# Hamilton College Hazard Communication Plan

## 1. Introduction

### Purpose
Federal Occupational Safety and Health Regulations require employers to provide information regarding hazardous chemicals to employees who may be exposed to such chemicals in their workplace, laboratories, classrooms, etc. In addition, New York State has enacted Right-To-Know legislation to protect employees from potential hazards associated with chemicals in the workplace. This procedure is intended to provide the Hamilton College community with the guidance necessary to comply with these requirements.

### Authority
These procedures are based upon requirements of federal law, generally recognized best EHS management practices, and/or criteria established by the National Institute of Occupational Safety and Health (NIOSH).

### Objectives
- To protect the health and welfare of Hamilton College employees, and the greater Hamilton College community;
- To provide employees (and students) with the necessary information concerning their health and safety during both routine and non-routine activities; and
- To comply with Title 29, Part 1910.1200 of the Code of Federal Regulations (CFR), otherwise known as the Hazard Communication Standard (HCS)—click HERE to go directly to the standard.

### Exemptions
1. As per the HCS, the following are exempt from inclusion in this program:
- *Foods, beverages, drugs and cosmetics*, which are typically regulated by the Food and Drug Administration (FDA) or Consumer Product Safety Commission (CPSC);
- *Pesticides, radioactive material, hazardous waste and biohazardous material*, which are typically regulated by the Environmental Protection Agency (EPA);
- *Manufactured articles* (i.e. anything from clothing to furniture to chairs), which although may be made up of various chemical components, they are not "chemical" in nature under normal conditions of use;
- *Consumer products* regulated by the Consumer Product Safety Act (like Sharpie Markers, Wite-Out, Elmer's Glue) used in the workplace in similar quantities and duration as would be used in one's home; and
- *Wood or wood products* that have not been otherwise treated (like with a pesticide).

2. Chemical Usage in a Laboratory Setting
- While many elements of this written program are useful and/or required for minimizing unwanted occupational exposure to hazardous chemicals regardless of the work setting, the use of chemicals in a laboratory setting is principally regulated by OSHA's Lab Safety Standard, and the Hamilton College Chemical Hygiene Plan (CHP) which implements this standard. So, it is the CHP which is the principal management program regarding chemical usage in a laboratory setting, and should be referenced accordingly.

3. Chemical Usage by Students

While students working with chemicals in an academic setting are not technically considered employees (unless they are compensated in some capacity, like a TA or work-study student), the rules/requirements/procedures outlined herein shall be an integral part of the academic learning and research environment at Hamilton to provide for the protection of all college personnel and students.

Responsibilities

The functional implementation of this Hazard Communication Program at Hamilton College mandates the following procedural responsibilities:

- Primary responsibility for implementing this plan will rest with the various Hamilton College departments, supervisors and instructors who are in the best position to know the daily tasks of those under their direction, and the chemicals with which they would actually or potentially have to work with;
- Program coordination, initial and department/supervisor training, and auditing functions shall be provided by the Office of Environmental Protection, Safety & Sustainability (EPSS); and
- Funds and other resources necessary for the implementation and administration of this plan, including departmental chemical inventorying, new employee training, container labeling and other related activities, shall be the responsibility of each department in cooperation with the Office EPSS.

**Scope**

This written compliance plan, in accordance with the aforementioned purpose, authority, objectives, exemptions, and responsibilities, will be made available upon request to employees, their designated representatives, and to all local, state, and federal officials, and will be accomplished by outlining the following:

- A system for maintaining a comprehensive chemical product inventory;
- A system for properly labeling chemical containers, including both new/incoming containers and workplace containers;
- A system for maintaining Safety Data Sheets (SDS's) for all chemical materials;
- The implementation of a training program to educate College employees (and students, where applicable) on how they can protect themselves from potential chemical health or physical hazards during both routine and non-routine activities;
- A system for maintaining the required documentation; and
- Providing access to this written program for all Hamilton employees (and students), as well as other authorities like regulators and emergency responders.

## 2. Chemical Product Inventories

**General Requirements**

Each Hamilton College department that uses hazardous chemicals shall compile and maintain a chemical product inventory exclusive to its department, which shall be updated every time a new chemical product is put into use by the department, as per the below.

