**Standard Operating Procedure**

**[Insert name of chemotherapy drug or other hazardous drug]**

***This is an SOP template and is not complete until:*** *1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.*

 Print a copy and keep with your
*Chemical Hygiene Plan* and/or *Lab Safety Resources Binder*

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:** ☐ Process ☐Hazardous Chemical ☐Equipment

1. **Purpose**

[Identify the intended use of a process/equipment/chemical]

1. **Procedure/Scope:**

[Identify when the procedure is to be followed]

[Include laboratory procedure and specify hazardous stages of the procedure]

Purchase the smallest amount of *[chemo/haz drug]* feasible for specific tasks, or purchase *[chemo/haz drug]* diluted to the concentration for use.

Provide hazardous chemical and specific SOP training to personnel working with *[chemo/haz drug]* and any other personnel authorized or required to be in the laboratory or shared space during work with the agent.

Enter *[chemo/haz drug]* into EHSA inventory, the online OSU chemical inventory system.

Special procedures: [i.e., Are procedures needed because of agent volatility or if agent readily permeates PPE?] [🡆 Click here to enter text 🡄]

Determine appropriate cleaning method(s) for *[chemo/haz drug]*. Ensure supplies for cleaning/decontamination are readily available.

Purchase or assemble supplies for a spill cleanup kit for *[chemo/haz drug]*. Ensure the kit is maintained, anticipated users are trained in its use and the kit is readily available in the laboratory.

1. **Physical & Chemical Properties/Definition of Chemical Group (Only applies to hazardous chemicals)**

CAS#: [Insert CAS Number]

Class: [Toxic, Corrosive, Caustic, Radioactive, Poison Inhalation Hazard, Oxidizer, Flammable, Explosive, Cryogenic Liquid, Pyrophoric Liquid, etc.]

1. **Safety Data Sheet (SDS) Location**

Online SDS can be accessed at (<http://oregonstate.edu/ehs/sds>). A hard copy can be found at Oak Creek Building with Environmental Health & Safety.

1. **Personal Protective Equipment (PPE) (Describe the correct PPE for working with the chemical or needed during the process)**

Laboratory personnel must always wear a lab coat when working in a lab. Closed-toed shoes are also required at all times. The following PPE will be worn when working with *[chemo/haz drug]*: [Customize list]

**Hand Protection**: Two pairs of disposable, powder-free chemotherapy gloves *[manufacturer and item #]* that are FDA approved and tested according to ASTM Method D6978-05 and show no breakthrough of *[chemo/haz drug]* and diluent over a time period much longer than the anticipated wear time

**Eye Protection:** Safety glasses with side shields or, if working with a volatile agent, chemical safety goggles. If splash or exposure to vapors is possible, wear face protection such as a face shield, and an impermeable apron with sleeves.

**Skin and Body Protection:** Disposable protective gown or equivalent with solid front, long sleeves and elastic or knit cuffs. Wear long pants or long skirt, and fully closed shoes.

**Respiratory Protection:** Respiratory protection may be needed if dust, aerosol or vapor hazard is present. Please contact the EH&S to discuss respiratory protection or to enroll in the program. Program enrollment includes medical evaluation, training and fit testing for an appropriate respirator. For information see [EH&S Respiratory Protection Program](https://ehs.oregonstate.edu/respirators) or call EH&S at 541-737-2273.

**Hygiene Measures:** Wash hands with soap and water after removing gloves and before eating or drinking.

1. **Equipment and Supplies**

[List any equipment or supplies need for the procedure above.]

1. **Engineering Controls**

Preparation of *[chemo/haz drug]* will be performed in a *[Select ventilation control from dropdown]*.

1. **First Aid Procedures**

If an accident happens the following documents must be completed:

* Online OSU HR Advocate Public Incident Reporting Form within 24 hours of the incident
* If the employee’s incident resulted in the need for medical treatment, have the employee complete the worker section of the SAIF 801 Form and fax to risk management at 541-737-4855 within 24 hours.

**If inhaled**

[Describe the response plan in the event that someone inhaled a hazardous substance]

Example:
*Move to fresh air. If the person is not breathing, give artificial respiration. Avoid mouth to mouth contact. Call 911 from a phone. Call EHS at 541-737-2273 after emergency services have been contacted to report the incident.*

**In case of skin contact**

[Describe the response plan in the event that someone’s skin comes in contact with a hazardous substance]

Example:

*Immediately (within seconds) flush affected area for at least 15 minutes. Remove all contaminated clothing. Call 911 immediately. Call EH&S at 541-737-2273.*

**In case of eye contact**

Use eye wash to flush eyes for 15 minutes. Call 911. Follow safety instruction for further assistance: <http://ehs.oregonstate.edu/sites/ehs.oregonstate.edu/files/pdf/si/eyewash_and_safety_shower_si.pdf>

**If ingested**

Do not induce vomiting. Contact 911 and/or poison control center if swallowed: 1(800)222-1222

1. **Special Storage & Handling Requirements**

**HANDLING**

Weighing and Prep

* All preparation of *[chemo/haz drug]* will be performed over plastic-backed absorbent pads in a *[Select ventilation control from dropdown]*. Pads will be disposed of immediately upon contamination and after completion of tasks.
* Wear double chemotherapy gloves for all procedures involving preparation and administration of *[chemo/haz drug].*
* Change gloves at least every 30 to 60 minutes or after each use, or immediately when torn, punctured, or contaminated.

