

GOUCHER | college

Hazard Communication Program

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TABLE OF CONTENTS

1.0	Introduction .....	Error! Bookmark not defined.
2.0	Purpose.....	4
3.0	Scope .....	Error! Bookmark not defined.
4.0	Roles and Responsibilities .....	Error! Bookmark not defined.
5.0	Location .....	Error! Bookmark not defined.
6.0	Categories of Hazardous Chemicals.....	Error! Bookmark not defined.
7.0	Safety Data Sheets .....	11
8.0	Labeling .....	12
9.0	Information and Training.....	13

## 1.0 Introduction

- 1.1 This Hazardous Communication Program (HCP) is designed to ensure that any hazardous chemicals and materials present on the Goucher College campus are identified and that all students and employees are provided with a basic awareness of the information that they need in order to protect themselves, other employees, the public and the environment from potential risks related to the use and management of those chemicals and materials.
- 1.2 This written program complies with the requirements of the current federal Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).
- 1.3 Legal Counsel or their designee serve as the primary point of contact for employees on hazard communication issues and questions and is responsible for coordinating and administering this HCP.
- 1.4 The HCP does not apply to the following (29 CFR 1200(b)(5)):
  - 1.4.1 Hazardous Waste as defined by Solid Waste Disposal Act and the Resource Conservation and Recovery Act when subject to regulations issued under that Act by the Environmental Protection Agency;
  - 1.4.2 Any hazardous substance as defined by the Comprehensive Environmental Response, Compensation and Liability Act when the hazardous substance is the focus of remedial or removal action being conducted in accordance with Environmental Protection Agency regulations;
  - 1.4.3 Tobacco or tobacco products;
  - 1.4.4 Wood or wood products, including lumber which will not be processed;
  - 1.4.5 Articles (“Article”) meaning a manufactured item other than a fluid or particle;
    - 1.4.5.1 Which is formed to a specific shape or design during manufacture;
    - 1.4.5.2 Which has end use function(s) dependent in whole or in part upon its shape or design during end use; and
    - 1.4.5.3 Which, under normal conditions of use, does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical defined in the OSHA Hazard Communication Standard paragraph (d), and does not pose a physical hazard or health risk to employees;
    - 1.4.5.4 Food or alcoholic beverages which are sold, used, or prepared in a retail establishment intended for personal consumption by employees while in the workplace;
    - 1.4.5.5 Any drug, as defined by the Federal Food, Drug, and Cosmetic Act when it is in solid, final form for direct administration to the patient (e.g., tablets or pills); drugs which are packaged by the chemical manufacturer for sale to consumers in a retail establishment (e.g., over-the-counter drugs); and drugs intended for personal consumption by employees while in the workplace (e.g., first aid supplies);
    - 1.4.5.6 Cosmetics packaged for sale to consumers and those intended for personal consumption by employees while in the workplace;
    - 1.4.5.7 Any consumer product or hazardous substance, where it is used in the workplace for the purpose intended by the manufacturer 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 purpose intended;

- 1.4.5.8 Nuisance particulates where the chemical manufacturer or importer can establish that they do not pose any physical or health hazard covered under this section;
- 1.4.5.9 Ionizing and non-ionizing radiation; and,
- 1.4.5.10 Biological Hazards.

## 2.0 Purpose

The Purpose of this Plan is to:

- 2.1 Inform employees and students of the potentially hazardous substances to which they may be exposed.
- 2.2 Inform employees and students of safety precautions to be taken while handling such substances.
- 2.3 Provide guidance to employees and students for evaluating the potential hazards of chemicals and information concerning hazards in the work environment.
- 2.4 Prevent injuries and accidents related to the use of hazardous substances.

## 3.0 Scope

- 3.1 This standard pre-empts all other existing legal requirements regarding the subject. Under requirements of this safety standard, all chemicals that are imported or used at Goucher are reviewed, and information relative to the hazards of these chemicals is communicated to all affected employees.
- 3.2 Employees engaged in the handling of hazardous chemicals have the right to know of, and to be informed by Goucher as to the chemical and physical hazards that are inherent to their job duties. They also have the right to be informed of the proper methods for protecting themselves from these hazards. Employees with questions concerning the use of the written Program, or questions concerning the information contained within it, will have those questions answered by Legal Counsel or their designee.

