

HAZARD COMMUNICATION PROGRAM

University of California, Davis



Version 2.1

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1.0 Program Description

The University of California, Davis (UC Davis) is committed to providing a safe and healthy work environment for faculty, staff and students. The UC Davis Hazard Communication Program (HazCom) was developed to improve communication and training associated with the use, handling, and storage of hazardous chemicals. The program is designed to increase employee awareness of the hazardous chemicals used in the workplace by providing information about the hazardous chemicals, identifying the associated hazards and harmful effects, and how to protect themselves from the risks of those hazards.

This document uses the Globally Harmonized System (GHS) for classification and labeling of chemicals which was incorporated into the 2013 Cal/OSHA Hazard Communication Standard (California Code of Regulation (CCR), *Title 8, §5194*). This document serves as the UC Davis general HazCom Program. In addition, departments are required to complete department-specific information in *Appendix A- Hazard Communication Program Summary*. Employees must adhere to the general HazCom Program and their department-specific requirements.

2.0 Definitions

Article	A manufactured item (1) which is formed to a specific shape or design during manufacture; (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (3) which does not release, or otherwise result in exposure to a hazardous substance under normal conditions of use or in a reasonably foreseeable emergency resulting from workplace operations.
Classification	To identify the relevant data regarding the hazards of a chemical; review those data to ascertain hazards associated with the chemical; and decide whether the chemical will be classified as hazardous, and the degree of hazard where appropriate, by comparing the data with the criteria for health and physical hazards. Typical classifications might be flammable, corrosive, reactive and toxic.
Hazardous chemical	Any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, a hazard not otherwise classified, or is included in the <i>Director's List of Hazardous Substance</i> .
Health hazard	A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with the established scientific principles that acute or chronic health effects may occur in exposed employees. Health Hazard Criteria can be found in <i>29 CFR §1910.1200- Appendix A</i> (8 CCR §5194 Appendix A references this federal regulation). Hazards are listed as "H" codes on GHS-compliant labels and safety data sheets (SDSs).
Immediate use	The hazardous substance will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.
Label	An appropriate group of written, printed, graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.
Near miss	As defined by <i>OSHA</i> , refers to incidents where no property was damaged and no

personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred.

Physical hazard	A chemical that is classified as posing one of the following hazardous effects: 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; combustible liquid; water reactive; or in contact with water emits flammable gas. Physical Criteria can be found in 29 CFR §1910.1200 Appendix B (8 CCR §5194- Appendix B references this federal regulation).
Pictogram	A composition that may include a symbol plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information about the hazards of a chemical.
Precautionary statement	A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to hazardous chemicals, or improper storage or handling. Statements are listed as “P” codes on GHS-compliant labels and SDSs.
Pyrophoric gas	A chemical that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.
Safety data sheet (SDS)	Written or printed material concerning a hazardous chemical that is prepared in accordance with 8 CCR §5194(g). (See Appendix B for details).
Signal word	A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are “danger” and “warning.” “Danger” is used for the more severe hazards, while “warning” is used for the less severe.
Simple asphyxiant	A substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those individuals who are exposed, leading to unconsciousness and death.
Trade secret	Any confidential formula, pattern, process, device, information, or compilation of information which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it. A trade secret shall not include chemical identify information which is readily discoverable through qualitative analysis.
Use	To package, handle, react, or transfer.
Workplace label	“Non-original manufacturer label”- Label placed on a secondary (workplace) container. When hazardous material is removed/transferred from the original manufacturer labeled container to another container (secondary (workplace) container), the secondary (workplace) container must have a workplace label with the exception of portable containers that will contain chemicals for immediate use.

3.0 Scope and Application

This document fulfills the requirements of the Cal/OSHA Hazard Communication Standard ([8 CCR §5194](#)) and [Policy and Procedures Manual 290-27](#). The program describes methods for meeting the requirements of a written HazCom program, including:

- Developing and maintaining a list of hazardous chemicals;
- Availability and access to Safety Data Sheets (SDSs);
- Establishing procedures for container labeling and other forms of warning;
- Providing information and training; and
- Addressing multi-employer workplace issues.

