The University of Tennessee

Hazard Assessment and Controls Form

Laboratory Building and Room #:
Department/College:
Completed by (print name and title):
Principle Investigator (print name):
Department Head (print name):

Instructions:

Review the Hazard Description (column 3) of each Exposure Condition (column 2) and check the ones that are present (column 1). For every condition present, review the Examples of Engineering Controls and Personal Protective Equipment (column 4) and then complete the Specific Engineering Controls and PPE (column 5) that you intend to use to reduce or eliminate the hazard. Use the information to write a standard operating procedure for each process that involves a hazardous process or chemical.

Check if Present	Exposure Condition	Hazard Description	Examples of Engineering Controls and Personal Protective Equipment (PPE)	Specific Engineering Controls and Personal Protective Equipment (PPE)
Chemical Hazards				
☐	Chemicals, low hazard with low splash probability	Skin and eye irritation	Safety glasses, chemical resistant gloves, lab coat, closed shoe of good structure, long pants; Be aware of the nearest eyewash and shower	
☐	Compressed gases	Aphyxiation, accidental tip over, content release,and pinch points	Gas cylinders must be secured to stationary objects in a safe location away from danger or impact; Safety glasses and gloves	
☐	Controlled Substances	Drugs and certain other chemicals (narcotic and non-narcotic)	Proper training, handling & dispensing procedures, recordkeeping, safety glasses, gloves; Under the jurisdiction of federal and state laws	

Laboratory Hazard Assessment

Check if Present	Exposure Condition	Hazard Description	Examples of Engineering Controls and Personal Protective Equipment (PPE)	Specific Engineering Controls and Personal Protective Equipment (PPE)
☐	Corrosive liquids w/reasonable probability of splash	Skin and eye damage	Chemical splash goggles and face shield, neoprene gloves, lab coat, closed shoes, chemical resistant apron	
☐	Cryogenic liquids, ultra-cold freezers, dry ice	Aphyxiation, skin, eye and tissue damage, frostbite	Ventilation, safety glasses, goggles and face shields for splash hazards, insulated gloves, closed shoes	
☐	Organic solvents	Skin/eye damage, absorption through skin, organ damage	Chemical splash goggles and face shield, heavy resistant gloves, lab coat, long pants, closed shoes, chemical resistant apron, eyewash and shower	
☐	Volatile hazardous or highly hazardous chemicals	Inhalation of toxic vapors, skin contact	Fume hood, glove box, safety glasses, lab coat, long pants, closed shoes, and gloves	
☐	Pyrophorics	Spontaneously ignite in air at temperatures near 130oF (54oC). Extremely reactive to oxygen and moisture	Emergency eyewash station, an emergency shower, and a class C fire extinguisher; inert atmosphere glove box	
☐	Regulated Wastes	Exposure,environmental release	Safety glasses, gloves, lab coats, proper storage and disposal procedures; Training and safe handling procedures	
☐	Special cleaning agents	Exposure, allergies	Material Safety Data Sheets, hazard communication training, proper procedures, gloves, safety glasses/goggles	
☐	Toxic Substances	Poisons, neurotoxins, teratogens, mutagens, carcinogens, and subsequent environmental impact.	Proper training, procedures, gloves, safety glasses, lab coats, storage, and disposal	
☐	Washing glassware	Skin lacerations from broken glass, acid exposure	Safety glasses, rubber gloves, lab coat.	

