CHEMISTRY DEPARTMENT SAFETY AND ENVIRONMENTAL HEALTH POLICIES AND PROCEDURES
September 18, 2019

I. ENVIRONMENTAL HEALTH AND SAFETY RESPONSIBILITIES WITHIN THE CHEMISTRY DEPARTMENT

A. Chemistry Department Chair
The chemistry department chair is expected to promote a strong, positive safety culture within the chemistry department as part of administrative duties.

B. Chemist 1 (Teaching Laboratory Associate)
The Chemist 1 staff member is responsible for following "safe laboratory practices" and proper chemical management in collaboration with the Campus Environmental Officer. Responsibilities include maintaining inventory of chemicals, maintaining hazardous waste satellite accumulation points, maintaining safety equipment and supplies in all chemistry laboratories, maintaining current safety data sheet (SDS) records, supervising student employees in the stockroom and insuring that the student workers know proper handling procedures for hazardous materials.

C. Safety Committee
The faculty safety committee serves the department chair in an advisory capacity and proposes policies for faculty review.

D. Chemistry Faculty
Faculty members are responsible for following safe laboratory practices and proper hazardous waste management. They are expected to work to improve the safety and environmental practices within the department by taking action to see that deficiencies are not ignored.

E. Faculty Managing Research Laboratories
The faculty manager is responsible for general laboratory safety and disposal of hazardous waste. The manager is responsible for training of employees and students in safe laboratory practices and hazardous waste management and for seeing that safe laboratory practices are followed.

F. Teaching Laboratory Instructors
Instructors are responsible for incorporating safe laboratory practices into laboratory experimental or teaching procedures and adhere to hazardous waste management requirements.

II. GENERAL EMERGENCY PROCEDURES

Evacuation

1. Calmly and quietly walk to the nearest exit.
2. Look for EXIT signs to guide you if you are unsure of exit locations.
3. In case of fire, do not use elevators.
4. Report in at designated assembly area if applicable. Follow instructions of emergency personnel/PSU staff.
5. Follow emergency plans. https://www.pittstate.edu/police/_files/documents/Building-andor-Campus-Evacuation-Plan.pdf

Fire

1. If it is safe to do so, activate the closest fire alarm.
2. Look for EXIT signs to guide you if you are unsure of exit locations.
3. Evacuate to a safe place outside and away from the building.
4. Stay close to floor level, below smoke and heat, if necessary.
5. Call 911 and report the location and nature of the fire.
6. Do not use elevators.
7. Small fires may be extinguished with an approved portable fire extinguisher by qualified personnel.
8. Follow emergency plans. https://www.pittstate.edu/police/_files/documents/Fire.pdf

Flood

1. Do not enter any flooded area, i.e., basement, first floor, tunnel, etc.
2. Minor Flooding: call the Physical Plant (235-4779) and report the location and nature of the leak.

Medical

1. Dial 911 (from a university land line) and report the nature of the illness or injury and the location.
2. Stay with the victim until help arrives if there is no immediate danger to yourself.

3. Protect yourself from bodily fluids.

Tornado/Severe Weather

1. Take cover at the lowest level of the building. If an underground shelter is not available, move to an interior room or hallway on the lowest floor and get under a sturdy piece of furniture. Avoid places with wide-span roofs such as auditoriums, gyms, cafeterias or large lobbies. The first floor bathrooms and a basement room in Heckert-Wells Hall have been designated as storm refuge areas.

2. Stay away from windows.

3. If outdoors take cover, if possible, inside a building. If shelter is not available or there is no time to get indoors, lie in a ditch or low-lying area or crouch near a strong building.

4. After tornado passes, remain alert for signs of additional tornadoes and/or flash flooding.

5. Follow Emergency plans. https://www.pittstate.edu/police/_files/documents/Severe-Weather-Emergency-Plan.pdf

III. SAFETY POLICIES AND PROCEDURES FOR ACADEMIC AND RESEARCH LABORATORIES.

A. Personal Protective Equipment (PPE) and Dress Requirements

a. Safety splash goggles must be worn at all times in the academic laboratories by students, instructors, visitors, or any other individuals present during scheduled classes or when chemicals are in use. Students may wear contact lenses underneath the safety splash goggles instead of eyeglasses with the lab instructor's permission. However, students with contact lenses are strongly advised to use eyeglasses in the lab. Individuals using the computer room adjoining HW119 are not required to wear protective eye wear.

b. The department will provide faculty and student lab instructors with safety goggles.

c. In the research laboratory, laboratory supervisors may specify the type of eye PPE required for that laboratory and determine when additional eye PPE is required. In the absence of a determination by the laboratory supervisor, appropriate eye protection (usually safety splash goggles) must be worn in the laboratories by students, instructors, visitors, or any other individuals when chemicals are in use. Laboratory supervisors may specify areas of the lab in which eye protection is not required.

d. Short pants, miniskirts, high heel shoes, open-toed shoes, or sandals are not allowed in academic and research laboratories. Clothing must completely cover the legs and feet. The wearing of laboratory aprons or laboratory coats is encouraged.

e. The appropriate gloves should be worn when handling any hazardous substance.

f. Long hair should be pinned or worn under a hat if possible in teaching or research laboratories.