3.1 Employees, Operations, and Substances Subject to the HazCom Requirements:

The HazCom Program applies to non-research University employees who work in:

- Non-laboratory “industrial” work areas or operations where hazardous chemicals are used, handled or stored (examples: maintenance shops, custodial operations, art studios, craft centers and animal husbandry areas); or
- Laboratories that primarily provide quality control analyses for manufacturing processes or that produce hazardous chemicals for commercial purposes (examples: laboratories that produce research products sold outside of the university).

3.2 Exempted or Partially Exempted Operations and Substances

3.2.1 Research and Teaching Laboratories that meet the “laboratory use of hazardous chemicals” definition.

If all of the following criteria are met then the lab is classified as an “excepted lab” and is covered under the Occupational Exposures to Hazardous Chemicals in Laboratories ([8 CCR §5191](#)) and UC Davis Chemical Hygiene Plan requirements:

- Chemical manipulations are carried out on a “laboratory scale”;
- Multiple chemical procedures or chemicals are used;
- The procedures involved are not part of a production process, nor in any way simulate a production process; and
- “Protective laboratory practices and equipment” are available and in common use industry-wide to minimize the potential for employee exposure to hazardous chemicals.

These laboratories are typically under the direct supervision and regular observation of an individual who has knowledge of the physical hazards, health hazards, and emergency procedures associated with the use of the particular hazardous chemicals involved, and who conveys this knowledge to employees in terms of safe work practices.

3.2.2 Operations where chemicals are only handled in sealed containers and are not opened under normal conditions.

These operations are partially exempt from the regulatory requirements. However, employees of such operations must:

- Ensure labels are not removed or defaced;

- Maintain SDSs and ensure SDSs are readily accessible during the work shift; and
- Be provided information and training to the extent necessary to protect employees in the event of a spill or leak of a hazardous chemical from a sealed container.

Such operations could include warehouses, store rooms, and shipping and receiving.

3.2.3 Exempted Substances

- Hazardous waste;
- Tobacco or tobacco products;
- Wood or wood products;
- Articles;
- Food, drugs or cosmetics intended for personal use; and
- Consumer products used in the workplace when used as a normal consumer would (example: white out, glass cleaner, spray paint for short, one-time applications, etc.). Employee exposure to the product cannot be significantly greater than consumer exposure.

4.0 Hazardous Chemical Identification and Classification

Hazardous chemicals include, but are not limited to, the following:

- “The Hazardous Substance List,” commonly known as the Directors List of Hazardous Substances, [8 CCR §339](#);
- “Toxic and Hazardous Substances, Air Contaminants,” [8 CCR §5155](#);
- “Threshold Limit Values for Chemical Substances in the Work Environment,” American Conference of Governmental Industrial Hygienists, updated annually;
- “[14th Report on Carcinogens](#),” National Toxicology Program, 2016;
- “[Monographs](#),” International Agency for Research on Cancer, World Health Organization;
- SDSs for reproductive toxins and cancer causing substances; and
- Any other substance that may present a physical or health hazard as determined by scientific evidence.

Hazardous chemicals can be identified by the hazard classifications noted on manufacturer labels and SDSs. Common hazard classifications include flammable, corrosive, toxic and carcinogen.

5.0 Rights and Responsibilities

5.1 Department Head

Department Heads shall assure that:

- HazCom is implemented as a part of the department's comprehensive health and safety program, in accordance with UC Davis Policy and Procedure Manual [Section 290-15](#) and [Section 290-27](#);
- Department chemical inventories are entered and maintained in the [Chemical Inventory System](#) ;

- Department-Specific HazCom Program Summary is prepared, maintained and communicated to employees; and
- Campus General HazCom Program content is communicated to all employees.

