do to protect myself?

# Labeling

## Knowing & Recognizing Hazards

### Where to Find the Information You Need

Your most immediate source for information can be found on labels attached to containers which hold various hazardous materials.

Your second source of information are Safety Data Sheets.

**Terminology:** In 2012, shortened Material Safety Data Sheet (MSDS) to simply Safety Data Sheet (SDS).

# What Must Be Labeled?

- **ALL** hazardous materials/chemicals must be labeled
- For our purposes, labels must appear either on the container itself, the batch ticket, placard, or the process sheets
- Hazardous chemicals in portable containers which are for the immediate use of the employee who performs the transfer is the exception to this rule



# Label Information

OSHA requires that the following information be included on ALL labels:

1. **Product Identifier** – product name
2. **Supplier Information** – name, address, & phone
3. **Signal Word** – either “Danger” or “Warning”
4. **Pictogram** – standardized visual symbol
5. **Hazard Statement** – nature of hazard or severity
6. **Precautionary Statement** – precautionary information

# Pictograms

There are nine standard pictograms



Carcinogen



Compressed Gas



Corrosive



Environmental Toxicity



Explosives



Flammables



Irritant



Oxidizers



Toxicity

# Sample Label

**ToxiFlam (Contains: XYZ)**



**Danger! Toxic If Swallowed, Flammable Liquid and Vapor**



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.

**IF SWALLOWED: Immediately call a POISON CONTROL CENTER or doctor/physician. Rinse mouth.**

**In case of fire, use water fog, dry chemical, CO<sub>2</sub>, or "alcohol" foam.**

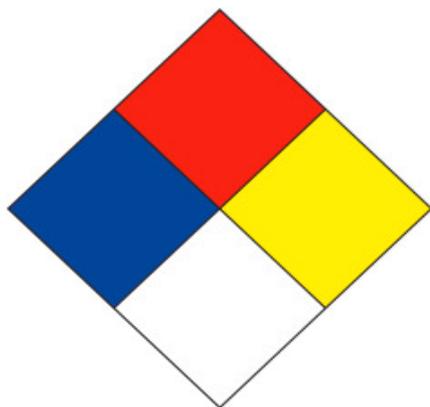
See Material Safety Data Sheet for further details regarding safe use of this product.

MyCompany, MyStreet, MyTown NJ 00000, Tel: 444 999 9999

**Six labeling requirements:** Product Identifier, Supplier Information, Signal Word, Pictogram, Hazard Statement and Precautionary Statement

# NFPA & HMIS Labeling System

In these types of labeling systems, colors indicate categories of hazards and numbers written within each color segment indicate the level of risk/danger within that particular category



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

Numbering system based on a 0 – 4 scale:  
0 – least hazardous: 4 – most hazardous

# NFPA & HMIS Labeling System

The Health Hazards class is colored **BLUE**. The rating scale for Health Hazards is listed below:



- 0 - Non Toxic
- 1 - Slightly Toxic
- 2 - Moderately Toxic
- 3 - Seriously Toxic
- 4 - Highly Toxic

# NFPA & HMIS Labeling System

- The Flammability Hazards class is colored **RED**. The rating scale is based on the flash point of the material.
- The flash point is the temperature at which the material gives off enough vapors to sustain ignition.



- 0 - Non Combustible
- 1 - Slightly Combustible
- 2 - Combustible
- 3 - Flammable
- 4 - Extremely Flammable

# NFPA & HMIS Labeling System

The Reactivity of the material is the third hazard class is, and it is colored **YELLOW**.



- 0 - Stable
- 1 - Normally Stable
- 2 - Unstable
- 3 - Explosive
- 4 - May Detonate

\* The likelihood or probability of a chemical undergoing a violent reaction

# NFPA & HMIS Labeling System

NFPA and HMIS labels include a fourth section colored **WHITE**.

