

# WORKPLACE SAFETY QUICK REFERENCE GUIDE

*Revised October 2021*

Use this Quick Reference Guide to answer common questions regarding laboratory safety and find emergency response information.

Report an Emergency: Dial 9-1-1

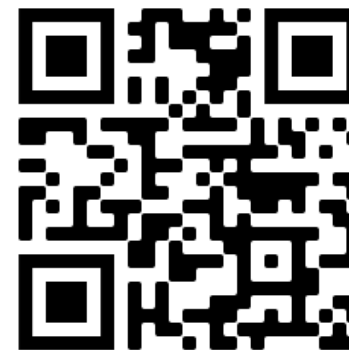
OSU Public Safety 24/7 Emergency Line: 541-737-7000 (Corvallis Campus)

EH&S Non-Emergency Hotline: 541-713-SAFE (541-713-7233)

EH&S Main Office: 541-737-2273

EH&S Website: [ehs.oregonstate.edu](https://ehs.oregonstate.edu)

EH&S General Inquiries: [ehs@oregonstate.edu](mailto:ehs@oregonstate.edu)



All EH&S Trainings are available at: <https://ehs.oregonstate.edu/training/training-materials>



**Oregon State  
University**

Environmental Health and Safety  
100 Oak Creek Building, Corvallis, OR 97331-7405  
T 541-737-2273 | F 541-737-9090

## **If you smell something, say something.**

***If you smell smoke, gas, or a strong chemical odor, call Public Safety Dispatch (541-737-7000).***

### **Natural Gas Leaks**

If you smell natural gas in the laboratory, do the following:

- Turn off all sources of ignition (e.g., open flames, electrical equipment).
- Check laboratory gas outlets for open valves.
- Call Public Safety Dispatch (541-737-7000) to have the location of the gas leak identified.
- Let others nearby/in the lab know and wait outside the lab to meet with emergency response personnel.

### **Unusual Odors**

Check with co-workers to determine if they are doing something to produce an odor (e.g., working with gas cylinders, pungent chemicals, etc.). If an immediate source cannot be determined in the laboratory, check the hallway and adjacent laboratories to determine if the odor is widespread or if the source is localized.

If the source is known, take action (if possible) to eliminate the cause or control the odor, such as moving a chemical reaction from the benchtop and putting it into a fume hood.

If there is no emergency and the source cannot be determined contact EH&S (541-713-SAFE) to investigate any of the following issues:

- Chemical odors
- Unusual or unknown odors
- Particulates of unknown origin
- Mold and mildew

## **GAS LEAKS OR UNUSUAL ODORS**

## The 4 L's of Hazardous Waste Management

**LABEL:** Prior to filling a waste container, fill out the Hazardous Waste Label with the information requested.

**LID:** Waste containers, including those from instruments, must have a closed, tight fitting lid.

**LEAKS:** Use a drip tray or secondary containment for ALL hazardous wastes. Clean up spills immediately.

**LOCATION:** Keep all waste in the room where it was generated.

## Hazardous & Universal Waste Disposal

To submit a waste pick up request or to request supplies, use the following webpage:

[ehs.oregonstate.edu/waste](https://ehs.oregonstate.edu/waste)

## Empty Containers

**Empty chemical containers that did not contain an *acutely toxic* material are not considered hazardous waste and do not need to be picked up by EHS.**

A container is considered "empty" when nothing can be poured or drained out or when no material is encrusted on or adhered to the inside.

### **To recycle or discard containers:**

1. Empty the container and let any volatile residual vapors dissipate within a fume hood. Leave cap off.
2. Deface the label (sharpie, spray paint, etc.).
3. Bag plastic containers and place them in a dumpster. Glass containers can be used as waste containers (if compatible with waste) or can be placed in a box lined with plastic and placed in the dumpster.
4. Metal solvent cans can be recycled. Submit a pickup request with Campus Recycling ([recycle.oregonstate.edu](https://recycle.oregonstate.edu)).

Required Elements of a Hazardous Waste Label

Constituent	Concentration or %
Ethanol	10%
Water	90%

- 1 - Contact information. Fill in the building and room number and PI name.
- 2 - Constituents of waste. List all chemicals or compositions of waste including non-hazardous ingredients like water as well. No abbreviations. List percentage for each constituent by volume, the total percentage MUST equal 100%.
- 3 - Listed waste. Check all that apply. This information is found in the hazardous waste determination listing of over 7,000 waste streams.
- 4 - Waste Hazard. Check all that apply. This information is also found in the online hazardous waste determination listing or Safety data sheets for each constituent.

# **HAZARDOUS WASTE DISPOSAL & EMPTY CONTAINERS**

## What can go down the drain?

No materials qualifying as a hazardous waste may be disposed of in the drain.

### Interior Drains:

The following criteria apply to liquid wastes disposed of through interior drains:

#### *Non-Hazardous only* ([see list](#))

- No radioactive waste
- No hazardous chemical waste
- No untreatable bio-hazardous waste

#### *Liquids only*

- No solids, sludges, or viscous substances
- Biological liquids only after being inactivated via bleach or other methods
- Microbial cultures only after being autoclaved

#### *Must not interfere with sewage treatment options*

- Corrosive pH levels, only pH 6.0 to 9.5 are allowed. [Note: Must have authorization prior to disposal and conduct and document pH testing prior to disposal]
- No grease or oil
- No hot (150° F or higher) temperatures in volumes of more than 10 gallons.