5.2 Supervisors and Principal Investigators

Supervisors and Principal Investigators (PIs) are responsible for implementing HazCom at the operational level and ensuring the safe use of hazardous chemicals for all areas under their supervision. Responsibilities include:

- Completing a Job Safety Analysis per the campus [Injury and Illness Prevention Program](#);
- Completing a hazard assessment/ personal protective equipment certification ([8 CCR §3380- Personal Protective Devices](#)), if needed;
- Providing training and information to anyone who may be affected by work with hazardous chemicals, including ready access to SDSs and emergency procedures for hazardous chemicals used in the work area. This includes personnel from other units or contractors who may be affected by department operations;
- Identifying the hazardous chemicals present in the work area;
- Maintaining an inventory list of hazardous chemicals present in the work area; and
- Confirming that:
 - All hazardous chemicals, at or above reporting thresholds, are included in CIS;
 - All hazardous chemicals are labeled, at minimum, with the chemical name and the hazard; and
 - Department-Specific HazCom Program Summary (Appendix A) is followed and maintained in any assigned space where hazardous chemicals are used, handled or stored.

5.3 Employees

Employee rights:

- To receive information regarding hazardous chemicals to which the employee may be exposed;
- For the employee's physician or bargaining unit representative to receive information regarding hazardous chemicals to which the employee may be exposed;
- Access to employee's medical and exposure monitoring records; and
- Right to exercise employee's rights to know without fear of discharge or other discrimination.

Employee responsibilities include:

- Reviewing, understanding, and following the requirements of the UC Davis General HazCom Program and the Department-Specific HazCom Program Summary (Appendix A);
- Completing required initial online general HazCom training and participating in department-specific training, including the review of labels and SDSs prior to working with hazardous chemicals;
- Knowing the hazards and precautionary procedures for hazardous chemicals used in the work area;
- Following safe work practices, standard operating procedures (SOPs) and wearing proper personal protective equipment (PPE) when working with hazardous chemicals; and

- Immediately reporting accidents, incidents (including near misses), and unsafe conditions to your supervisor.

5.4 Office of Environmental Health and Safety (EH&S)

EH&S responsibilities include:

- Developing, implementing and evaluating the campus general HazCom Program;
- Providing assistance with determining the hazardous properties of chemicals for which SDSs may not be available;
- Managing CIS and reporting the chemical inventory to County and State agencies as required;
- Providing assistance with hazard assessment and PPE selection; and
- Administering the HazCom Program for the UC Davis campus, associated field stations and remote facilities, and industrial functions at the Sacramento campus, excluding the hospital and clinical activities.

5.5 UC Davis Health System Environmental Health and Safety

UC Davis Health System EH&S responsibilities include:

- Carrying out the HazCom Program (Hospital Policy and Procedure 1641) for UC Davis Health System—hospital and clinic activities; and
- Managing the UC Davis Health System hospital and clinic SDS database.

6.0 Chemical Inventory

6.1 General Requirements

All departments that use, handle or store hazardous chemicals must maintain an inventory of the hazardous chemicals present in their work areas. Inventories must be entered in the UC Davis CIS, the online inventory system managed by EH&S.

6.2 Consumer Products

Consumer products must be included in the chemical inventory if the employee exposure to the product is significantly greater than the consumer exposure occurring during the principal consumer use of the product. However, certain minimal inventory thresholds are required for other reporting agencies such as Certified Unified Program Agency (CUPA).

6.3 Chemical Inventory System

6.4 Chemical inventory information is available on the Safety Services webpage <https://safetyservices.ucdavis.edu/article/uc-chemicals>.

7.0 Safety Data Sheets (SDS)

7.1 General Requirements

Departments must maintain copies of any SDS received with incoming shipments of hazardous chemicals, obtain SDS of hazardous chemicals if received without an SDS, and shall ensure that SDSs are readily accessible during each work shift. SDSs may be maintained in electronic form so long as there are no barriers to employee access.

7.2 Globally Harmonized System Format

By June 2015, all SDSs must be GHS-compliant. SDSs will have a consistent 16-section format with the following sections (see Appendix B for details):

- 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 Control/Personal Protection
- Section 9: Physical and Chemical properties
- Section 10: Stability and Reactivity
- Section 11: Toxicological Information
- Section 12: Ecological Information (non-mandatory)
- Section 13: Disposal Considerations (non-mandatory)
- Section 14: Transportation Information (non-mandatory)
- Section 15: Regulatory Information (non-mandatory)
- Section 16: Other Information

7.3 Trade Secrets

Manufacturers and importers may withhold the specific chemical identity of a hazardous chemical with certain “*trade secret*” provisions. Contact EH&S for assistance with addressing “trade secret” information.

