



Hazardous Communication Program

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Revision Date:

Policy: Hazardous Communication Program

1. University of Massachusetts Dartmouth Approval

The program establishes the minimum requirements that the University of Massachusetts Dartmouth (UMD) employees must follow in order to adhere to the requirements found in the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29CFR1910.1200). Departments may implement their own Hazard Communication Program only if their program is equal to or exceeds the minimum requirements set forth by this program.

2. Purpose and Scope

The University of Massachusetts Dartmouth's Hazard Communication Program is intended to comply with the OSHA Hazard Communication Standard (29CFR1910.1200). UMD's program establishes that all University employees have the right-to-know information about the properties and potential health hazards of chemicals that they may be exposed to in the workplace.

Workers engaged in laboratory use of hazardous chemicals on a laboratory scale are not covered under this program and should refer to the University of Massachusetts Dartmouth Chemical Hygiene Plan, which is based on the OSHA Occupational Exposure to Hazardous Chemicals in Laboratories (29CFR1910.1450).

The principle behind Hazard Communication (HAZCOM) is that all employees have the *right to know* the hazards of the chemicals they use or that are present in their work area. Complying with the requirement of Hazard Communication and ensuring employees are informed about the hazards of the chemicals involves three basic steps:

- Identifying, inventorying, and labeling all hazardous chemicals used;
- Obtaining and providing access to Safety Data Sheets (SDS); and
- Training employees about the hazards of the chemicals they use or are exposed to.

The Hazard Communication standard applies to all hazardous materials **except** the following:

- Tobacco or Tobacco products;
- Wood or wood products, including lumber which will not be processed, where the chemical manufacturer or importer can establish that the only hazard they pose to employees is the potential for flammability or combustibility (wood or wood products which have been treated with a hazardous chemical covered by this standard, and wood which may be subsequently sawed or cut, generating dust, are not exempted);
- Articles, as defined in the standard (e.g., manufactured items; hazardous substances used in the articles are not excluded); For example, a pesticide spraying container would be excluded but the pesticide used in the sprayer would require hazard communication;
- Food, alcoholic beverages, cosmetics and prescription or over-the-counter drugs intended for *personal* consumption by university personnel;

- Consumer products where the university or department can show that it is used in the workplace in the same concentration and manner as intended for use by consumers and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the intended purpose;
- Ionizing and Non-ionizing radiation, biological hazards and universal waste (which are each addressed under other policies and regulations);
- Hazardous Waste: All persons handling hazardous wastes must be trained to ensure that wastes are properly managed. The disposal of hazardous chemicals which are unwanted, expired or otherwise unneeded may also be regulated as a hazardous waste. All hazardous chemicals must be evaluated before disposal to prevent the inadvertent release of hazardous waste to the environment; and
- Hazardous Chemicals used in small quantities (commonly referred to as “laboratory scale”) in a laboratory by a technically qualified individual in accordance with the Chemical Hygiene Plan. Regulations for the laboratory use of hazardous chemicals are found at 29 CFR 1910.1450, and are described in the UMD Chemical Hygiene Program. This program allows an alternate approach for laboratory settings. Laboratory users of chemicals should refer to the Chemical Hygiene Plan.

3. Responsibilities

The following departments and personnel shall be responsible for implementing this program and its policies.

3.1 The Department of Environmental Health and Safety

The Department of Environmental Health and Safety (EH&S) shall act as the “program administrator” and shall be responsible for the following elements of the program:

- Develop and maintain the written Hazard Communication (HAZCOM) program;
- Periodically review and update the program;
- Periodically review and assess the implementation and management of the written program;
- Provide guidance and technical assistance to departments regarding the program; and
- Provide results of hazard analyses and monitoring reports upon request to affected employees.

3.2 Deans, Directors or Department Heads

Deans, Directors and Department Heads are responsible for Hazard Communication (HAZCOM) Program compliance within their departments.

3.3 Supervisors and Faculty

Supervisors of any specific work area are responsible for keeping track of hazardous chemicals by maintaining a current inventory, maintain access to Safety Data Sheet (SDS) files, assess the potential hazard(s) posed to their workers, ensure hazardous chemicals are labeled, and to train the workers about these hazards.

Manufacturers, importers, and distributors are responsible for the assessment of the hazards of the chemicals that they produce, import, or distribute and to make this information available via the SDS.

