

Hazardous Communication

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OSHA's Hazard Communication Standard

- To ensure that employers and employees know about work hazards and how to protect themselves so that the incidence of illnesses and injuries due to hazardous chemicals are reduced.

The diagram illustrates the OSHA Hazard Communication Standard process. It starts with 'Chemicals are Shipped to Employers by Chemical Manufacturers, Importers or Distributors'. This leads to a box where 'Chemical Manufacturers and Importers classify the hazards of chemicals they produce or import, and prepare labels and safety data sheets based on the classifications'. This step leads to 'Implement the Program', which includes two main requirements: 'All Employers receive labeled containers and safety data sheets with shipped chemicals' and 'All Employers must prepare a written hazard communication program, including a list of the hazardous chemicals in the workplace'. This implementation leads to 'Keep Information Up-to-Date', which includes: 'All containers of hazardous chemicals labeled', 'Safety data sheets for all hazardous chemicals', and 'Workers trained on program elements, hazards, and protective measures'.

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Globally Harmonized System

- OSHA has adopted the Globally Harmonized System (GHS) which is a common, coherent approach to classifying and communicating chemical hazards.
- GHS provides improved quality and consistency in classifying and labeling chemicals, and will also enhance worker comprehension.
- GHS uses a 16 section “Safety Data Sheet” rather than “Material Safety Data Sheet” (MSDS)
- Labels are more defined under GHS
- The goal was to make a system that could be adopted among many nations

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HAZCOM a Three-Way Partnership

Manufacturers

- Determine physical and health hazards
- Labeling on all containers
- Provide SDS on all chemicals produced

Employers

- Develop HazCom program
- Explain HazCom standard
- Explain the use of labels, SDS & safe procedures

Employees

- Read labels & SDS
- Follow instructions & warnings
- Protect yourself with control measures or PPE

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Safety Data Sheets

- Presented in consistent, user-friendly 16 section format
- Includes
 - Chemical properties
 - Physical and environmental health hazards
 - Protective measures
 - Safety precautions for handling, storing, and transporting the chemical
- Must be written in English
- Must be accessible to all employees in the workplace
- Located in an area so the employee does not need to leave their work area to get the information
- Employers may designate one person to maintain and update the SDS

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Safety Data Sheets Continued

- Section 1-8
 - Contains general information about the chemical, identification, hazards, composition, safe handling and emergency control
 - Easier to get needed information to the correct people quickly
- Section 9-11 and 16
 - Contains technical and scientific information such as
 - Physical and chemical properties
 - Stability and radioactivity information
 - Toxicological information
 - Exposure control
- Section 12-15
 - Must contain these sections to comply with the UN GHS classification and labeling of chemicals
 - OSHA will not enforce these sections because other agencies control them

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Employer Responsibility

- Identify and list hazardous chemicals in the workplace
- Receive labeled containers with SDS on shipped chemicals
- Must have a written program including labels, SDSs, employee training and a list of the hazardous chemicals in the workplace
- Communicate hazard information to employees through labels, SDSs, and formal training programs

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Training Requirements

- All employees must be trained on label information and SDS
- Train employees how to use the provided information
 - Product identifier, Signal word, Hazard statement(s), Pictogram(s), Precautionary statement(s), and Name, address and phone number of the responsible party.
 - General understanding how elements interact.
- Safety data sheet
 - Train employees on the SDS format and the information they will find in various sections.

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Workplace Training

- Employer Training
 - Initial employee training on label elements
 - Training on SDS format
 - Continue to maintain the updated SDSs
 - Review current hazard communication program and update as necessary
 - Training must be conducted when new chemicals come into the workplace

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Steps to Minimize Workplace Hazards

- The first step is to perform a thorough hazard assessment
- Employers can rely on the evaluations performed by the manufacturers or importers to establish the hazards of the chemicals they use
 - This information is obtained from SDSs and labels

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Labels

- A group of written, printed or graphic information concerning hazardous chemicals attached to, printed on, or on the container of a hazardous chemical, or on outside packaging
- Requires information about hazards be included on labels by using quick visual notations and providing immediate recognition of the hazards.
- Must be legible and in English

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Labeling in the workplace

- According to OSHA guidelines, it's sufficient to use current labeling if all of the required information is provided
 - The shipping label may be used
 - Use a label which meets the standard requirements
 - National Fire Protection Association (NFPA) and Hazardous Material Information System (HMIS) are acceptable alternative workplace labeling systems
- The current labeling system may need updated to confirm the information is consistent with the new classifications


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Labeling Portable (Secondary) Containers

- Often, operations require transferring chemicals from the original labeled container into a secondary container (e.g., beaker, flask, or bottle). Portable containers must comply with the labeling requirements if any of the following events occur:
 - The material is not used within the work shift of the individual who makes the transfer.
 - The worker who made the transfer leaves the work area.
 - The container is moved to another work area and is no longer in the possession of the worker who filled the container.
- Labels on portable containers are not required if the worker who made the transfer uses all of the contents during the work shift.