For All Departments Outside of the Taylor Science Center

Chemical product inventories should be maintained in Campus Optics and reviewed regularly to ensure that inventory information remains accurate and up to date with help of the EPSS department. Departments should periodically verify the following information for each chemical product:

- The chemical name, trade name or the common name used on the SDS and/or container label;

- The chemical manufacturer or distributor; and
- Linked SDS attached to the chemical containers profile in Campus Optics

Taylor Science Center
Since the Science Stockroom receives all chemical product deliveries to the building and manages chemical inventories through Campus Optics, chemical product inventories for all Taylor Science Center departments will be managed differently than described above. Departments must ensure that all incoming chemical deliveries are routed through the Chemical Stockroom. The Stockroom Team will then enter the chemical products into Campus Optics and assign each container to the appropriate department and physical location. This process will ensure that an accurate, comprehensive, and up-to-date chemical product inventory can be generated at any time.

**Annual Review**
On a regular or at least annual basis, all departments outside of the Taylor Science Center should submit revised chemical product inventories to the Office of EPSS, which will be used to confirm accuracy of our virtual chemical inventory in Campus Optics.

## 3. Container Labeling

**General Requirements**
All Hamilton College departments that use hazardous chemicals shall maintain a chemical product labeling system in accordance with the HCS, and in conformance with the provisions of the Globally Harmonized System of Classification and Labeling (GHS), as follows.

Requirements for Chemicals in their Original Manufacturer's Containers
The new GHS provisions of the HCS require chemical manufacturers or distributors to ship chemical containers labeled in conformance with GHS effective December 1, 2015. When hazardous chemicals are received by departments, responsible personnel shall examine the containers to verify that the 6-part, GHS compliant labels are indeed present, and provide all necessary information as depicted in the image below:




In the event manufacturers/distributors ship non-compliant chemicals to Hamilton College, appropriate corrective action steps should be taken to remedy the situation. This could include, but is not limited to:

- Contacting manufacturers/distributors directly to remind them of their obligation;
- Refusing receipt of such chemical deliveries;
- Terminating business relationships with manufacturers/distributors who elect not to provide GHS-compliant chemical containers.

<u>Existing Chemical Inventories Predating GHS</u>

Current OSHA regulations and interpretations do not require employers to relabel existing inventories of chemical materials with GHS-compliant labels. However, in instances where 1—the existing inventory of pre-GHS labeled chemical containers is large by volume, 2—the existing inventory of pre-GHS labeled chemical containers are compromised, worn or weathered or 3—the hazards posed by individual chemical containers are substantial, it is wise for departments to consider migrating toward GHS-compliant labeling strategies as a best management strategy through any of the following:

- Departments may elect to contact manufacturers/suppliers directly to obtain new GHS-compliant labels, which can then be placed on/over the older pre-GHS labels.
- Departments may elect to implement certain GHS elements on older pre-GHS labels, like pictograms.
- Finally, departments may elect to dispose of older pre-GHS labeled chemical containers altogether. This last strategy is especially important in instances where the original manufacturers or suppliers are no longer in existence, and it is impossible to determine certain GHS label criteria.

**GHS Pictograms**

The new GHS provisions of the HCS require the utilization of nine pictograms on both chemical labels and Safety Data Sheets, as depicted and described below.

| | | |
|---|---|---|
| **Health Hazard**<br><br>• Carcinogen<br>• Mutagenicity<br>• Reproductive Toxicity<br>• Respiratory Sensitizer<br>• Target Organ Toxicity<br>• Aspiration Toxicity | **Flame**<br><br>• Flammables<br>• Pyrophorics<br>• Self-Heating<br>• Emits Flammable Gas<br>• Self-Reactives<br>• Organic Peroxides | **Exclamation Mark**<br><br>• Irritant (skin and eye)<br>• Skin Sensitizer<br>• Acute Toxicity (Harmful)<br>• Narcotic Effects<br>• Respiratory Tract Irritant<br>• Hazardous to Ozone Layer (Non-Mandatory) |
| **Gas Cylinder**<br><br>• Gases Under Pressure | **Corrosive**<br><br>• Skin Corrosion/Burns<br>• Eye Damage<br>• Corrosive to Metals | **Exploding Bomb**<br><br>• Explosives<br>• Self-Reactives<br>• Organic Peroxides |
| **Flame Over Circle**<br><br>• Oxidizers | **Environment** (Non-Mandatory)<br><br>• Aquatic Toxicity | **Skull and Crossbones**<br><br>• Acute Toxicity (Fatal or Toxic) |