3.4 UMD Employees

- Become familiar with the requirements of the Hazard Communication (HAZCOM) Program prior to performing activities covered by the program;
- Abide by the requirements established by the program and apply safety and health precautions specified by the university;
- Report any problem observed which could compromise health and safety to their immediate supervisor;
- Utilize proper personal protective equipment (PPE); and
- Attend annual basic safety training and area-specific training as required under HAZCOM and any department-specific training.

3.5 Project Managers

- Prior to the start of any work inside or within 50 feet of any door or window of any building, obtain from any contractor copies or access to SDSs for any hazardous materials to be used on the project where university personnel may be exposed. This includes nearby building occupants and trades personnel who may be providing project support. This information must be shared with any potentially exposed university employee.
- Any contractor that may be exposed to hazardous chemicals produced, used, or stored by the University should receive copies of or access to SDSs.

4. Hazard Identification and Evaluation

The Hazard Communication Program requirements are applicable to chemicals and materials used if they present a physical or health hazard. Chemicals used in must be evaluated to determine whether they represent a physical or health hazard.

A chemical with a physical hazard means that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), water reactive or other physical hazards.

A chemical with a health hazard means a chemical in which statistically significant evidence indicates acute or chronic health effects may occur in exposed employees. Examples include: carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, and agents which damage the lungs, skin, eyes, or mucous membranes. The hazards of all chemicals and materials must be evaluated. The manufacturer issued Safety Data Sheet (SDS), is the proper document to consult when evaluating a chemical's properties at UMD. Additionally, the UMD EH&S department is available to help with your questions regarding the hazards of chemicals.

4.1 Hazardous Chemicals

The OSHA standard and UMD requires that a list of hazardous chemicals in the workplace be maintained as part of this program. The list serves as an inventory of everything for which an SDS must be maintained. Initially, it serves as an indication of the scope of the program required in each particular department.

All hazardous chemicals with a National Fire Protection Agency (NFPA) of 2 or higher for health, flammability or reactivity, fall within the scope of this HAZCOM program. These chemicals shall be maintained in accordance with 29 CFR 1910.1200 and applicable Federal, State and Local regulations.

There may be chemicals used on the UMD campus for which SDS's are not readily available. For assistance in these instances, contact EH&S. Also if there are questions regarding NFPA regulations, please contact the EH&S.

4.2 Chemical Inventory

Chemical used in research and instructional laboratories shall be inventoried in accordance with EH&S inventory procedures using the chemical inventory program UNH-CEMS.

4.3 Safety Data Sheets (SDSs)

Safety Data Sheets (SDSs) are the most convenient and widely accepted method for communicating the hazards of a chemical to an employee. SDSs are a printed description of the chemical's properties and are produced by the manufacturer of the chemical. These documents provide the supervisor and employees with the necessary information to use chemicals safely and how to deal with chemical spills and releases.

Each worksite supervisor must maintain a file of SDSs for chemicals used within their area. Also, a supervisor must ensure that the file is accessible to all employees at that worksite during their work hours. Supervisors of personnel involved in field work or at worksites away from the University campus must ensure that SDSs are readily available to employees.

- For products currently in use, SDSs must be obtained immediately.
- For new products SDSs must be obtained, and appropriate training provided prior to the use of the product by any employee, and it is the supervisor's responsibility to ensure this training is conducted.

Establishing procedures for acquiring the SDS is essential as well as training the employee(s) in the hazards of a new product prior to its use. Each department must have procedures in place to control the selection

and purchase of materials, and the acquisition and distribution of the SDSs *prior* to employee usage of the product.

The following describes the required information on an SDS. Upon completion of Hazard Communication, all employees must be able to read and understand an SDS.

Safety Data Sheets (SDSs) are printed descriptions of the chemical constituents used in the makeup of a particular chemical or product. These sheets provide the University and employees with the necessary information on how to use the chemicals safely and how to deal with chemical accidents and spills. There are a number of items which must be completed for every SDS. These items are divided into sections which address specific issues as follows:

- Section 1 – Material and Company Information

- Chemical name: Full name. Other common names and trade names may also be given.
- CAS registry number Date prepared.

- Section 2 – Hazards Identification

- Health effects: lists target organs or systems adversely affected by overexposure.
- Carcinogenicity of the chemical and test results/finding.
- Acute and chronic effects.

