# HAZARD COMMUNICATION PLAN

#### **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 <u>HERE</u> to go directly to the standard.

## **Exemptions**

- 1. As per the HCS, the following are exempt from inclusion in this program:
- <u>Foods, beverages, drugs and cosmetics</u>, which are typically regulated by the Food and Drug Administration (FDA) or Consumer Product Safety Commission (CPSC);
- <u>Pesticides, radioactive material, hazardous waste and biohazardous material</u>, which are typically regulated by the Environmental Protection Agency (EPA);
- <u>Manufactured articles</u> (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;
- <u>Consumer products</u> 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
- <u>Wood or wood products</u> 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 (EPS&S); 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 EPS&S.

## 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.

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## SECTION 1 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.

#### All Departments Excluding Those in the Taylor Science Center

For all departments outside of the Taylor Science Center, chemical product inventories should be in the form of a spreadsheet, and include the following information:

- The chemical name, trade name or the common name used on the SDS and/or container label;
- The chemical manufacturer or distributor; and
- Website links from both the original manufacturer/distributor, as well as the MSDSonline link (as per Section 3 below).

#### Taylor Science Center

Since the Science Stockroom both receives all chemical product deliveries to the building and utilizes a chemical inventory software program called Vertere, chemical product inventories for all Taylor Science Center departments will be managed differently than above. Departments must ensure that all incoming chemical deliveries are routed through the Stockroom and uploaded into Vertere so they are departmentally and spatially assigned, such that a comparable and accurate chemical product inventory can be produced at any point in 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 EPS&S, which will maintain such documents as a part of the College's permanent recordkeeping.

## SECTION 2 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.

## Existing Chemical Inventories Predating GHS

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, or 2—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	Flame	Exclamation Mark	
<ul> <li>Carcinogen</li> <li>Mutagenicity</li> <li>Reproductive Toxicity</li> <li>Respiratory Sensitizer</li> <li>Target Organ Toxicity</li> <li>Aspiration Toxicity</li> </ul>	<ul> <li>Flammables</li> <li>Pyrophorics</li> <li>Self-Heating</li> <li>Emits Flammable Gas</li> <li>Self-Reactives</li> <li>Organic Peroxides</li> </ul>	<ul> <li>Irritant (skin and eye)</li> <li>Skin Sensitizer</li> <li>Acute Toxicity (Harmful)</li> <li>Narcotic Effects</li> <li>Respiratory Tract Irritant</li> <li>Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>	
Gas Cylinder	Corrosive	Exploding Bomb	
$\diamond$			
Gases Under Pressure	<ul><li>Skin Corrosion/Burns</li><li>Eye Damage</li><li>Corrosive to Metals</li></ul>	<ul><li>Explosives</li><li>Self-Reactives</li><li>Organic Peroxides</li></ul>	
Flame Over Circle	Environment (Non-Mandatory)	Skull and Crossbones	
	¥2		
Oxidizers	Aquatic Toxicity	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 GHS pictograms or NFPA 704 based "Hazcom" labels to convey safety information to others, in accordance with the below.



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	RATING SYMBOL	SPECIAL HAZARD	
4	Can be lethal	Will vaporize and readily burn at normal temperatures	May explode at normal temperatures and pressures	ALK	Alkaline	
3	Can cause serious or permanent injury	Can be ignited under almost all ambient	May explode at high temperature or shock	ACID	Acidic	
2	Can cause temporary incapacitation or residual injury	temperatures Must be heated or high ambient temperature to burn	Violent chemical change at high temperatures or pressures	COR OX	Oxidizing	
1	Can cause significant irritation	Must be preheated	Normally stable. High temperatures make unstable	*	Radioactive	
				₩	Reacts violently or explosively with water	
0	No hazard	Will not burn	Stable	₩ох	Reacts violently or explosively with water and oxidizing	