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Label Example

SAMPLE LABEL	
<p style="text-align: center;">PRODUCT IDENTIFIER</p> <p>CODE _____ Product Name _____</p> <p style="text-align: center;">SUPPLIER IDENTIFICATION</p> <p>Company Name _____ Street Address _____ State _____ City _____ Country _____ Postal Code _____ Emergency Phone Number _____</p> <p style="text-align: center;">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. Dispose 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 style="text-align: center;">HAZARD PICTOGRAMS</p> <div style="text-align: center;">  </div> <p style="text-align: center;">SIGNAL WORD Danger</p> <p style="text-align: center;">HAZARD STATEMENT Highly flammable liquid and vapor. May cause liver and kidney damage.</p> <p style="text-align: center;">SUPPLEMENTAL INFORMATION</p> <p>Directions for use _____ _____</p> <p>Fill weight: _____ Lot Number _____</p> <p>Gross weight: _____ Fill Date: _____</p> <p>Expiration Date: _____</p>

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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

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Pictograms

- Graphic symbols used to communicate specific information about hazards of chemicals
- Used to improve worker's safety/health and are used worldwide
- Not a replacement for DOT symbols
- Consist of a red square frame set at a point with a black hazard symbol on a white background
- Total of 9 pictograms with 8 being most commonly used
 - **Health Hazard**- Carcinogen, reproductive toxicity, respiratory hazard, target organ and aspiration toxicity
 - **Flame**-Flammables, pyrophorics, self heating, emits flammable gas, organ peroxides
 - **Exclamation Mark**- Irritant (skin & eye), acute toxicity, narcotic effects, respiratory irritant
 - **Gas Cylinder**- Gases under pressure
 - **Corrosion**- Skin corrosion/burns, eye damage, corrosive to metals
 - **Exploding Bomb**- Explosives, self reactive and organic peroxides
 - **Flame Over Circle**-Oxidizers
 - **Skull and Crossbones**-Acute toxicity (Fatal or toxic)
 - **Environment**- Aquatic toxicity, **not widely used**

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OSHA Pictograms

The most common pictograms are:



Health Hazard



Exclamation Mark



Corrosion

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OSHA Pictograms

More common pictograms:



Skull and Crossbones



Flame



Gas Cylinder

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Chemical Hazards

- “Simple asphyxiant” substance/mixture that displaces oxygen in the ambient atmosphere, and can cause oxygen deprivation if exposed, leading to unconsciousness and death.
 - Label: *Warning. May displace oxygen and cause rapid suffocation.*
- “Pyrophoric gas” a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.
 - Label: *Danger. Catches fire spontaneously if exposed to air.*
- Combustible dust must be addressed on labels where appropriate:
 - Warning: *May form combustible dust concentrations in air*

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Safety Precautions

- Where feasible, prevent hazards by effective plan designs
- Where elimination of hazards is not feasible, control hazards to prevent unsafe and unhealthful exposure
- Elimination or control must be accomplished in a timely manner by establishing engineering techniques, safe work procedures, providing personal protective equipment and setting up administrative controls
- Provide for facility and equipment maintenance
- Plan and prepare for emergencies
- Establish a medical program with on-site first aid and nearby emergency care

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References

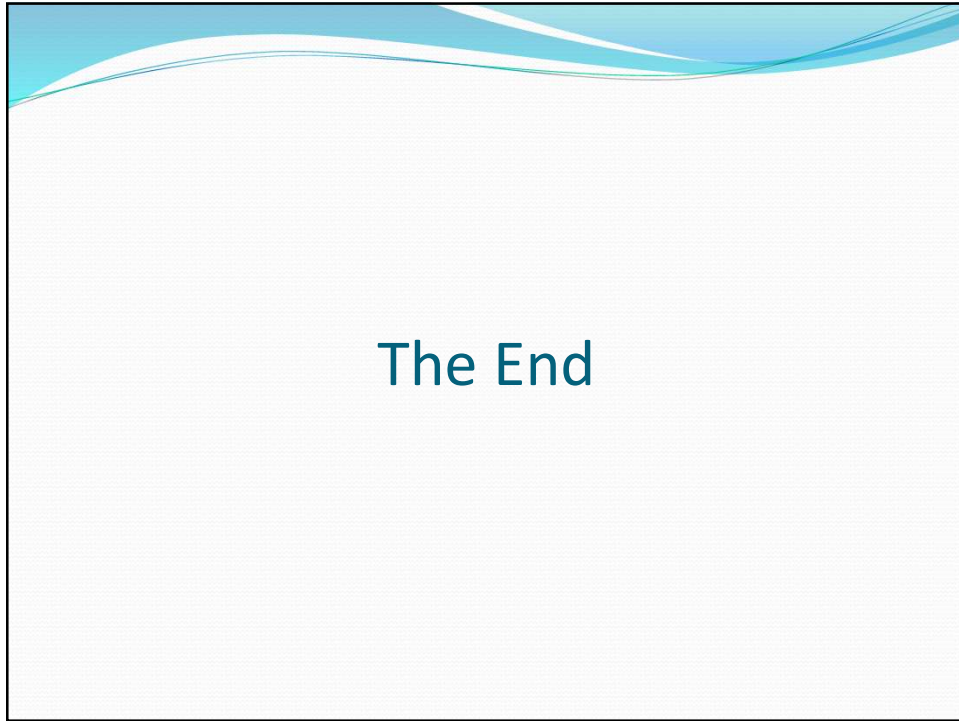
- OSHA Brief. *Hazard Communication Standard: Safety Data Sheets*, (Feb. 2012). Pgs. 1-7
- OSHA. *Hazard Communication 2012 – The Revised Standard and What Changes You Can Expect in the Workplace*, (August 13, 2012)
- OSHA Fact Sheet. *December 1st, 2013 Training Requirements for the Revised Hazard Communication Standard*, (Feb. 2012). Pgs 1-2
- http://www.osha.gov/Publications/HazComm_QuickCard_Pictogram.html

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References

- OSHA Quick Facts. *Laboratory Safety: Labeling and Transfer of Chemicals*, (Aug. 2011)
- OSHA. *Modification of the Hazard Communication Standard (HCS) to conform with the United Nations' (UN) Globally Harmonized System of Classification and Labeling of Chemicals (GHS)*
- OSHA. *Elements of an Effective Safety and Health Program*
- Society for Chemical Hazard Communication. *Hazard Communication 2012 – The Revised Standard and What Changes You Can Expect in the Workplace*, (Aug. 2012)

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