Regarding the "non-mandatory" notation assigned (in instances of ozone layer impacts) to the *exclamation point* pictogram and (in instances of aquatic toxicity) to the *environment* pictogram, this has to do with OSHA not having regulatory jurisdiction over environmental protection. Therefore, it is important that departments not assume the "non-mandatory" terminology means that environmental compliance obligations are also non-mandatory or optional.

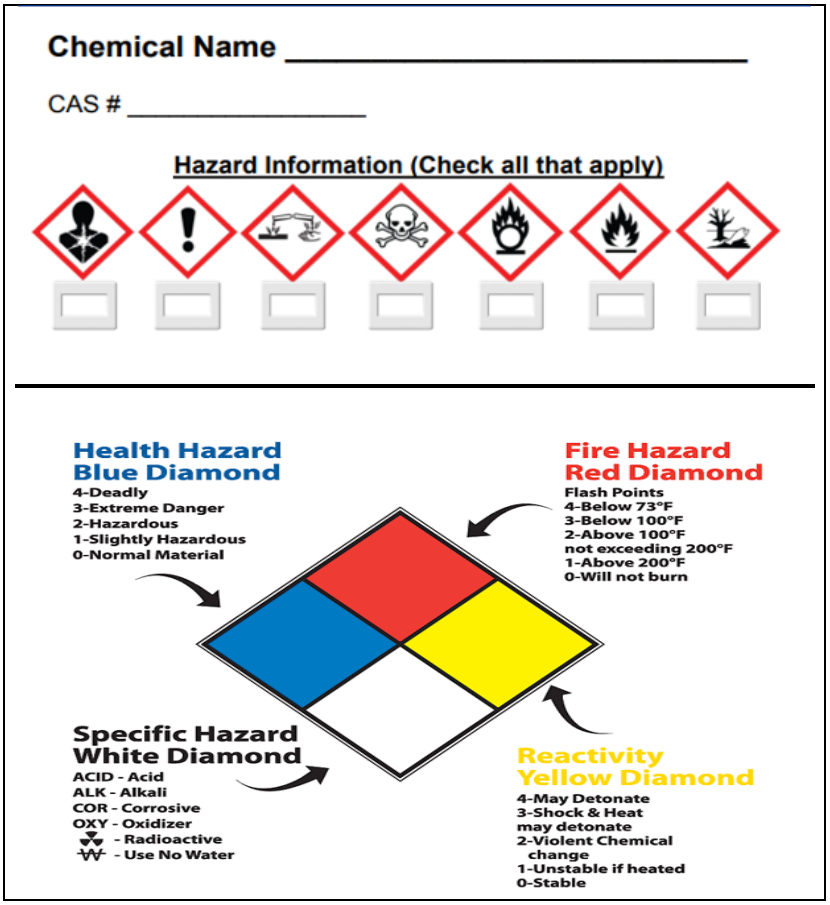
**Workplace Labeling of Secondary Chemical Containers**

In certain instances, the information contained on original chemical container labels must be conveyed upon secondary containers. This "workplace labeling" of secondary chemical containers is **NOT** required in the following instances:

- When chemical materials are dispensed into secondary containers, and the chemicals will be used "immediately" (i.e. within 1 day of the dispensing activity);
- When chemical materials are dispensed into containers or vessels associated with manipulations (reactions for example) as opposed to storage; and
- When chemical materials are dispensed into very small containers in lab settings, where the size of the container is so small that the application of workplace labeling is difficult to perform. This

scenario is only applicable to small chemical container use in lab settings, and must also conform to the provisions of the College's Chemical Hygiene Plan (CHP).

When none of the exceptions to the workplace labeling of secondary chemical container provisions noted above apply, departments shall either use a GHS pictograms shown or NFPA 704 based "Hazcom" labels to convey safety information to others, in accordance with the below.




