Policy 2006
Department Safety Policy and Procedures

Purpose

The object of this Safety Policy is to ensure the physical safety of all faculty, staff, students, and visitors. The Safety Policy is determined and monitored by the Department Safety Committee. The University's Comprehensive Safety Plan will amplify and amend this policy. The Departmental Chemical Hygiene Plan detailing procedures for safe handling of chemicals in laboratories is identical to that of the JMU Chemistry Department. Each laboratory has a copy as well.

Guide to the department safety policies and procedures:

***Safety Committee*:**
The Physics Department Safety Committee Members meet as needed to discuss safety issues. The Safety Committee is appointed by the Department Head. The members of the safety committee include three or more Department members as necessary.

***Safety/Emergency Notices*:**
There are three types of notices to be found in the department.

***Emergency Escape Procedure*:**
Emergency escapes routes are posted throughout the department, near the exit areas.

Safety Information:
Safety information posters are yellow, located on the outside of laboratory doors. Contains information pertaining to hazardous materials and whom to contact in case of an emergency.

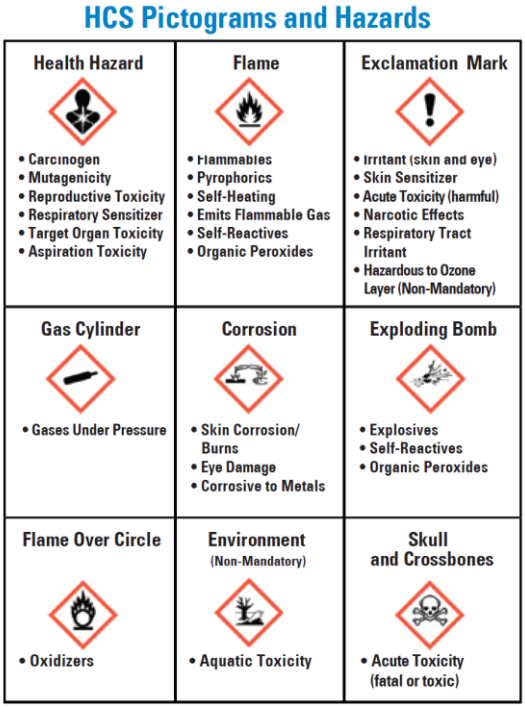
Hazard Communication Standard (OSHA):

The Hazard Communication Standard (HCS) requires pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

- **Pictogram:** a symbol plus other graphic elements, such as a border, background pattern, or color that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e., a red diamond). There are nine pictograms under the GHS. However, only eight pictograms are required under the HCS.
- **Signal words:** a single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are

"danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for less severe hazards.

- **Hazard Statement:** a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
- **Precautionary Statement:** a phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling of a hazardous chemical.



OSHA: https://www.osha.gov/hazcom

***Emergency Shutdown*:**

Some pieces of equipment may require special shutdown procedures to ensure the safety of personnel or to avoid major damage to the equipment. Instruction for dealing with the emergency shutdown of equipment is normally part of the orientation and instruction on the use of each piece of equipment. All equipment-specific shut down procedures should be posted inside of the laboratory. Ultimately, the faculty in charge of the laboratory bears the responsibility for the safety and implementation of the safety regulations and emergency procedures in their laboratory.

Applicability

The policies and procedures described here apply to all department personnel, faculty, staff, and students.

It is everyone's responsibility to look after both his/her own safety and that of fellow workers by:

- becoming familiar with and complying with all safety rules and procedures including the Chemical Hygiene Plan.
- becoming familiar with the NFPA Hazard Diamond.
- report safety issues or hazards in work areas to the responsible person

Equipment and Chemical Safety

Experimental equipment and chemicals can be dangerous. Laboratory personnel must exercise caution when conducting experiments. This means that if an explosion is possible - even remotely - appropriate precautions must be taken. Much more insidious are the various toxic properties of most chemicals. Because those toxic effects do not appear immediately, laboratory personnel tend to discount them. All personnel should give due consideration to the short- and long-term toxic properties of the materials used in the laboratory. Personal safety requires personnel respect the possible toxic effects of common and apparently innocuous chemicals. Good laboratory practice mandates that laboratory personnel be aware of possible chemical toxicity of all materials. When in doubt, look it up! Appropriate safety data sheets for chemicals are available in the Physics Department stockroom.

Similarly, instruments, machinery and other equipment are dangerous when used by uninformed operators. Before operating any equipment, users must have appropriate instruction in the operation and emergency shutdown of equipment.

Safety Data Sheets (SDS) for all chemicals are maintained in the Chemistry and Physics Departments. Signs indicating these locations will be posted in all laboratories where chemicals may be used. If there are any chemicals used in a laboratory, for which the laboratory owner (or other faculty member) feels that information about its use is critical, it is suggested that a copy of that SDS also be kept in the laboratory. A good list of locations can be found on the web. SDS for chemicals at JMU can be accessed via the Online SDS Database.

***Safety Rules*:**
The general safety rules are stated briefly below. Further discussion of these rules and general precautions are given below.

1. Safety protocols and procedures for new and revised experimental equipment should be created prior to use.
2. Working areas should be clean and uncluttered.
3. Each lab and the machine shop have specific rules.

   The rules for each individual lab should be prominently posted near the entrance to the lab. For the machine shop, please refer to that specific policy.

4. Know the location of fire extinguishers, emergency electrical shutoff buttons, protective equipment, and other applicable safety equipment such as showers, eyewash stations, etc.

