



Environmental Health & Safety

1314 Kinnear Rd.
Columbus, Ohio 43212
Phone (614) 292-1284
Fax (614) 292-6404
<http://www.ehs.osu.edu/>

The Ohio State University
Hazard Communication Program

College:	
Department:	
Responsible Person:	
Location:	
Location of the Material Safety Data Sheets (MSDS):	
Emergency contact:	
Hazard Inventory Location:	
Date of completion/revision:	

Plan prepared by:

The Ohio State University
Office of Environmental Health & Safety
Occupational Health, Safety, Industrial Hygiene and Education
1314 Kinnear Road
Columbus, OH 43212
P: 614.292.1284
F: 614.292.6404
www.ehs.osu.edu

Table of Contents

- 1.0 [Introduction](#)
- 2.0 [Responsibilities](#)
- 3.0 [Scope](#)
- 4.0 [Chemical Inventory](#)
- 5.0 [Labels and Labeling](#)
- 6.0 [Material Safety Data Sheets](#)
- 7.0 [Employee information and Training](#)
- 8.0 [Hazards of Non-Routine Tasks](#)
- 9.0 [Fact Sheet for General Office Staff](#)

- Appendix A [Hazard Communication Checklist](#)
- Appendix B [Hazardous Chemical Inventory](#)
- Appendix C [Employee Training Record](#)
- Appendix D [Personal Protection Equipment \(PPE\) Worksheet](#)
- Appendix E [Emergency Procedures for Chemical Spills](#)
- Appendix F [Glossary](#)
- Appendix G [Hazard Communication Sign-Off Sheet](#)

Links:

1. OSHA Hazard Communication Standard:
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099
2. OSU Building Emergency Action Plan:
<http://www.ehs.osu.edu//FileStore/Occ%20Health%20&%20Safety/Overall%20University%20BEAP.pdf>
3. PERRP log 300
<http://www.ehs.ohio-state.edu/docs/ohse/OSHArecordkeepingforms.pdf>

1.0 Introduction

1.1 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 Program or “Employee Right-to-Know” act.

2.0 Responsibilities

2.1 Departments / Supervisors

- 2.1.1 Shall appoint a departmental Hazard Communication (HazCom) coordinator.
- 2.1.2 Ensure their area of responsibility has a written hazard communication program including department specific details.
- 2.1.3 Ensure implementation of the written program.
- 2.1.4 Ensure all affected employees are provided HazCom training and training records are maintained in personnel files.
- 2.1.5 Develop and maintain an inventory of all hazardous chemicals stored or used in the workplace, ensure the inventory is available to affected employees.
- 2.1.6 Ensure Material Safety Data Sheets (MSDS) are present for all hazardous chemicals in the workplace and are readily available to employees.
- 2.1.7 Ensure containers of hazard chemicals are properly labeled and legible.
- 2.1.8 Complete Job Hazard Analyses (JHA) for employees.
- 2.1.9 Assess chemical hazards, select and provide the appropriate Personal Protective Equipment (PPE) for employees; ensure training for PPE use and maintenance is completed.
- 2.1.10 Ensure standard operating procedures are established (written) and available to employees performing “non-routine” tasks involving hazardous chemicals.
- 2.1.11 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.

- 2.1.12 Develop job specific training including safe work practices and procedures to follow in an emergency.
- 2.1.13 Ensure training records are maintained in personnel records and are up to date.
- 2.1.14 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.
- 2.1.15 Complete an annual review of the plan with employees.

2.2 Employees

- 2.2.1 Comply with the guidelines set forth in this plan and be capable of recognizing workplace hazards and addressing them with their supervisor.
- 2.2.2 Attend required Hazard Communication training.

2.3 Environmental Health and Safety

- 2.3.1 Maintain the written Hazard Communication Program template for departments use and completion.
- 2.3.2 Assist departments in training, plan implementation and PPE selection and use.