GHS-compliant HazCom labels are standardized hazard communication labels that provide essential information about a chemical's identity and associated hazards, using key elements of the GHS labeling system, as follows:

- First, they identify the chemical using the chemical name and Chemical Abstracts Service (CAS) number, allowing the product to be clearly identified and distinguished from other chemicals.
- Second, they use standardized GHS pictograms to visually communicate the specific hazards associated with the chemical. These pictograms are represented by symbols within red-bordered diamonds and are distinct from the NFPA 704 hazard diamond system.

NFPA 704 based Hazcom labels are "graphic hazard statements" that use two essential hazard communication strategies, as follows:

- First, they use the numbers 0 through 4 to convey risk information, with lower number communicating lower risk.

- Second, they use certain symbols that are unique to this NFPA standard, and are unaffiliated with GHS pictograms.

Accordingly, it is vital to those employing NFPA 704 based Hazcom labels for workplace labeling of secondary chemical containers to understand the differences between this system and the provisions of GHS. The table below is further illustration of such differences.

## NFPA Rating Explanation Guide

| RATING NUMBER | HEALTH HAZARD | FLAMMABILITY HAZARD | INSTABILITY HAZARD |
|---|---|---|---|
| 4 | Can be lethal | Will vaporize and readily burn at normal temperatures | May explode at normal temperatures and pressures |
| 3 | Can cause serious or permanent injury | Can be ignited under almost all ambient temperatures | May explode at high temperature or shock |
| 2 | Can cause temporary incapacitation or residual injury | Must be heated or high ambient temperature to burn | Violent chemical change at high temperatures or pressures |
| 1 | Can cause significant irritation | Must be preheated before ignition can occur | Normally stable. High temperatures make unstable |
| 0 | No hazard | Will not burn | Stable |

| RATING SYMBOL | SPECIAL HAZARD |
|---|---|
| ALK | Alkaline |
| ACID | Acidic |
| COR | Corrosive |
| OX | Oxidizing |
| | Radioactive |
| W | Reacts violently or explosively with water |
| W OX | Reacts violently or explosively with water and oxidizing |

## 4. Safety Data Sheets (SDS's)

Safety Data Sheets (SDS's) are documents that supply information about a particular hazardous substance, chemical or mixture. Prior to GHS, SDS's were referred to as MSDS's (or Material Safety Data Sheets). While original MSDS's under the old OSHA HCS (pre-GHS) were only required to be eight sections in length, SDS's today provide much more information, as depicted below.

### Safety Data Sheets (Sections)

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

There are several critical SDS elements of Hamilton's Hazard Communication Program, as detailed and discussed below.

**MSDS to SDS Transition**
Under GHS, chemical manufacturers and suppliers have been transitioning from the older MSDS format to the new SDS format for several years now, and there are two noteworthy points.

- First, it is the obligation of chemical manufacturers and suppliers to make this MSDS to SDS documentation transition, rather than the College's obligation.
- Second, just as older chemical containers in departmental inventories might contain pre-GHS label elements, those same older chemical inventories may not have GHS-compliant SDS's.

Based upon the above, especially in instances where chemical manufacturers or suppliers have gone out of business and no comparable SDS are producible, these are additional scenarios where the College may elect to discontinue use of the chemical material for best management practice reasons.

**New SDS's & Their Review**
New chemical materials introduced into the workplace at a departmental level must be accompanied by new GHS-compliant SDS's. Such SDS's, either in hard copy or electronic format, must be provided to the Office of EPSS upon procurement, simultaneous to the update of a department's chemical product inventory.

There is perhaps no more important element of this hazard communication program than the review of SDS's by those in positions of authority. As all chemical materials are toxic dependent upon dose,

persons purchasing and/or using chemical materials in work settings at the College must be sure that 1—sufficient protective equipment, control measures and practices are in place to ensure chemicals may be used safely, and 2—any wastes generated from such use can be managed correctly. The SDS is the key tool to facilitate this process, and EPSS is always ready to assist.

**Access to SDS Information**

Just as reviewing SDS information is important, so too is access to SDS's by personnel who use chemical materials at the College. Such access is provided for and facilitated as follows.