- NFPA labels denote special hazards in this section
- HMIS labels denote both personal protective equipment and/or special hazards in this section

Acid.....ACID

Alkali.....ALK

Corrosive.....COR

Oxidizer.....OX

Radiation Hazard...

Use No Water.... 



# Safety Data Sheets

- There may be times when you will want more information than can be included on a label
- You can find additional information about the hazardous materials you work with on a Safety Data Sheet (SDS)
- All chemicals/products must have a SDS
- SDS sheets are maintained along with a materials inventory list
- There are 16 mandatory sections of the SDS

# Safety Data Sheet Information

- Section 1: Identification
- Section 2: Hazard 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

# Safety Data Sheet Information

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

# Safety Data Sheet Sample

## SAFETY DATA SHEET

SDT118 - pH 7 Buffer (Coloured)

### 1. IDENTIFICATION OF SUBSTANCE / PREPARATION AND COMPANY

Product Name: pH 7 Buffer (Coloured)  
 Product code: SDT118  
 Use: Analytical reagent  
 Company: droptestkits.com Limited  
 The New Dairy, Lamport Manor,  
 Northampton, NN6 9HF  
 Tel: 01604 686 995 Fax: 01604 686 997  
 Email: info@droptestkits.com



Emergency Tel: 07724 668 569

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

No hazardous components

### 3. HAZARD IDENTIFICATION

Main hazard: No significant hazard.  
 Other hazards:

### 4. FIRST AID MEASURES

Skin contact: Possible mild irritation.  
 Wash affected skin with running water for ten minutes.  
 Eye contact: May cause irritation and redness.  
 Bathe eye with running water for 15 minutes. Seek medical advice.  
 Ingestion: There may be soreness and redness of the mouth and throat.  
 If conscious, give half a litre of water to drink immediately. Seek medical advice.  
 Inhalation: May irritate throat and cause tightness of the chest.  
 Remove casualty to fresh air.

### 5. FIRE-FIGHTING MEASURES

Extinguishing media: All extinguishing agents can be used.  
 Exposure hazard: Decomposes to give acid smoke and irritating fumes.  
 Protection: Wear self-contained breathing apparatus and protective clothing to prevent skin contact.

### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Wear protective gloves and safety glasses.  
 Environmental precautions: Do not allow large quantities to enter drainage system.  
 Clean-up procedure: Small quantities can be disposed of via a foul drain. Use a licensed contractor for larger quantities.

### 7. HANDLING AND STORAGE

Handling requirements: Avoid direct contact with the reagent.  
 Storage conditions: Keep the container tightly closed. Keep away from direct sunlight.  
 Suitable packaging: Keep reagent in original packaging.

### 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures: Ensure sufficient ventilation.  
 Respiratory protection: Not necessary.  
 Hand protection: Wear protective gloves (eg latex or vinyl).  
 Eye protection: Wear safety glasses.  
 Skin protection: Wear a suitable laboratory coat.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

State: Liquid Colour: Green  
 Odour: Odourless Evaporation rate: Slow  
 Oxidising: Non-oxidising Solubility in water: Miscible in all proportions.  
 Viscosity: Non-viscous pH: 7

## Safety data sheet (continued) - SDT118 - pH 7 Buffer (Coloured)

### 10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.  
 Conditions to avoid: Direct sunlight and heat.  
 Materials to avoid: None  
 Decomposition products: When heated to decomposition acid smoke and irritating fumes will be emitted.

### 11. TOXICOLOGICAL INFORMATION

Hazardous component 1: No hazardous components.  
 Hazardous component 2:  
 Note:

### 12. ECOLOGICAL INFORMATION

Mobility: Soluble in water. Non-volatile.  
 Persistence/biodegradability: Fully biodegradable.  
 Bioaccumulation potential: Will not bioaccumulate.  
 Other adverse effects: Negligible ecotoxicity.

### 13. DISPOSAL CONSIDERATIONS

Disposal operations: Small amounts can be disposed of to foul drain.  
 Disposal of packaging: Wash out. Dispose as normal industrial waste.  
 Notes: Consider local and national disposal regulations.

