

Hazard Communication/
Globally Harmonized System (GHS)
OSHA 29 CFR 1910.1200

Training provided by
University of Kentucky
Occupational Health and Safety Department

GHS updates to the Hazard Communication Standard

- **Hazard classification:**
 - Provides specific criteria to address health and physical hazards as well as classification of chemical mixtures.
- **Labels:**
 - Provide a label that includes a signal word, pictogram, hazard statement.
- **Safety Data Sheets:**
 - The new format requires 16 specific sections.
- **Information and training:**
 - Covered employees must be trained by December 1, 2013.

Objectives of HazCom Standard

- To provide employees with easily understandable information on appropriate handling and safe use of hazardous chemicals by
 - Establishment of a Written Hazard Communication Program
 - Training
 - Safety Data Sheets
 - Labeling

Who is covered by HCS?

- All employees and students of the University who work with hazardous chemicals are covered by the HCS.
- This also includes visiting professors and volunteers

What is a hazardous chemical?

Hazardous chemical:

any chemical which is classified as a **physical hazard** or a **health hazard**, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.



What is a health hazard?

Health hazard – a chemical with one or more of the following:

- acute toxicity (any route of exposure);
- skin corrosion or irritation;
- serious eye damage or eye irritation;
- respiratory or skin sensitization;
- germ cell mutagenicity;
- carcinogenicity;
- reproductive toxicity;
- specific target organ toxicity (single or repeated exposure); or
- aspiration hazard.



More information about health hazards can be found in [APPENDIX A TO §1910.1200– HEALTH HAZARD CRITERIA](#)

- See Section 2 of Safety Data Sheets for specific health hazard information

What is a physical hazard?

Physical hazard – a chemical with one or more of the following :

- explosive;
- flammable (gases, aerosols, liquids, or solids);
- oxidizer (liquid, solid or gas);
- self-reactive;
- pyrophoric (liquid or solid);
- self-heating;
- organic peroxide;
- corrosive to metal;
- gas under pressure; or
- in contact with water emits flammable gas.



More information about physical hazards can be found in [APPENDIX B TO §1910.1200 - PHYSICAL HAZARD CRITERIA](#)

- See Section 2 of Safety Data Sheets for specific physical hazard information

Acute & Chronic Health Effects

Acute

- Short term exposure
- Typically produces immediate symptoms
- Examples:
 - Coughing, sneezing
 - Tearing of the eyes
 - Rash, burns

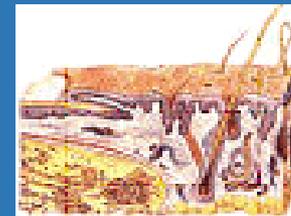
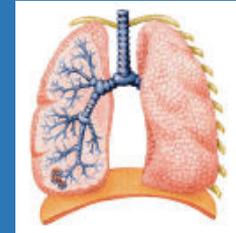
Chronic

- Long term exposure
- Symptoms typically appear a period of time after exposure
- Examples:
 - Asbestosis
 - Silicosis
 - Black lung

Routes of Entry

Four primary routes of entry

- **Inhalation**
(through the lungs)
- **Ingestion**
(through the digestive system)
- **Contact**
(contact with body openings)
- **Absorption**
(through the skin)



Written Hazard Communication Program

- OSHA requires that a written HCP be developed, implemented and maintained at each workplace. The HCP can be developed for each department, shop or unit depending upon how chemicals are utilized in specific work operations.

Written Hazard Communication Program (cont'd)

The written program must address at a minimum how the following requirements will be met:

- Labels and other forms of warning for containers of hazardous chemicals
- Safety Data Sheets (SDS)
- Employee information and training
- The methods the employer will use to inform employees of the hazards of non-routine task and the hazards associated with chemicals contained in unlabeled pipes in their work areas
- The manner in which contractors in the facility will be informed of the hazards to which their employees may be exposed

Written Hazard Communication Program (cont'd)

- A template to assist you in developing a written HCP has been established at the University of Kentucky and is available at [UK Hazard Communications Program](#)
- Copies of the written HCP must be available in the work area for review by all employees.