SDS's in Hard Copy

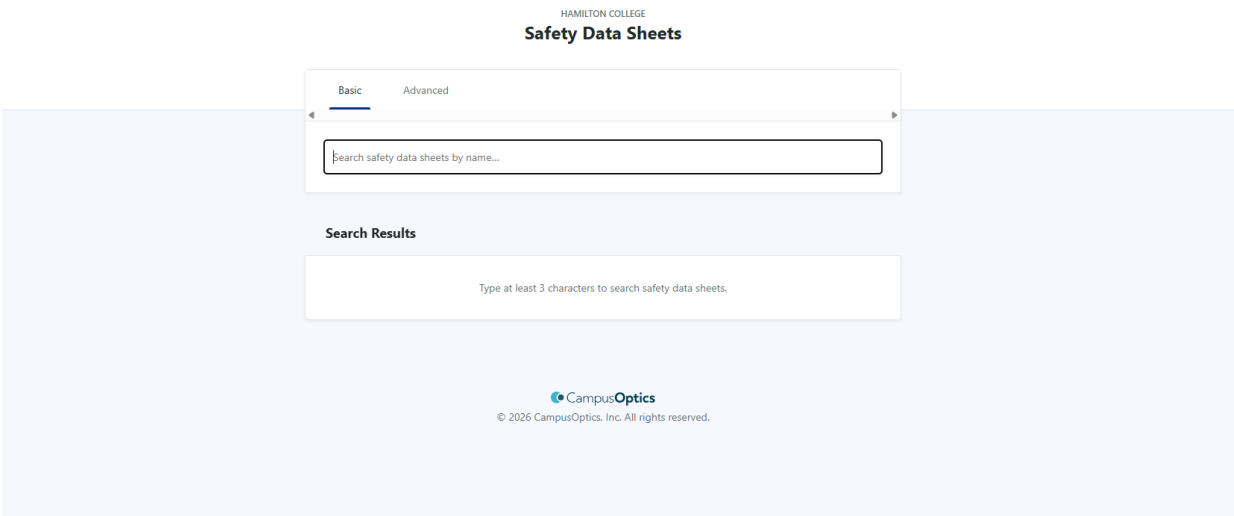
In some instances, departments may elect to provide SDS's in hard copy to their personnel, and/or maintain hard copies at the departmental level. Examples of such instances include:

- Teaching labs where a certain number of chemical materials change on a weekly basis, such that all SDS's for a given week's worth of lab work are posted for quick access;
- Intermittent or higher risk situations where for reasons of practicality, hard copies of SDS's are posted or provided directly to personnel to (again) facilitate quick access.
- Certain departments/functions, like the Facilities Management Stockroom and the Taylor Science Center Stockroom also may maintain hard copies of SDS's to either:
    - Provide such documents to those who do not have regular access to a computer, or
    - Enable ready access to such information in the event of a loss of network capabilities.

