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**STANDARD OPERATING PROCEDURE**

***Approval or exemption from IACUC Hazardous Agents Subcommittee is required for ABSL-2, BSL-2, and/or Chemical Agents. Please consult with subcommittee via email to*** *hazardousagents@luc.edu****.***

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| #1 | **CONTACT INFORMATION:** |

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| --- | --- | --- | --- |
| **PI** | | |  |
| **IACUC#** | | |  |
| **Species** | | |  |
| **Date of Creation/Revision** | | |  |
| **Name of Responsible Person** | | | (The PI, Lab Supervisor, or Autonomous Researcher) |
| **Location of Procedure** | | | *(Building and room number)* |
| **Approval Signature** | | | *(If required. See section #10 of this template)* |
| #2 | **THIS STANDARD OPERATING PROCEDURE (SOP) IS FOR:** | | |
| **Generic use of specific chemical or class of chemicals with similar hazards  Examples: carbon tetrachloride, rotenone, tamoxifen, etc..**  ***Please provide vendor, generic chemical name, trade name, dosages/concentrations used, total stock volume on hand.*** | | | |
| #3 | **PROCESS OR EXPERIMENT DESCRIPTION** | | |
| Provide a brief description of your process or experiment, including its purpose. Do not provide a detailed sequential description as this will be covered by section #6 of this template. Indicate the frequency and duration below. [PRECEDING GUIDANCE TEXT MAY BE DELETED.]   |  |  | | --- | --- | | **Frequency:** | □ one time □ daily □ weekly □ monthly  □ other:\_\_\_\_\_\_\_\_\_\_\_\_\_ | | **Duration per Experiment** | \_\_\_\_\_\_\_\_\_\_ minutes; or \_\_\_\_\_\_hours | | | | |
| #4 | **SAFETY LITERATURE REVIEW & HAZARD SUMMARY** | | |
| [FOLLOWING GUIDANCE TEXT MAY BE DELETED]  1. List all physical and health hazards associated with the materials and procedures used in this SOP. Examples of potential hazards include: toxicity, reactivity, flammability, corrosivity, pressure, etc.   1. List all references you are using for the safe and effective design of your process or experiment, including safety literature and peer-reviewed journal articles.  * American Chemical Society. *Journal of Chemical Health and Safety.* Available online at <http://www.sciencedirect.com/science/journal/18715532>. * Canadian Centre for Occupational Health and Safety. Web Information Service. Available online at <http://ccinfoweb.ccohs.ca>. * Furr, A. Keith. *CRC Handbook of Laboratory Safety*. * Hall, Stephen K. *Chemical Safety in the Laboratory*. * Lewis, Richard J. *Sax’s Dangerous Properties of Industrial Materials*. Available online at <http://www.knovel.com>. * National Oceanic and Atmospheric Association. CAMEO Database of Hazardous Materials. Available online at <http://cameochemicals.noaa.gov>. * National Research Council. *Prudent Practices in the Laboratory: Handling and Disposal of Chemicals*. Available online at <http://www.nap.edu>. * Pohanish, Richard P. *Sittig’s Handbook of Toxic and Hazardous Chemicals and Carcinogens*. Available online at <http://www.knovel.com>. * U.S. National Library of Medicine. TOXNET Chemical, Toxicological, and Environmental Health Data. Available online at http://toxnet.nlm.nih.gov. | | | |
| #5 | | **STORAGE REQUIREMENTS** | |
| Describe special handling and storage requirements for hazardous chemicals in your laboratory, especially for highly reactive/unstable materials, highly flammable materials, and corrosives. | | | |
| #6 | **STEP-BY-STEP OPERATING PROCEDURE** | | |
| *[FOLLOWING GUIDANCE TEXT MAY BE DELETED]*   1. For each step’s description, include any step-specific hazard, personal protective equipment, engineering controls, and designated work areas in the left hand column. 2. **Guidance on Engineering and Ventilation Controls – Review safety literature and peer-reviewed journal articles to determine appropriate engineering and ventilation controls for your process or experiment.** 3. **Guidance on Personal Protective Equipment - Respiratory protection is generally not required for lab research, provided the appropriate engineering controls are employed.** 4. **D*e*signated work area(s)** - Required whenever carcinogens, highly acutely toxic materials, or reproductive toxins are used. The intent of a designated work area is to limit and minimize possible sources of exposure to these materials. The entire laboratory, a portion of the laboratory, or a laboratory fume hood or bench may be considered a designated area. 5. Describe the possible risks involved with failure to follow a step in the SOP in the right hand column.  |  |  | | --- | --- | | **Step-by-Step Description of Your Process or Experiment** | **Potential Risks if Step is Not Done or Done Incorrectly (if any)** | | 1. Don personal protective equipment.  □ appropriate street clothing (long pants, close-toed shoes)  □ gloves; indicate type:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  □ safety goggles □ safety glasses □ face shield  □ mask/respirator  □ lab coats  □ other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | | 2. Check the location/accessibility/certification of the safety equipment that serves your lab:   |  |  | | --- | --- | | **Item** | **Status** | | **Laboratory Fume Hood/Glove Box or other Ventilation Control** | Location:             *Check sticker to ensure that hood was certified within last 12 months.