## 4.0 Roles and Responsibilities

- 4.1 Legal Counsel or their designee will:
  - 4.1.1 Develop and implement this HCP;
  - 4.1.2 Schedule training on the HCP in accordance with 29CFR 1910.1200 with all applicable employees;
  - 4.1.3 Ensure safe practices are implemented and practiced within the laboratory setting;
  - 4.1.4 Review the HCP for effectiveness in cooperation with necessary departments and amend as necessary at least annually;
  - 4.1.5 Assure that students have access to the appropriate information contained within this HCP;
  - 4.1.6 Serve as the primary point of contact for employees with questions related to this HCP;
  - 4.1.7 Organize employee chemical exposure monitoring, where appropriate; and
  - 4.1.8 Oversee maintenance of the chemical inventory.

#### 4.2 Department Chair (Biology and Chemistry) will:

- 4.2.1 Ensure this HCP is followed within laboratories under their control;
- 4.2.2 Ensure laboratory staff attend at least annually a laboratory specific training on the HCP and its contents. Staff are inclusive of students, volunteers, minors and researchers as applicable;
- 4.2.3 Implement safe laboratory practices and engineering controls to minimize the potential exposure to hazardous chemicals;
- 4.2.4 Ensure that equipment and protective devices are available and in working order, and that appropriate training has been provided;
- 4.2.5 Attend necessary trainings;
- 4.2.6 Review and understand this HCP and applicable laboratory specific procedures in their entirety before beginning work in the laboratory or with hazardous chemicals;
- 4.2.7 Participate in HCP annual review for effectiveness and amend as necessary;
- 4.2.8 Provide chemical and area-specific training; and
- 4.2.9 Assist in maintenance of chemical inventory as needed.

#### 4.3 Managers, Supervisors, Lab Managers and Employees will:

- 4.3.1 Review and understand this HCP;
- 4.3.2 Ensure that hazardous chemical containers are properly labeled;
- 4.3.3 Read and understand Safety Data Sheets (SDSs) for the chemicals used;
- 4.3.4 Follow all safe work practices and use proper precautions required by this HCP; and
- 4.3.5 Attend trainings.

### 5.0 Location of HCP

- 5.1 This HCP is available to all employees, students and contractors for review and a copy is located on Goucher's website.
- 5.2 This HCP will be made available, upon request, to the Assistant Secretary and the Director of OSHA. A paper copy of this HCP should be kept in a designated location in each space that uses or stores hazardous chemicals, or where hazardous materials are present.

### 6.0 Categories of Hazardous Chemicals

- 6.1 Department managers shall ensure that all employees and students are aware of the locations, hazards and appropriate control measures for work involving hazardous chemicals and that they review the SDS for specific handling and storage requirements of hazardous materials.
- 6.2 In some cases, specific procedures may be required for working with highly hazardous chemicals.
- 6.3 Some specific hazards that may be present in various work areas and buildings at Goucher are listed below:

- 6.3.1 Allergens and Sensitizers

A chemical allergy is an adverse reaction by the immune system to a chemical. Allergic reactions result from previous sensitization to a chemical or a structurally similar chemical. Once sensitization occurs, allergic reactions can result from exposure to extremely low doses of the chemical. Allergic reactions can be immediate, occurring a few minutes after an exposure. Anaphylactic shock is a severe immediate allergic reaction that can result in death if not treated quickly. Allergic reactions can also be delayed, taking hours or even days to develop. It is important to recognize that a delayed chemical allergy can occur after the chemical has been removed. Examples of substances that may cause allergic reactions include formaldehyde, various isocyanates and certain phenol derivatives.

### 6.3.2 Asphyxiants

Asphyxiants are substances that interfered with the transport of an adequate supply of oxygen to the vital organs of the body. Simple asphyxiants are substances that displace oxygen from the air being breathed to such an extent that adverse effects result. Acetylene, carbon dioxide, argon, helium, ethane, nitrogen and methane are common asphyxiants. It is important to recognize that even chemically inert and biologically benign substances can be extremely dangerous under certain circumstances such as carbon monoxide.

### 6.3.3 Compressed Gas

Gas cylinders contain either compressed liquids or gases. Gas cylinders represent the most insidious hazard, as puncture, heat, faulty valves, pressure or regulators may result in a rapid release of the contents. The following safety considerations should be implemented where applicable:

- Clearly identify the cylinder contents;
- Handle cylinders carefully and do not roll, slide or drop. Use a cart or hand truck to transport;
- Do not lift a cylinder by its cap;
- Secure all cylinders while in storage, transport or use;
- Never tamper with cylinder valves, force connections or use homemade adapters. Use only approved equipment. Never repair or alter cylinders, valves, or safety relief devices;
- Only use a regulator compatible with the cylinder contents;
- Close the cylinder valve when not in use;
- When empty, turn off the cylinder valve and label the cylinder as empty. Store separately from full cylinders;
- Store cylinders in a well-ventilated area away from ignition sources, heat, flames and flammable chemicals;
- Check for gas leaks using soapy water around the connections; and
- Do not store flammable gas cylinders with oxidizers such as nitrous oxide or oxygen. They must be separated by a minimum of 20 foot or a 5-foot fire wall.

