



UNIVERSITY OF MINNESOTA  
University Health and Safety

**HAZARD COMMUNICATION (RIGHT-TO-KNOW) PROGRAM**

Effective: May 27, 2015

**PURPOSE and SCOPE:**

The purpose of this program is to ensure that the risks associated with hazardous substances, infectious agents and harmful physical agents found in the workplace are properly evaluated and the information concerning those hazards is communicated to all routinely exposed employees through training, labeling and Safety Data Sheets (SDS's). Departments or units may maintain their own site-specific programs that are at least equivalent to this program.

**DEFINITIONS:**

Globally Harmonized System (GHS) – world-wide standardized method of classifying and labeling chemicals.

Hazardous Substance - 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.

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.

Harmful Physical Agent – exposure to heat, noise, or radiation at or above the determined safe level.

Infectious Agent – a transmissible biohazardous agent that can cause acute or chronic illness. Includes bloodborne pathogens, viruses, bacterial, fungal, parasitic, and rickettsial agents.

Multi-Employer Worksite - when non-university employees work on university premises, or when University employees work on other employer worksites.

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; or in contact with water emits flammable gas.

Product Identifier – the name or number used on both a chemical label and SDS to cross-reference and identify the product.

Routinely Exposed - means a reasonable potential for exposure exists during the normal course of assigned work. It does not include a simple walk-through of an area where a hazardous substance, harmful physical agent, or infectious agent is present or an assignment to work in an area where a container of a hazardous substance is present but there is no actual exposure unless a spill should occur.

Safety Data Sheet (SDS) – includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical.

Secondary Container – a container used to store, transfer or transport chemicals or substances from their original manufacturer container.

### **PROGRAM COMPONENTS:**

1. Hazard evaluation
2. Inventory
3. Information resources
4. Training
5. Responsibilities
6. Multi-employer worksites

### **1. HAZARD EVALUATION**

Each work area will evaluate their workplace for the presence of hazardous substances, harmful physical agents and infectious agents prior to exposure. The evaluation includes a determination of the employee exposure to these hazards and the safety precautions required to prevent exposure. A list of the hazardous substances, harmful physical agents and infectious agents found in each work area will be forwarded to University Health and Safety. Whenever practical and feasible, a less hazardous product (such as green product) or process will be substituted for the more hazardous product or process.

### **2. INVENTORY**

An “Approved Product List” will be maintained by the work unit. All new products are to be reviewed and approved by the work unit prior to being placed in the workplace for use.

### **3. INFORMATION RESOURCES**

- a. **Safety Data Sheet (SDS):** Each work unit is required to have available a SDS for each hazardous substance to which employees under their supervision may be routinely exposed. SDS’s must be obtained for new substances before workers are allowed to use that substance. SDS’s will fully replace what was previously known as Material Safety Data Sheet’s (MSDS’s) by June 1, 2015.

Employees may obtain SDS’s from their immediate supervisor; University Stores at 612-624-4878, ums@umn.edu, or <http://www.umarketservices.umn.edu/contact.html>; product manufacturer or distributor; an internet search; the UHS web site at [http://www.dehs.umn.edu/msds\\_sheets.htm](http://www.dehs.umn.edu/msds_sheets.htm) ; or University Health and Safety.

- b. **Classification and Labeling:** Original product containers of hazardous substances must be classified and labeled by the manufacturer or distributor using the Globally Harmonized System (GHS) with the following minimum information:

- Product identifier,
- Signal word,
- Hazard statement(s),
- Pictogram(s),

- Precautionary statement(s),
- Name, address, and phone number for the manufacturer, importer or distributor.

Anytime a chemical is transferred from its original container to a secondary container, the secondary container must be labeled with the following minimum information:

1. Product identifier (e.g. product name or number)
2. Words, pictures, and/or symbols to provide at least general information as to the chemical hazards.

Equipment or a work area that generates harmful physical agents at a level expected to approximate or exceed the exposure limits must be labeled with the following:

1. Name of physical agent.
2. Hazard warnings and PPE requirements.

**c. Hazard Hotline**

The Minnesota Poison Control hotline telephone number is (800) 222-1222. This hotline number is available 24 hours a day, 7 days a week free of charge from any telephone within the state of Minnesota.

**4. TRAINING**

All employees who may be routinely exposed to hazardous substances, harmful physical or infectious agents must be trained:

- initially, prior to beginning a work assignment where they may be routinely exposed,
- at least annually thereafter,
- prior to using new products or processes,
- prior to non-routine work.

The training will include the following:

- a. GHS labels and SDS's, including pictograms
- b. Health hazards (physical and chemical) of the work assignment.
- c. Routes of entry.
- d. Infective dose
- e. Protective measures.
- f. Personal protection equipment (PPE) requirements.
- g. Information resources.
- h. Symptoms of overexposure.
- i. Emergency procedures.

## **5. RESPONSIBILITIES**

### **Managers –**

- Ensure this Right-to-Know/Hazard Communication is implemented by University supervisors, employees, and multi-employer workplaces.