7.4 Obtaining SDSs

SDSs can be obtained by:

- Requesting copies from your supervisor
- Contacting the vendor directly
- Accessing the [Safety Services SDS links](#)
- [Requesting EH&S assistance](#).

8.0 Labels and Other Forms of Warning

8.1 General Requirements

Every container of a hazardous chemical, except containers that will contain chemicals for immediate use, must be labeled, tagged, or marked to identify the substance and appropriate hazard warnings.

8.2 Manufacturer Labels

The manufacturer’s original label shall provide:

- Identity of the hazardous substance;
- Signal word;
- Hazard statement(s);
- Pictograms (see [Appendix C](#));
- Precautionary statement(s); and
- Name and address of the manufacturer, importer or responsible party.

Detailed information on manufacturer labels and label requirements can be found online:

http://www.osha.gov/dsg/hazcom/appendix_c.pdf

Labels shall be:

- Legible;
- In English; and
- Prominently displayed on the container.

The original label shall not be removed or defaced unless the container is immediately marked with the required information.

8.3 Workplace Labels

8.3.1 Minimum requirements

- Every container of a hazardous chemical must be labeled, tagged, or marked, in English, to identify the chemical and to provide appropriate hazard warnings;
- Portable secondary (workplace) containers used immediately by the person performing the transfer do not need labels; and
- Non-hazardous substances (e.g., distilled water) should be labeled in order to avoid confusion.

8.3.2 Acceptable labeling conventions

- Best practice is to include all information that is provided on the manufacturer's label.
- If a set of abbreviations is used routinely in the work area, definitions of the abbreviations must be posted in a prominent place in the work area and available to all employees.
- Alternative methods such as signs, placards, process sheets, and operating procedures are acceptable for individual stationary process containers, provided that the information is conveyed to all affected persons. Commonly used labeling systems include Department of Transportation, National Fire Protection Association and Hazardous Materials Identification System (see [Appendix D](#)).
- Examples of acceptable labeling conventions include:
 - Small volume containers such as micro-scale test tubes and vials can be placed in a rack and the rack can be labeled with the name of the hazardous chemical and the appropriate hazard;
 - Containers are labeled with a symbol and a sign is posted defining the meaning of the symbol; the posted information must include the name of the hazardous chemical and the appropriate hazard; and
 - Secondary container labeled with unique product or common name must also contain the appropriate hazard warning; example "concentrated Accel-corrosive."

8.4 Workplace Signage

The poster "*Safety Data Sheets, Labels, and Hazardous Chemical Emergencies*," (see [Appendix E](#)) must be displayed in all areas where hazardous chemicals are used, handled or stored. Departments must fill in all blank spaces (e.g., location of SDSs) on the poster.

8.5 Labeled/Unlabeled Pipes

Aboveground pipes transporting hazardous substances (gases, vapors, liquids, semi- liquids, or plastics) shall be labeled in accordance to [8 CCR §3321](#), "Identification of Piping."

Employees shall not work on any unlabeled pipes until:

- The contents of the pipe are determined; and
- Appropriate safety precautions have been determined for the work.

8.6 Labels on Containers Leaving Campus

All off campus shipments of hazardous chemicals must comply with the current U.S. Department of Transportation (DOT) requirements and the UC Davis Hazardous Chemicals Use, Storage, Transportation and Disposal policy ([PPM 290-65](#)). Hazardous Materials shipment information can be found on the [UC Davis Supply Chain Management website](#).

