**Standard Operating Procedure**

**[INSERT PROCEDURE TITLE]**

**Type of SOP:**  Process/Equipment  Hazardous Chemical  Hazardous Class

This SOP has been written and/or reviewed and approved by a laboratory supervisor or principal investigator. Any edits or revisions to this SOP must be approved by a laboratory supervisor or PI. All personnel subject to this SOP must review the completed SOP and sign below in Section 11: Documentation of Training. This SOP must be readily available in your lab.

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| Department: | Click here to enter text. | | |
| Location: | Click here to enter text. | | |
| Principal Investigator (PI): | Click here to enter text. | | |
| PI Office Phone: | Click here to enter text. | PI Home Phone: | Click here to enter text. |
| Emergency Contact Name: | Click here to enter text. | Emergency Contact Phone: | Click here to enter text. |
| Safety Office Phone: | 701-231-7759 | University Police Phone: | 701-231-8998 |

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| 1. PROCESS OVERVIEW |

[Insert a brief description of the laboratory process/equipment involving hazardous chemicals, a single hazardous chemical, or class of hazardous chemicals covered by this SOP. A detailed step-by-step procedure will be included in Section 10.]

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| 2. HAZARDOUS CHEMICAL(S) | | |
| Chemical Name | **CAS Number** | **Quantity Stored** |
| Click here to enter text. | Click here to enter text. | Enter quantity and units |
| Click here to enter text. | Click here to enter text. | Enter quantity and units |

[List or attach the chemicals or hazard class, and describe important properties, signs/symptoms of exposure, etc…]

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| Chemical and Physical Properties | |
| Molecular Formula |  |
| Hazard Class |  |
| Form/Physical State |  |
| Boiling Point |  |
| pH |  |
| Odor |  |
| Flash Point |  |
| Vapor Pressure |  |
| Add/delete tables or rows as needed |  |

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| 3. HAZARDS INDENTIFICATION | |
| https://www.osha.gov/images/Healthhazard_big.jpghttps://c1.staticflickr.com/5/4069/4642776748_bcab182e4e.jpgA picture containing text, clipart, sign  Description automatically generatedC:\Users\zsmith\Desktop\GHS\Explbomb_big.jpgC:\Users\zsmith\Desktop\GHS\OXIDIZER_big.jpgC:\Users\zsmith\Desktop\GHS\Expoint_big.jpgFlamehttp://www.thecompliancecenter.com/store/media/catalog/product/cache/1/image/325x/9df78eab33525d08d6e5fb8d27136e95/l/b/lb48ghs65_hi.gif  Select all appropriate GHS pictograms & delete the rest of the pictograms. | Signal Word: Click to select a signal word |
| GHS Hazard Statements:   * List all hazard statements in SDS Section 2.1 |

**Other Potential Hazards**

[List non-chemical hazards, e.g., biological hazards, electrical hazards, mechanical hazards, nonionizing radiation, or ionizing radiation.]

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| 4. DESIGNATED LOCATION AND STORAGE | |
| Designated Work and Storage Locations | Enter building, room number, & specific areas |
| Storage Conditions | Enter chemical storage conditions (e.g., temperature, inert atmosphere, glove box, …) |

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| 5. ENGINEERING CONTROLS |

**Engineering Controls**

[List lab-specific engineering, ventilation, or infrastructure needs as well as discussion of emergency overrides, interlocks, etc. that would be used to address each of the potential hazards noted in Section 3. Examples include fume hoods, local exhaust/snorkels, glove box, biosafety cabinets, etc…]

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| 6. WORK PRACTICE CONTROLS & TRAINING |

**Precautions for Safe Handling:**

[List any special handling that is required for safe handling, storage, quenching of active materials, reducing any hazardous wastes.]



**Training Requirements:**

[Check and/or list any required trainings to be completed prior to using SOP]

Laboratory Safety Training\*

Laboratory Specific Safety Training (Provided by PI or Lab Supervisor)

Hazardous Waste Handling Training\*

Biosafety Training\*

Bloodborne Pathogen Training\*

Radiation Safety Training\*

Nanomaterial Safety Training\*

Click here to enter text.

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\*Training is provided by the Safety Office: https://www.ndsu.edu/police\_safety/training/

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| 7. PERSONAL PROTECTIVE EQUIPMENT |

Long pants, closed toe shoes, and safety glasses are required upon entry into an area where hazardous materials are used or stored. Additional PPE requirements are listed below.

**Eye Protection**

[List required eye/face protection. Eye protection examples are listed below]

* ANSI Z87.1 Safety Glasses
* Splash Goggles are required for all processes with potential chemical splash hazards or aerosols
* Splash Goggles AND Face Shield provide the greatest protection from chemical splash hazards.

**Hand Protection**

[List compatible gloves and hand/arm protection required. For example, A Safety Data Sheet (SDS) should be reviewed if handling may involve extended or high exposure to lab personnel to ensure adequate skin protection is provided. Hand protection examples listed below.]