*[Describe how [chemo/haz drug] will be prepared.]*

 [🡆 Click here to enter text 🡄]

Use

* Use only needle locking (Luer-Lock type) syringes or disposable syringe units for injection or aspiration of *[chemo/haz drug]*.
* A specific chemotherapy/hazardous drug sharps container will be in the immediate vicinity for safe sharps disposal.
* Clean containers before they are removed from *[Select ventilation control from dropdown]*.
* Clean the *[Select ventilation control from dropdown]* upon completion of tasks with *[cleaning solution]*.
* Place all contaminated disposable items in bags before disposal.
* Non-disposable utensils, glassware, and other surfaces contaminated with *[chemo/haz drug]* must be decontaminated at the end of the laboratory work session.
* When work completed, remove gloves and wash hands with soap and water.

**STORAGE**

* *[chemo/haz drug]* will be stored in *[select storage container from dropdown]* in *[room #]*.

**TRANSPORT**

*[chemo/haz drug]* will be transported in labeled and sealed non-breakable secondary containers.

1. **Chemical Spill (Change this for radioactive spills or biohazardous spills)**

**Chemotherapy/hazardous drug spills must be cleaned up as soon as possible by properly protected and trained personnel. All other persons should leave the area. Spill response procedures must be developed based on the hazardous agent present and potential spill or release conditions. Clean up spills using contents of the chemotherapy spill kit. Do not attempt to clean up any spill if not trained or comfortable. Evacuate the area and call**  **Public Safety (541-737-7000), and tell them to contact the on-call EH&S personnel to respond to the spill. If a person is injured, exposed or suspected of being exposed, call 911. Follow EXPOSURE PROCEDURES in section 8 below.**

**Spills inside a BSC, fume hood, glove box or approved containment**

1. Personnel must wear a lab coat or smock, safety goggles, and two pairs of disposable chemotherapy gloves (or one pair of non-disposable nitrile or butyl gloves (minimum 10 mil thickness) or Silver Shield gloves), when cleaning up spills.
2. **Liquids:** Wipe up spilled liquids with absorbent pads.
3. **Powders:** Gently cover powder spill with wetted paper towels or absorbent pads to avoid raising dust and then wipe up.
4. Clean the spill area thoroughly with detergent solution followed by clean water.
5. If spill is extensive within the containment, clean all interior surfaces after completion of the spill cleanup.
6. Double bag all waste in plastic bags labeled with the contents. Submit request to EH&S for [waste pickup](https://forms.gle/5esf5JUfHjCa777r6).

**Small Spills (less than 5 ml) outside of containment**

1. Personnel must wear a gown or coveralls with solid front, safety goggles, shoe covers as needed and two pairs of chemotherapy gloves (or one pair of non-disposable nitrile or butyl gloves (minimum 10 mil thickness) or Silver Shield gloves), when cleaning up spills.
2. Wear an N95 or equivalent respirator for either powder or liquid spills where airborne powder or aerosol is or has been generated. Spills of volatile agents require the use of an appropriate combination particulate/chemical cartridge-type respirator. Most chemotherapy drugs are not volatile, but some are. Assess the volatility of the agent. Please contact the EH&S to discuss respiratory protection or to enroll in the program. Program enrollment includes medical evaluation, training and fit testing for an appropriate respirator. For information see [EH&S Respiratory Protection Program](https://ehs.oregonstate.edu/respirators) or call EH&S at 541-737-2273.
3. **Liquids:** Wipe up spilled liquids with absorbent pads.
4. **Powders:** Gently cover powder spill with wetted paper towels or absorbent pads to avoid raising dust and then wipe up.
5. Clean the spill area thoroughly with detergent solution followed by clean water.
6. Double bag all waste in plastic bags labeled with the contents. Submit request to EH&S for [waste pickup](https://forms.gle/5esf5JUfHjCa777r6).