2.4 Contractors

- 2.4.1 Inform and provide OSU departments with a chemical inventory and material safety data sheets for the materials that will be introduced into the work area in the course of their work at The Ohio State University.
- 2.4.2 Provide information regarding where chemicals will be used and stored.

3.0 Scope

- 3.1 This program is applicable to all Ohio State University faculty, staff, student employees and contract employees. 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.
 - 3.1.1 This program is applicable to areas where hazardous chemicals are used by employees for work-related activities.
 - 3.1.2 “Hazardous Chemical” implies that exposure to a chemical could pose a physical or health hazard.

-
- 3.1.2.1 “Physical hazard” means a chemical 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.
 - 3.1.2.2 “Health hazard” means a chemical for which there is significant evidence that acute or chronic health effects may occur in exposed employees.
 - 3.1.3 Certain chemicals are specifically exempted from this Hazard Communication Program 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.
 - 3.2 Each department or college that uses chemicals in work areas on a regular basis shall appoint a departmental Hazard Communication (HazCom) coordinator. The coordinator shall establish the written program as well as:
 - 3.2.1 Reduce the likelihood of injury or illness to employees by informing and training employees of hazards.
 - 3.2.2 Ensure all employees at risk are aware of the use and storage of chemicals in their workplace.
 - 3.2.3 Review the program annually and make necessary changes.
 - 3.2.4 Provide assistance on the selection of personal protective equipment (PPE).

4.0 Chemical Inventory

- 4.1 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 MSDS, the location of the chemical and the quantity. This inventory should be posted in the work area and readily available to employees. See Appendix B for a chemical inventory template.

5.0 Labeling

- 5.1 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.
 - 5.1.1 A secondary label or warning written in a different language may be included with the English version.

-
- 5.2 Labels should list the chemical name, hazard, target organ(s), route of entry, company name, address, phone number and required personal protective equipment.
 - 5.3 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).
 - 5.4 Labels are not required for portable containers if they are intended only for the immediate use by the employee who performs the transfer.

6.0 Material Safety Data Sheets (MSDS)

- 6.1 Material Safety Data Sheets provide employees with detailed information on hazardous chemicals. Information found on MSDS documents can include, but is not limited to the following information: product name, chemical abstract service numbers, ingredients, handling precautions, type of personal protective equipment recommended, physical and health hazards, storage requirements, emergency and first-aid procedures, the date the MSDS was prepared, name, address and telephone number of the chemical manufacturer or the importer.
- 6.2 A MSDS must be kept for each hazardous chemical used and must be readily available to employees. All employees should review MSDS documents prior to using hazardous chemicals.
- 6.3 The supervisor or designee is responsible for obtaining MSDS documents for the department when new chemicals are procured. This designee also reviews incoming MSDS documents for safety and health information to convey pertinent information and training to affected employees.
- 6.4 MSDS 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.

Note: The new Global Harmonized System (GHS) is projected to be implemented in August, 2011 and will NOT replace the Hazard Communication Standard (regulation 29 CFR 1910.1200). It is not a mandate and will largely apply to chemical producers and shipping regulations, more information can be found at <http://www.osha.gov/dsg/hazcom/ghs.html>.

7.0 Employee Training

- 7.1 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:
- 7.1.1 The requirements of the Hazard Communication Standard (29CFR 1910.1200).
 - 7.1.2 The location and the availability of the written Hazard Communication Plan.
 - 7.1.3 Physical and health hazards of chemicals in the work area, their locations, and the likely effects or symptoms of overexposure.
 - 7.1.4 Location of the departmental hazardous chemicals inventory
 - 7.1.5 Location of MSDS documents for all hazardous chemicals in the work area.
 - 7.1.6 The emergency procedures to follow in case of chemical spills, fires and other incidents.
 - 7.1.7 Methods used to determine the presence or release of hazardous chemicals in the work area.
 - 7.1.8 How to reduce or prevent exposure to hazardous chemicals through use of control/work practices and PPE, (Appendix D).
 - 7.1.9 Steps taken to reduce or prevent exposure to chemicals.
 - 7.1.10 Emergency procedures to follow if an employee is exposed to chemicals.
- 7.2 A record of the date, location and facilitator of each training session as well as a list of attendees should be maintained (Appendix C). Individual training records should be maintained in departmental personnel files.