### **Supervisors –**

- Ensure that employees under their supervision receive initial and annual refresher training and are knowledgeable on the hazards of their job, personal protective equipment (PPE) requirements and safe work procedures.
- Maintain an inventory list of all products used by employees under their supervision that contain hazardous chemicals. Also, maintain on file a copy of the SDS for each product on the list.
- Upon request by an employee or contractor, provide a copy of the SDS during the work shift.
- Assure containers of products in their work area containing hazardous chemicals are properly labeled as to their contents, hazards and PPE requirements.
- Evaluate the need for PPE use. When appropriate, provide and enforce the use of PPE.
- Before new products are introduced into the workplace, provide employee training on the new products hazards, safe handling precautions and emergency precautions.
- Inform employees and contractors of the hazards involved in non-routine tasks and the hazards of chemicals contained in pipes in the work area.
- Ensure employees follow safe work practices when storing, handling or using hazardous chemicals.
- Ensure all new products not listed on the Approved Product List are reviewed and approved prior to being ordered.

### **Employees –**

- Attend initial and annual Right-to-Know training.
- Understand the hazards, safe work practices, personal protective equipment (PPE) requirements and emergency procedures for chemicals or other hazards in the workplace.
- Follow safe work practices and wear PPE when required.
- Maintain appropriate labels on original containers
- Label all secondary containers.
- Report any injury or illness related to a chemical or physical hazard in the workplace to their supervisor immediately.

### **University Stores –**

- Maintain a copy of a Safety Data Sheet (SDS) for all chemicals received and/or inventoried.
- If requested to provide a SDS of a specific chemical, provide a copy to the requestor during the same shift as requested.
- Ensure chemicals are properly labeled before distribution.

**6. MULTI-EMPLOYER WORKSITES**

Contractors working for the University are responsible for planning, training and communicating to affected workers the hazards they may encounter in the workplace and the protective measures required. Workplace labeling systems shall be communicated, and Safety Data Sheets for each hazardous chemical shall be made available, to each employer's employees who may be exposed, along with any precautionary measures that need to be taken during the workplace's normal operating conditions and in foreseeable emergencies.

**APPENDICES:**

**A. Globally Harmonized System (GHS) pictograms and label sample**

**B. Safety Data Sheet (SDS) description**

**Legal Reference: 29 CFR 1910.1200  
Minnesota Rules Chapter 5206**

## Appendix A GHS Pictograms and Sample Label

G l o b a l l y   H a r m o n i z e d   S y s t e m

# GHS Pictograms and Hazards

Flame	Exclamation Mark	Health Hazard
		
<ul style="list-style-type: none"> <li>— Flammable</li> <li>— Self-Reactive</li> <li>— Pyrophoric</li> <li>— Self-Heating</li> <li>— In Contact with Water, Emits Flammable Gases</li> <li>— Organic Peroxide</li> </ul>	<ul style="list-style-type: none"> <li>— Irritation (skin or eyes)</li> <li>— Skin Sensitization</li> <li>— Acute Toxicity (harmful)</li> <li>— Specific Target Organ Toxicity – Single Exposure (drowsiness or dizziness, or respiratory irritation)</li> <li>— Hazardous to the Ozone Layer</li> </ul>	<ul style="list-style-type: none"> <li>— Carcinogenicity</li> <li>— Respiratory Sensitization</li> <li>— Reproductive Toxicity</li> <li>— Specific Target Organ Toxicity – Single or Repeated Exposure</li> <li>— Germ Cell Mutagenicity</li> <li>— Aspiration Hazard Layer</li> </ul>
Skull & Crossbones	Exploding Bomb	Flame Over Circle
		
<ul style="list-style-type: none"> <li>— Acute Toxicity (fatal or toxic)</li> </ul>	<ul style="list-style-type: none"> <li>— Explosive</li> <li>— Self-Reactive (severe)</li> <li>— Organic Peroxide (severe)</li> </ul>	<ul style="list-style-type: none"> <li>— Oxidizer</li> </ul>
Corrosion	Gas Cylinder	Environment
		
<ul style="list-style-type: none"> <li>— Corrosive (skin, eyes, or metals)</li> </ul>	<ul style="list-style-type: none"> <li>— Gas Under Pressure</li> </ul>	<ul style="list-style-type: none"> <li>— Hazardous to the Aquatic Environment (acute or long-term)</li> </ul>

## SAMPLE LABEL

CODE \_\_\_\_\_ } **Product Identifier**  
Product Name \_\_\_\_\_ }

Company Name \_\_\_\_\_ } **Supplier Identification**  
Street Address \_\_\_\_\_ }  
City \_\_\_\_\_ State \_\_\_\_\_ }  
Postal Code \_\_\_\_\_ Country \_\_\_\_\_ }  
Emergency Phone Number \_\_\_\_\_ }

### Hazard Pictograms



**Signal Word**  
**Danger**

Keep container tightly closed. Store in a 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 measures 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<sub>2</sub>) fire extinguisher to extinguish.

