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| brick2x2 | Laboratory Standard Operating Procedure (SOP) |

A safety plan must be integral component of all research activities in all University of South Carolina laboratories. Prior to conducting any lab work or experiment, researchers are required to identify all hazardous substances, equipment and processes involved and identify controls that would mitigate the potential harm that can result from exposure to or misuse of such materials. In certain cases, approval by the EH&S and a University Safety Committee may be required. Document your safety plan in the form of a written Standard Operating Procedure (SOP) using this template and require all authorized users to follow the written SOP to ensure laboratory work is performed safely.

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| Procedure title |  | | |
| Author |  | | |
| Date of creation / revision | Date created: | | Date last revised: |
| Principal Investigator |  | | |
| Location | Building and room number | | |
| 1. | This standard operating procedure (SOP) is for | | |
| Use of specific chemical or class of chemicals with similar hazards  Examples: preparing acid or base bath, preparing bleach or isopropyl alcohol for cleaning bench surfaces  Specific laboratory procedure or experiment  Examples: hydrogenation reaction, leaf digestion to determine silica content  Use of specific lab equipment  Examples: furnace, high performance liquid chromatograph, machine press | | | |
| 2. | Process or experiment description  Briefly summarize the process or experiment, including volume and concentration of chemicals, how long each experiment or procedure runs, how frequently it will be conducted. | | |
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| 3. | Hazard and risk assessment  Identify and list ALL potential hazards including chemicals, equipment and other physical hazards. For chemical hazards, list the GHS hazard class and rating and OSHA occupational exposure limits. Attach safety data sheets (See section 11). | | |
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| 4. | Safety equipment  Specify all equipment needed to perform procedure safely and to respond to emergencies. | | |
| 4.a. | Engineering / ventilation controls  Examples: fume hood use, gas sensors, equipment interlocks | | |
| 4.b. | Personal protective equipment  Examples: safety glasses, nitrile gloves, cryogen gloves, lab coat | | |
| 4.c. | Location of nearest emergency safety equipment | | |
| Item | | Location | |
| Eyewash / safety shower | |  | |
| First aid kit | |  | |
| Chemical spill kit | |  | |
| Fire extinguisher | |  | |
| Fire alarm manual pull station | |  | |
| Telephone | |  | |
| Other | |  | |
| 5. | Step-by-step methodology  Provide a sequential, detailed description of procedure or experiment and when special safety equipment and safety precautions are to be utilized. Include temperature, pressure, and other conditions required in the experiment. Include schematics, diagrams and/ or photos for complex setups. | | |
| Step 1  Step 2  Step 3 | | | |
| 6. | Designated area  *Where highly toxic, highly reactive/unstable, highly flammable, and corrosive or nanomaterials are used, identify the designated work area(s) and the necessary decontamination after completion of work.* | | |
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| 7. | Special handling procedures, transport, and storage requirements  Describe special handling and storage requirements for hazardous chemicals used in this procedure, especially those that are highly reactive/ unstable, flammable toxic and corrosive. Describe secondary containment requirements for transport between laboratory rooms. | | |
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| 8 | Waste disposal  Identify and list all hazardous waste to be generated and appropriate disposal procedures. Include liquid and solid waste. | | |
| Chemical waste generated from this experiment will be collected and disposed of as hazardous waste according to [USC Hazardous Waste Disposal Policy](http://ehs.sc.edu/HazWaste.htm). Chemical waste is to be collected in a compatible waste container (passivated nonporous plastic vessel, e.g. High density Teflon), sealed, and properly labeled for pick-up. Request [hazardous waste pick-up on-line](https://sc.edu/about/offices_and_divisions/ehs/occupational_and_environmental_safety/environmental_management/hazardous_waste_management/hazardous_waste_pick-up_request/index.php). | | | |
| 9. | Emergency procedures  Describe how spills, chemical exposure and other accidents should be handled and by whom. List emergency contact numbers. | | |