- Section 3 –Composition and Information on Ingredients

- Composition of mixtures: includes all hazardous materials over 1% and all carcinogenic materials over 0.1
- OSHA PEL: either a time weighted average (TWA) limit for an 8-hour day or a maximum concentration exposure limit for items on the OSHA list in parts per million (ppm) or micrograms per meter cubed (mg/m³).
- Date prepared: OSHA requires the date that the SDS information was prepared or date of latest update.

- Section 4 – First Aid Measures

- Treatment of exposure – inhalation, ingestion, injection, eye contact and skin contact.

- Section 5 – Fire Fighting Measures

- Fire and explosion data usually includes.
 - Flash point information – temperature at which the chemical vapor can be ignited
 - Auto ignition temperature - temperature at which chemical ignites spontaneously in air
 - Flammability limits – concentrations in air above and below which it cannot burn
 - recommended extinguishing material
 - Unusual fire and explosion hazards
- Provides basic instructions for addressing fire situations
- May include NFPA diamond markings

- Section 6 – Accidental Release Measures

- Procedures for cleaning up small and large spills
- Cites specific regulations surrounding chemical spills

- Section 7 – Handling and Storage

- Provides information regarding safe storage of materials and chemicals
- Provides information regarding safe usage of materials and chemicals

- Section 8 – Exposure Controls and Personal Protection

- Types of protective equipment including gloves, clothing, eye protection and respiratory protection
- This section will indicate if a hood, glove-box or extra ventilation is needed
- Administrative controls such as pre-placement and periodic medical exams
- Also will indicate type of shower or eyewash facility that should be available

- Section 9 – Physical and Chemical Characteristics

- Usually includes such chemical information as boiling point, melting point, vapor pressure, specific gravity, solubility in water and evaporation rate
- Physical attributes such as physical state, appearance and odor

- Section 10 – Stability and Reactivity

- Indicates stability of material and what causes instability, incompatibilities and if hazardous decomposition products are possible
- Also may include conditions to avoid

- Section 11 – Toxicological Information (includes one or more of the following):

- LD50 (lethal dose 50) – a lethal single dose (usually administered orally) in mg/kg (milligrams of chemical per kilogram of animal body weight) of a chemical that results in the death of 50% of a test animal population
- LC50 (lethal concentration 50) – a concentration dose expressed in ppm for gases or micrograms of material per liter of air for dusts or mists that result in the death of 50% of a test animal exposure administered in a single dose

- Section 12 – Ecological Information

- May be used to provide information on the effects that the material may have on plants and animals
- Provides information regarding the environmental fate of the material

- Section 13 – Disposal Considerations

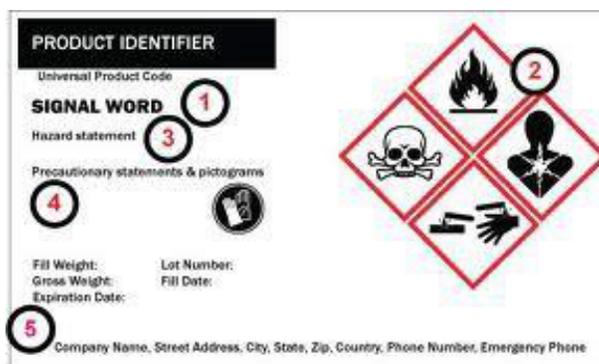
- Lists appropriate waste disposal methods
- Section 14 – Transport Information
 - Provides basic shipping requirements including the shipping name and the classification, packaging requirements and quantity information
- Section 15 – Regulatory Information
 - Cites pertinent EPA and OSHA regulation
- Section 16 – Other Information
 - Cites references used for the construction of the document
 - May indicate the author of the document
 - May provide a legal disclaimer

4.4 Labeling

All hazardous chemicals and materials used in the workplace must be labeled properly to the Hazard Communication Standard 2012 requirements, incorporating pictograms, signal word, hazard and precautionary statements, and product identifier. Hazardous chemicals and materials that are shipped in and used in their original container are often labeled by the manufacturer or distributor. Hazardous materials and chemicals which are placed into secondary containers for distribution and use around the workplace must meet various labeling requirements. Specifically, the label of all of these secondary containers must specify:

- The identity of the product or the ingredients of a mixture that will allow SDSs to be obtained when needed, and,
- Information regarding the hazards of the chemical or material that includes:
 - Health hazard; Reactivity hazard; Fire hazard; and, Required Personal Protective Equipment (PPE); and,
 - Any other necessary physical or health hazards not covered above.

