

Laboratory Specific

Standard Operating Procedure

Enter in Name of Procedure

Please fill out the form using the instructions supplied. Submit SOP to EH&S at ehs@chapman.edu This Standard Operating Procedure will be a component of the Chapman University Chemical Hygiene/Biosafety Plan as appropriate. Accommodations can be made for proprietary processes.

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| --- | --- |
| Procedure Title | **[Specify** – Note: All guidance text in brackets may be deleted**]** |
| Procedure Author | **[Specify]** |
| Creation/Revision Date | **[Specify]** |
| Principal Investigator | **[Specify]** |
| Room & Building | **[Specify]** |
| Phone Number | **[Phone number of PI]** |

**SECTION 1 - THIS STANDARD OPERATING PROCEDURE (SOP) IS FOR A:**

[ ]  Specific laboratory procedure or experiment

*[Examples: synthesis of chemiluminescent esters, folate functionalization of polymeric micelles, etc.]*

[ ]  Generic laboratory procedure that covers several chemicals
*[Examples: distillation, chromatography, etc.]*
[ ]  Generic use of specific chemical or class of chemicals with similar hazards
*[Examples: organic azides, mineral acids, etc.]*

**SECTION 2 - DESCRIBE PROCESS, HAZARDOUS CHEMICAL OR HAZARD CLASS**

*List all chemicals in the process and describe / list the names of all hazardous chemicals including IUPAC, common name and abbreviations and CAS#.*

[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 #11 of this template. Indicate the frequency and duration below.]

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| --- | --- |
| Frequency: | [ ]  one time [ ]  daily [ ]  weekly [ ]  monthly [ ]  other: \_\_\_\_\_\_\_ |
| Duration per Experiment: | \_\_\_\_\_\_\_ minutes; or \_\_\_\_\_\_\_hours |

**SECTION 3 - SAFETY LITERATURE REVIEW & POTENTIAL HAZARDS**

*Describe the potential hazards for each process, hazardous chemical or hazard class. Include physical and health hazards.*

1. Hazardous Substances

[List hazardous substances and their associated health and safety hazards. Examples of potential hazards include toxicity, reactivity, flammability, corrosivity, pressure, etc. Refer to Safety Data Sheets (SDSs) and other resources, as needed.]

1. Other Hazards

[List nonchemical hazards, e.g., biological hazards, electrical hazards, mechanical hazards, nonionizing radiation, or ionizing radiation.]

1. References

*[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.]*

**SECTION 4 - PERSONAL PROTECTIVE EQUIPMENT**

*[Identify the required level of PPE and hygiene practices needed. PPE includes gloves, aprons, lab coats, eye protection, etc. Please use the Laboratory Personal Protective Equipment (PPE) Assessment Tool in the Chemical Hygiene Plan to help make PPE determinations. EH&S can also be consulted by calling 714-516-5660 or email* *ehs@chapman.edu**]*

**SECTION 5 - ENGINEERING CONTROLS.**

*[Describe engineering controls that will be used to prevent or reduce employee exposure to hazardous chemicals. This includes ventilation devices such as fume hoods.]*

**SECTION 6 - SPECIAL HANDLING AND 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. *Special procedures such as dating peroxide formers are appropriate here.*]

**SECTION 7 - SPILL AND ACCIDENT PROCEDURES**

*[Indicate how spills or accidental releases will be handled and by whom. List the location of appropriate emergency equipment (spill kit, eye washes, showers, and fire equipment). Any special requirements for personnel exposure should be identified here.]*

1. **Health-Threatening Emergencies**
2. **Fire, explosion, health-threatening hazardous material spill or release, compressed gas leak, or valve failure, etc.**
3. Call 911 (or 6763 on the Orange Campus).
4. Alert people in the vicinity and activate the local alarm systems.
5. Evacuate the area and go to your Emergency Assembly Point (EAP): [Indicate EAP location]
6. Remain nearby to advise emergency responders.
7. Once personal safety is established, call EH&S at 714-997-6763.
8. Provide local notifications (local notifications are listed at the end of this section).

Note: For compressed gas leaks, shut off gas supply only if this can be done safely, without risk to personnel.

1. **Injuries and Exposures:**
2. 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.
3. Call 911 (or 6763 on the Orange campus) if immediate medical attention is required.
4. Call 714-997-6763 to report the exposure to Public Safety. Public Safety will contact EH&S.
5. Administer first aid as appropriate.
6. Flush contamination from eyes/skin using the nearest emergency eyewash/shower for a minimum of 15 minutes. Remove any contaminated clothing.
7. Bring the hospital copies of SDSs for all chemicals the victim was exposed to.
8. **Non-Health-Threatening Emergencies**
9. **Injuries and Exposures**

For injuries and exposures that are not considered serious or a medical emergency, call the US HealthWorks, our occupational health provider at (714) 288-8303 for the Orange campus or at (949) 206-9100 for the Rinker Campus between 8:00 am-6:00 pm M-F. For urgent conditions when US HealthWorks is closed, go to the nearest Emergency Department.