* Gloves must be worn when handling chemicals.
* Disposable nitrile gloves should be adequate for handling most chemicals in general laboratory settings.
* If direct or prolonged contact is anticipated, appropriate chemical-resistant gloves should be used.

**Skin and Body Protection**

[List required personal protection equipment against skin/body contact. Skin and body protection examples are listed below.]

* Long pants and closed toe shoes must be worn at all times.
* Laboratory coats are required when working with hazardous materials.
* Flame-resistant laboratory coats should be worn for increased risk of fire.
* Face shield, chemically-resistant apron, disposable sleeves, etc. are required where splashes or skin contact with corrosive or highly toxic chemicals is possible.

**Respiratory Protection**

[List any required respiratory protection (e.g., N95 mask, half-face or full-face respirator and applicable cartridges/filters). Remember, the use of tight-fitting respirators requires medical clearance, fit-testing, and Safety Office approval]

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| 8. EMERGENCY RESPONSE |

**Emergency Safety Equipment**

[List all required safety equipment and locations. All personnel must be aware of emergency equipment locations and emergency response procedures.]

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| **Emergency Equipment** | **Location** |
| Emergency Eyewash Station(s) | Click here to enter text. |
| Safety Shower | Click here to enter text. |
| First Aid Kit | Click here to enter text. |
| Fire extinguisher | Click here to enter text. |
| Fire Alarm Pull Station | Click here to enter text. |
| Telephone | Click here to enter text. |
| Add/Delete Rows as necessary | Click here to enter text. |

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| Chemical Exposure |

**Symptoms of acute exposure:**

[List all potential exposure symptoms]



**If Inhaled:**

[List emergency response procedures for inhalation exposure of chemical. E.g., Immediately move to fresh air and call 9-1-1 or University Police at 701-231-8998.]

**In Case of Skin Contact:**

[List emergency response procedures for skin contact exposure of chemical. E.g., Immediately flush all affected areas with water for 15 minutes using the nearest sink or safety shower. Remove any contaminated clothing. Seek medical attention.]

**In Case of Eye Contact:**

[List emergency response procedures for eye contact exposure of chemical. E.g., Immediately flush eyes with copious amounts of water for at least 15 minutes in the emergency eyewash station. If applicable, wash hands and remove contact lenses while flushing with water. Seek medical attention. ]

**If Ingested:**

[List emergency response procedures for ingestion exposure of chemical. E.g., Seek medical attention immediately. Do not induce vomiting. Rinse mouth with water. Do not give anything by mouth to an unconscious person.]

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| Chemical Spills |

NDSU Safety Office is available for spill clean-up 24/7. Call 701-231-7759 for assistance in cleaning up any spill.

**Small Chemical Spill**

[List emergency response procedures for small/incidental chemical spills. Example procedures below.]

1. Notify others and evacuate the lab, if necessary.
2. Confine the spill using absorbent or neutralizer.
3. Thoroughly decontaminate the affected area.
4. Dispose of all clean up materials as hazardous waste.
5. Report the incident to your supervisor and the Safety Office.

**Large Chemical Spill**

[List emergency response procedures for large chemical spills]

1. Notify others and evacuate the lab space.
2. Is there an immediate threat of fire or explosion?
   1. YES: Pull the fire alarm and call 9-1-1.
   2. NO: Call the Safety Office Spill Team at 701-231-7759

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| Life Threatening Emergencies |

**Fire, explosion, life-threatening hazardous material spill/leak, compressed gas leak, etc.:**

1. Call 9-1-1 or University Police 701-231-8998
2. Alert others in the area and activate local alarm systems (e.g., fire alarm pull stations)
3. Evacuate building to designated assembly point: Enter Designated Assembly Point
4. Remain at the designated assembly point to advise emergency responders.
5. Call the Safety Office at 701-231-7759, when it is safe to do so.

**Injuries:**

1. Call 9-1-1 or University Police 701-231-8998.
2. Administer first aid as appropriate.
3. Call the Safety Office at 701-231-7759, when it is safe to do so.

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| 9. WASTE DISPOSAL |

Hazardous wastes must be stored and labeled properly and disposed of by the NDSU Safety Office within 9 months of accumulation start date.

[Insert description of lab-specific information on the waste streams generated, storage location, and any special handling requirements]

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| 10. LAB SPECIFIC PROCEDURES |

**Laboratory Specific Procedures:**

[List your detailed laboratory specific procedures in this section. Remember, any changes to these procedures require advance PI approval]

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| 11. APPROVAL & DOCUMENTATION | |
| SOP Approval | |
| Date SOP was approved by PI: | Click here to enter text. |
| Date of Last SOP Revision by PI: | Click here to enter text. |
| Click here to enter text. | Click here to enter text. |

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| DOCUMENTATION OF TRAINING | |
| All laboratory personnel must read and understand this SOP, and sign/date below. | |
| NAME | **DATE** |
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