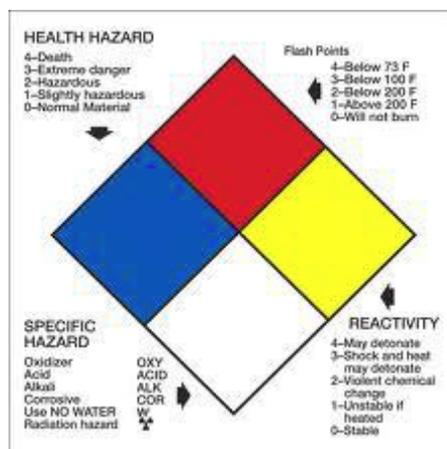
The Global Harmonization System for Chemical Classification and Labeling (GHS) is the label of choice for all secondary containers. Hazards are classified on a scale of 1 to 4 with 1 being the most severe and 4 being the least (**NOTE: this is the opposite to the HMIS & NFPA hazard scale where 1 is the least severe hazard and 4 the most severe hazard**)



Until 2016, the continued use of the Hazardous Material Information System (HMIS) label for secondary containers is still permissible as long as it is used in conjunction with additional pictograms showing the materials hazard. HMIS is the second choice for secondary labeling. HMIS label is presented below. Other labeling systems, such as NFPA, may also be used on secondary containers, again in conjunction with pictograms until 2016 provided that employees are properly trained in their use. (NFPA signage after 2016 other than for secondary chemical containers may still be in use to comply with Fire Department requirements).



HMIS



NFPA

5. Food or Beverage Consumption

Hazardous chemicals shall be separated from eating and drinking areas, in order to prevent possible ingestion of chemicals. No employee, student or visitor shall be allowed to consume or store food or beverages in any area exposed to hazardous chemicals. Additionally, no food or beverage for consumption will be stored in a refrigerator or freezer where chemicals, biohazards, radioactive or other hazardous processes are stored. Food or beverages must not be placed in a microwave oven or other heating device that is used to conduct hazardous or non-food related processes.

Supervisors are responsible for identifying and labeling areas exposed to chemicals with “NO EATING OR DRINKING PERMITTED IN THIS AREA” signs.

- Refrigerators, freezers and microwaves used for the storage or processing of hazardous, toxic, biohazard, radioactive products, or other non-food related use shall be labeled with wording that positively identifies that the equipment's use is restricted. Food containers, especially reused containers, are not appropriate for the storage of hazardous materials or chemicals

6. Employee Awareness and Training

Each work area trains their employees on the specific hazardous materials or chemicals in their departmental work area. General training is available through EH&S, offering both initial and annual refresher. The training requirements for the Hazard Communication Program include the following:

- At the time of initial assignment or when new tasks are assigned for which training has not been received; or
- When a new hazardous chemical is introduced into the workplace.

Information and training may be designed to cover categories of hazards (i.e., flammability, toxicity, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and SDS.

Training Aspects: The information and training is expected to include the following.

Routine Topics

- Describe the location and availability of the chemical inventory list, associated SDSs, and the University's Hazard Communication Program document;
- Explain the purpose and contents of SDSs, including detail and guidance on interpreting the hazard information and technical terms included in a typical SDS, and its intended application. In short, an employee must be able to read an SDS and obtain hazard, handling, and exposure control information from an SDS;
- Ensure that an employee can read and understand an SDS;
- Explain the labeling system used by the department and how employees can obtain and use appropriate hazard information;
- Review the methods and observations that can be used to detect the presence of hazardous chemicals, such as monitoring/instrumentation, odor, appearance;
- Assess the hazards of the chemicals or materials used and review that assessment with employees. This review must include describing protective measures for minimizing exposure such as appropriate work practices, personal protective equipment, and emergency procedures;
- Review handling, storage and spill procedures; and,
- Review emergency and first aid procedures.

Non Routine Tasks, Spills or releases

- Tasks may periodically be performed which may potentially expose employees to hazardous chemicals not ordinarily used in their normal work duties. Examples of non- routine tasks performed by UMD include: repairs, spill cleanup, servicing of equipment, and annual maintenance. Prior to starting work on such projects, affected personnel shall be presented information by their supervisor about hazards to which they may be exposed during the task.

This training must include the same level of detail and information necessary for routinely used hazardous chemicals. The training must emphasize that the potential hazard of working with unfamiliar material can be greater than with those that are handled routinely. Training must be documented with detailed records of training maintained by the department. The training records must be kept for the length of employment.