### 14. TRANSPORT INFORMATION

#### ADR / RID

Proper shipping name		Not classified as dangerous for transport	
UN No.	N/A	Label 1	
ADR Class	N/A	Label 2	
Packing group	N/A	Hazard ID No.	N/A
Classification code	N/A		

#### IMDG / IBCO

UN No.	N/A	Class	N/A
Packing group	N/A	EmS	N/A
Marine pollutant	No	Labeling	N/A

#### IATA / ICAO

UN No.	N/A	Class	N/A
Packing group	N/A	Labeling	N/A
Packing instructions	None		

### 15. REGULATORY INFORMATION



#### Risk phrases

#### Safety phrases

02 Keep out of reach of children  
 023 Do not breathe gas/fumes/vapour/spray.

### 16. OTHER INFORMATION

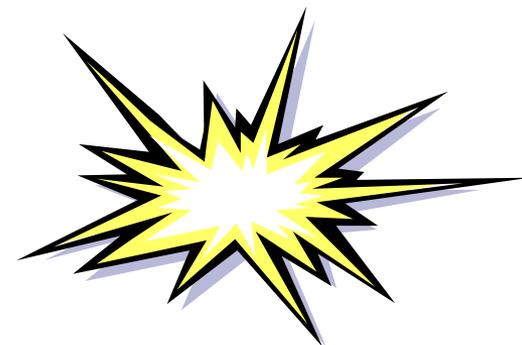
The above information is based on current knowledge at the time of publication and is given in good faith. No warranty is implied as to the suitability of the product for any purpose other than chemical analysis. The information contained in this MSDS does not constitute an assessment of work place risks. The customer should undertake a formal COSHH assessment which should ensure that employees are aware of the hazards / precautions detailed in this MSDS. The COSHH assessment should ensure that the recommended safety equipment is available and, where applicable, that the exposure limits are not being exceeded.

# Physical Hazards

Physical hazards are those substances which threaten your physical safety. The most common types of physical hazards are:



**Fire**  
**Explosives**  
**Chemical Reactivity**



# Fire Hazards



**There are two main classes of materials which use the fire symbol.**

1. Flammables can be gases, liquids or solids. Flammables ignite easily and burn rapidly. Liquid flammables have a flashpoint under 100 degrees Fahrenheit. (Ex: Gasoline)
2. Combustibles are similar to flammables, but they do not ignite as easily. Liquid combustibles have a flash point above 100 degrees Fahrenheit (Ex: motor oil).

# Explosives



Explosives are materials which release a tremendous amount of energy in the form of heat, light and expanding pressure within a very short period of time. Explosive materials become unstable under specific conditions.

Materials that use the explosive symbol are often very dangerous to work with and usually require special handling procedures.

We generally do not maintain any explosive materials.

# Compressed Gas Cylinders



Many gases used in the transportation industry are "bottled" under great pressure in tanks called gas cylinders.

Great care should be taken when handling gas cylinders to ensure that they are not damaged when moved.

If the cylinder or valve is damaged, the gases contained within will be released under great force, turning the cylinder into a projectile.

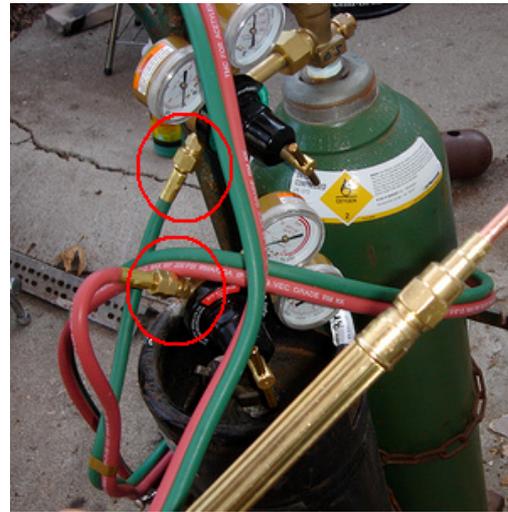
Some gases, when released under high pressure, may also become unstable and/or react with other elements, causing increased danger.

