THE OHIO STATE UNIVERSITY

Hazard Communication Program

March 2020

College:	College of Arts and Sciences
Department:	Physics
Responsible Person:	Facility Operations Manager - Phil Davids
Location:	Physics Research Building and Smith Lab (partial only)
Location of the Safety Data Sheets (SDS):	Online
Emergency contact:	Phil Davids
Hazard Inventory Location:	Room 1144
Date of completion/revision:	May 5th, 2020

Note:
This Department of Physics document only covers the general occupancy areas of the facilities listed above. Coverage of hazardous chemical inventories within individual labs is maintained by the lab PI and within the individual lab safety documents. Revision levels in cover page and in footers are for the source document and do not apply to this issuance. See Date of completion/revision above for status.

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1. Introduction

The purpose of the Hazard Communication Program (HazCom) is to ensure employees are aware of hazardous chemicals in the workplace and are provided information regarding the potential hazards associated with exposure to these chemicals. Specifically, hazardous chemicals produced or imported into the workplace are to be evaluated for physical and health hazards; this information is to be provided to employees. The program also covers container labeling, material safety data sheets, employee training and emergency procedures. This program is designed to comply with the Public Employment Risk Reduction Program (PERRP) [Ohio House Bill 308 an Act] and the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard or "Employee Right-to-Know" act.

2. Responsibilities

Environmental Health and Safety

Environmental Health and Safety (EHS) shall maintain, review, and update the written Hazard Communication Program template for departments use and completion. EHS assists departments in training, plan implementations, and personal protective equipment (PPE) selection and use.

Departments/Supervisors

Departments and supervisors are responsible for complying with the provisions outlined within this written program, including:

- Appointing a departmental Hazard Communication (HazCom) coordinator.
- Ensuring their area of responsibility has a written hazard communication program including department specific details.
- Ensuring implementation of the written program.
- Ensuring all affected employees are provided HazCom training and training records are maintained in personnel files.
- Developing and maintaining an inventory of all hazardous chemicals stored or used in the workplace, ensure the inventory is available to affected employees.
- Ensuring Safety Data Sheets (SDSs) are present for all hazardous chemicals in the workplace and are readily available to employees.
- Ensuring containers of hazard chemicals are properly labeled and legible.
- Assessing chemical hazards, selecting and providing the appropriate PPE for employees; ensure training for PPE use and maintenance is completed.
- Ensure standard operating procedures are established (written) and available to employees performing "non-routine" tasks involving hazardous chemicals.
- Provide training to employees regarding hazards in the workplace including precautions and equipment for safe use, signs and symptoms of overexposure, and when new chemicals are introduced in the work place.
- Develop job specific training including safe work practices and procedures to follow in an emergency.
- Ensure training records are maintained in personnel records and are up to date.
- Inform contractors of potential hazards which may be encountered during their work at the University including providing access to the written Hazard Communication Program, the hazardous chemical inventory and material safety data sheets for these chemicals.
- Complete an annual review of the plan with employees.

Employees

Employees must comply with the guidelines set forth in this plan and attend and/or complete required hazard communication training. Once trained, employees must be capable of identifying and reporting chemical hazards or processes to their supervisor.

Contractors

Contractors must inform and provide Ohio State departments with a chemical inventory and SDSs for the materials that will be introduced into the work area through the course of their work at Ohio State. Contractors must also provide information regarding where chemicals will be used and stored.

3. Scope

This program is applicable to all Ohio State University faculty, staff, student employees and contract employees who work in areas where hazardous chemicals are used or stored. Laboratory employees who fall under the Laboratory Standard shall defer to the Chemical Hygiene Plan (CHP). Department-specific details can be added in the appendices of this document.

"Hazardous Chemical" implies that exposure to a chemical could pose a physical or health hazard. Chemicals with a "physical hazard" are those for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive. Chemicals with a "health hazard" means a chemical for which there is significant evidence that acute or chronic health effects may occur in exposed employees.

4. Definitions

Acute Effect: Adverse effect that has severe symptoms developing rapidly and coming quickly to a crisis, usually within minutes but up to twenty-four hours.

Carcinogen: A substance or agent capable of causing or producing cancer in mammals, including humans.

Chronic Effect: An adverse effect with symptoms that develop slowly over a long period of time or that occur frequently.

Combustible Liquid: Any liquid that must be heated sprayed or requires a wick to ignite, e.g., kerosene, oil.

Corrosive: A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact, e.g., battery acid.