Responsibilities of Environmental Health and Safety Division (EHS)

EHS is responsible for developing, implementing and monitoring the HCP to include:

- Collaborating with faculty and staff to develop and implement a comprehensive, workplace - specific HCP
- Providing general Hazard Communication training
- Training departmental trainers about the potential hazards from chemicals and protective measures and work practices that may be used to reduce these hazards
- Conducting job hazard analysis and exposure assessments
- Providing technical assistance concerning Personal Protective Equipment (PPE)
- Remaining current on rules and regulations concerning HCP requirements

Responsibilities of Employing Department (Deans, Directors, Heads of Academic and Administrative Units)

Responsible for the health and safety of their staff, students, and visitors. Specific responsibilities include:

- Understanding and enforcing the provisions of the HCP
- Informing and training employees concerning chemical safety as required by the HCP
- Ensuring that training is conducted as soon as an employee is assigned to the work area, when a new hazardous chemical is introduced into the work area, and when a non-routine task presents a chemical hazard
- Maintaining a current inventory of hazardous chemicals in the workplace

Responsibilities of Employing Department

(cont'd)

- Ensuring labels are provided for all hazardous chemicals as required by the HCP
- Making SDS's immediately available for all chemicals in inventory
- Ensuring the availability and enforcing the use of the proper required PPE
- Maintaining dated training records for those employees supervised

Responsibilities of employee, student, and visitors

- Attending training provided by the supervisor and EHS
- Following all health and safety rules and regulations related to the workplace activities
- Properly wearing and utilizing required PPE
- Reporting any unsafe conditions or activities to the supervisor immediately

Responsibilities of employee, student, visitor (cont'd)

- Requesting information or training when unsure how to use equipment or do a task
- Reporting any job related injury or illness to the supervisor and seeking treatment immediately

[Reporting Your Accident](#)

Container Type and Required Labeling

Four Types of Containers

- Primary containers
- Secondary containers
- Stationary containers
- Portable containers

Primary Container

- Incoming container typically shipped from the manufacturer
- Examples include
 - Drums, Crates, Large Bags, etc...



Primary Container Labeling

The chemical manufacturer or importer is required to label, tag or mark the following information for hazardous chemicals leaving their facility:

- Product identifier;
- Signal word;
- Hazard statement(s);
- Pictogram(s);
- Precautionary statement(s); and,
- Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

Primary Container Labeling (cont'd)

Signal Word

- Indicates the relative level of severity of hazard.
 - Danger = Severe hazards
 - Warning = Less severe hazards

Primary Container Labeling (cont'd)

Hazard Statement

- A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Primary Container Labeling (cont'd)

Hazard Pictograms

- The HCS requires pictograms on labels to alert users of the chemical hazards.
- Each pictogram represents a distinct hazard(s).
- The pictogram on the label is determined by the chemical hazard classification.

Examples of Pictograms

HCS Pictograms and 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
- 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 and Crossbones



- Acute Toxicity (fatal or toxic)

Example of a Primary Container Label

SAMPLE LABEL	
PRODUCT IDENTIFIER CODE _____ Product Name _____	HAZARD PICTOGRAMS 
SUPPLIER IDENTIFICATION Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	SIGNAL WORD Danger
PRECAUTIONARY STATEMENTS 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. In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO ₂) fire extinguisher to extinguish. First Aid If exposed call Poison Center. If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.	HAZARD STATEMENT Highly flammable liquid and vapor. May cause liver and kidney damage.
	SUPPLEMENTAL INFORMATION Directions for use _____ _____ _____ Fill weight: _____ Lot Number _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

Secondary Container Labeling

A secondary container is a container that is used to store smaller quantities of a chemical from the primary container.