5. **All accidents must be reported to the JMU police department within 24 hours**.
6. Gases and gas cylinders must be handled strictly according to established procedures. See *gas safety* for a short list of do's and don'ts and a link to more extensive information on the internet.
7. Laser usage must strictly follow the standard procedures found in the chemical hygiene plan.
8. Handle chemicals and other toxic material with caution (See the *Chemical Hygiene Plan*).
9. No Smoking or open flames in the building.
10. Follow general safety precautions and use your common sense.

***General Precautions*:**

1. Never store food or drinks in laboratory refrigerators or freezers. All refrigerators or freezers that may contain chemicals or other hazardous materials must be labeled **NO FOOD STORAGE** in a prominent location on the door.
2. Maintain adequate lighting and ventilation. See the chemical hygiene plan for hood usage.
3. Never work in hazardous conditions if you are sick or fatigued
4. Never work under the influence of drugs or alcohol
5. All connections between rubber or plastic hoses and solid pipes or tubes (e.g., water coolant lines) must be held fast by hose clamps. Should a hose come loose (even a water line), the hazard - let alone the mess - can be serious.
6. Any exposed hot surfaces should have appropriate caution signs on them.
7. Tools should be handled and stored properly.
8. Special Attention should be paid to corners and sharp edges. They should be marked in a proper manner to prevent injury.
9. All moving parts that present a potential hazard must be surrounded by a shield.
10. Care should be taken to ensure that equipment in the lab is safely organized. Attention should be paid that proper egress within and from the lab is ensured.

Gas Cylinder Safety:
The department safety guidelines are available in Policy 2007.

Machine Shop Policies and Procedures:
The department policies and procedures for the machine shop are available in Policy 2001.

Electrical Safety:
The danger of electrical shock is present in almost all laboratories. Guidelines are found in Policy 2002.

Procedures

***Inspections*:**
Routine inspections, as required, are performed by the Risk Management Coordinator. The faculty member responsible for each laboratory (or his/her designate) will be available for the inspection team during the inspection, if requested, or at any other time.

Infractions will be reported in writing to the faculty member responsible for the lab, the Department Head, and the Safety Committee. All records are kept in the Laboratory Manager's office. The Department Head will take appropriate action based on the seriousness of the infraction. It is the responsibility of the faculty owner of the lab or space to ensure that the issue is resolved.

***New Equipment, Radiation Safety, and other Special Hazards*:**
New construction, pressure piping, pressure vessels, electrical and structural work will be reviewed and approved by the JMU Office of Facilities Management. Safety and health review of new or significantly revised experimental equipment is the joint responsibility of the faculty member and the Department Head through the Departmental Safety Committee.

***Safety Equipment*:**
Laboratories that frequently deal with flammable substances should contain a fire extinguisher. Fire extinguishers are available at multiple points in the hallways. Access to them must not be blocked. Such equipment, as well as safety showers and first aid cabinets, are in various rooms in the building. Know the location and use of equipment in your immediate area and know how to get to the nearest exit in case of fire or another emergency.

***Fire and Other Emergencies*:**
If you observe a fire, or significant smoke, sound an alarm. **Call 8-6-9-1-1 on the nearest telephone**. Public Safety will respond to all alarms and take appropriate action. On the sounding of a fire alarm, it is the responsibility of everyone to secure any experimental equipment (if doing so does not endanger his/her personal safety), close the door of the work area and leave the building by prescribed exit routes. Emergency exit routes are posted throughout the building and on the inside door of each room.

***Injuries*:**
All injuries serious enough to require treatment by a doctor should be reported to the department head. In the event of a serious accident, immediately notify campus Police at 8-6-9-1-1, and ensure a faculty member is notified. For accidents involving radioactive or carcinogenic materials, also call the general emergency number, **8-6-9-1-1**.

***Training*:**
Physics majors will be introduced to the safety manual during their freshman year in **either Phys 105 or the major's lab**. Students who are working with a professor should

have review instruction on safety at the beginning of their work, upon the introduction of new risks into the laboratory and at least yearly thereafter.

As part of the training program, students may be required to take quizzes covering various aspects of the Department policies and procedures. These quizzes will be part of various courses, typically those including a laboratory component, and will be required every semester.

***Out of Class Projects*:**
Any project undertaken outside of class, instruction, or official departmental research must undergo risk assessment, and receive special approval from two separate Faculty members. The required risk assessment form can be found with all other forms on the Physics Department webpage, or on the students and faculty shared drives.

***Restricted Mobility*:**
The stairwells at each end of the building are designated as *Areas of Rescue Assistance*. There are emergency telephones installed. In case of a fire alarm, students or staff who are unable to leave the building because of restricted mobility should move to the nearest of those stairwells and call for help on the emergency telephone. The elevator should not be used during a fire alarm.

Responsibilities

All personnel are responsible for alerting others to potential hazards in their presence. It is everyone's responsibility to correct (if possible) and report an unsafe condition to the faculty in charge of the lab. If unsafe conditions persist, notify the laboratory manager or the department head. **All accidents must be reported to the campus Police department within 24 hours.**

***Non-JMU Students*:**
All non-JMU students, such as local high school students, or research students from other universities must complete the proper "*Assumption of Risk Certificate*" forms.

Sanctions

Students violating these rules or promoting an unsafe working environment will have their access privileges suspended or revoked at the discretion of the department head.

Exclusions

There are no exclusions to this policy.

Revision Date: September 27, 2022