



## Understanding Safety Signs and Safety Data Sheets (SDS)

*A Practical Guide with Visual Examples and Key Information for Workplace Safety*

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# About This guide

## Introduction

Safety signs and Safety Data Sheets (SDS) are essential tools that help workers recognize hazards and take the right precautions. Signs use simple shapes and colors to quickly communicate safety messages, while SDS provide detailed information about hazardous substances used in the workplace.

In this guide, you will review practical examples that cover:

- Safety Signs: The different categories (prohibition, mandatory, warning, emergency, and fire safety) and how to recognize them.
- Hazard Labels: The Globally Harmonized System (GHS) symbols that indicate risks like flammability, toxicity, or long-term health effects.
- Safety Data Sheets (SDS): Examples showing how key information is presented to guide safe handling, storage, and emergency measures.

## Your task is to:

1. Learn how to recognize the shapes, colors, and meanings of different safety signs.
2. Review how GHS labels clearly highlight specific hazards.
3. Look at SDS examples and notice the type of information provided for safe use of substances.

## This will help you strengthen your ability to:

1. Identify and respond correctly to safety signs in your workplace.
2. Understand hazardous substance labels and the risks they represent.
3. Use SDS as a reliable source of safety instructions and emergency guidance.

## Why This Matters

Safety signs and SDS are universal communication tools in workplace safety. By learning how to interpret them correctly, you'll be better prepared to recognize hazards quickly, make informed decisions, and protect yourself and others.