1. **Spills**

For hazardous material spills in the laboratory or releases which have impacted the environment (via the storm drain, soil, or air outside the building) or for a spill or release that cannot be cleaned up by local personnel:

1. Notify Chapman University responders by calling 714-997-6763. These services are available 24 hours a day, 7 days a week.
2. Provide local notifications (local notifications are listed at the end of this section).
3. **Local Cleanup of Small Spills**

In the event of a minor spill or release that can be safely cleaned up by local personnel who have been properly trained and approved by EH&S for spill clean-up, using readily available equipment and laboratory PPE:

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. **Do not clean up spills requiring respiratory protection that are greater than 30 ml or if you have not had the appropriate training.**
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. Submit online [waste pickup request](http://www.stanford.edu/dept/EHS/prod/enviro/waste/pickup/WastePickup_form.htm) to EH&S or call 714-516-5660, Karen Swift.
5. Reporting Requirements: All spills cleaned up locally must be reported if they occur outside of secondary containment. A spill that occurs within secondary containment or laboratory hood must be reported if it is greater than 30 ml or if it takes longer than 15 minutes to clean up. To report a spill, call EH&S at 714-516-5660 as soon as possible.
6. **Lab-Specific Procedures**

*[This section is for any emergency procedures different from standard responses, or for additional emergency information due to the nature of materials or task. Include information on gas leaks, chemical spills, and personal exposure/medical emergency as appropriate.]*

1. **Building Maintenance Emergencies**

Call Public Safety at 714-997-6763 for building maintenance emergencies (e.g., power outages, plumbing leaks) and they will page Facilities Management.

1. **Local Notifications**

*[Identify the area management staff that must be contacted and include their work and after-hours numbers. This must include the principal investigator and may include the lab safety coordinator, facilities manager, and/or business manager.]*

**SECTION 8 - DECONTAMINATION PROCEDURES**

*[Specify decontamination procedures to be used for equipment, glassware, and clothing: including equipment such as glove boxes, hoods, lab benches, and controlled areas within the lab.]*

**SECTION 9 - WASTE DISPOSAL PROCEDURES**

*[Describe the quantities of waste you anticipate generating and appropriate waste disposal procedures. Include any special handling or storage requirements for your waste. Contact EH&S at 714-516-5660, Karen Swift, ehs@chapman.edu for questions and additional guidance.]*

**SECTION 10 - SAFETY DATA SHEET LOCATIONS**

*[Indicate the location of SDS’s for each hazardous chemical used. Also, indicate the location of other pertinent safety information, i.e. equipment manuals, chemical references, etc.]*

**SECTION 11 - PROTOCOL(S):**

*Insert your laboratory protocol for specific handling practices.*

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| [For each step’s description, include any step-specific hazard, personal protective equipment, engineering controls, and designated work areas in the left hand column.* 1. 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. Guidance is available from health and safety specialists at Chapman EH&S and online in the General Use SOPs in the Chemical Hygiene Plan.
	2. Designated 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.

Describe the possible risks involved with failure to follow a step in the SOP in the right hand column.]

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| **Step-by-Step Description of YourProcess or Experiment** | **Potential Risks if Step is Not Done or Done Incorrectly (if any)** |
| 1. Don personal protective equipment. [ ]  appropriate street clothing (long pants, closed-toed shoes)[ ]  gloves; indicate type: \_\_\_\_\_\_\_[ ]  safety goggles [ ]  safety glasses [ ]  face shield [ ]  lab coat [ ]  flame-resistant lab coat[ ]  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.**Check tag that it has been tested within last month.* |
| **First Aid Kit**  | Location: \_\_\_\_\_\_\_ |
| **Chemical Spill Kit**  | Location: \_\_\_\_\_\_\_ |
| **Fire Extinguisher** | Location: \_\_\_\_\_\_\_ |
| **Telephone** | Location: \_\_\_\_\_\_\_ |
| **Fire Alarm Manual Pull Station** | Location: \_\_\_\_\_\_\_ |

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| 3. [Describe the next step in the procedure.] |  |
| 4. [Describe the next step in the procedure. Insert additional rows in table, as needed.] |  |
| 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. |  |

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**SECTION 12 – RESTART PLAN – FIVE (5) MAJOR PREVENTION STRATEGIES:**

*The Restart/Safety Plan will have five major prevention and mitigation strategies. Describe your approach to managing these strategies for the below factors:*

**Physical Distancing, Surveillance, Public Health Interventions, Face Coverings, and Sanitation.**

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| **Physical Distancing (Procedures to minimize the number of people in the research space)** | **Potential Risks if Mitigation is Not Done or Done Incorrectly (if any)** |
|  |  |
| **Surveillance (Procedures to identify persons who due to health status may present a risk to self or others, i.e. temperature checks,)** |  |
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| **Health Interventions (Additional strategies to limit the number of people, room and equipment scheduling considerations, specialized training, etc.)** |  |
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| **Face Coverings (cloth masks when working in public spaces, and EH&S approved/fit-tested respiratory protection as indicated.)** |  |
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| **Sanitation (The use of** [**CDC/EPA-approved**](https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2) **product and concentration for use against SARS-CoV-2, the virus that causes COVID-19, for disinfecting high-touch surfaces, such as bench tops, equipment surfaces, door handles, etc.)** |  |
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**I have read and understand the content of this SOP:**

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| Name | Signature | Date |
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| **EH&S Approval** |
| Name | Signature | Date |
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