#### 6.3.4 Corrosives

The Resource Conservation and Recovery Act (RCRA) defines a corrosive chemical as a liquid with a pH  $\leq 2$  or  $>12.5$ . Acids and bases can cause severe tissue damage depending on the corrosivity of the chemical. The primary means of protection from corrosive chemicals is the use of gloves, goggles, face shield, aprons, lab coats and other chemical resistance clothing. Exercise extreme caution when handling corrosive materials. The following safety considerations should be implemented where applicable:

- Transport acids and base in a bottle carrier or cart. Do not handle by the neck alone; support the weight of the bottle from the bottom when handling or pouring;
- Do not store acid and bases with flammable liquids or oxidizing chemicals;
- Isolate corrosive chemicals from incompatible chemicals;
- Reference the chemical's SDS for proper handling, PPE and storage requirements;
- If an acid or base comes in contact with your skin or clothing, thoroughly wash the affected areas utilizing the safety showers or eyewash units and notify your department manager or laboratory manager.

#### 6.3.5 Cryogenic Liquids

Cryogenic liquids are liquefied gases that are kept in their liquid state at very low temperatures and are associated with various hazards including: extreme cold, asphyxiation, explosion, cold contact burns and toxicity. The most likely cryogenic liquid to be used at Goucher is liquid nitrogen. Employees should be thoroughly trained on the hazards and the proper steps to avoid them. Training should include emergency procedures, operation of equipment, safety devices, appropriate engineering controls, knowledge of the properties of the materials used and personal protective equipment required. Insulated gloves should always be worn when handling anything that comes into contact with cryogenic liquids or the vapors. Considerations must be made to prevent cryogenic material from contacting skin. Clothing such as a lab coat, gloves, pants, closed toed shoes, safety glasses, goggle and face shields should be worn.

#### 6.3.6 Flammables and Combustibles

Flammable chemicals are liquids with a flashpoint below 100 °F and solid materials that readily sustain combustion. Liquids with a flashpoint between 100 °F and 200 °F are generally classified as combustible; the same basic procedures should be applied when handling combustible liquids. The following safety considerations must be implemented where applicable:

- Do not allow smoking or other sources of open flames in areas where flammable chemicals are used;
- Know the location fire extinguishers, fire alarms and emergency exits in the work area;

- Do not store flammable liquids in domestic-type refrigerators. Use only refrigerators rated for flammables;
- Do not store flammables with oxidizing agents (e.g. nitric and sulfuric acids);
- Do not expose flammable liquids to potential sources of ignition such as electrical equipment, heat, burners or open flames;
- To prevent accidental electrical charge, the use of bonding and grounding equipment should be used whenever applicable. The use of non-sparking tools can prevent an ignition source;
- Store flammable liquids in an approved fire rated flammable storage cabinet;
- Do not store flammable liquids on the floor, unless protected by secondary containment;
- Minimize the amount flammable liquids that are in use, being stored and that are generated as wastes;
- Storage of flammable liquids greater than 10 gallons within a work area must be in an approved and labeled flammable storage cabinet; and
- The SDS must be reviewed for additional safety requirements and precautions.

#### 6.3.7 Irritants

An irritant is a chemical, which is not corrosive, but causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A wide variety of organic and inorganic chemicals used are irritants; thus, skin contact with all chemicals should be avoided. Use a properly functioning chemical fume hood when handling irritants that can be inhaled. At minimum, safety glasses, lab coat, long pants, gloves and closed toed shoes must be worn.

#### 6.3.8 Organic Peroxides

Organic peroxides are hazardous because of their extreme sensitivity to shock, sparks, heat, light, strong oxidizing and reducing agents and other forms of detonation. Organic peroxides may cause fires, create explosion hazards and may be toxic or corrosive. Some organic peroxides are dangerously reactive, decomposing very rapidly or explosively if they are exposed to slight heat, friction, mechanical shock or contamination with incompatible materials. Precautions for handling peroxides should include the following;

- Limit the quantities of peroxides;
- Do not return unused peroxides to the container;
- Clean up all spills immediately. Solutions of peroxides can be absorbed using vermiculite or other absorbing material;
- Do not permit smoking, open flames and other sources of heat near peroxides. Areas should be labeled that contain peroxides so that this hazard is evident;
- Avoid friction, grinding and other forms of impact near peroxides, especially solid peroxides. Glass containers that have screw-cap lids or glass stoppers

should not be used. Polyethylene bottles that have screw-cap lids may be used; and

- Isolate from incompatible materials such as strong acids and bases, flammable and combustible liquids and reducing agents.