9.0 Employee Information and Training

9.1 General and Department-Specific

Employees must complete the [initial online Hazard Communication training](#). Refresher training is required every three (3) years within the department or by retaking the eLearning course. In addition, employees must be trained on the specific hazards of the chemicals used in their department. Training must cover the following:

- a. Signs and symptoms related to the exposures to hazardous chemicals used in the work area;
- b. Methods that may be used to detect the presence or release of a hazardous chemical. This could include industrial hygiene monitoring, the use of continuous monitoring devices, visual appearance, or odors of chemicals;
- c. Specific procedures to protect employees such as safe work practices, standard operating procedures (SOPs), emergency response procedures, and use of personal protective equipment;
- d. Details of manufacturer labels, SDSs and workplace labeling system, and how that information can be used to assure safe handling and storage; and
- e. Procedure for addressing non-routine tasks involving hazardous chemicals.

9.2 Frequency

Supervisors and Principal Investigators must provide employees information and training regarding the physical and health hazards of the chemicals in the work area before assigning employees to work with hazardous chemicals. Refresher training is required whenever a new chemical hazard is introduced into the workplace or a new or updated SDS is received. Refresher training must be completed at least once every three years.

9.3 Non-Routine Tasks

Employees must be provided training or refresher training prior to engaging in a non-routine task. Employees must be provided hazard notification and precautionary measures to avoid or minimize the potential for risk of exposure.

9.4 Documentation and Record Retention

Training must be documented and records must be retained for at least three years. The Illness & Injury Prevention Program Safety Training Attendance Record or its equal may be

used to document instructor-led training. At a minimum, the following information must be documented:

- a. Name of individual(s) trained;
- b. Name of individual(s) providing training for instructor-led courses;
- c. Date of training; and
- d. Brief description of training topics covered.

Computer-based training provided in the campus Learning Management System will be documented electronically.

10.0 Multi-Employer Workplaces (Informing Contractors and Contract Workers)

Hazard information, which includes access to SDS, must be made available to contractors and contract workers if the work is to be performed in the presence of hazardous chemicals. Contractors and contract workers must also disclose hazard information for hazardous chemicals that are brought into the work area that may affect campus employees.

11.0 Emergency Procedures

Employees shall follow emergency procedures covered in their department-specific Emergency Action Plan and Injury and Illness Prevention Program. Emergency response procedures are also covered in the SDSs, labels, and UC Davis [Emergency Response Guide](#).

12.0 Program Review

EH&S will conduct a periodic program review at least once every three years.

13.0 Appendices

- A. Department-Specific Hazard Communication Program Summary
- B. Safety Data Sheets
- C. GHS Pictograms and Labels
- D. Common Labeling Systems
 - U. S. Department of Transportation ([DOT](#))
 - National Fire Protection Association ([NFPA](#))
 - Hazardous Materials Identification System ([HMIS](#))
- E. *Safety Data Sheets, Labels and Hazardous Chemical Emergencies* Poster

Instruction: Enter department name on document header. Complete the required information below to document department-specific information. This summary, along with the campus Hazard Communication Program satisfies the Cal/OSHA requirements (8 CCR §5194).

Departments who handle, use or store hazardous chemicals in an industrial (non-laboratory) workplace are required to comply with Cal/OSHA’s Hazard Communication (HazCom) Standard. The requirements include:

- **Written HazCom Program-** UC Davis has a campus HazCom program which includes this department-specific summary page. Departments must complete this summary page to document department-specific information. Along with this summary page, departments must comply with the campus HazCom program, posted on the [Safety Services website](#).
- **Hazardous Chemical Inventory-** Chemical inventories must be maintained in the campus [Chemical Inventory System](#) ;
- **Safety Data Sheets (SDSs)-** An SDS is required for every hazardous chemical in the workplace and must be accessible during the work shift; departments may elect to store electronic copies or maintain hard copies;
- **Labels and Other Forms of Warning-** In-house labels (sometimes called secondary (workplace) labels) must contain, at minimum, the identity of the chemical and its appropriate hazard warning;
- **Training and Information-** Supervisor must provide training and information at time of initial assignment, whenever a new hazard is introduced into the workplace, and when employees may be exposed to other employers’ workplace hazards; refresher training is required at least every three (3) years;
- **Unlabeled Pipes and Non-Routine Tasks-** Supervisor must provide detailed hazard and procedural information prior to engaging in the task;
- **Contractors and Multi-Employer Worksites-** Supervisors must inform contractors or other employers of hazardous chemicals present in the work area, precautionary measures and other information needed; contractors must notify departments of any hazardous chemicals brought into the department;
- **Emergencies-** Follow department Emergency Action Plan, IIPP and/or response actions described in SDSs; only trained personnel may clean up spills; if spill is too large to clean up or if there is imminent danger, call **911**.