#### First Aid

If exposed call Poison Center.  
If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

**Highly flammable liquid and vapor.** } **Hazard Statements**  
**May cause liver and kidney damage.** }

### Precautionary Statements

### Supplemental Information

#### Directions for Use

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Fill weight: \_\_\_\_\_ Lot Number: \_\_\_\_\_  
Gross weight: \_\_\_\_\_ Fill Date: \_\_\_\_\_  
Expiration Date: \_\_\_\_\_

## Appendix B Safety Data Sheet (SDS) Description

### Section 1: Identification

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of:

- Product identifier used on the label and any other common names or synonyms by which the substance is known.
- Name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.
- Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on use (including recommendations given by the supplier). <sup>1</sup>

### Section 2: Hazard(s) Identification

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

- The hazard classification of the chemical (e.g., flammable liquid, category<sup>1</sup>).
- Signal word.
- Hazard statement(s).
- Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).
- Precautionary statement(s).
- Description of any hazards not otherwise classified.
- For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

### Section 3: Composition/Information on Ingredients

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

#### **Substances**

- Chemical name.
- Common name and synonyms.
- Chemical Abstracts Service (CAS) number and other unique identifiers.
- Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

## **Mixtures**

- Same information required for substances.
- The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
  - Present above their cut-off/concentration limits or
  - Present a health risk below the cut-off/concentration limits.
- The concentration (exact percentages) of each ingredient must be specified except concentration ranges may be used in the following situations:
  - A trade secret claim is made,
  - There is batch-to-batch variation, or
  - The SDS is used for a group of substantially similar mixtures.

## **Chemicals where a trade secret is claimed**

- A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

## **Section 4: First-Aid Measures**

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

- Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).
- Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
- Recommendations for immediate medical care and special treatment needed, when necessary.

## **Section 5: Fire-Fighting Measures**

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

- Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.
- Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
- Recommendations on special protective equipment or precautions for firefighters.

## **Section 6: Accidental Release Measures**

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist

of recommendations for:

- Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
- Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
- Methods and materials used for containment (e.g., covering the drains and capping procedures).
- Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up)

## Section 7: Handling and Storage

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:

- Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, and smoking in work areas is prohibited).
- Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements)

## Section 8: Exposure Controls/Personal Protection

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:

- OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
- Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).
- Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
- Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

## Section 9: Physical and Chemical Properties

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- Appearance (physical state, color, etc.);
- Upper/lower flammability or explosive limits;
- Odor;
- Vapor pressure;

- Odor threshold;
- Vapor density;
- pH;
- Relative density;
- Melting point/freezing point;
- Solubility(ies);
- Initial boiling point and boiling range;
- Flash point;
- Evaporation rate;
- Flammability (solid, gas);
- Upper/lower flammability or explosive limits;
- Vapor pressure;
- Vapor density;
- Relative density;
- Solubility(ies);
- Partition coefficient: n-octanol/water;
- Auto-ignition temperature;
- Decomposition temperature; and
- Viscosity.

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust's explosive potential

## Section 10: Stability and Reactivity

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other. The required information consists of:

### **Reactivity**

- Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

### **Chemical stability**

- Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
- Description of any stabilizers that may be needed to maintain chemical stability.
- Indication of any safety issues that may arise should the product change in physical appearance.

### **Other**

- Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.
- List of all conditions that should be avoided (e.g., static discharge, shock, vibrations, or environmental conditions that may lead to hazardous conditions).
- List of all classes of incompatible materials (e.g., classes of chemicals or specific substances) with

which the chemical could react to produce a hazardous situation.

- List of any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.)

## Section 11: Toxicological Information

This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

- Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.
- Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
- The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.
- Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.
- Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA

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

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:

- Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).
- Whether there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.
- Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient (Kow) and the bioconcentration factor (BCF), where available.
- The potential for a substance to move from the soil to the groundwater (indicate results from adsorption studies or leaching studies).
- Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential).

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

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS. The information may include:

- Description of appropriate disposal containers to use.
- Recommendations of appropriate disposal methods to employ.

- Description of the physical and chemical properties that may affect disposal activities.
- Language discouraging sewage disposal.
- Any special precautions for landfills or incineration activities

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

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:

- UN number (i.e., four-figure identification number of the substance)<sup>1</sup>.
- UN proper shipping name<sup>1</sup>.
- Transport hazard class(es)<sup>1</sup>.
- Packing group number, if applicable, based on the degree of hazard<sup>2</sup>.
- Environmental hazards (e.g., identify if it is a marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code)).
- Guidance on transport in bulk (according to Annex II of MARPOL 73/78<sup>3</sup> and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code (IBC Code))).
- Any special precautions which an employee should be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises (indicate when information is not available).

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

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include:

- Any national and/or regional regulatory information of the chemical or mixtures (including any OSHA, Department of Transportation, Environmental Protection Agency, or Consumer Product Safety Commission regulations)

## Section 16: Other Information

This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.