Exposure Limit: The time-weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

Flammable Liquid: Any liquid that ignites at room temperature, e.g., gasoline, alcohol.
Hazard Statement: For each category of a class, a standardized statement is used to describe the hazard. For example, the hazard statement for chemicals which meet the criteria for the class Self-heating substances and mixtures, Category 1 is Self-heating; may catch fire. This hazard statement would appear both on the label and on the SDS.

Hazardous Chemical: Any chemical whose presence or use is a health hazard or a physical hazard.

Health Hazard: A chemical for which there is significant evidence, based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term “health hazard” includes chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, or produce targeted organ effects e.g., kidneys, liver, nervous system, blood, and agents that damage the lungs, skin, eyes, or mucous membranes.

Irritant: Chemical, which is not corrosive, that causes a reversible inflammatory effect on living tissue, e.g., skin, eyes, respiratory system, by chemical action at the site of contact, e.g., onion odor, skunk spray, acetic acid.

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

Pictogram: a graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information.

Precautionary Statement: A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous product, or improper storage or handling of a hazardous product.

Safety Data Sheet (SDS): Written or printed material concerning a hazardous chemical which is prepared in accordance with 29 CFR 1910.1200(g)

Signal Word: A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The GHS uses “Danger” and “Warning” as signal words.

5. Globally Harmonized System for Classification and Labeling of Chemicals (GHS)

In 2012, OSHA aligned the Hazard Communication Standard with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This update provided a common approach to classifying chemicals and communicating hazard information on labels and data sheets. Chemical manufacturers and importers are required to provide a label that includes a harmonized signal word, pictogram, hazard statement, and precautionary statement. Material Safety Data Sheets (MSDs) are now called Safety Data Sheets (SDSs) and have a specified 16-section format.

6. Chemical Inventory

The supervisor or designee is required to maintain a current inventory of hazardous chemicals used in the workplace. The inventory should be updated upon introduction of a new chemical into the workplace. The inventory should identify each hazardous chemical by the primary name on the label, the manufacturer or distributor of the chemical, the name listed on the SDS, the location of the chemical and the quantity. This inventory should be posted in the work area and readily available to employees. See Appendix A for a chemical inventory template.

7. Labeling

The supervisor or designee shall ensure primary and secondary hazardous chemical containers are properly labeled. All labels and warnings should be legible, written in English and prominently displayed on the container. A secondary label or warning written in a different language may be included with the English version. Labels should identify the product name, GHS pictograms, signal words, hazard statements, precautionary statements, supplier information, and supplementary information. Examples of the GHS pictograms can be seen in Appendix B and an example of a GHS label can be seen in Appendix C.

Labels on incoming containers must not be defaced or removed until the container is empty. If the label becomes faded, illegible or destroyed they should be replaced and be durable, legible, and must be firmly affixed to the container(s).

Labels are not required for portable containers if they are intended only for the immediate use by the employee who performs the transfer.

Certain chemicals are specifically exempted from labeling including pesticides, fungicides, rodenticides, food, food additives, drugs, cosmetics and medical or veterinary products. A more complete list can be found in the OSHA standard. This exemption exists because many of these products have other standards or regulations that cover these substances. Any labeling requirements within the product or chemical specific regulations must be followed.

8. Safety Data Sheets (SDSs)

Safety Data Sheets (SDSs) provide employees with detailed information on hazardous chemicals. A SDS must be kept for each hazardous chemical used and must be readily available to employees. All employees should review SDS documents prior to using hazardous chemicals.

The supervisor or designee is responsible for obtaining SDS documents for the department when new chemicals are procured. This designee also reviews incoming SDS documents for safety and health information to convey pertinent information and training to affected employees.

SDS documents can be managed electronically if:

- A back-up system is in place in case of emergency causing electronic documents to be unavailable.
- The system is integrated within the overall HazCom Plan.
- Employees have hard-copy access if requested.