Units covered under this program:

Building(s)/ Room #(s):

Location of:

- Injury and Illness Prevention Program
- Emergency Action Plan
- Written HazCom Program Summary
- Chemical inventory (hard copy, if any)
- Safety Data Sheets (hard copies, if any)
- “Safety Data Sheets, Labels, and Hazardous Chemical Emergencies” poster

Department HazCom Contact:

Department Safety Coordinator:

Other Department Specific Information:

The Hazard Communication Standard requires manufacturers to provide GHS-compliant SDSs (formerly known as MSDSs) by June 2015. The SDS must be in a uniform 16-section format which includes the sections described below. This information was taken from the [OSHA HazCom SDS Quickcard](#). Detailed information can be found at <https://www.osha.gov/Publications/OSHA3636.pdf>.

Section 1, Identification:

Includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification:

Includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients:

Includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures:

Includes important symptoms/effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures:

Lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures:

Lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage:

Lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection:

Lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties:

Lists the chemical's characteristics.

Section 10, Stability and reactivity:

Lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information:

Includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information:

Includes the date of preparation or last revision.

*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15.

Employers must ensure that:

- SDSs are readily accessible to employees;
- Employees are trained on how to interpret SDSs;
- Document training; and
- Retain records for at least three years

Safety Services SDS search link is available at:

<https://safetyservices.ucdavis.edu/article/safety-data-sheets>







GHS Pictograms

The Hazard Communication Standard requires pictograms on manufacturer labels to alert users of the hazards associated with hazardous chemicals. Pictograms consist of a symbol on a white background with red border and represents a specific hazard. Pictograms are determined by the chemical hazard classification scheme found in [Appendix A](#) and [B](#) of the standard.

Pictograms can be downloaded directly from <https://www.osha.gov/dsg/hazcom/pictograms/index.html>.

GHS- Hazard Pictograms and Related Hazard Classes

		
Explosing Bomb •Explosives •Self-reactives •Organic peroxides	Corrosion •Skin corrosion/burns •Eye damage •Corrosive to metals	Flame Over Circle •Oxidizing gases •Oxidizing liquids •Oxidizing solids
		
Gas Cylinder •Gases under pressure	Environment •Aquatic toxicity	Skull & Crossbones •Acute toxicity (fatal or toxic)
		
Exclamation Mark •Irritant (eye & skin) •Skin sensitizer •Acute toxicity •Narcotic effects •Respiratory tract irritant •Hazardous to ozone layer (non-mandatory)	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

SAMPLE LABEL

PRODUCT IDENTIFIER
CODE _____
Product Name _____

SUPPLIER IDENTIFICATION
Company Name _____
Street Address _____
City _____ State _____
Postal Code _____ Country _____
Emergency Phone Number _____

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 (CO₂) 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 PICTOGRAMS



SIGNAL WORD Danger

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: _____

GHS Label

GHS labels include the following elements:

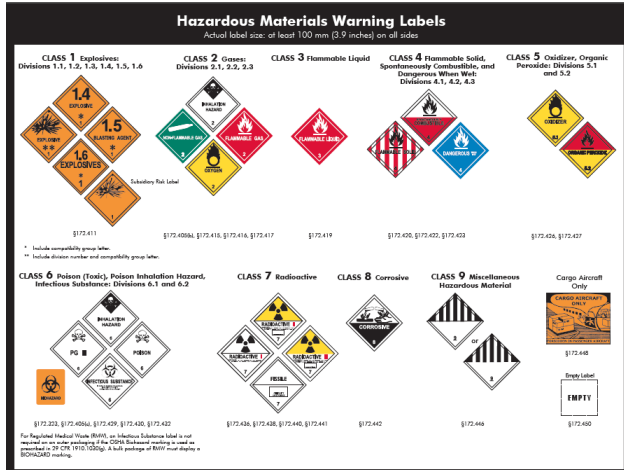
- Product identifier
- Hazard pictograms
- Precautionary statements
- Hazard statement
- Signal word
- Supplier identifier
- Supplemental information

Information taken from [Cal/OSHA Quick Card](#).