B. <u>Laboratory Behavior</u>

a. Instructors should inform students of behavior that is inappropriate in the laboratory and remain vigilant in insuring that students follow the behavioral guidelines.

b. Pipetting solutions must always be carried out using a mechanical device.

c. Students in the academic and research laboratories should never work alone.

d. The preparation, storage, or consumption of any food or drink items in the laboratory is not allowed.

e. Backpacks, briefcases, laptop computers, overcoats and other large items should not be stored in academic laboratories except in areas specifically designated for these items.

C. <u>General Laboratory Regulations</u>

a. Nothing should be stored on the floor of the academic or research laboratory except garbage containers that enter the non-regulated waste stream and glass disposal containers.

b. Safety showers, eyewashes, fire extinguishers and other emergency equipment should be clearly labeled. They should also be readily accessible and available for use. This equipment must be inspected monthly for proper operation.

c. Undergraduate students working in research laboratories must be supervised at all times by a graduate student, a senior undergraduate research student, or the laboratory supervisor.

d. Laboratory experiments should be optimized to use the smallest amount of material required to accomplish the goals of the experiment.

e. Wherever possible a less hazardous chemical should be substituted for a more hazardous chemical in experiments.

f. For each experiment instructors or research supervisors should inform students of hazards associated with the use of a particular chemical or equipment and where possible provide demonstrations on the safe handling of these chemicals or equipment. Safety Data Sheets (SDS) should be accessible either on a computer or by a hard copy to all individuals present in the laboratory.

g. Prior to conducting any experiment in the academic laboratory, students will be provided with instructions on proper waste disposal associated with the experiment. The site of waste disposal should be clearly marked and easily ascertained by both students and instructors.

h. Broken glass should only be stored in containers designated for their disposal. This is also true of syringe needles and sharps which must be stored in containers specifically designed for their confinement and disposal.

i. Experiments that could potentially produce explosion, or those that OSHA requires the use of face or body shields, cannot be conducted in the academic laboratories. In the research laboratory it is the responsibility of the faculty laboratory manager to provide the specific PPE needed for a "high risk" experiment.

j. Fume hoods must be used when the experiment involves hazardous chemicals and routinely checked for proper function in a quantitative fashion (i.e. qualitative analysis of paper strips in the hood is not sufficient). Their last inspection date along with the quantitative results of the inspection should be readily accessible to those working in the laboratory.

k. Emergency phone numbers should be posted on laboratory doors.

D. Procedures for Handling a Chemical Spill

In the event of a spill, the following steps should be taken.

1. Assess the hazards. If uncertain of the hazards, assume the worst.

2. Evacuate the area and all others in the area.

3. Confine the spill area and restrict access to the area.

4. Report the spill. From a safe place, call campus police at (620) 235-4624 or at 911 from a campus land line and provide them with information on the location, extent and nature of the spill and injuries.

5. Secure the area until emergency response personnel arrive. Post personnel near commonly-used entrances to the area to alert others to the danger, and to redirect them to alternative routes.

6. Notify the Campus Environmental Officer at (620) 235-4774 and the HVAC Control Specialist at (620) 235-4702. The energy recovery wheel on the roof should be turned off by the HVAC Control Specialist if deemed necessary.

7. As soon as possible, retrieve a copy of all relevant SDSs.

E. Procedures for Handling Volatile Chemical Fumes in the Lab

If odors or fumes are noticed in the lab, the following steps should be taken:

1. Move the chemical source of the odors to the fume hoods if possible to do so safely.

2. Assess the hazards. If the hazards are uncertain or substantial, follow steps 2 to 6 of Part D above (Procedures for Handling a Chemical Spill).

3. Evacuate the area and all others in the area.

4. Notify the Campus Environmental Officer at (620) 235-4774 and the HVAC Control Specialist at (620) 235-4702. The energy recovery wheel on the roof should be turned off by the HVAC Control Specialist if deemed necessary.

5. As soon as possible, retrieve a copy of all relevant SDSs.

IV. CHEMICAL MANAGEMENT

A. Chemical Inventory

a. A central inventory shall be maintained for the chemicals and materials. The staffing required to create and update the inventory will be provided by the department. The inventory for the departmental stockroom shall be managed by the Chemist 1 staff member while inventories for the individual research laboratories shall be managed by the faculty research manager in collaboration with the Chemist 1 staff member.

b. Any chemical entering the department should be delivered to the chemical store, where it is registered into the central inventory, before being distributed to the concerned laboratory or person.

c. The inventory should be readily available to the faculty and research students of the department.