## SECTION 3 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 EPS&S 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 EPS&S 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 its 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 contractual effort into an electronic SDS database known as MSDSonline. Not only does the office of EPS&S administer/pay for this program, but it is also responsible for uploading SDS information for new products procured by all College departments and functions. SDS's (and older versions of MSDS's) uploaded into this database are regularly updated directly by MSDSonline when newer versions of such documents are produced by chemical manufacturers or suppliers. The MSDSonline database is accessible without password protection from all College personnel on Hamilton's network by scanning the QR code to the right with one's cell phone or at this LINK and the homepage looks like this:



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Ethylene ALDRICH	e oxide CHEMICAL COMPANY	03/28/2020	-	10/30/2020
	X Tung Oil Finish Company	10/14/2020	-	10/30/2020

Effective date: 11/1/00

There are two principle ways of navigating the MSDSonline database for SDS/MSDS access, as per the table below.

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		KODAK GBX Fixer and Replenisher	12/07/2011	-	02/17/2017

## SDS Access via Other Formats

Another strategy for electronically accessing SDS's utilizes departmental spreadsheets and hyperlinked web addresses. In most situations, such departmental spreadsheets will depict hyperlinked web addresses for SDS's both as they are uploaded in the MSDSonline database, and directly from the manufacturer or supplier. There are two important caveats to note here:

- First, it is not possible to access an MSDSonline database link to an SDS directly from a spreadsheet. Rather, the following 3-step process is required:
  - #1—Open the MSDSonline database on your internet browser of choice;
  - #2—Click and copy the MSDSonline SDS web address from your spreadsheet;
  - #3—Paste the SDS web address into your internet browser's address line and hit enter.
- Second, in some instances it is preferable to use the manufacturer's or supplier's web address for direct electronic access to a SDS. An example of such a situation is when the chemical material to be used is actually a multiple chemical kit. In such instances, clicking directly on the manufacturer or supplier provided web address directly from a departmental spreadsheet should automatically connect users to the appropriate SDS's.
- Below is an image of a departmental spreadsheet, depicting both MSDSonline database links to SDS's, as well as manufacturer/supplier direct links to SDS's:

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## SECTION 4 EMPLOYEE INFORMATION AND 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 EPS&S 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 EPS&S that a training class is necessary. EPS&S 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 every three years, 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.

#### **SECTION 5**

## DOCUMENTATION & ACCESS TO THE HCS PROGAM 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 EPS&S's principal strategy for maintaining SDS's long-term will be through an electronic retention format as facilitated by MSDSonline. If individual chemicals are no longer in use or needed by individual departments, SDS's will be archived through MSDSonline to achieve the required 30-year retention requirements. Departmental chemical product inventories shall be retained by the Office of EPS&S 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 EPS&S 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 EPS&S'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 EPS&S, or they can access the standard at this LINK.

## APPENDIX 1 EH&S TRAINING CERTIFICATION DOCUMENTATION

Date:	Time:		Location:
Instructor Name:		Signature:	
HAZCOM	Lab Safet	y/CHP [	Waste Management
<b>Emergency Procedures</b>	<b>Field Safe</b>	ty [	<b>Other (specify below)</b>
Other:			

Name	Signature	Dept/Shop

## APPENDIX 2 QUICK-REFERENCE HAZCOM TRAINING FORM

Chemical Product Name	Manufacturer

Basic Chemical Product Safety Information					
What does product look	/smell like?				
Is product flammable/co	ombustible?				
Is product air or water re	eactive?				
Are there any chemical	incompatibilities?				
Is product corrosive? If	so, what is the pH?	□Y □N pH			
Is the product or any of	its constituents a listed carcinogen?				
What are the NFPA/HMIS Ratings for this		Flammability:			
product for the purposes of filling out a		Reactivity:			
HAZCOM label on secondary containers?		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?	Explain:		
How are small/incidental spills of the	Explain:		
product to be handled?			
Does the use of this product result in the			
generation of a hazardous waste?	Explain:		