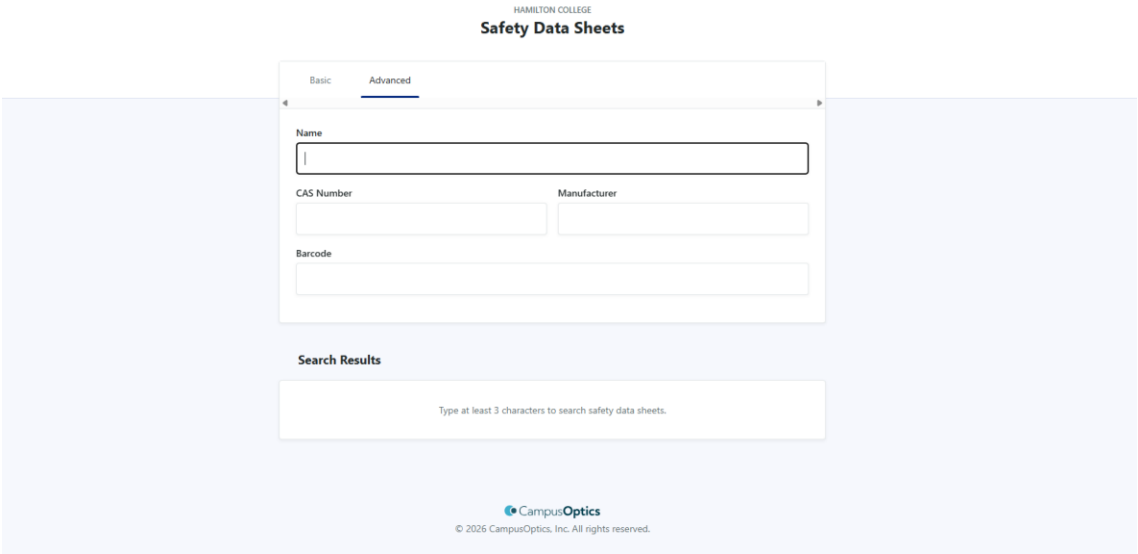
SDS's in Electronic Format

Hamilton has invested considerable time and resources into an electronic chemical inventory and SDS management system known as Campus Optics. Currently, the EPSS Department administers the program and is responsible for adding new chemical types and associating the appropriate SDS with each chemical type in the system. SDS's may be linked directly to the manufacturer's website or uploaded to Campus Optics as a PDF or other file attachment. SDS's can be accessed directly through the applicable chemical type profile or through the external Campus Optics SDS Database. Because Campus Optics does not automatically renew or re-verify SDS's when manufacturers issue revised versions, departments are responsible for periodically reviewing the SDS's associated with their chemical products and ensuring that the most current version is available in the system. The Campus Optics SDS Database is accessible via the QR below to College personnel and students through the Campus Optics system, and the homepage looks like this:

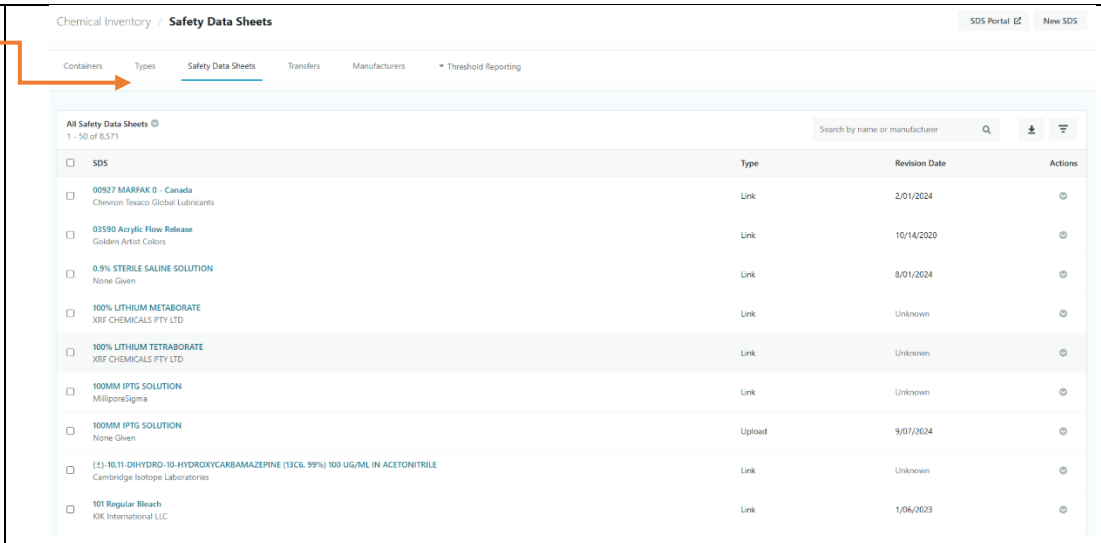
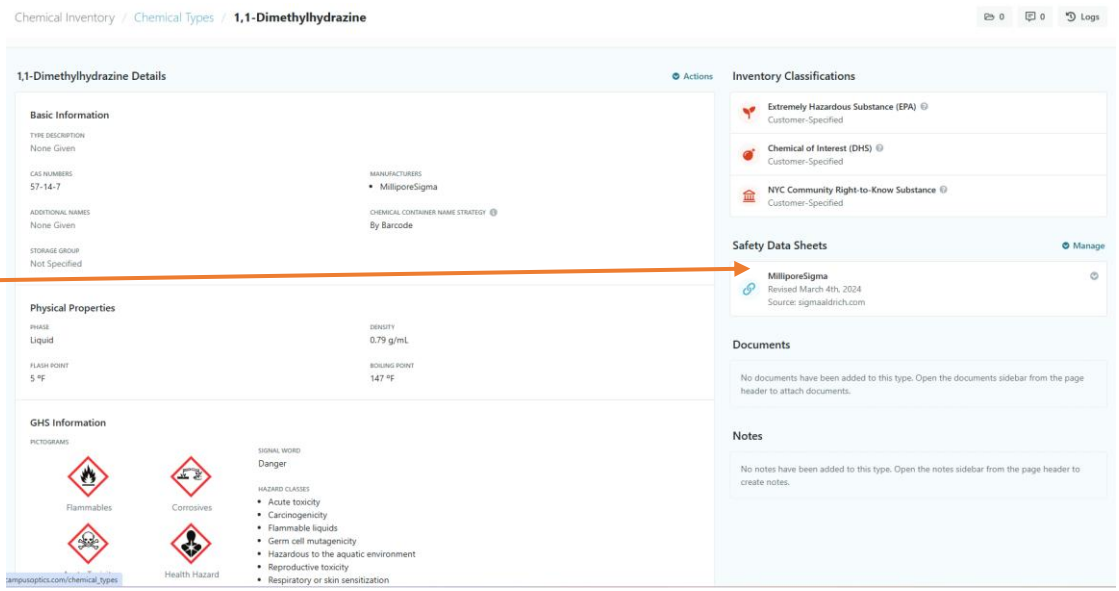