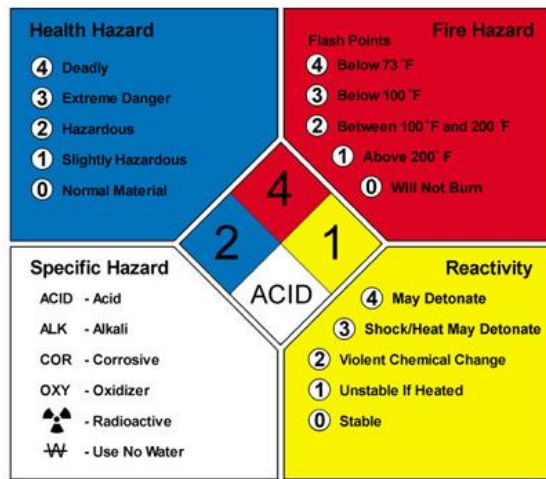
There are many labeling systems commonly used to communicate the potential hazards of chemicals. The more commonly used systems are from the U.S. Department of Transportation (DOT), National Fire Protection Association (NFPA) and the Hazardous Materials Identification System (HMIS).

U.S. Department of Transportation (DOT) system categorizes hazardous materials into nine classes:

- Class 1: Explosives
- Class 2: Gases
- Class 3: Flammable Liquids
- Class 4: Flammable Solids
- Class 5: Oxidizers, Organic Peroxides
- Class 6: Toxic (Poison)
- Class 7: Radioactive
- Class 8: Corrosive
- Class 9: Miscellaneous



See [U.S. DOT Chart 16](#) for details.



The **National Fire Protection Association (NFPA)** system consist of a diamond-shaped label with four sections that are color coded:

- Blue: Health Hazard
- Red: Fire hazard
- White: Specific Hazards
- Yellow: Reactivity

The numbering system ranges from zero (0) to four (4). The larger the number, the greater the hazard. Zero (0) is least hazardous and four (4) is the most hazardous. The NFPA codes describe how a material might behave in a fire situation.

See the [NFPA OSHA Quick Card](#) for details.

The **Hazardous Materials Identification System (HMIS)** uses a similar numbering system as NFPA. The current version of the HMIS manual (HMIS III) updated the formerly yellow coded "Reactivity" section to an orange "Physical Hazard" section to align with OSHA HazCom standard. The white colored "Personal Protection" section uses the HMIS personal protection index to describe the required personal protective equipment.

HMIS Hazardous Materials Identification System



PERSONAL PROTECTION INDEX			
A	☒	G	☒ + ☒ + ☒ + ☒
B	☒ + ☒	H	☒ + ☒ + ☒ + ☒ + ☒
C	☒ + ☒ + ☒	I	☒ + ☒ + ☒ + ☒ + ☒ + ☒
D	☒ + ☒ + ☒ + ☒	J	☒ + ☒ + ☒ + ☒ + ☒ + ☒ + ☒
E	☒ + ☒ + ☒ + ☒ + ☒	K	☒ + ☒ + ☒ + ☒ + ☒ + ☒ + ☒ + ☒
F	☒ + ☒ + ☒ + ☒ + ☒ + ☒	X	☒ + ☒ + ☒ + ☒ + ☒ + ☒ + ☒ + ☒ + ☒
Consult your supervisor or S.O.P. for "SPECIAL" handling directions.			
A	☒	O	☒
Safety Glasses	Resistant Goggles	Eye Shields & Eye Protection	Gloves
t	U	W	Y
Dust Respirator	Vapor Respirator	Dust & Vapor Respirator	Full Face Respirator
Boots	Footwear	Additional Information	S
☒	☒	☒	☒
☒	☒	☒	☒
☒	☒	☒	☒

See the [HMIS III- Hazardous Materials Identification System](#) link for details.