8.0 Hazardous Non-Routine Tasks

- 8.1 A non- routine task is one which the employee does not normally perform and for which the employee has not previously been trained.
- 8.2 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.

9.0 Hazard Communication for General Office Staff

- 9.1 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.
- 9.2 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 Material Safety Data Sheets). MSDS 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.
- 9.2.1 Adhesives: some products like glues and rubber cement contain chemicals such as ethylene glycol and acetone that could present a hazard under certain conditions. Acute 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.
- 9.2.2 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.
- 9.2.3 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.
- 9.2.4 Inks and Inking Materials: black mimeograph ink can be moderately toxic if swallowed but does not pose health hazards under normal conditions of use.
- 9.3 Protection: 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.

-
- 9.4 Electrical accidents in an office usually occur as a result of faulty or defective equipment, unsafe installation or misuse of equipment. The following guidelines should be adhered to when installing or using electrical equipment.
- Equipment must be properly grounded to prevent shock injuries.
 - A sufficient number of outlets will prevent circuit overloading.
 - Avoid the use of poorly maintained or non-approved equipment.
 - Cords should not be dragged over nails, hooks or other sharp objects.
 - Receptacles should be installed and electric equipment maintained so that no live parts are exposed.
 - Machines should be disconnected before cleaning or adjusting. Generally, machines and equipment should be locked and tagged out during maintenance.
- 9.5 Poor design and/or poor housekeeping can lead to crowding; lack of privacy; and slips, trips and falls. The following are important factors related to office layout and orderliness:
- Telephone, computer and electrical cords should be kept out of aisle ways and organized neatly.
 - Faulty carpeting shall be repaired or replaced.
 - Floor mats should be placed inside building entrances.
 - Blocked or improperly planned means of egress can lead to injuries caused by slips, trips and falls. If, during an emergency, employees become trapped due to improper egress, more serious injuries or fatalities could result.
 - Only open one drawer in filing cabinets at a time. This prevents the file cabinet from tipping over or the drawer being bumped against causing injury.
 - Chairs are designed to have the legs kept on the ground at all times. Chairs shall not be leaned back in. Chairs should be held in place while sitting.
- 9.6 Machines with ingoing nip points or rotating parts can cause lacerations, abrasions, fractures and amputations if not adequately guarded.
- 9.7 Machines such as conveyors, electric hole-punches and paper shredders with hazardous moving parts must be guarded so office workers cannot come in contact with the moving parts.
- 9.8 Fans must have substantial bases and fan blades must be properly guarded.

- 9.9 Misuse of office tools such as pens; pencils; paper; letter openers; scissors and staplers can cause cuts, punctures and related infections. Injuries can be prevented by following precautions when using these materials:
- Paper cutters - Keep blade closed when not in use. A guard should be provided and fingers should be kept clear.
 - Staplers - Always use a staple remover. Jammed staplers should never be tested with a thumb.
 - Pencils, pens, scissors, etc. - Store sharp objects in a drawer or with the points down. Sharp objects should be handed another person with the sharp end facing away from them.
- 9.10 Steps can be taken to reduce office fire hazards.
- Store unused records/papers in fire resistant files or vaults.
 - Use flame-retardant materials.
 - Fire extinguishers and alarms should be conspicuously placed and accessible.

Appendix A

EHS Hazard Communication Inspection Checklist

Administration

1. A written hazard communication plan is complete and up to date.

Recommendation: Page one of the departmental written Hazard Communication Plan (HazCom) should be filled out and dated annually. It is up to the departmental hazard communication coordinator to review and update the HazCom Plan.

Reference: CFR 1910.1200 (e) and section 2.2.3 of The Ohio State University written Hazard Communication Plan.