| **(*MODIFY THIS SECTION TO ENSURE THAT THE FOLLOWING EMERGENCY PROCEDURES APPLY)***  **Life-threatening emergencies** (for example, medical event, fire, explosion, large-scale spill or release, toxic or flammable gas leak, valve failure)   * Call 911. Provide dispatch the following information: your name and call back number, location of incident, material released, if known, if there are any injured person and their location. * Pull the nearest fire alarm. * Exit the building using the nearest stairway. * Proceed to designated assembly area. * Provide information to emergency responders as able.   **Chemical spills**  1. Determine if it is a “major” or “minor” spill. Minor spills are well contained, able to be cleaned using the spill kit at hand and clean-up would not require special PPE such as a respirator.  2. Assist anyone who may have been contaminated or injured during the spill.  3. Clean up minor spills using appropriate spill control equipment.  4. Call 911, USC Police (777-4215) and EH&S (777-5269) for all major spills.  5. Contain major spill with appropriate absorbent only if trained to do so and your safety is not compromised.  6. Post “DO NOT ENTER” on entrance door and evacuate the area.  Do not re-enter until Emergency Responders have cleaned up the spill and declare the area safe for reentry.  **If personnel exposed to chemicals**   1. Call 911 to seek emergency medical help. 2. Assist exposed person away from incident or source of exposure, to the emergency shower or eyewash. Do this only if able and personal safety is not compromised. Exposed person decontaminates using the nearest emergency shower or eyewash.    1. Pull the safety shower lever to start the water flowing (or push the eyewash lever to start the water flowing).    2. To wash off chemicals from your eyes, hold your eyes open to get the water under your eyelids.    3. Remove all contaminated clothing and shoes to effectively wash chemicals off your body.    4. Stay under the water for at least 15 minutes to wash all the chemicals off. 3. Report incident to \_\_\_\_\_\_\_\_\_\_\_\_\_(supervisor and phone number). 4. Seek follow-up medical treatment at the Center for Health and Well-being during normal business hours or the nearest emergency room after business hours.   **Building maintenance emergencies** (for example, power outages, plumbing leaks, fume hood malfunction)  Call 777-9675 to report facility emergency. | | | |
| **Additional action required for all UofSC employees**  When injury or illness occurs, follow these five important steps to report your injury:   1. Immediately report the injury to your supervisor. You and your supervisor call CompEndium together at 877-709-2667 to report the injury. 2. Follow CompEndium’s Nurse Case Manager’s instructions for any authorized treatment and further reporting. 3. Complete an [**Employee Injury Report [pdf]**](https://www.sc.edu/about/offices_and_divisions/human_resources/docs/hr81b.pdf) and have your supervisor complete a [**Supervisor's Report [pdf]**](https://www.sc.edu/about/offices_and_divisions/human_resources/docs/hr81c.pdf). Fax both reports to CompEndium at 877-710-2667. 4. If the treating physician does not release you to return to work, be sure to complete the Benefits Election section at the bottom of the Employee Injury Report. Meet with your department HR Contact for an explanation of your options or call the Benefits Office at 803-777-6650 for assistance. 5. Report the injury to CompEndium Services within 10 days of the date of injury.   Call the Benefits Office at 803-777-6650 if you have any questions.  With injury or illness involving any of the following: amputation, loss of an eye, is expected to or actually results in a hospitalization   * Contact EH S at 777-5269 and Buddy Harley at 528-8191 within 24 hours. | | | |
| 10. | Training requirements  List the general and laboratory-specific training required for authorized users of this SOP | | |
| EH&S Chemical and Lab Safety Training  EH&S Hazardous Waste Training  EH&S Radiation Safety Training  EH&S Biosafety and Bloodborne Pathogens Training  Other: Review of chemical safety data sheet  Other: Demonstrate proficiency on step-by step methodology including safety procedures  Other: Demonstrate proficiency on executing emergency response procedures | | | |
| **Additional training requirements**  List additional, local training requirements.   1. Additional training requirement 2. Additional training requirement | | | |
| 10. | Review, Approval and Authorized Users  SOPs must be reviewed by the USC Chemical Hygiene Officer and approved by the lab Principal Investigator. | | |
| Principal Investigator *(name, signature, date)*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Chemical Hygiene Officer *(name, signature, date)*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **Authorized Users (*attach separate signature page as necessary*)**  *Authorized users agree by signing below, that they have completed the required trainings listed in Section 10, have read and understand the content of this SOP and will follow all aspects of this SOP.*  Person *(name, signature, date)*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Person *(name, signature, date)*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Person *(name, signature, date)*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Person *(name, signature, date)*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **Additional prior approvals required**  List any tasks that require prior approval by the principal investigator (for example, working outside of normal business hours, use of restricted chemicals and other higher hazard chemicals and running of higher hazard operations, any deviation to this SOP):   1. Task requiring prior approval 2. Task requiring prior approval | | | |
| 11. | Safety References and other Attachment  List books, published papers, equipment safety manuals, webpages and others used as references in writing this SOP. Attach chemical safety data sheets, schematic diagrams, and photographs for complex procedures. | | |
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