**Large spills (greater than 5 ml) outside of containment**

1. Evacuate all personnel from the laboratory and restrict access.
2. As soon as possible report the spill by notifying EH&S (call Public Safety (541-737-7000), and tell them to contact the on-call EH&S personnel to respond to the spill.); tell them that a spill has occurred, and that you need help managing the spill. Notify supervisor.
3. Be prepared to provide the following information:
* Name and phone number of knowledgeable person that can be contacted
* Name of agent spilled, concentration and amount spilled, liquid or solid type spill
* Number of injured, if any (refer below to EXPOSURE PROCEDURES)
* Location of spill

This information should also be reported by submitting a report using the [Online Accident Reporting System (OARS)](https://hr.oregonstate.edu/benefits/workers-compensation-resources/incident-reporting) form after a potential exposure.

1. **Only if staff are trained, have the proper PPE and are comfortable with cleaning up the spill, they may proceed to clean it up.** Personnel must wear gown or coveralls with solid front, safety goggles, shoe covers as needed, and two pairs of chemotherapy gloves (or one pair of non-disposable nitrile or butyl gloves (minimum 10 mil thickness) or Silver Shield gloves), when cleaning up spills.
2. Wear an N95 or equivalent respirator when cleaning large spills. Spills of volatile agents require the use of an appropriate combination particulate/chemical cartridge-type respirator. Most chemotherapy drugs are not volatile, but some are. Assess the volatility of the agent. Please contact the EH&S to discuss respiratory protection or to enroll in the program. Program enrollment includes medical evaluation, training and fit testing for an appropriate respirator. For information see [EH&S Respiratory Protection Program](https://ehs.oregonstate.edu/respirators) or call EH&S at 541-737-2273.
3. **Liquids:** Wipe up spilled liquids with absorbent pads.
4. **Powders:** Gently cover powder spill with wetted paper towels or absorbent pads to avoid raising dust and then wipe up.
5. Clean the spill area thoroughly with detergent solution followed by clean water.
6. Double bag all waste in plastic bags labeled with the contents. Submit request to EH&S for [waste pickup](https://forms.gle/5esf5JUfHjCa777r6).

Any spill incident requires the involved person or supervisor to complete and submit the [Online Accident Reporting System (OARS)](https://hr.oregonstate.edu/benefits/workers-compensation-resources/incident-reporting) form within 24 hours (8 hours if serious injury or hospitalization) of the incident to EH&S.

For questions on spill cleanup, contact EH&S spill consultants at 541-737-2273.

**Personal precautions**

[Include information and PPE that may be needed for the person responsible for cleaning the spill.]

**Environmental precautions**

[Include information on how the process or chemical might alter the surrounding environment.]

1. **Other Emergencies**

**Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends and Holidays** – Dial **911** (This will connect you to Good Samaritan Hospital Corvallis where they will be able to treat the victim).

**Non-Life Threatening Emergency** – [Instructions on how to handle a non-life threating chemical exposure, process injury, or procedural injury.]

1. **Decontamination/Waste Disposal Procedure**

*General hazardous waste disposal guidelines:*

**Cleaning**

* Wipe down work space surfaces after completion of tasks with *[cleaning solution]*. Replace absorbent pads after completion of tasks or immediately if contaminated.

**WASTE COLLECTION AND DISPOSAL**

Manage chemotherapy and hazardous drug waste separately from other waste streams such as biohazardous waste. Never autoclave chemotherapy/hazardous drug waste since it can produce hazardous chemical vapors or aerosols, and autoclaving conditions may not be sufficient to deactivate chemotherapy/hazardous drug waste. Collect chemotherapy/hazardous drug waste as either trace or non-trace waste as defined below.

**1. Trace Chemotherapy/Hazardous Drug Waste**

“Trace” chemotherapy/hazardous drug waste refers to empty containers and containers that have less than 3% of the original quantity of drug remaining, such as sharps, empty syringes, and vials. An “empty” container is one in which all contents have been removed by normal means such as aspiration, pouring, or flushing.

Trace Chemotherapy/Hazardous Drug Waste Collection

Collect in yellow sharps waste container:

* Sharps with trace chemotherapy/hazardous drugs
* Sharps with mixed waste (trace chemotherapy/hazardous drugs and biohazards)
* Empty chemotherapy/hazardous drug vials and containers (<3% of original quantity)

Label as “Trace Chemo Waste” with PI name and room number. Containers are available for purchase from lab/medical supply vendors.

**Trace Chemotherapy/Hazardous Drug Waste Disposal**

All trace chemotherapy/hazardous drug waste generated at OSU is collected and shipped off site for disposal by incineration at a regulated facility.

**2. Non-Trace Chemotherapy/Hazardous Drug and EPA P-Listed Waste**

Non-trace chemotherapy/hazardous drug waste refers to unused or expired drugs, containers with more than trace chemotherapy/hazardous drugs, and visibly contaminated items including PPE and visibly contaminated items used preparation, use, and cleanup. Dispose of non-contaminated PPE and other items in the trash.