* | | **Eyewash/Safety Shower** | Location:             *Ensure that it is accessible, not blocked.*  *.* | | **First Aid Kit** | Location: | | **Chemical Spill Kit** | Location: | | **Fire Extinguisher** | Location: | | **Telephone:** |  | | **Fire Alarm Manual Pull Station** | Location: | |  | | 3. Describe the next step in the procedure. |  | | 4. Describe the next step in the procedure. |  | | 5. Dispose of hazardous solvents, solutions, mixtures, and reaction residues as hazardous waste. |  | | 6. Clean up work area and lab equipment.  Describe specific cleanup procedures for work areas and lab equipment that must be performed after completion of your process or experiment. For carcinogens and reproductive toxins, designated areas must be immediately wiped down following each use. |  | | 7. Remove PPE and wash hands. |  | | | | |
| #7 | **EMERGENCY PROCEDURES** | | |
| Health-Threatening Emergencies (ex: fire, explosion, health-threatening hazardous material contact/spill or release, compressed gas leak, or valve failure)IF THERE IS A MAJOR SPILL:  1. **Call 911** 2. Alert people in the vicinity and activate the local alarm systems. 3. Evacuate the area 4. Remain nearby to advise emergency responders. 5. Once personal safety is established, call 66738 6. Provide local notifications: Identify the area management staff that must be contacted and include their work and home numbers. This must include the principal investigator and may include the lab safety coordinator, facilities manager, and/or business manager.   **If personnel exposed or injured:**   1. Remove the injured/exposed individual from the area, unless it is unsafe to do so because of the medical condition of the victim or the potential hazard to rescuers. 2. **Call 911** if immediate medical attention is required. 3. Administer first aid as appropriate. 4. Flush contamination from eyes/skin using the nearest emergency eyewash/shower for a minimum of 15 minutes. Remove any contaminated clothing. 5. Bring individual to the emergency room/employee health with copies of SDSs for all chemicals the victim was exposed to. 6. Call 66738 to report the exposure to ORS   **B. Non-Health Threatening Emergencies**  **For non-health threatening injuries and exposures**  Call the Employee and Student Health Center for more information and to schedule an appointment.  **C. Small Spills/Local Cleanup:**  **In the event of a minor spill or release that can be cleaned up by local personnel using readily available equipment (absorbent, Spill Kit): CONTACT CLEAN HARBORS (773-571-5825)**   1. Notify personnel in the area and restrict access. Eliminate all sources of ignition. 2. Review the SDS for the spilled material, or use your knowledge of the hazards of the material to determine the appropriate level of protection and if you are competent to clean up the spill. 3. Wearing appropriate personal protective equipment, clean up spill. Collect spill cleanup materials in a tightly closed container. Manage spill cleanup debris as hazardous waste. 4. If greater than 50 ml, or if it will take longer than 15 minutes for you to clean up, immediately call 911 to report the spill, and notify your supervisor. 5. Submit online [waste pickup request](http://www.stanford.edu/dept/EHS/prod/enviro/waste/pickup/WastePickup_form.htm) to ORS x 66738   **D. Building Maintenance Emergencies (e.g., power outages, plumbing leaks):**  **Call Facilities 64611** | | | |
| #8 | **WASTE DISPOSAL** | | |
| Describe the quantities of waste you anticipate generating and appropriate waste disposal procedures. Include any special handling or storage requirements for your waste. Contact Javier Ortega at 773-571-5825 for questions and additional guidance. | | | |
| #9 | **TRAINING REQUIREMENTS** | | |
| **General Training** ***(check all that apply):***  □General Safety & Emergency Preparedness  □Chemical Safety for Laboratories  □Other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Depending on the hazardous materials and processes you will be working with in this SOP, additional safety training may be required by the University, such as Biosafety.   |  |  | | --- | --- | | **Location Where Records Maintained:** |  |   **Laboratory-specific training** ***(check all that apply):***  □ Review of SDS for other chemicals involved in process/experiment  □ Review of this SOP  □Other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   |  |  | | --- | --- | | **Location Where Records Maintained:** |  | | | | |
| #10 | **APPROVALS** | | |
| You must seek approval if you plan to use high hazard chemicals as special safety precautions may need to taken. High-risk chemicals and operations may involve highly acutely toxic chemicals, carcinogens, reproductive toxins, and highly reactive materials. Approval will be documented by PI, staff and student signatures in the Approval Signature section of this document.  The undersigned personnel have read through this chemical SOP and understand and are aware of the safety hazards involved in using the aforementioned chemical: | | | |