Safety Data Sheets under the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) offer similar information that MSDSs provide. They provide a clear description of the data used to identify the hazards of a chemical. The major difference is that the SDS is in a globally standardized format for the purpose of easier training and notification of hazards. Each SDS should contain sixteen (16) headings in the following order:

1. Identification of the substance or mixture and of the supplier.
2. Hazard(s) identification
3. Composition/information on ingredients
4. First aid measures
5. Firefighting 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

9. Employee Training

Employers must provide employees with effective information and training regarding hazardous chemicals in their work area prior to starting work, and whenever a new physical and/or health hazard is introduced in to the work area. The following information must be covered:

- The requirements of the Hazard Communication Standard (29CFR 1910.1200) and this Hazard Communication Plan.
- The location and the availability of this written Hazard Communication Plan.
- Physical and health hazards of chemicals in the work area, their locations, and the likely effects or symptoms of overexposure.
- Location of the departmental hazardous chemicals inventory.
- Location of SDS documents for all hazardous chemicals in the work area.
- The emergency procedures to follow in case of chemical spills, fires, and other incidents.
- Methods used to determine the presence or release of hazardous chemicals in the work area.
- How to reduce or prevent exposure to hazardous chemicals through use of control/work practices and PPE.
- Steps taken to reduce or prevent exposure to chemicals.
- Emergency procedures to follow if an employee is exposed to chemicals.
- A record of the date, location and facilitator of each training session as well as a list of attendees should be maintained. Individual training records should be maintained in departmental personnel files.

10. Hazardous Non-Routine Tasks

A non- routine task is one which the employee does not normally perform and for which the employee has not previously been trained. Standard operating procedures (SOP) should be written and available to employees performing “non-routine” tasks involving hazardous chemicals. Prior to beginning non-routine tasks involving actual or potential exposures to hazardous chemicals, employees will be informed of the hazards present and be given appropriate work instructions, emergency procedures and personal protective equipment (PPE) to be used. Required PPE will be provided prior to starting the task. The employee’s supervisor or the area supervisors are responsible for SOP development, supplying PPE and providing training.

11. Hazard Communication for General Office Staff

Employees in office environments work with a variety of products that may contain small amounts of hazardous chemicals. Safe exposure limits have been established for many hazardous chemical substances below which no adverse health effects are expected to occur. Since most office products are

used intermittently and in small quantities, exposure to these products is not expected to exceed safe limits or produce adverse health effects. In addition, most of these products are consumer products and therefore meet the more stringent regulations for consumer product safety.

The following provides information for employees who work in offices by alerting them to potential hazardous substances that may be encountered (other sources of information include container labels and Safety Data Sheets). SDS documents are provided by manufacturers and detail the potential hazards and protection measures for a chemical or product. Similar products may vary from manufacturer to manufacturer.

- Adhesives: some products like glues and rubber cement contain chemicals such as ethylene glycol and acetone that could present a hazard under certain conditions. cute exposure to vapors may cause respiratory irritation. Keep away from heat, sparks, and open flame, prevent skin and eye contact, and use only in areas with normal air circulation.
- Cleaners: office workers may have occasions to use cleaning products such as glass cleaner for copy machine glass, desktop cleaners, and typewriter element cleaner, use as directed.'
- Copy/Duplication Products: dry and liquid toners for photocopy machines contain chemicals such as carbon black and resins that are mildly toxic if acute exposure occurs but present no health hazard under normal conditions of use. Any machine copy/duplication process should be conducted in ventilated areas.
- Inks and Inking Materials: black mimeograph ink can be moderately toxic if swallowed but does not pose health hazards under normal conditions of use.

Employees can be protected by reading container labels thoroughly before using unfamiliar products. Under normal conditions of use, these products are not expected to produce adverse health effects. Normal conditions include using products as directed in areas with normal room air circulation. For more detailed information on chemicals and chemical products, employees should consult material safety data sheets.

Appendix A: Inventory of Hazardous Chemicals

Building: Physics Research Building	Room Number: 1168 & 1170 (loading dock)
Contact Name: Phil Davids	Contact Number: 292-0207

Note: Base quantities on maximum amount on hand at any given time during the year.

Chemical/ Product name	Manufacturer	# of Containers	Qty/ Container	SDS Location
Compressed Gases (incl. Cryogens	Messer and others	varies	varies	In electronic inventory

Appendix B: GHS Pictogram Reference Chart

		
Explosives **Self Reactives** **Organic Peroxides**	**Flammables** **Self Reactives** **Pyrophorics** **Self-Heating** **Emits Flammable Gas** **Organic Peroxides**	**Oxidizers**
		
Gases Under Pressure	**Corrosives**	**Acute Toxicity (severe)**
		
Irritant **Dermal Sensitizer** **Acute Toxicity (harmful)** **Narcotic Effects** **Respiratory Tract Irritation**	**Carcinogen** **Respiratory Sensitizer** **Reproductive Toxicity** **Target Organ Toxicity** **Mutagenicity** **Aspiration Toxicity**	**Environmental Toxicity**

Appendix C: GHS Pictogram Reference Chart