



Introduction

The Department of Environmental Health, Safety has developed generic standard operating procedures relevant to safety and health considerations when working with hazardous chemicals in a laboratory setting. Where the scope of hazards are not adequately addressed in this general document, departments, Supervisors, and/or Principal Investigators must develop written standard operating procedures for work area specific operations. Standard operating procedures to all affected laboratory workers. The Standard Operating Procedures in this document specify minimum regulations and recommendations.

General Safety Guidelines

KSU employees working in laboratory and lab areas will understand and observe the following general rules:

Know the hazards, precautions, and procedures to use when working with a particular chemical. Carefully read the label before using an unknown chemical. Whenever appropriate, review the MSDS for special handling instructions.

Be alert to unsafe acts and unsafe conditions that may develop in the laboratory. Instruct and encourage safe work practices.

Never leave students unsupervised during labs or laboratory work. Students are not accustomed to recognizing unsafe acts and conditions, nor are they sure of safe lab practices.

Be familiar with the location of emergency equipment- fire alarms, fire extinguishers, and fire blankets, emergency eye wash stations and showers, chemical spill kits and first aid kits. Know the appropriate emergency response procedures.

Avoid distracting or startling other workers when they are handling hazardous chemicals.

Horse play is not allowed in lab area or laboratories.

Use equipment and hazardous chemicals only for their intended purposes.

Laboratory areas with special or unusual hazards will have posted warning signs. Safety showers, fire extinguishers, and special waste containers will be clearly marked.

All chemical waste will be disposed of according to laboratory waste disposal procedures. Notify the lab supervisor or coordinator for any waste that needs to be picked up and stored pending disposal.

Broken glassware will be disposed of in appropriately marked waste containers.



All used spill cleanup materials will be placed in the proper waste disposal containers.

Wear eye and face protection when appropriate.

Always inspect equipment for leaks, tears, and other damage before handling a hazardous chemical.

Avoid working alone in a lab, especially if the procedures being conducted are hazardous.

When working with flammable chemicals, be certain that there are no sources of ignition near enough to cause a fire or explosion in the event of vapor release or spill of the chemical.

No children or unauthorized personnel are allowed in the lab or laboratory areas.

Laboratory Hygiene

The following practices have been established to protect lab employees from health risks associated with the use of hazardous chemicals.

Avoid direct contact with any hazardous chemical. Know and use the proper protective equipment needed for the task at hand.

Wash hands with soap and water after handling a chemical and promptly whenever a chemical has contacted the skin.

No eating, drinking, smoking, chewing gum, or application of cosmetics is allowed in the laboratories or lab areas.

Avoid tasting or sniffing of chemicals.

Do not pipet or siphon by mouth.

Confine long hair and loose clothing jewelry, etc.

Always wear foot ware that completely covers the foot. No sandals, open-toed or open-heeled shoes.

Safety glasses must be worn at all times in the labs. The glasses must be of the impact protection type with splash guards and must meet ANSI Z87.1 specifications. In some cases face shields may be required.

Contact lenses are discouraged when working with hazardous chemicals. However if they are worn, employees must recognize the inherent increased risks and safety glasses must be worn.



Gloves of material suitable for the chemicals being used must be worn. Consult the SDS for the recommended gloves, or contact the EHS department. Gloves should be checked for tears, rips, or deterioration prior to use.

Wear an appropriate laboratory coat or apron if needed while working in the laboratory.

Replace lab-coat immediately if it becomes contaminated or soiled. Do not wear lab coats outside of the laboratory to prevent contamination of public areas.

Carefully inspect all protective equipment before using. Do not use defective protective equipment.

Laboratory Housekeeping

Bench tops and floors will be kept clear and uncluttered. Materials that are not being used should be put away in their proper storage areas.

The following will be cleaned after each use:

Floors

Balances and Other Equipment

Bench Tops

Glassware

Chemical waste including all unlabeled containers will be disposed of in the proper waste containers at the end of each lab period.

Aisles must be kept clear of obstructions

Emergency equipment such as safety showers, eye wash stations, and fire extinguishers must always be accessible.

All spills must be cleaned promptly using appropriate spill cleanup materials and disposed of properly. Follow cleanup and disposal requirements as outlined in the MSDS or contact the lab supervisor, lab coordinator, or the chemical hygiene officer.

Keep all aisles, hallways, and stairs clear of all chemicals.

All secondary containers should be labeled with the name of the chemical and the primary hazard associated with it.



All chemicals must be stored properly as follows:

Flammables in a flammable storage cabinet and away from oxidizers

Corrosives in a corrosive storage cabinet with acid and bases stored apart

Oxidizers stored away from acids and flammables

Poisons stored away from acids and flammables

Compressed Gas Cylinders stored upright and secured by a chain or strap

Whenever exposure by inhalation is likely to exceed the threshold limits described in the MSDS, a hood must be used. If a respirator is needed employees wearing the respirators will be trained and fit tested according to the KSU Occupational Respiratory Program.

Chemical Handling and Storage

The following are guidelines for handling and using hazardous chemical properly:

Information on proper handling, storage and disposal of hazardous and access to related MSDS must be made available to all laboratory employees prior to the use of the chemical.

Always purchase the minimum amount necessary to maintain operations.

Chemical containers with missing or defaced labels or that violate appropriate packing regulations should not be accepted.

Chemicals used in the laboratory must be appropriate for the lab's ventilation system.

Chemicals should not be stored on high shelves and large bottles should be stored no more than two feet above the floor level.

Chemicals shall be segregated by compatibility.

Chemical storage areas must be clearly labeled as to their hazard classification.

Any chemical mixture shall be assumed to be as toxic as its most toxic component.

Substances of unknown toxicity shall be assumed to be toxic

Transporting of Chemicals between Labs



When transporting chemicals between laboratories, precautions should be taken to avoid dropping or spilling chemicals.

Specially designated bottle carriers are available for transporting caustic chemicals.

Glass containers must be supported at both the top and bottom of the container. Do not carry a glass bottle by the neck without supporting the base of the container and vice versa.

When transporting chemicals on a cart, use a cart that is suitable for the load, resistant to chemicals, and has high edges to contain spills or leaks.