2. Personnel know where their written hazard communication plan is located, have access to it, and know who their departmental hazard communication coordinator is.

Recommendation: Your departmental written hazard communication plan can be kept in a common location and should list all laboratories and buildings that fall under this plan. The hazard communication coordinator should be appointed by each department or college.

Reference: CFR 1910.1200 (e) (4) and section 2.2 of The Ohio State University written HazCom Plan.

3. The written hazard communication plan includes an updated hazardous chemical inventory. Each laboratory group will use EHS Assist to maintain their chemical inventory. A hard copy will be printed for each laboratory.

Recommendation: As per the Definition of Hazardous Chemicals in the OSHA Hazard Communication Standard, All hazardous chemicals will be part of a laboratory inventory and will be kept on EHS Assistant. The inventory will be updated annually and a printed copy will be kept in the laboratory. To comply with the Department of Homeland Security (DHS) reporting requirements, DHS chemicals of interest will be updated in EHS Assist within 30 days.

Reference: CFR 1910.1200 (e) (i), 6 CFR 27.210 and section 3.0 of The Ohio State University written Hazard Communication Plan.

4. Personnel have completed hazard communication training and training has been documented.

Recommendation: Laboratory personnel may fulfill this requirement by taking the online training class located on the OEHS web site www.ehs.osu.edu. Either the “Hazard Communication Standard for Laboratory Personnel” or “Lab Standard Training” program will fulfill this requirement. A certificate should be printed and kept in the laboratory. The EHS 10 hour laboratory safety class will also meet the training requirement.

Reference: CFR1910.1200 (h) and section 6.0 of The Ohio State University written HazCom Plan.

5. Material safety data sheets, for all hazardous chemicals, are readily available to all employees.

Recommendation: All material safety data sheets (MSDS) shipped with the chemicals must be kept in the laboratory. Other MSDSs may be kept or accessed electronically (i.e., ChemWatch). Some departments may require hard copies of all material safety data sheets. Check with your college or departmental safety officer.

Reference: CFR 1910.1200 (g) and section 5 of The Ohio State University written HazCom Plan.

6. Standard operating procedures are written and available to employees performing “non-routine” tasks for hazardous chemicals and procedures that pose potential physical hazards. These SOPs will be kept in the laboratory.

Recommendation: The SOP should describe the associated health and physical hazards, and the measures employees can take to protect themselves from these hazards. This will include safe work practices, emergency procedures, and the personal protective equipment needed. The employee will be trained prior to performing the task. Resources for creating a SOP can be found on the EHS website www.ehs.osu.edu. Click on Research Safety and then Standard Operating Procedures.

Reference: CFR 1910.1200 (e) (ii) and section 7.0 of The Ohio State University written HazCom Plan. Ohio Fire Code 1301:7-7-27 (A) (3) (xii) 2701.3.3.1229.

Hazardous Chemical Use

1. Hazardous chemicals are stored safely and by proper hazard class.

Recommendation: Incompatible materials shall be stored separately when containers have a capacity of more than 5 pounds / 2 kilograms or 0.5 gallons / 2 liters. They should be separated by no less than 20 feet or isolated by a noncombustible partition extending 18 inches above the materials.

Reference: Ohio Fire Code 1301:7-7-27 Section 2703.9.8 and CFR 1910.1450.

2. Hazardous chemical containers and labels are in good condition.

Recommendation: Chemical containers cannot be damaged and must have a secure cap. Labels cannot be defaced and must be legible and secured to the container.

Reference: CFR 1910.1450 (h) (1) and CFR 1910.1200 (f) (g).

3. Primary and secondary chemical containers are properly labeled. Primary container labels must include: chemical name, associated hazards, target organs, route of entry, company name, address and phone number, and required personal protective equipment. Secondary containers cannot be used in another facility / laboratory.

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

Reference: Section 4.0 of The Ohio State University HazCom Plan.