# Compressed Gas Cylinders



# Compressed Gases

Missing flashback arrestors



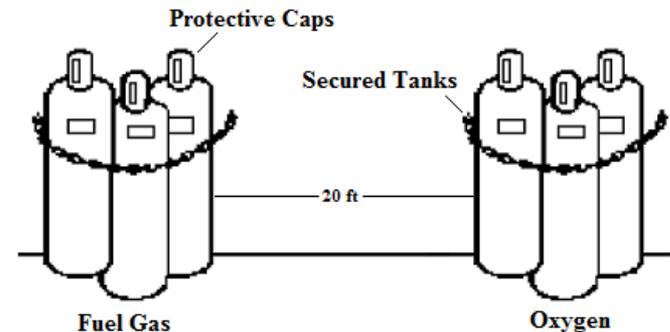
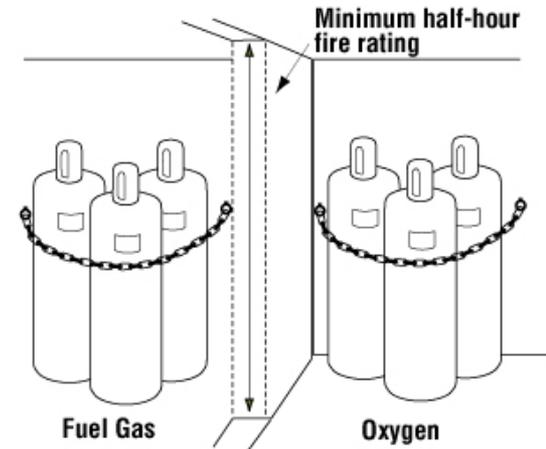
Unsecured cylinders



Missing valve protection caps

# Compressed Gases

- ❑ Cylinders must be stored in a designed area where cylinders will not be knocked over
- ❑ Oxygen cylinders in storage must be separated from fuel-gas cylinders or combustible materials by at least 20 feet or by at least a 5 ft. high barrier (fire-resistance rating at least ½ hour)
- ❑ Oxygen and fuel-gas cylinders must be kept away from sparks and potential ignition sources



# Compressed Gases

## □ Can you spot the hazards?



Oxygen  
• Unsecured  
• Missing Caps

Acetylene  
• Unsecured  
• Missing Caps



High Voltage

Flammable  
Liquid

# Health Hazards

Hazard potential is the likelihood that a specific chemical or substance (toxic material) will cause an ill effect at a given dose. The toxicity of the chemical along with the dose (length of exposure) determines the hazard potential.

Acute Health Hazards are those whose effects occur immediately or soon after you come in contact with them.

Chronic Health Hazards, on the other hand, are those whose effects take years or decades to occur after many exposures.

# Major Types of Health Hazards

**Corrosives** - cause tissue damage and burns on contact with the skin and eyes.

**Primary Irritants** - cause intense redness or swelling of the skin or eyes on contact, but with no permanent tissue damage.

**Sensitizers** - cause an allergic skin or lung reaction.

**Carcinogens** - may cause cancer.

# Exposure to Health Hazards

Chemicals can enter the body in three ways:

**Inhalation** is the most common route of exposure for most health hazards. This includes breathing in dust, fumes, oil mist, and vapors from solvents and various gases.

Some chemicals are **absorbed** into the body through skin contact. Corrosive chemicals can cause burns and tissue destruction. Extra care must be taken to prevent skin and eye contact with these chemicals.

**Ingestion.** It is possible to accidentally eat or swallow chemicals that are health hazards.

# Exposed to a Hazardous Substance



If you believe that you have been exposed to a health hazard and feel that you may be affected by a hazardous substance, obtain the product's SDS and notify your supervisor immediately.

# Discussion

- Questions or comments?

