Temple University
Environmental Health and Radiation Safety

# Standard Operating Procedure

## General Laboratory Safety Practices

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The general laboratory rules listed below are based on government regulations, industry best practices and benchmarks set by other colleges and universities. The following general safety practices apply to all laboratories at Temple University, regardless of the type of research or work performed.

> ***NOTE:*** *Additional requirements for specific hazardous materials should be obtained from the SDS, container or a Standard Operating Procedure (SOP).*

### AVOIDANCE OF ROUTINE EXPOSURE

Develop and encourage safe habits. Avoid unnecessary exposure to chemicals by any route. Do not apply contacts, medications, cosmetics, or lotions in laboratories. Vent apparatus that may discharge toxic chemicals (e.g., vacuum pumps, distillation columns) into local exhaust devices, such as chemical fume hoods.

### FOOD AND DRINK

Consumption, storage and preparation of food or drink are prohibited in rooms or laboratories where chemicals are used or stored. Glassware used for laboratory operations is prohibited from use to prepare or consume food or beverages, regardless of where the consumption occurs. Laboratory refrigerators, ice chests, cold rooms, ovens and so forth must not be used for food/drink storage or preparation.

> ***NOTE:*** *The designation of clean areas within the laboratory for food storage, preparation and consumption are not allowed as interpreted by accrediting and regulatory agencies. Desk areas within the laboratory are not exempt from the restrictions on food and drink.*

> ***NOTE:*** *Food and drink is allowed in non-laboratory areas or desks that are physically separated from the laboratory operations by a door, partition, or engineered barrier which*

*prevents cross contamination of the consumable items with the hazardous materials.*

***NOTE:*** *Food and drink for research or teaching activities must be labeled "Not for Human Consumption."*

## WORKING ALONE

Avoid working alone. Do not work alone if the procedure is hazardous. Do not work late nights or weekends with toxic or hazardous chemicals unless the procedure is a standard practice and poses no exceptional risks.

***NOTE:*** Principal Investigators (PIs), Laboratory Supervisors or Instructors must review and approve operations involving a person working alone.

Refer to Working Alone in Laboratories Fact Sheet for additional information.

## WASHING HANDS

Wash hands with soap and warm water after removing gloves and before leaving the laboratory area.

## USE OF CHEMICAL HOODS

Work in a chemical hood when there is potential for the release of toxic chemical gases, vapors, or dusts. Generally, use a chemical hood or other locale ventilation devices when working with chemicals where the concentration is anticipated to reach or exceed the chemicals Short Term Exposure Level (STEL), Permissible exposure Limit (PEL) or Threshold Limit Value (TLV). Consult the Safety Data Sheet (SDS) for STEL, PEL or TLV information.

## ACCESS TO EMERGENCY EXITS AND EQUIPMENT

Emergency equipment, such as eyewashes, showers, fire extinguishers, and fire alarm pull stations must be directly accessible. Storage, even temporary storage, and equipment must not block doorways, corridors, aisles, and stairways to assure unobstructed access to exits in the event of an emergency. A minimum of 36 inches must be maintained in doorways, aisles, corridors, and stairways.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Use appropriate PPE. At a minimum, all persons, including visitors, when in a laboratory in which chemicals are in use or a chemical process is in progress, must wear eye and face protection.

## HOUSEKEEPING

Keep your work area clean and uncluttered, with chemicals and equipment properly labeled and stored. Clean up the work area at the end of an operation or each day.

## EXITING LABORATORY

Wash hands and areas of exposed skin and remove lab coat and gloves before leaving the laboratory to minimize the potential spread of contamination.

## EQUIPMENT AND GLASSWARE

Handle and store laboratory glassware with care to avoid damage. Do not use damaged glassware. Use extra care with Dewar Flasks and other evacuated glass apparatus. Should implosion occur, shield, or wrap apparatus to contain chemical and fragments. Use equipment only for its designated purpose.

## HORSEPLAY

Avoid practical jokes and other behavior which may confuse or distract another worker.

## MOUTH SUCTION AND PIPETTING

Do not use mouth suction for pipetting or starting a siphon. Use a mechanical pipette, squeeze bulb, or house vacuum instead.

## WORK PLANNING

Seek information and advice about hazards, plan appropriate protective devices, and positioning of equipment before beginning a new operation. Develop a procedure covering use, storage and disposal of chemical associated with the work.

## UNATTENDED OPERATION

Below are the basic steps to follow when an operation must be left unattended:

- Design the experiment to prevent the release of hazardous chemicals in the event of interruptions in utility service such as electricity, cooling water, and inert gas.
- Provide for containment of toxic chemicals in the event of failure of utility service.
- Provide fail-safe provisions for equipment such as power stirrers, hot plates, heating mantles and water condensers.
- Use electrical overload-protection devices when an apparatus is left unattended for long periods of time.
- Leave lights on in the area of unattended laboratory operations.
- Post announcement of the door of the laboratory that briefly described the nature of the unattended operation, a list of the potential hazardous materials which might be associated with an unplanned release and contact number(s) of the person(s) to be contacted in an emergency.

***DANGER:*** *Open flames must never be left unattended.*

## VIGILANCE

Be alert to unsafe conditions and ensure they are corrected once identified. Watch for overcrowding or over storage of hazardous chemicals. Do not store incompatible chemicals together. Do not store corrosives and poisons above eye level.