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# 1. Safety Signs

## **Prohibition Signs**

**Shape:** Circular, white background, red border with a diagonal slash.

**Purpose:** Indicate actions that are forbidden.

### **Examples:**

			
No smoking	No open flame	Do not touch	Do not climb
			
No dogs allowed	No access for pedestrians	Do not lift	No photography
			
No mobile phones	Do not use lift in event of fire	Do not eat or drink	

# 1. Safety Signs

## Mandatory Signs

**Shape:** Circular, blue background with a white pictogram.

**Purpose:** Indicate actions that must be carried out to stay safe.

### Examples:

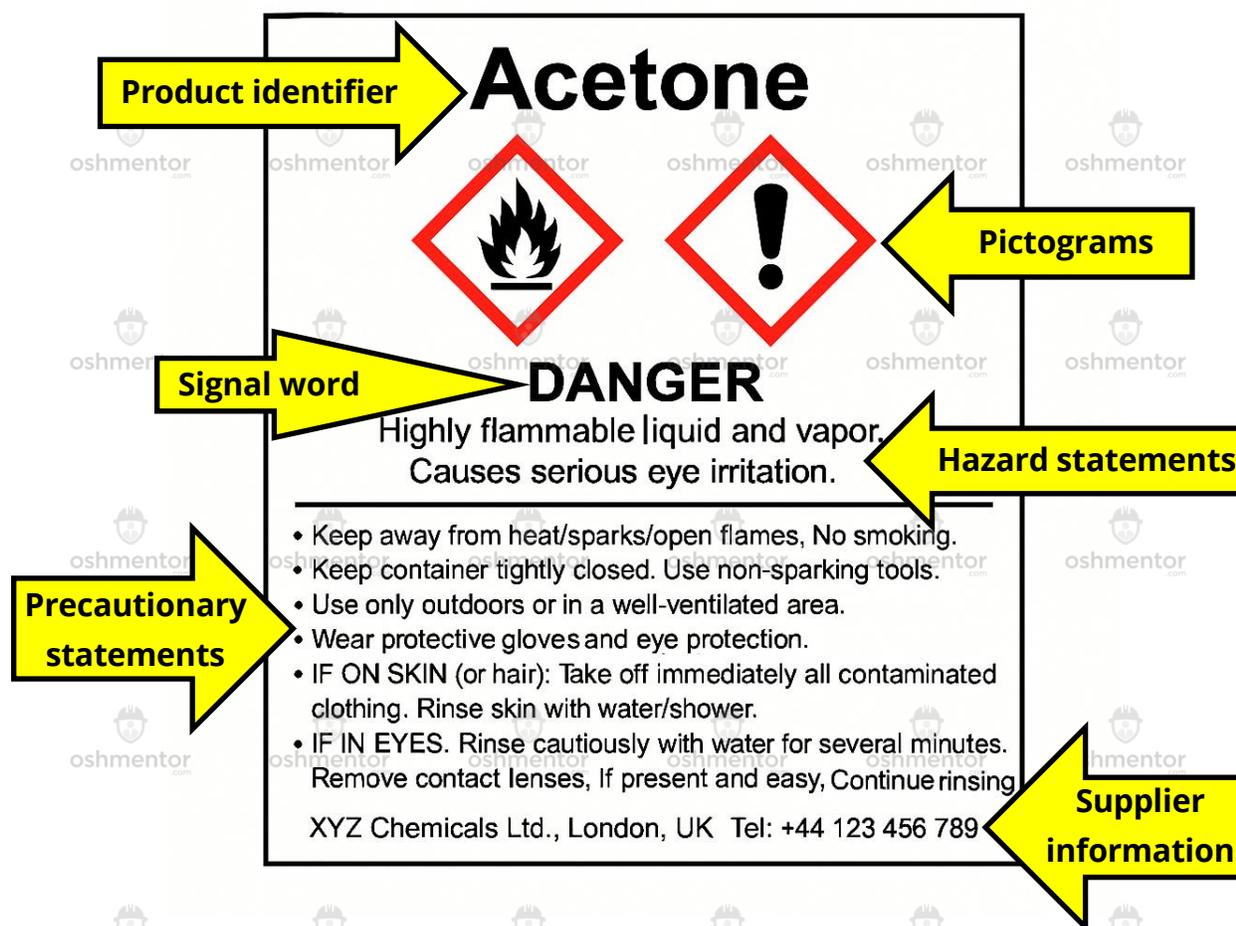
			
General mandatory action	Refer to instruction manual	Wear ear protection	Wear eye protection
			
Wear respiratory protection	Wear safety helmet	Wear protective clothing	Wear foot protection
			
Wear protective gloves	Wash your hands	Use handrail	Use footbridge
			
Wear face shield	Wear safety harness	Wear protective apron	

# 2. GHS Labels

## GHS Labels:

Created to provide essential safety information at a glance, GHS labels show you the chemical's name, its hazards, how to handle it safely, and who supplies it. They combine text and pictograms to ensure clear, consistent warnings worldwide.

### GHS label components



# 3. Safety Data Sheets (SDS)

## Safety Data Sheets (SDS):

Designed to give you detailed, standardized information about a substance—covering its hazards, safe handling, emergency measures, and essential guidance to protect people, property, and the environment.

Safety Data Sheet Example – Sodium Hypochlorite (Bleach)				
<b>1. Identification:</b>				
Product Identifier: Household Bleach Synonyms: Sodium Hypochlorite Solution Supplier: Acme Chemicals Inc., 123 Safety Rd, Doha, Qatar Emergency Phone: +974-123-4567				
<b>2. Hazard(s) Identification:</b>				
Classification: Skin Corrosion Category 1, Eye Damage Category 1 Signal Word: Danger Hazard Statements: Causes severe skin burns and eye damage. Precautionary Statements: Wear protective gloves, protective clothing, eye/face protection. Do not breathe vapors.				
				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

# 3. Safety Data Sheets (SDS)

## 3. Composition / Information on Ingredients:

Sodium Hypochlorite – CAS No. 7681-52-9 – 5-10%

## 4. First-Aid Measures:

General advice: If exposed or concerned: Get medical advice/attention.

IF ON SKIN (or hair): Immediately remove all contaminated clothing. Rinse skin with water/shower for at least 15 minutes. Wash contaminated clothing before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. Immediately call a physician.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a physician if symptoms persist.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a physician/poison center.

Most important symptoms/effects: Severe eye irritation/chemical burns; skin burns; sore throat; coughing; shortness of breath.

Immediate medical attention/special treatment: Treat symptomatically. Consider delayed pulmonary edema with significant inhalation exposures.

## 5. Fire-Fighting Measures:

Suitable extinguishing media: Water spray, alcohol-resistant foam, dry chemical, or CO<sub>2</sub> (use water spray to cool containers).

Specific hazards: Product is not flammable but decomposes with heat or contamination to release chlorine gas and oxygen; contact with acids liberates toxic gas.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus (SCBA) and full protective gear. Avoid inhalation of combustion gases. Cool exposed containers with water spray.

# 3. Safety Data Sheets (SDS)

## 6. Accidental Release Measures:

Personal precautions: Evacuate area. Ensure adequate ventilation. Wear chemical-resistant gloves, eye/face protection, and protective clothing.  
Environmental precautions: Prevent release to watercourses and drains.  
Methods for containment/cleanup: Stop leak if safe. Absorb small spills with inert material (vermiculite). Neutralize cautiously with sodium thiosulfate or sodium bisulfite solution, then flush with plenty of water. Collect residues in appropriate containers for disposal.

## 7. Handling and Storage:

Precautions for safe handling: Do not breathe vapors/mists. Do not get in eyes, on skin, or on clothing. Never mix with acids, ammonia, or other cleaners. Use only outdoors or in a well-ventilated area.  
Conditions for safe storage: Store in original vented plastic container, tightly closed, in a cool ( $\leq 25^{\circ}\text{C}$ ), dry, well-ventilated place away from sunlight and heat. Keep away from acids, ammonia, metals, and organic materials. Store locked up.

## 8. Exposure Controls/Personal Protection:

Exposure limits: No PEL for sodium hypochlorite. Chlorine (decomposition/impurity): ACGIH TLV-C 0.5 ppm; STEL 1 ppm (example values; verify current limits).  
Engineering controls: Provide local exhaust ventilation to control mists/vapors. Emergency eyewash and safety shower required.  
Personal protective equipment: Eye/face—chemical splash goggles and face shield. Hands—chemical-resistant gloves (e.g., nitrile, neoprene). Body—impervious apron or coveralls. Respiratory—if mist/vapor present above limits, use NIOSH-approved respirator (e.g., acid gas cartridge with P100) per exposure assessment.