B. Chemical Storage

The following guidelines are applicable to the storage of all types of chemicals:

a. Chemicals should never be stored directly on the floor.

b. Keep chemicals off of work area countertops when not in immediate use.

c. Do not store chemicals in fume hoods unless required. Crowding within a fume hood results in decreased hood performance, lead to lab accidents, or may be prohibited by regulation (e.g., open volatile containers are prohibited).

d. Label all chemicals with the purchase date to maintain inventory control.

e. Store chemicals inside a closed cabinet or shelf with a lip to avoid accidental breakage.

f. Position shelves to remove tallest container in an upright position. Avoid having to tilt container to access it.

g. Store flammable liquids in approved flammable-liquid storage cabinets.

h. Store chemicals according to compatible storage groups.

i. Do not store food in refrigerators or freezers used for chemical, biological or radioisotope storage.

C. <u>University Policy on Proper Hazardous Waste Management</u>
https://www.pittstate.edu/president/policies/proper-hazardous-waste-management-policy.html

I. Containers and Labeling

A. Hazardous waste containers must be in good condition and compatible with the waste being placed within each container.

B. The designated hazardous waste containers used at PSU are: Satellite Accumulation Container (SAC), Day Accumulation Container (DAC), and 180-day Storage Container (SC).

C. Containers must be labeled with the phrase "HAZARDOUS WASTE" and with the common name or chemical classification of the waste clearly printed on the label before the first drop of waste enters the container.

D. The hazardous waste container should be under-filled by at least five (5) percent. This will allow for expansion and help prevent spill hazards during transport or storage.

E. Containers must have a good seal to prevent seepage, leaks, or spills.

F. There must be an "ACCUMULATION START DATE" clearly printed on the label with the container becomes full or it is taken to the 180-day Hazardous Waste Storage Area (HWSA).
NOTE: *You have 72 hours from the time the container is filled to place it within the 180-day HWSA.*

The following are examples of properly filled out labels for SAC's, DAC's and 180-day Storage Container's:

The label above is filled out for a container to be used as a SAC and/or DAC.

The label above is filled out for a Storage Container which must be placed, within 72 hours of the "ACCUMULATION START DATE", into the 180-day HWSA.

II Satellite Accumulation Points (SAP's)

A. "Satellite Accumulation Point" (SAP) is a hazardous waste collection location that is at or near the point of generation of the hazardous waste (i.e., each work station, each fume hood, each laboratory, etc.) You are allowed just one (1) container per hazardous waste stream at each (SAP).

B. Waste containers must be labeled with "HAZARDOUS WASTE" and the common name or chemical classification of the material, i.e., acetone, nitric acid, paint-related waste, halogenated waste, aqueous waste, fuel mixed with water, brake fluid, etc. Please contact the Campus Environmental Officer for proper labels (235-4774).

C. No more than 55 gallons of total capacity of containers or hazardous wastes may be accumulated at each SAP. Containers should be safeguarded to ensure no unknown contaminants are added and safely stored in accordance with the materials hazards, i.e., flammables in flammable cabinets, acids stored away from bases, etc.

D. ***DO NOT*** use food containers for hazardous material or hazardous waste storage.

E. Any full waste containers must immediately be dated with the "ACCUMULATION START DATE" and transferred within 72 hours into the 180-Day HWSA.

III. Day Accumulation Containers

A "Day Accumulation Container" is any container with a capacity of no more than 6 gallons that is used to accumulate hazardous waste at a work area or work station, and that is under the direct control of the operator of the work area or station. KDHE allows the use of day accumulation containers only under the following conditions:

A. Each container must be labeled or marked with the words "Hazardous Waste."

B. Each container must be kept securely closed when waste is not being actively added or removed.

C. Each container must be in good condition and compatible with the waste placed in the container.

D. Each container must be emptied into an appropriate satellite accumulation container or storage container at the end of each work day, or each shift for continuous operations, regardless of whether the container is full or not.

IV. 180-Day Hazardous Waste Storage Area (180-Day HWSA)

A. A 180-Day Hazardous Waste Storage Area (HWSA) is an area designed and designated for the safe storage of hazardous wastes for up to 180 days, the maximum allowed by state law, to await contracted removal and disposal.

B. Pittsburg State University has HWSA's located at the Tyler Research Center, Heckert-Wells, the Kansas Technology Center, and the Physical Plant.

C. These rooms are equipped with proper secondary containment grounding clamps for large drums as well as acid and flammable storage cabinets to accommodate hazardous wastes.

V. Official State Hazardous Waste Disposal Contractor

A. Presently, the state of Kansas appointed contractor's are the ***only*** contractor's allowed to handle and remove hazardous waste from the PSU premises with the exception of the KSANG facility. The Campus Environmental Officer or appointed representative is the only PSU official authorized to sign manifest for hazardous waste removal and documentation pertaining to such.

B. Scheduled pick-ups are within every 180 days in accordance with state and federal laws
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C. NEVER sign a hazardous waste manifest. The document is legal and binding and can hold you personally responsible for the safe transit, storage, and proper disposal of the waste being removed. Contact the Campus Environmental Officer for assistance (235-4774).

Approved by the Campus Environmental Officer