#### 6.3.9 Neurotoxins

Neurotoxic chemicals can induce an adverse effect on the structure or function of the central and/or peripheral nervous system, which can be permanent or reversible. Neurotoxic chemicals may cause narcosis, slurred speech, decrease in motor functions and staggered gait. Many neurotoxins are chronically toxic substances whose adverse effects are not immediately apparent. An example of a neurotoxin is mercury.

#### 6.3.10 Oxidizers

Oxidizers are chemicals other than blasting agents or explosives as defined in 29CFR 1910.109(a), that initiate or promote combustion in other materials, causing fire either of itself or through the release of oxygen or other gases. Examples include perchloric acid, potassium persulfate and lead nitrate. Precautions for handling oxidizers include the following:

- Minimize the amount of oxidizers used and stored;
- Isolate from incompatible chemicals (e.g., organics, flammable, dehydrating or reducing agents);
- Do not store oxidizers in wooden cabinets or on wooden shelves;
- Do not return unused material to the original container; and
- Store in a tightly closed container and in a cool, dry, ventilated area.

#### 6.3.11 Reproductive Toxins

Reproductive toxins are chemicals which affect the reproductive capabilities including chromosomal damage and effects on fetuses. Reproductive toxins have adverse effects on various aspects of reproduction, including fertility, gestation, lactation and general reproductive performance. Reproductive toxins can affect both men and women. Reproductive toxins include lead, carbon disulfide and mercury.

#### 6.3.12 Select Carcinogens

A carcinogen is a substance capable of causing cancer. Carcinogens are particularly insidious toxins because they may have no immediate apparent harmful effects. Carcinogens should be handled using prudent practices. A chemical is considered to be a carcinogen if:

- It has been evaluated by the International Agency for Research on Cancer

(IARC), and found to be a carcinogen or potential carcinogen; or

- It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or,
- It is regulated by OSHA as a carcinogen.

#### 6.3.13 Toxic Chemical

Toxic is defined by OSHA 29 CFR 1910.1200 as a chemical which falls in any of these three categories:

- A chemical that has a median lethal dose (LD50) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each;
- A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each; or
- A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

#### 6.3.14 Unknown

Unknown chemicals or those, for which complete physical and chemical hazards are not known, must be assumed to be hazardous and highly toxic. Appropriate PPE and engineering controls should be utilized.

#### 6.3.15 Water Reactive

Water-reactive chemicals are likely to become spontaneously flammable or give off flammable or toxic gas when in contact with water. Protect from moisture and separate from incompatibles. Store these chemicals in accordance with manufacturer or applicable SDS requirements.

### 6.4 Chemical Mixtures

- 6.4.1 Goucher must determine the hazards of mixtures of chemicals. If the mixture has not been tested, then the mixture must be assumed to present the same health hazards as the components which comprises one percent by volume or weight or greater of the

mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen.

6.4.2 If the mixture has not been tested to determine whether the mixture is a physical hazard, the employee may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture.

6.4.3 If an employee has evidence to indicate that a component present in the mixture in concentrations of less than one percent could be released in concentrations that would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value or could present a health risk to employees in those concentrations, the mixtures will be assumed to present the same hazard.

## 6.5 Routes of Entry

6.5.1 Exposure occurs when an employee is exposed to a hazardous chemical in the workplace via any route of entry. The most common routes of entry by which chemicals enter the body include inhalation, ingestion, skin contact (absorption) and injection.

6.5.2 Inhalation is one of the quickest ways to spread toxins throughout the body, as the lungs readily disperse many substances when they recharge the blood with oxygen. Ingestion has long been considered to be one of the least likely means of exposure in the workplace. However, published information indicates that significant worker exposure may occur when gum or tobacco is chewed, or food is eaten in the presence of toxic vapors. Therefore, at Goucher, no food or beverage is allowed in any areas that chemicals are in use or are stored.

## 6.6 Signs and Symptoms of Exposure

6.6.1 The signs and symptoms of exposure are the detectable adverse effects of a chemical on the body. Examples include eye irritation, dizziness, fatigue, nausea, skin rash, shortness of breath or headache. Some signs and symptoms may be of a highly technical nature referencing medical terminology not immediately recognizable such as polyserositis, dysneuria and ulaganactesis.