Environmental Protection Agency (EPA) P-listed drugs are acutely hazardous drugs that are regulated by federal law. Handle **all** P-listed drug waste (including empty containers and trace amounts) as non-trace chemotherapy/hazardous drug waste. See [P-listed](https://ehs.oregonstate.edu/files/pdf/Plist.pdf) agents.

**Non-Trace and P-Listed Waste Collection**

Collect for pick up by EH&S:

* Unused or expired chemotherapy/hazardous drugs
* Containers with more than trace amounts of chemotherapy/hazardous drugs
* All P-listed drug waste (including empty containers)
* Sharps with P-listed drugs
* Sharps with P-listed drugs **and** biohazards
* Visibly contaminated items from preparation, use, and cleanup (PPE, pads, etc.)

Label with EH&S [Hazardous Waste label](https://ehs.oregonstate.edu/sites/ehs.oregonstate.edu/files/pdf/how_to_fill_out_hazardous_waste_label.pdf) as required.

**Non-Trace and P-Listed Waste Disposal**

All non-trace chemotherapy/hazardous drug and P-listed drug waste generated OSU is collected by EH&S Environmental Programs and shipped off site for disposal by incineration at a regulated RCRA facility. To request pick up of non-trace chemotherapy/hazardous drug waste or any P-listed waste, Submit request to EH&S for [waste pickup](https://forms.gle/5esf5JUfHjCa777r6).

**3. Contacts**

For questions regarding chemotherapy/hazardous drug waste collection and disposal, contact an EH&S Hazardous Waste Safety Officer at hazardouswaste@oregonstate.edu or 541-737-2273.

**Decontamination**

All surfaces and non-disposable equipment will be decontaminated with *[cleaning solution]*.

1. **Special Precautions for Use of [chemo/hazardous drug] in Animals (if applicable)**

Use of *[chemo/haz drug]* in animals will be documented and approved by IACUC.

*[Give detailed procedures for safely completing tasks and any special disposal requirements.]*

 [🡆 Click here to enter text 🡄]

1. **Designated Area**

All work with *[chemo/haz drug]* must be done in a designated laboratory, work space and *[Select ventilation control from dropdown]*. This work will be conducted in *[room #]*

1. **References**

[Include any references useful to employees]

NIOSH ALERT: Preventing Occupational Exposure to Antineoplastic and Other Hazardous Drugs in Health Care Settings - <http://www.cdc.gov/niosh/docs/2004-165/pdfs/2004-165.pdf>

NIOSH List of Antineoplastic and Other Hazardous Drugs in Healthcare Settings 2012 Preventing Occupational - <http://www.cdc.gov/niosh/docs/2012-150/pdfs/2012-150.pdf>

Exposure to Antineoplastic and Other Hazardous Drugs in Health Care Settings [www.cdc.gov/niosh/docs/2004-165/](http://www.cdc.gov/niosh/docs/2004-165/).

Personal Protective Equipment for Health Care Workers Who Work with Hazardous Drugs[www.cdc.gov/niosh/docs/wp-solutions/2009-106/](http://www.cdc.gov/niosh/docs/wp-solutions/2009-106/).

NIOSH. 2010. Workplace solutions: safe handling of hazardous drugs for veterinary healthcare workers. DHHS (NIOSH) Publication No. 2010-150. [www.cdc.gov/niosh/docs/wp-solutions/2010-150/pdfs/2010-150.pdf](http://www.cdc.gov/niosh/docs/wp-solutions/2010-150/pdfs/2010-150.pdf%20) .

NIOSH. 2013. Workplace solutions: medical surveillance for health care workers exposed to hazardous drugs. DHHS (NIOSH) Publication No. 2013-103. [www.cdc.gov/niosh/docs/wp-solutions/2013-103/pdfs/2013-103.pdf](http://www.cdc.gov/niosh/docs/wp-solutions/2013-103/pdfs/2013-103.pdf)

OSHA [1999]. [OSHA technical manual, TED 1-0.15A, Sec VI, Chapt II: Categorization of drugs as hazardous](http://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html)

ASHP Guidelines on Handling Hazardous Drugs <http://www.ashp.org/Import/PRACTICEANDPOLICY/PolicyPositionsGuidelinesBestPractices/BrowsebyDocumentType/GuidelinesMain.aspx>

1. **Training Requirements**

[Example: OSU’s lab safety training, hazardous waste, hazard communication/SDS, lab-specific training, this SOP, etc.]

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with *[chemo/haz drug]* designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide this SOP and a copy of the SDS (can be available online) available to all laboratory personnel.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training.

**Principal Investigator SOP Approval**

By signing and dating here the designee certifies that the Standard Operating Procedure (SOP) for *Insert SOP Name* is accurate and effectively provides standard operating procedures for laboratory personnel.

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Signature Printed Name/Title Date

I have read and understand the content of this SOP:

|  |  |  |
| --- | --- | --- |
| **Name** | **Signature** | **Date** |
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