The database can be used using the Basic function, where you can search any ACTIVE chemical at Hamilton College by the name of the chemical OR via the Advanced function shown below




Chemicals that are ACTIVE at Hamilton College can also be search by the Name, CAS Number, Manufacturer or Barcode Number if applicable. The chemical container's profile would need to have these items listed for it to be searchable in the database.

| | |
|---|---|
| SDS's can also be found via Campus Optics. This route is only accessible to those who have a profile in the system so it is recommended that the SDS portal be utilized as that is accessible to all. |  |
| SDS data can also be accessed in each chemical type profile and will be linked to the profile's homepage. SDS data will also be showcased in the GHS Information Section. |  |

## 5. Employee Information & Training

Employee (and student) information and training on the College's Hazard Communication Program is the critical element that implements all aspects of this written plan, and will be managed as per the below.

**Initial & Refresher HAZCOM Training**
The Office of EPSS has developed a general employee training program to meet the initial training requirements of the HCS and this plan. When departments have new personnel who will work with hazardous chemicals covered by this plan, appropriate supervisory personnel within those departments (chair, director, supervisor or lab director) must notify EPSS that a training class is necessary. EPSS provided HAZCOM training is required for new personnel within a reasonable amount of time of their initial assignment. Topics covered in this initial training include, but are not limited to, the following:

- The basic requirements of the Hazard Communication Standard, and the location and availability of Hamilton College's written hazard communication program;
- An overview of the physical, chemical, and biological hazards found in the workplace;
- Routes of exposure and general safe work practices;
- Personal protective equipment;
- Principles of toxicology; and
- Information on interpreting labels and SDS's.

Refresher HAZCOM training will be required periodically thereafter (every three years after initial), or more often based upon changes to this written plan. Appendix 1 provides an example of how initial and refresher training may be documented.

**Chemical-Specific HAZCOM Training**
Chemical-specific HAZCOM training is required for all personnel who routinely utilize hazardous chemicals during the course of their work, and for new chemicals introduced into the workplace. Supervisory personnel overseeing the use of such hazardous chemicals by their subordinates typically perform chemical-specific HAZCOM training. The content and detail to which a supervisor provides such training is perhaps the single most important element of this written program. For example, if a new chemical introduced into the workplace is a common latex paint, similar to other latex paints already in use, chemical-specific HAZCOM training including a formal review of the SDS may not be necessary. However, if the new chemical product is determined to be a higher hazard (with new/necessary control measures), chemical-specific HAZCOM training including a formal review of the SDS is vital. Such SDS-based HAZCOM training may include, but is not limited, to the following:

- Methods and observations that may be used to detect the presence or release of the hazardous chemical in the work area (such as air monitoring, visual appearance and odor);
- The physical and health hazards of the chemical;
- The measures employees can take to protect themselves from these hazards, including appropriate work practices, emergency procedures and PPE;
- The details of the hazard communication program developed, including labels and the SDS.