7. Hazardous Waste Disposal

The disposal of hazardous chemicals or materials that are outdated, expired, or no longer used must be evaluated prior to disposal to determine if it is considered a hazardous waste. Hazardous waste determinations are performed by EH&S.

Chemicals and materials that are a hazardous waste must be disposed of properly. For guidance on the proper procedure to follow, please see the UMD Hazardous Waste Disposal Procedure or contact EH&S.

8. Records Retention

Employee training records will be retained for the longer of 30 years or employment within the department.

The medical exposure record for each employee must be preserved and maintained for least the duration of the employment plus thirty years.

Appendix A

Definitions

Absolute Pressure: The total pressure within a vessel, pipe, etc., not offset by external atmospheric pressure.

Carcinogen: Substance or agent capable of causing or producing cancer in mammals.

CAS or Chemical Abstract Service Number: An assigned number used to identify a chemical. CAS stands for Chemical Abstracts Service, an organization that indexes information published in Chemical Abstracts by the American Chemical Society and that provides index guides by which information about particular substances may be located in the abstracts. Sequentially assigned CAS numbers identify specific chemicals, except when followed by an asterisk (*) which signifies a compound (often naturally occurring) of variable composition. The numbers have no chemical significance. The CAS number is a concise, unique means of material identification.

Chemical: Any element, chemical compound or mixture of elements and/or compounds.

Chemical Hygiene Plan: Per 29 CFR 1910.1450, OSHA standard; "Occupational Exposures to Hazardous Chemicals in Laboratories." Effective 5/1/90. A written plan that includes specific work practices, standard operating procedures, equipment, engineering controls, and policies to ensure that employees are protected from hazardous exposure levels to all potentially hazardous chemicals in use in their work areas. The OSHA standard provides for training, employee access to information, medical consultations, examinations, hazard identification procedures, respirator use, and record keeping practices.

Combustible Liquid: Term used by NFPA and DOT to classify certain liquids that will burn, on the basis of flash points. NFPA and DOT generally define "combustible liquids" as having a flash point of 100F or higher. They do not ignite as easily as flammable liquids; however, they can be ignited under certain conditions, and must be handled with caution.

Compressed Gas:

- A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70°F; or
- A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130°F, regardless of the pressure at 70°F; or
- A liquid having a vapor pressure exceeding 40 psi at 100°F.

Container: Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. Pipes, piping systems, engines, fuel tanks, or other operating systems in a vehicle are not considered to be containers for the purposes of this program.

Flammable: Defined by DOT and NFPA as a liquid with a flash point below 100 degrees F.

Flammable liquids are: Class 1 Liquids and may be subdivided as follows:

- Class 1A - Flash point below 73 degrees F and boiling point below 100 degrees F.
- Class 1B - Flash point below 73 degrees F and boiling point at or above 100 degrees F.
- Class 1C - Flash point at or above 73 degrees F and below 100 degrees F.

Flash point: Temperature at which a liquid will give off enough flammable vapor to ignite. There are several flash point test methods, and flash points may vary for the same material depending on the method used, so the test method is indicated when the flash point is given.

Hazardous Chemical: Any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiate, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health Hazard: A chemical which is classified as posing one of the following hazardous effects: 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.

Label: Appropriate group of written, printed or 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. Labels will include the specified pictogram, hazard statement, signal word, and precautionary statement for each hazard class and category.

Mixture: Any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Oxidizer: Substance that yields oxygen readily to stimulate the combustion of organic matter.

Physical Hazard: A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Pyrophoric: Materials that ignite spontaneously in air below 130 degrees F. Occasionally friction will ignite them.

Safety Data Sheet (SDS): Written or printed material concerning a hazardous chemical which is prepared in accordance with OSHA standard 29 CFR 1910.1200. Formerly known as Material Safety Data Sheet (MSDS) .

Toxic Substance or Agent: Chemical or material that (1) has evidence of an acute or chronic health hazard, and causes cancer or reproductive effects in animals at any dose; has a median lethal dose of less than 500 mg per kg of body weight when administered orally to rats; has a median lethal dose of less than 1000 mg per kg of body weight when administered by continuous contact to the bare skin of albino rabbits; or has a median lethal concentration in air of less than 2000 ppm

by volume of gas or vapor, or less than 20 mg per liter of mist, fume, or dust when administered to albino rats.

Unstable (Reactive): A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature.

Water-Reactive A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.