4. Hazardous chemicals are secured against unauthorized access.

Recommendation: Unoccupied labs containing hazardous materials shall be secured (locked) at all times. This includes labs beyond hallway access doors controlled by key cards / touch pads / pin number access. Alternately, locked storage cabinets for all hazardous materials in the lab are acceptable. If storage equipment (storage cabinet, refrigerator, etc.) is in common areas or hallways, lock them when unattended.

Reference: Ohio fire Code 1301:7-7-27 section 2703.9.2.

5. Gas cylinders are secured, capped, labeled, and segregated by hazard class.

Recommendation: Compressed gas cylinders shall be secured at all times. Use cylinder clamps or chains attached to stationary objects. Cylinder stands are also acceptable.

Reference: CFR 1910.1450 and Ohio Fire Codes.

6. Designated areas are established for carcinogens, reproductive toxins and highly toxic chemicals. Other hazardous chemicals are used in a safe manner and location.

Recommendation: Designated areas (signs) must be posted when working with select carcinogens, reproductive toxins or substances that have a high degree of acute toxicity. A designated area may be the entire laboratory, an area of a laboratory or a device such as a laboratory hood.

Reference: CFR 1910.1450 (e) (3) (viii).

7. Fume hoods are used correctly.

Recommendation: When operators are away from fume hoods the sash should be closed. Sash operation should be unhindered by cords, tubing or equipment. Fume hood baffles and slots shall be unobstructed. When operators are using a hood the sash should be positioned to shield operator. Fume hood needs to be repaired.

Reference: NFPA 45.8.8.3 Fire Protection for Laboratories Using Chemicals, ANSI/AIHA Z9.5 Laboratory Ventilation.

8. Eyewashes and showers can be reached within 10 seconds from workstations.

Recommendation: Safety showers and eyewashes shall be within 10 seconds of travel for immediate emergency use.

Reference: CFR 1910.1450 and ANSI Z358.1-2004.

9. Hazardous chemicals and waste are disposed of properly.

Recommendation: All hazardous chemicals and waste are disposed of in accordance with Ohio Environmental Protection Agency regulations. Hazardous chemicals and waste will also be disposed of in accordance with EHS Environmental Affairs policies and procedures.

Reference: CFR 1910.120, Federal Environmental Protection Agency RCRA Regulations.

Housekeeping**1. First aid supplies are available.**

Recommendation: First aid kits shall be available and maintained for treatment of minor injuries or for short-term emergency treatment before getting medical assistance. Kits must conform to University's First Aid Policy or be approved by a physician licensed in Occupational Medicine.

Reference: OSU Chemical Hygiene Plan First Aid Policy and Appendix D.

2. No-smoking and eating in lab policies are enforced.

Recommendation: Eating, drinking, gum chewing and cosmetic application (i.e., hand cream) are not permitted in the laboratory. Food shall not be eaten in places where chemicals are being used or stored. Employee break or lunchrooms shall be identified within the department or located outside of the laboratory.

Reference: OSU Chemical Hygiene Plan.

3. Chemical spill supplies are available.

Recommendation: In the event of a chemical spill, supplies shall be available to control a spill of 1 gallon or less. Spill supplies needed are based on chemical hazards present in your laboratory. For additional information review the Chemical Spill Cleanup training found on the EHS training page www.ehs.osu.edu or contact EHS at 292-1284.

Reference: CFR 1910.1450 and Ohio Fire Code.

4. Laboratories are clean and well maintained.

Recommendation: Spills are to be cleaned up immediately from work areas and floors. Any spills or accumulations of chemicals on work surfaces shall be removed daily, using techniques that minimize residual surface contamination.

Reference: CFR 1910.1450 and Ohio Fire Code.

Machinery and Equipment

1. Refrigerators are labeled for designated use.

Recommendation: Laboratory refrigerators shall be labeled for designated use Example: “No Food – Chemical Storage Only”.

Reference: NFPA 45.