The Appendix 2 "Quick-Reference HAZCOM Training Form" is a tool that can be used to summarize SDS information, which supervisors may then use to facilitate the SDS-based training they provide. This form may also be used to teach others (students in academic environments particularly) how to read, interpret and summarize SDS's on their own. Appendix 1 may also be used to document chemical-specific HAZCOM training, to which the SDS or Appendix 2 may be affixed as supporting documentation.

## 6. Documentation & Access to the HC Program and its Elements

**SDS's & Chemical Product Inventories**
As noted throughout this written program, SDS's and departmental chemical product inventories shall be obtained and maintained by the departments principally using and procuring such chemical materials. The Office of EPSS's principal strategy for maintaining SDS's long-term will be through an electronic retention format as facilitated by Campus Optics. If individual chemicals are no longer in use or needed by individual departments, SDS's will be archived through Campus Optics to achieve the required 30-year retention requirements. Departmental chemical product inventories shall be retained by the Office of EPSS electronically, again to achieve the required 30-year retention requirements.

**Training Records**
Appendix 1 training records for initial and refresher training classes put on by the Office of EPSS will be permanently retained in a hard copy format. Appendix 1 training records for those supervisors or departments administering chemical-specific HAZCOM training will be retained by the departments themselves in a hard copy format, for a period of no less than five years.

**Access to the Written Hazard Communication Program and its Elements**
All employees and students have immediate access to this written program via the Office of EPSS's website, located at this LINK.

Further, all employees and students wishing to have a copy of the OSHA Hazard Communication standard may receive a copy by request to the Director of EPSS, or they can access the standard at this LINK.

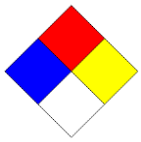
**APPENDIX 1**
**EH&S TRAINING CERTIFICATION DOCUMENTATION**

| | | |
|---|---|---|
| **Date:** | **Time:** | **Location:** |
| **Instructor Name:** | **Signature:** | |
| ☐ **HAZCOM** | ☐ **Lab Safety/CHP** | ☐ **Waste Management** |
| ☐ **Emergency Procedures** | ☐ **Field Safety** | ☐ **Other (specify below)** |
| **Other:** | | |

| Name | Signature | Dept/Shop |
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## APPENDIX 2
## QUICK-REFERENCE HAZCOM TRAINING FORM

| Chemical Product Name | Manufacturer |
|---|---|
| | |

| Basic Chemical Product Safety Information | | | |
|---|---|---|---|
| What (if any) are the health or physical hazards associated with this material (i.e., the relevant OSHA pictograms)? |  | | |
|  | What are the NFPA/HMIS Ratings for this product for the purposes of filling out a HAZCOM label on secondary workplace containers? | Flammability: | Reactivity: |
| | | Health: | Special Hazard: |

| Chemical Product Exposure Considerations | |
|---|---|
| • **What will happen if the product:** | |
| Gets on my skin? | |
| Gets in my eyes? | |
| Is swallowed? | |
| Is breathed/inhaled? | |
| **First Aid Measures** | |
| • **First aid measures for each major route of entry:** | |
| Skin Exposure | |
| Eye Exposure | |
| Ingestion | |
| Inhalation | |
| **Personal Protective Equipment (PPE) Controls** | |
| • **Use the following articles of PPE to protect my:** | |
| Skin | |
| Eyes | |
| Respiratory System | |
| Other | |

| Other Considerations | |
|---|---|
| Are any engineering controls required or recommended? | ☐Y ☐N<br>Explain: |
| How are small/incidental spills of the product to be handled? | Explain: |
| Does the use of this product result in the generation of a hazardous waste? | ☐Y ☐N<br>Explain: |