Examples of secondary containers

- Coffee cans
- Drums
- Plastic jugs
- Spray bottles



Secondary Container Labeling (cont'd)

Each secondary container of hazardous chemicals in the workplace shall be labeled, tagged or marked with at least the following information:

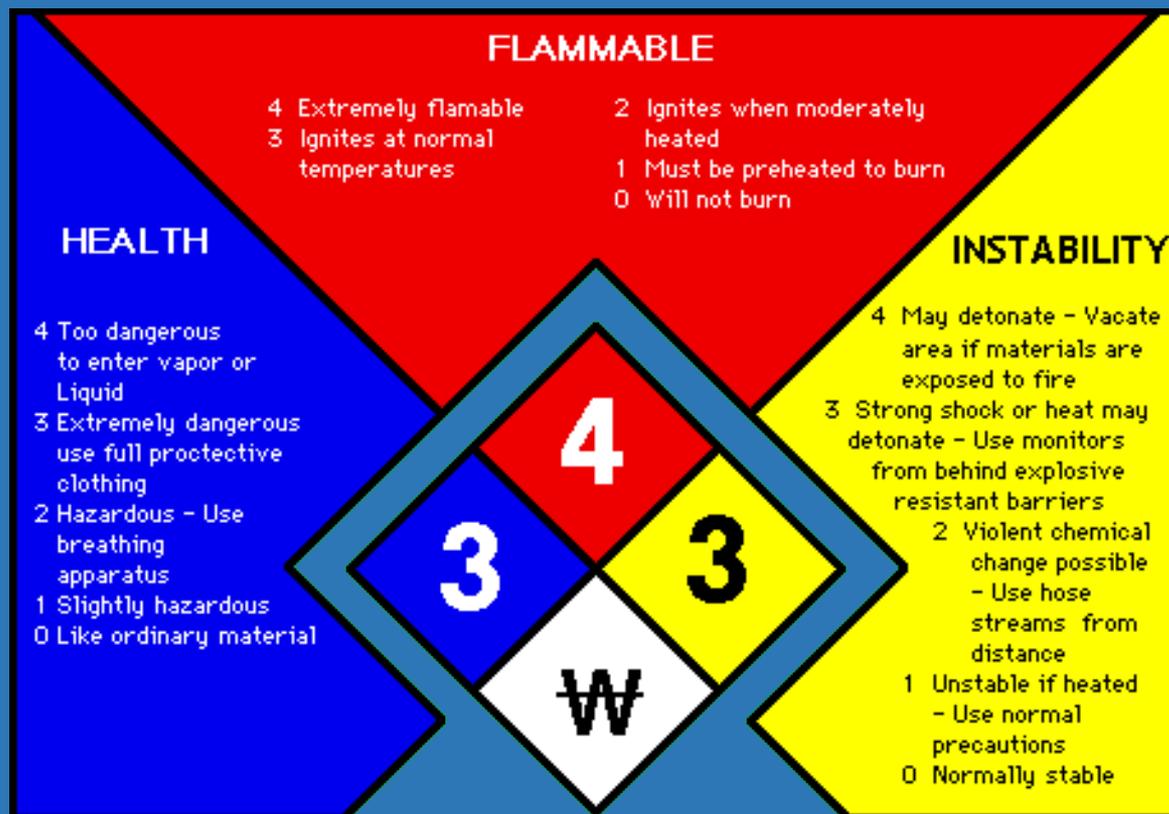
- Identity of the hazardous chemical(s)
- Appropriate hazard warnings, or words, pictures, and/or symbols which provide information regarding the hazards of the chemicals.

Labeling Methods

The two most common types of labeling systems utilized are:

- NFPA 704 (National Fire Protection Association)
- HMIS (Hazardous Materials Identification System)

NFPA Labeling



NFPA Labeling (cont'd)

Special Hazard Information

- An open space at the bottom of the NFPA diagram can be used to indicate additional information about the chemical or material. This information may include the chemical or material's radioactivity, proper fire extinguishing agent, skin hazard, its use in pressurized containers, protective equipment required, or unusual reactivity with water. Some examples of those are below:
 - OX or OXY indicates a material that is an oxidizer
 - W indicates a material that is water reactive
 - ALK indicates a material that is alkali
 - COR indicates a material that is corrosive
 - RAD indicates a material that is radioactive

HMIS Labeling

The HMIS labeling system operates on the same principle as the NFPA diamond.