2. Electrical connections are appropriate.

Recommendation: Electrical outlets shall not be overloaded. Extension cords shall not be used as permanent wiring. Surge protectors shall not be used with high amperage devices. Remove any outdated electrical equipment or damaged electrical cords from service. Install additional circuits or outlets if necessary. For additional information review the on-line Electrical Safety training available at www.ehs.osu.edu.

Reference: NFPA 70 National Electric Code.

3. Machinery and equipment are properly guarded.

Recommendation: Machine guards shall be provided and in use for mechanical equipment posing a potential hazard to those operating the equipment.

Reference: CFR 1910.219.

Personal Protective Equipment and Life Safety Equipment

- 1. The appropriate PPE is provided and used by personnel, as per OSHA's 29CFR 1910.132 General PPE requirements, 1910.95 Hearing Conservation, and 1910.134 Respirator protection standards.**
-

- 2. Fire equipment/doors are not obstructed, blocked or inoperable. Electrical and utility panels are not blocked.**

Recommendation: Access to exits, emergency equipment and utility controls shall never be blocked. The Ohio Fire code and National Fire Protection Associations (NFPA) require that fire extinguishers shall not be blocked so that they can be accessed quickly. If you fire extinguisher must be relocated contact the Facilities Operations and Development Service Desk 292-6158, on main campus or your CFO at regional campuses. The Ohio Fire code requires that fire doors must not be locked or blocked open. Fire doors are designed to isolate fire to give occupants the time necessary to evacuate the building.

Reference: NFPA 99 and Ohio Fire Code.

- 3. Laboratory Hazard Signs are posted on or near laboratory door.**

Recommendation: Lab Hazard Signs are required by various codes and standards. Signs are provided by numerous departments or upon request from Environmental Health & Safety. Visit www.ehs.osu.edu to order signage as needed.

Reference: Ohio Fire Codes; Ohio Department of Health; Occupational Safety and Health Administration; Environmental Protection Agency.

Appendix D

Personal Protective Equipment Worksheet

The Ohio State University in compliance with the OSHA's Personal Protective Equipment (PPE) Standard (29 CFR 1910.132) shall provide employees adequate PPE through a completed Job Hazard Analysis or a developed Standard Operating Procedure (SOP). Adequate PPE shall be provided to employees at no cost, including replacement from regular use. Departments shall ensure employees are trained and PPE is worn when hazards are present.

EYE and FACE protection

(29 CFR 1910.133)

Appropriate eye and face protection shall be provided to all employees when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors or potential injurious radiation and glare. All eye and face protection must be approved by the American National Standards Institute, ANSI.

- Safety Glasses: Required when there is a potential of being struck by flying objects such as grinding, chiseling, use of a power saw and tools or any machining. For most situations safety glasses with side shields are adequate.
- Safety Goggles: Required in chemical handling and laboratory operations where there is a potential for chemical fumes, splashes, mists, sprays, or dust exposure to the eyes.
- Face Shields: Required when there is a potential face exposure to projectiles, chemicals or radiant energy; they cannot be used as substitute for eye protection.
- Prescription Lenses: Employees who wear prescription glasses must either wear approved safety glasses over the prescription glasses or wear prescription approved safety glasses.
- Contact Lenses: Contact Lenses do not provide eye protection and therefore must be worn with appropriate protective eyewear. OSHA Standard CFR 29 1910.134 prohibits the use of contacts under respirators and gas masks.
- Filtered Lenses: For use when there is a potential of being exposed to light radiation.

HAND Protection

(29 CFR 1910.138)

Appropriate hand protection shall be provided to all employees when exposed to hazards of the hand, such as skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes. Selection of appropriate hand protection shall be based on the hazards identified, level of protection needed, duration of use, dexterity required and fit, and the limitations the gloves provide.

HEAD protection

(29 CFR 1910.135)

Appropriate head protection shall be provided to all employees when working in areas where head injuries could occur from falling or flying objects or bumping the head against with stationary objects, or electrical shock hazards. All protective helmets must be approved by the American National Standards Institute, ANSI. Each type of head protection is made to guard against certain specific hazardous situations. The following will help you decide the right protection according to the type and class.