Laboratory Hazard Assessment

Check if Present	Exposure Condition	Hazard Description	Examples of Engineering Controls and Personal Protective Equipment (PPE)	Specific Engineering Controls and Personal Protective Equipment (PPE)
Physical Hazards				
☐	Compression (pressure)	Injury from sudden release of energy from valves, compression chambers	Energy control, safety glasses, shields, body position	
☐	Confined Spaces	Exposure, falls, dangerous atmospheres, asphyxiation, noise, vibration	Buddy system, lanyards, ventilation, monitoring	
☐	Elevated heights	Fall injury	Lanyards, anchors	
☐	Energized Equipment	Pinch, crush, caught, pulled in, electrocution	Proper training, Energy control, signage, guards, no jewelry, tie back long hair	
☐	Extreme Environmental Conditions	Hypothermia (cold), frostbite (cold), heat exhaustion (heat) or heat stroke.	Training, physiological monitoring. Rest cycles and fluid replacement	
☐	Impact	Injury to head or body	Hard hat, impact resistant toed shoes, body position	
☐	Manipulation of large objects	Injury, death	Training, proper lifting equipment, procedures, inspections, buddy system	
☐	Material Handling	Physical injury, strains, sprains	Training, buddy system, gloves, standard operating procedures	
☐	Noise	Deafness, hearing damage, inability to communicate	Noise monitoring, hearing protection, training, and engineering controls (e.g., enclosures, baffles, mufflers)	
☐	Penetration	Injection, wounds	Training, signage, body position, proper technique, gloves	
☐	Respirable Dust	Lung damage	Local exhaust ventilation. monitoring, proper technique, respirator	
☐	Vibrating Equipment	Cumulative trauma disorders.	Gloves, protective shoes, hearing protection	

Additional Comments:
Certification: I certify this hazard assessment was conducted according to University Policy and the signatures below indicate acknowledgement. Completed by (print): _____ Date: _____ Completed by(signature):_____ Principle Investigator (print): _____ Date: _____ Principle Investigator (signature):_____

Standard Operating Procedure Format

1. Standard operating procedures must be personalized to accurately describe the process, hazards and controls at hand. The standard operating procedure format depends upon the situation.

2. Attach additional information, such as Safety Data Sheets (SDSs) to the standard operating procedure. Chemical-specific hazard information is available in the appendices of certain regulations (such as for arsenic and lead), the EHS website, internet websites and reference books.

Safety Operating Procedure Required Components.

1. **Process or Experiment Description**: Identify the chemicals, process or equipment involved in such a way that there will be no confusion as to what the standard operating procedure does (and doesn't) pertain to.

2. **Hazardous Materials, Equipment and Chemicals**: Identify all hazardous components involved in the process (e.g., highly hazardous chemicals, equipment, processes, biologicals, and radioactive materials). Even if the chemicals that will be produced in the process are not known, identify the stock chemicals, intermediates, final compounds and wastes involved. Also detail other factors involved in the process, such as catalysts, inert compounds, heat, cold, and varied operating pressures.

3. **Engineering/Ventilation Controls**: List all environmental controls and ventilation systems required by the process. This may include hoods, environmental rooms, aerosol suppression devices, filtering or absorption devices, etc. Describe ways to verify that the fume hood, survey meters, monitors, and other control system(s) are operating correctly before being used.

4. **PPE – Personal Protective Equipment**: Clearly describe what personal protective equipment is required, and at what stages of the procedure it shall be used.

5. **Special Handling Procedures and Storage Requirements**: Note any special storage requirements for the chemicals. This may include restricted access areas, special containment devices, and safe methods of transportation.

6. **Spill and Accident Procedures**: Provide guidance for handling spills, who might be designated to clean up the spill, and if any special spill clean-up materials are needed. Also identify what size of spill creates a hazardous situation. (For example, laboratory personnel may be able to safely handle a spill of a liter of dilute acid, but may need to evacuate the lab if 100 milliliters of a toxic chemical are spilled outside a fume hood.) This also provides guidance as to the maximum size of containers that should be purchased.

7. **Waste Disposal**: Identify safe disposal methods for routinely generated wastes. Includes procedures to neutralize or treat wastes to make handling safer or to reduce the amount of hazardous waste.

8. **Special Precautions for Animal Use**: For each hazard identified in the Hazard Assessment, adequately describe special handling practices and qualifications of animal handlers.

9. **Approval Required**: Is training or approval required before personnel can perform the procedure? Reference special requirements mandated by approvals or permits from UT policy and/or procedure**.**

10. **Decontamination Procedures**: Specify techniques for proper removal of PPE, decontamination (of skin, clothing, work surfaces), and disposal of contaminated materials.