6.6.2 Each employee of Goucher should be familiar with the signs and symptoms of overexposure for the materials that they are working with prior to usage.

## 7.0 Safety Data Sheets

7.1 Employees are required to maintain and update SDSs for each hazardous chemical currently in their use. When necessary, SDSs can be requested from the manufacturer, importer or distributor of the product. The initial request may be made by telephone. Subsequent requests will be made in writing.

- 7.2 Goucher relies on the initial hazard evaluation performed by the manufacturer, importer or distributor of the product. The SDSs shall comply with 29 CFR 1910.1200 (g). In the event a compliant SDS is not available from the manufacturer the most current version of the SDS will be maintained.
- 7.3 The SDSs correspond to the chemicals used throughout Campus.
- 7.4 The SDSs are filed and maintained electronically through the online application Quartzzy.
- 7.5 SDSs for products that are no longer used by Goucher will also be kept and archived for the required 30-year period through the Quartzzy system.
- 7.6 Each SDS must be in English and contain at least the following information:
- Identity used on the label;
  - Chemical and common names;
  - List of ingredients if a mixture;
  - Physical and chemical characteristics;
  - Physical and health hazards;
  - Signs and symptoms of exposures;
  - OSHA permissible exposure limit and other exposure limit values;
  - If it is listed in the National Toxicology Program (NTP) annual report on carcinogens or a potential carcinogen in the International Agency for Research on Cancer (IARC) or by OSHA;
  - Safe handling and use precautions;
  - Control measures;
  - Emergency and first aid measures;
  - Date of preparation and the most recent change; and
  - Manufacturer information.

## 8.0 Labeling

### 8.1 Product Labels and Other Forms of Warning

8.1.1 Chemical manufacturers, importers or distributors are responsible for ensuring that each container of hazardous chemical is appropriately labeled, tagged or marked in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200. Labeling requirements are intended to provide users with information concerning the potential hazards of the chemicals being used and providing information needed to permit an employee to locate the corresponding SDS.

8.1.2 All labels require the following information and must be legible and must be in English:

- Product Identifier;
- Signal Word;
- Hazard Statement(s);
- Pictogram(s);
- Precautionary Statement(s); and

- Name, address and telephone number of manufacturer, importer or other responsible party.

8.1.3 Employees are required to properly label all hazardous materials in the workplace. This includes regular storage containers, portable containers, tanks and vessels, pumps and pipes, and temporary containers.

## 8.2 Multi-Employer Workplace

Goucher is responsible for providing contractors with the following information:

- List of hazardous chemicals to which employees of other employer(s) may be exposed;
- Information about the labeling system;
- Any precautionary measures;
- The location of SDSs; and
- The provisions of this HCP.

## 8.3 Contractor Information

Goucher is responsible for obtaining information from contractors on all hazardous chemicals to which Goucher employees may be exposed as a result of the contractor's work on campus. Contractors who bring hazardous chemicals on-site at Goucher must comply with the following:

- Supply an inventory of the hazardous chemicals and their applicable SDSs;
- Ensure all chemical containers are properly labeled;
- Remove all unused chemicals after the project is complete; and
- Arrange for proper disposal of all hazardous and non-hazardous wastes by contacting Legal Counsel or their designee.

## 9.0 Information and Training

9.1 Training is an essential part of an effective safety and health program. It is necessary in the prevention of accidents and exposures and encourages the proper response to such incidents. Legal Counsel, in consultation with the Department of Human Resources and supervisory staff of Goucher, is responsible for assuring that all employees receive the proper training. Prior to starting work with hazardous chemicals or at the time of employment, each employee will attend a Hazard Communication training where they will receive information on the following topics:

- Policies and procedures related to this HCP;
- Location of this HCP;
- How to read and interpret an SDS;
- Location of SDSs;
- Physical and health hazards of hazardous substances in their work area;
- Methods and observation techniques to determine the presence or release of hazardous chemicals;
- Work practices that may result in exposure;
- How to prevent or reduce exposure to hazardous substances;

- Personal protective equipment; and
- Procedures to follow if exposure occurs.

Supplemental or follow-up training will be provided if Goucher has reason to believe that employees do not understand this HCP or any of its elements or there are changes in the workplace which involve chemicals or chemical-related work practices not previously in training.

## 9.2 Recordkeeping Procedures

It is the responsibility of Human Resources to maintain the employee training records at Goucher College. The individual conducting the training session will ensure that a course roster is filled out for each training session. In addition, a training record form that contains the following information:

- Employee's name;
- Work area;
- Training course name;
- Course date;
- Course location;
- Employee signature; and
- Instructor signature.