- Type 1-helmets with full brim, not less than 1 and ¼ inches wide, and
- Type 2-brimless helmets with a peak extending forward from the crown.

For industrial purposes there are three classes of head protection:

- Class A-general service that are intended against impact hazards, such as construction, mining and manufacturing.
- Class B- utility service, high voltage helmets that protect from impact and penetration of falling objects, they are used extensively by electrical workers.
- Class C-special service helmets with NO voltage protection they are made for lightweight and comfort and usually made with aluminum.

Helmets should be maintained and replaced if worn or cracked.

FOOT protection

(29 CFR 1910.136)

Appropriate footwear should be provided to employees when there is danger of injuring the foot from falling or rolling objects, objects piercing the sole of the shoe or where feet will be exposed to electrical or chemical hazards. Protective footwear must meet applicable ANSI standards and performance measurements for protection for the toes, metatarsal area (top of foot), puncture protection and electrical hazards, the use of add-on type of devices (i.e. metatarsal guards) is only suitable for temporary use. The suitability of shoes in any workplace should be determined by supervisory personnel and if it is appropriate to wear sandals, clogs etc.

HEARING protection

(29 CFR 1910.95)

Excessive noise exposures to workers may require implementation of a hearing conservation program. Additional information on the OSU Hearing Conservation Program can be found at www.ehs.ohio-state.edu.

RESPIRATORY protection

(29 CFR 1910.134)

Inhalation hazards such as harmful dusts, fogs, chemical fume/mist/gas, smoke, spray and/or vapor may require implementation of a respiratory protection program. Additional information on the OSU Respiratory Protection Program can be found at www.ehs.osu.edu.

Appendix E

Emergency Procedures for Chemicals Spills/Releases

If there is a hazardous materials release/chemical spill inside a building:

- Isolate and secure the spill area
- Warn others in the immediate area
- Based upon the hazard, attempt clean-up if trained and if you have appropriate personal protective equipment
- If assistance is needed, call 911 and give the location and type of material spilled
- Evacuate the building (use of public address system preferred or use of building fire alarm system)
- Meet with and assist emergency response personnel

If there is a hazardous materials release/chemical spill outside the building:

- Isolate and secure the spill area
- Warn others in the immediate area
- If assistance is needed, call 911 and give the location and type of material spilled
- Do not wash spilled material into storm drain
- Meet with and assist emergency response personnel

If there is a personnel injury involving chemical contamination:

- Assist with emergency eyewash / shower use, as appropriate
- Provide first aid immediately for serious injuries
- Call 911 and give the location and type of material involved
- Notify Environmental Health & Safety at (614) 292-1284 option 1.
- As possible, without doing harm to the victim, remove and bag contaminated clothing and gross personal contamination
- Obtain a MSDS for the material involved, which will provide you with a manufacturer or distributor of a chemical that provides information about the contents, characteristics, physical hazards, and health hazards associated with the chemical

Appendix F

GLOSSARY

Exposure or Exposed: That an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g., accidental or possible) exposure. “Subjected” in terms of health hazards includes any routes of entry (e.g., inhalation, ingestion, skin contact or absorption.).

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.

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

Hazard Warning: Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical or health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See definitions for “physical hazard” and “health hazard” to determine the hazard which must be covered.)

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.

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.

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

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

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.

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.

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

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.

Flammable Liquid: Any liquid that ignites at room temperature, e.g., gasoline, alcohol.

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

Appendix G

Hazard Communications Program Sign off Sheet:

The Ohio State University is required by law to provide training on the Hazard Communications Standard to all employees. Documentation of the training must be maintained by each administrative department. Your signature below acknowledges that you:

1. Have received a copy of Hazard Communication Written Program.
2. Have read the document that pertains to your individual units/departments.
3. Understand information within the document and received answers to any/all questions of the document.
4. Taken the Hazard Communication online training program on EHS web.

Department: _____

Name (please print): _____

Signature: _____

Date: _____

Supervisor: _____