# 3. Safety Data Sheets (SDS)

## 9. Physical and Chemical Properties:

Appearance: Clear to pale-yellow liquid  
Odor: Chlorine-like  
Odor threshold: Not available  
pH: 11–13 (typical)  
Melting/freezing point:  $\sim -17\text{ }^{\circ}\text{C}$  (solution-dependent)  
Initial boiling point/range:  $\sim 100\text{--}105\text{ }^{\circ}\text{C}$   
Flash point: Not applicable (aqueous)  
Evaporation rate: Not determined  
Flammability: Not flammable  
Upper/lower explosive limits: Not applicable  
Vapor pressure: Similar to water (solution-dependent)  
Vapor density:  $>1$  (air=1)  
Relative density:  $\sim 1.08\text{--}1.20$  (solution-dependent)  
Solubility: Completely miscible in water  
Partition coefficient (n-octanol/water): Not available  
Auto-ignition temperature: Not applicable  
Decomposition temperature:  $>40\text{ }^{\circ}\text{C}$  (accelerated)  
Viscosity: Water-like

## 10. Stability and Reactivity:

Reactivity: Oxidizing; reacts vigorously with reducing agents.  
Chemical stability: Decomposes slowly on standing; accelerated by heat, sunlight, metals, and acids.  
Possibility of hazardous reactions: Mixing with acids releases chlorine gas; mixing with ammonia releases chloramines.  
Conditions to avoid: Heat, direct sunlight, contamination with metals or organic materials.  
Incompatible materials: Acids, ammonia, reducing agents, metals, organic materials.  
Hazardous decomposition products: Chlorine, chloramines, oxygen.

# 3. Safety Data Sheets (SDS)

## 11. Toxicological Information:

Likely routes of exposure: Skin contact, eye contact, inhalation, ingestion.

Symptoms: Severe eye/skin burns; respiratory irritation/coughing; gastrointestinal corrosion if ingested.

Acute toxicity: Not classified based on available data for typical household concentrations.

Skin corrosion/irritation: Causes severe burns (Cat.1) depending on concentration.

Serious eye damage/irritation: Causes serious eye damage (Cat.1).

Respiratory/skin sensitization: Not expected to be a sensitizer.

Germ cell mutagenicity/Carcinogenicity/Reproductive toxicity: No data indicating classification for typical solutions.

STOT-SE/STOT-RE: Respiratory tract irritation possible with mists; no data for target organ toxicity.

Aspiration hazard: Not applicable (water-based).

## 12. Ecological Information (non-mandatory):

Ecotoxicity: Toxic to aquatic life due to strong oxidizing/chlorinating action.

Persistence/degradability: Decomposes to chloride and oxygen; not persistent.

Bioaccumulative potential: Low.

Mobility in soil: High mobility in water; reacts with organic matter.

Other adverse effects: Avoid uncontrolled release to the environment.

## 13. Disposal Considerations (non-mandatory):

Dispose of contents/container in accordance with local/regional/national regulations. Neutralize small residues with sodium thiosulfate under controlled conditions, then flush with plenty of water to approved treatment systems. Do not mix with other wastes.

# 3. Safety Data Sheets (SDS)

## 14. Transport Information (non-mandatory):

UN number/proper shipping name: Typically UN 1791, Hypochlorite Solutions (if criteria met; depends on concentration); Class 8; Packing Group III. Some dilute household products may not be regulated for transport.

Environmental hazards: Not listed as marine pollutant at low concentrations.

Special precautions: Keep away from acids and incompatible materials.

## 15. Regulatory Information (non-mandatory):

U.S. regulations (example): All components may be listed on TSCA. Not classified under SARA 302; SARA 313 not typically applicable for sodium hypochlorite. State and national regulations may apply. Verify local requirements.

## 16. Other Information:

SDS preparation date: 2025-09-29

Revision: 1.0

Disclaimer: This sample SDS is provided for training/template purposes only. Actual formulations and concentrations must be evaluated, and applicable regulations verified for your jurisdiction.

# About the Author



Khalid Ahmed is a Chartered Member of IOSH (CMIOSH) and a Member of the Chartered Institution of Water and Environmental Management (MCIWEM), with over 10 years of professional experience in Health, Safety, and Environment (HSE) practice and 7+ years in HSE training. Holding multiple industry-recognized qualifications—including M.Sc. in Safety, B.Sc. (Hons.) in Chemical Engineering, NEBOSH Environmental Diploma, NEBOSH International General Certificate, Level 3 Award in Education and Training, and ICDL—

Khalid has delivered safety training to diverse industries in the Middle East. His mission is to make safety knowledge clear, practical, and accessible for all workers and supervisors.