HMIS HEALTH HAZARD RATING CHART	
* CHRONIC HAZARD	Chronic (long-term) health effects may result repeated overexposure.
0=MINIMAL HAZARD	No significant risk to health.
1=SLIGHT HAZARD	Irritation or minor reversible injury possible.
2=MODERATE HAZARD	Temporary or minor injury may occur.
3=SERIOUS HAZARD	Major injury likely unless prompt action is taken and medical treatment is given.
4=SEVERE HAZARD	Life-threatening, major or permanent damage may result from single or repeated overexposures.










Department Name:
SDS Location:
Contact for SDS Information:

Cal/OSHA's Hazard Communication Standard requires manufacturers of products containing hazardous chemicals to furnish safety data sheets (SDSs) for their products. The SDS provides information such as toxicity, flammability, and reactivity hazard data; handling and storage guidance; and emergency procedures to follow for spills, exposure, and fighting fires.

Manufacturers' labels must contain *pictograms, signal words, hazard and precautionary statements, product identifier, and supplier information.*

Hazardous chemicals are not limited to the laboratory. Materials such as cleaning agents, paints, art materials, photographic chemicals, and automotive supplies may contain hazardous chemicals. Whenever there is doubt about the hazards associated with any material, contact your Supervisor or Safety Services at 530-752-1493.

Prior to performing a non-routine or unfamiliar operation that may involve hazardous chemicals, contact your Supervisor, Principal Investigator, or Department Safety Coordinator for information and training.

GHS- Hazard Pictograms and Related Hazard Classes		
		
Expanding Bomb <ul style="list-style-type: none"> Explosives Self-reactives Organic peroxides 	Corrosion <ul style="list-style-type: none"> Skin corrosion/burns Eye damage Corrosive to metals 	Flame Over Circle <ul style="list-style-type: none"> Oxidizing gases Oxidizing liquids Oxidizing solids
		
Gas Cylinder <ul style="list-style-type: none"> Gases under pressure 	Environment <ul style="list-style-type: none"> Aquatic toxicity 	Skull & Crossbones <ul style="list-style-type: none"> Acute toxicity (fatal or toxic)
		
Exclamation Mark <ul style="list-style-type: none"> Irritant (eye & skin) Skin sensitizer Acute toxicity Narcotic effects Respiratory tract irritant Hazardous to ozone layer (non-mandatory) 	Health Hazard <ul style="list-style-type: none"> Carcinogen Mutagenicity Reproductive toxicity Respiratory sensitizer Target organ toxicity Aspiration toxicity 	Flame <ul style="list-style-type: none"> Flammables Pyrophorics Self-heating Emits flammable gas Self-reactives Organic peroxides

IN CASE OF EMERGENCY, CALL 911

For skin or eye contact, immediately flush the affected area with running water for at least 15 minutes. If a substantial portion of the body is involved, use a safety shower. Seek medical attention. If the chemical is toxic, or if its toxic properties are unknown, **call 911**.

For inhalation or ingestion, follow instructions on the product label or SDS. Seek medical attention or **call 911**.

For chemical spills, check product label or SDS for instructions. If you suspect the chemical is flammable, extinguish all ignition sources. If instructions are not immediately available, the spill is large, or if chemical has definite or unknown corrosive, explosive, or toxic properties, evacuate and restrict access to the area and **call 911**. Clean up small spills only if you are trained and have access to spill kit supplies. See [Safety Net #13](#) for detailed guidelines.

NOTICE TO EMPLOYEES: Under California Code of Regulations, Title 8, section 3204, you have the right to see and copy your medical records and any records your employer maintains of your exposure to hazardous substances or harmful physical agents. In addition, you, your personal physician, or your collective bargaining agent may request information contained in SDSs. No discrimination action (including discharge) may be taken against you if you exercise your legal right.