Procedure-Focused Standard Operating Procedure Template

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**Applies To**: University of Michigan personnel writing safety procedures.

# Description of Procedure or Equipment

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| Hazardous substances being used, form of chemical, concentrations, quantities required, approximate frequency of use.  Equipment being used or serviced.  Work environment where the procedure will be completed. |

# Hazards

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| The hazards of each hazardous substance and equipment used in the experiment or work procedure such as flammable, corrosive, toxic, carcinogenic, pyrophoric, an irritant, etc.  The hazards of equipment and machining tools being used or serviced such as moving parts that could cause injury or exposure to chemicals or substances accumulated during use of the equipment.  Hazards of a work environment include heat stress, noise, electrical hazards, scaffolds and ladders, confined spaces and window washing (elevated interior and exterior building maintenance). |

# Materials

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| PPE needed (Examples: gloves, lab coat/gown, safety glasses/goggles, face shield, respirator, closed-toe shoes, and splash apron).  Supplies needed and, if necessary, the specific characteristics of the supplies, may include manufacture and item number.  Equipment to be used. |

# Procedure

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| When writing the standard operating procedure incorporate the categories on page 2, and the applicable information within each step, about each hazardous substance and equipment used in your procedure. Safety Data Sheets and the EHS Web Site contain hazardous substance and equipment safety information. Refer to these as you write your SOP. |

## Hazardous Substances or Equipment

* Safety equipment to use when working with the hazardous substance or equipment:
  + Local exhaust system, biological safety cabinet
  + Research equipment and machining tools and equipment
  + Where to complete the task, closing containers.
  + Work environment
* Exposure:
  + State of chemical, if applicable
  + Quantity used
  + Length of exposure
    - How often the personnel are exposed to the hazardous substance, working environment, or equipment
    - Duration of exposure—minutes or hours—in which personnel will be exposed to the hazardous substance, equipment, tools, or working environment.
* PPE: What to wear and when and when to replace it while conducting the experiment.
* Waste disposal

## Transportation and Moving

* Secondary containers
* Travel through low-traffic hallways.
* Large pieces of equipment (i.e. cranes, permit-required equipment
* Machines
* Motor vehicles

## Storage

* Storage locations for hazardous substances (in the lab, e.g., solvent, acid, or base cabinet, refrigerator, etc)
* Chemical segregation strategies (list incompatibles).
* Storage compatibility with other chemicals already in use in the lab.
* Chemical containers must be labeled with chemical name (& concentration, if diluted) and hazard warnings at a minimum.
* Storage locations and procedures for equipment, tools, and supplies.

## Waste Disposal

Because most spent, unused and expired chemicals/materials are considered hazardous wastes, they must be properly disposed of. ***Do not dispose of chemical wastes by dumping them down a sink, flushing in a toilet or discarding in regular trash containers, unless authorized by EHS, Hazardous Materials Management (HMM).***

* Containers, labels, manifest, supplies
* Identify the waste in the containers
* Completing a manifest
* Describe the specific disposal procedure to be used.

# EHS Resources to Help Write an SOP

In addition to consulting with your EHS representatives, use the following resources to help you write your SOP:

* [Research & Clinical Safety](http://ehs.umich.edu/research-clinical-safety/)
* [Worker Safety, Hazardous Situations](http://ehs.umich.edu/worker-safely/risk-factors/)
* [Chemical Hygiene Plan](http://ehs.umich.edu/wp-content/uploads/sites/37/2016/03/ChemicalHygienePlan.pdf)
* [Biosafety Manual](http://ehs.umich.edu/research-clinical/biological/)
* [Hazard Communication Program](http://ehs.umich.edu/worker-safely/hazard-communication-hazcom/)
* [EHS Standard Operating Procedures](http://ehs.umich.edu/research-clinical-safety/chemical/) (by product and equipment name)
* [Equipment & Tools](http://ehs.umich.edu/research-clinical-safety/equipment-tools/)
* [Glove Compatibility Chart](http://ehs.umich.edu/research-clinical-safety/planning-safe-research/glove-compatibility-chart/)
* [Medical Surveillance & Reproductive Health](http://ehs.umich.edu/research-clinical-safety/planning-safe-research/reproductive-health/)
* [Transporting Biological Materials](http://ehs.umich.edu/research-clinical-safety/biological/transporting-biological-materials/)
* [Guidelines](http://ehs.umich.edu/plans-guidelines/)
* [Hazardous Waste Web page](http://oseh.umich.edu/hazardous-waste/)

# Questions to Consider