- Each category uses a 0-4 scale
 - 0 = Less severe
 - 4 = More severe
- * in health = chronic health hazard
- Specific coding is provided for PPE

Name of Material	
<input type="checkbox"/>	HEALTH
<input type="checkbox"/>	FLAMMABILITY
<input type="checkbox"/>	REACTIVITY
<input type="checkbox"/>	PROTECTIVE EQUIPMENT

HMIS Labeling (cont'd)

Personal Protection

- HMIS® uses the white section to indicate what PPE should be used when working with the material.
- Each letter corresponds to a required level of PPE for use of chemical.

Hazardous Materials Identification System

HAZARD INDEX

4 Severe Hazard	0 Minimal Hazard
3 Serious Hazard	* An asterisk (*) or other designation corresponds to additional information on a data sheet or separate chronic effects notification.
2 Moderate Hazard	
1 Slight Hazard	

PERSONAL PROTECTION INDEX

A
B +
C + +
D + +
E + +
F + + +

G + +

H + + +

I + +

J + + +

K + + +

X Consult your supervisor or S.O.P. for special handling directions

A Safety Glasses	n Splash Goggles	o Face Shield & Eye Protection	p Gloves	q Boots
r Synthetic Apron	s Full Suit	t Dust Respirator	u Vapor Respirator	w Dust & Vapor Respirator
y Full Face Respirator	z Airline Hood or Mask			

AMERICAN LABELMARK, Chicago, IL 60646 NC-ECLU

HMIS® © National Paint & Coatings Association

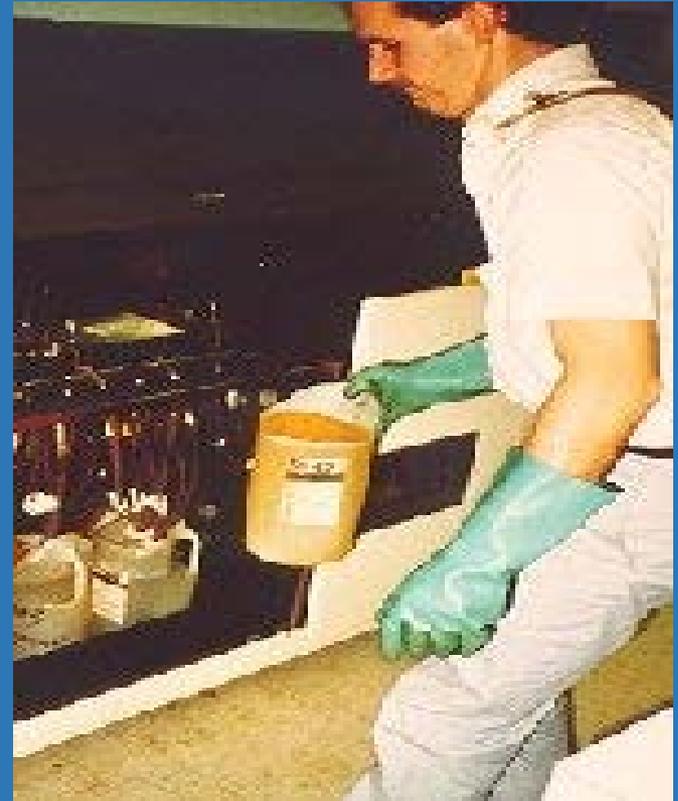
Stationary Process Container Labeling

- The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required on secondary containers.



Portable Container Labeling

- Used to transfer hazardous chemicals from labeled containers
- Only allowed for immediate use by employee performing transfer
- Does not require a label



Additional Labeling Requirements

- Must accurately communicate the hazards of their associated chemicals.
- Keep labels in good condition at all times.
- Do not remove or deface existing labels on incoming containers of hazardous chemicals,
 - If label is removed or defaced, the container shall immediately be marked with the required information.
- Ensure that labels or other forms of warning are:
 - legible, in English,
 - prominently displayed on the container, or
 - readily available in the work area throughout each work shift

Safety Data Sheets

SDS

- Required for each hazardous chemical in the workplace and must be available for review in the work area during the work shift
- Utilized to inform employees of the hazards associated with the chemical's use, storage, and disposal
- Provides information regarding procedures for first aid, spills, fires, and other emergencies

Safety Data Sheets

SDS (cont'd)

- Copies of the SDS for most chemicals may be obtained from [MSDS Online](#) or directly from the manufacturer or importer of the chemical
- Paper copies of the SDS should be maintained in a notebook or other collection device if electronic methods are not used
- If access is by computer, the computer must be available during the work shift and employees must be trained in how to use the system

Safety Data Sheets

SDS (cont'd)

SDS Format

- 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 12 Ecological information;
- Section 13 Disposal considerations;
- Section 14 Transport information;
- Section 15 Regulatory information; and
- Section 16 Other information, including date of preparation or last revision.

Employee Training

- The departmental supervisor or their designee is responsible for ensuring employees receive the required training
- The employee shall be provided with *workplace specific training* on hazardous chemicals that are located in their work area
- Training shall be provided to the employee at the time of their initial assignment and whenever a new physical or health hazard is introduced into the work area. **The *workplace specific training* is required in addition to the completion of this online training module.**

Employee Training (cont'd)

The *workplace specific training* must inform employees of:

- How to locate a copy of the work place - specific written HCP.
- How to access the master list of hazardous chemicals.
- How to access an SDS for each chemical in the master list.
- An explanation of the labeling system used in the work place.
- The physical and health hazards of the hazardous chemicals in the work area.
- Special precautions to follow when working with hazardous chemicals.
- How to reduce or prevent overexposure to hazardous chemicals
- Steps that the department has taken to reduce or prevent exposure to hazardous chemicals.

Employee Training (cont'd)

- Methods and observations employees may use to detect the presence of a hazardous chemical.
- Procedures to follow if employees are exposed to hazardous chemicals
- The health hazards, symptoms, first aid and emergency procedures to follow, in case of overexposure
- Procedures to follow when a spill or leak occurs.
- How and when to use PPE. [UK PPE Program and Hazard Assessment](#)
- How to provide outside contractors the information about chemical hazards in the work place.
- The potential hazards associated with non routine tasks, and the control measures used to ensure worker safety. Non routine tasks are those which are not a part of the normal day-to-day activities.

Controlling Physical and Health Hazards

- There are a number of ways to prevent overexposure to hazardous chemicals. One of the most effective is to follow the safe work practices as recommended by manufacturer's guidelines when using these products.
- Other ways to safeguard your health and safety when using hazardous materials include the following:
 - Product substitution
 - Use proper engineering controls
 - Knowing how to work with the material safely
 - Use the proper PPE as it is intended to be used

Personal Protective Equipment (PPE)

- A PPE Hazard Assessment must be conducted by the supervisor with an explanation on the use and care of the PPE. Information and forms to conduct this assessment can be found within the [UK PPE Program and Hazard Assessment](#)
- PPE including gloves, safety glasses, aprons, and other protective clothing is available from the employee's supervisor.



Personal Protective Equipment

(cont'd)

- If the use of a respirator is required for specific tasks, employees are required to be medically approved, fit-tested and given specific instructions about the use, care, and limitations of their respirators (PRIOR TO USE) Contact OHS at 257-7600 or visit our [Respiratory Protection](#) page for information.



Chemical Release

- Spills and releases of hazardous materials in other than insignificant amounts should follow Environmental Management's Spill Procedure
- If a spill involves a biological material then follow Biological Safety's Spill Plan

Emergency Eye Wash/Safety Showers

- OSHA requires that suitable means for flushing and quick drenching of the eyes and body be available in any area where toxic and/or corrosive materials are in use.-
- In cases of an exposure, the initial first aid treatment is to flush affected area with water for a minimum of 15 minutes.
- For more information about Emergency Eye Wash/Safety Showers please view [Eyewash Training](#)



Questions/Comments



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