- Contact EH&S on drain disposal of rinsates from chemical or fertilizer/pesticide containers.
- If you wish to dispose of waste that falls under the approved criteria above, you must have authorization prior to disposal. A waste determination, is required to ensure compliance with drain disposal requirements. You must also log pH levels prior to drain disposal.

*Note:* Protect drains from chemical spills – do not use sinks for chemical storage or secondary containment. Disposal of hazardous waste using sinks, international evaporation, or as regular trash is against the law.

### Exterior Drains and Stormwater Protection:

**The OSU community has an obligation to protect surrounding surface and groundwater resources by managing the quality of water runoff.**

Wastes with the following criteria **CAN** go into exterior drains:

- Clean rain runoff
- De-chlorinated, potable water

You must report to EH&S when an accidental or intentional non-stormwater discharge occurs.

If in doubt whether a drain inlet leads to stormwater or sanitary sewer, please contact EH&S.



## **DRAIN DISPOSAL**

## What are hazardous materials?

Hazardous Materials (otherwise referred to as Dangerous Goods for shipping purposes) are substances or materials that have been determined by the Department of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

### Hazardous Materials include:

- **Laboratory Chemicals** including but not limited to flammable, toxic, corrosive, reactive, radioactive and cryogenic materials
- **Biological Samples** such as viruses, bacteria, human or animal blood or tissue
- **Household/Custodial Materials** such as paints, stains, cleaners, fuels, and disinfectants
- **Hidden Hazardous Materials** such as rechargeable batteries contained within powered equipment, mercury in thermostats, dry ice, etc.



For more information and special shipping needs, visit the EH&S website ([ehs.oregonstate.edu/shipping-hazardous-materials](https://ehs.oregonstate.edu/shipping-hazardous-materials)).

You can also visit the on-campus EH&S hazardous materials shipping office located at: 191 SW 35th Street, Corvallis, OR between the Radiation Center and USDA building.

### **Primary Contact**

EH&S Hazardous Materials Shipping  
541-737-4019 or 541-737-1288

# **SHIPPING HAZARDOUS MATERIALS**



## **Using an Emergency Eyewash:**



Step 1: Immediately flush eyes for at least 15 minutes.

Step 2: Keep eyes open and rotate the eyeballs in all directions to remove contamination from around the eyes. Hold eyes open with your fingers.

Step 3: Seek medical attention as needed/required & report the injury/exposure.

**My eyewash(s) is located:** \_\_\_\_\_

## **Using an Emergency Safety Shower:**

Step 1: Activate the safety shower by pulling the shower handle. Immediately flush the affected area with copious quantities of water for at least 15 minutes. Protect the eyes from inadvertent contamination.

Step 2: Remove contaminated clothing, jewelry, and shoes. Don't let modesty slow you down, every second counts. Use a clean lab coat to provide the victim with privacy and warmth.

Step 3: Call Oregon Poison Center at (800) 222-1222 for advice, and then seek medical attention immediately.

Step 4: Seek Medical Attention as needed/required & report the injury/exposure. Have someone bring or fax the Safety Data Sheet for the chemical to the doctor. Report the injury/exposure to your supervisor.

**My safety shower is located:** \_\_\_\_\_

## **In the event of a fire or explosion:**

Step 1: **SOUND THE FIRE ALARM** – Activate the nearest fire alarm pull station (typically located near an exit).

Step 2: **CALL 9-1-1/REPORT THE DETAILS OF THE FIRE** – Call from a safety location to report the following:

- Nature of the emergency
- Exact location: building, floor, room number
- Actions taken

Step 3: **ENSURE EVACUATION HAS BEGUN** – Do not delay the evacuation process. Direct others to evacuate as you leave the building.

Step 4: **EXTINGUISH OR CONTAIN THE FIRE** – If the fire is relatively small and contained and you can do so without risk to your personal safety, attempt to extinguish or at least contain the fire by using a portable fire extinguisher, by closing a fume-hood sash, or by closing the equipment door or the door to the lab.

**Fire Extinguishers:** OSU does not require you to use a portable fire extinguisher or place yourself in harm's way at any time, but if you are comfortable using a fire extinguisher (without risk to yourself) and you wish to potentially be able to use one, then you must complete the online fire extinguisher training ([ehs.oregonstate.edu/training/training-materials](https://ehs.oregonstate.edu/training/training-materials)).

### **Preparedness:**

- Know the location of exits to your work stations and your nearest escape routes
- Know the location of the items listed below

### **Location of nearest Fire Extinguisher(s):**

---

### **Location of nearest Fire Alarm Pull Station(s):**

---

### **Location of outside evacuation assembly point:**

---

**NOTE:** All fires that occur on the OSU Campus are required to be reported either for emergency response via 9-1-1 or, if small and quickly extinguished without requiring emergency services, through the Department of Public Safety (541-737-7000) or EH&S (541-713-SAFE).

## **FIRES AND EXPLOSIONS**

In the event of a spill of chemical or biological materials in the lab, a spill kit should be readily available and clearly distinguished.

### **Chemical Spill Kits**

To obtain a chemical spill kit, you can order one from scientific vendors or from the Chemistry Store in Gilbert 154 (Product Number: SPK001).

***Chemical Spill Kit Location:*** \_\_\_\_\_

### **Biological Spill Kits**

Laboratories with biological hazards (pathogens or human body fluids) should maintain a biological spill kit.

In addition to the items in a chemical spill kit, biological spill kits should also include:

- Concentrated household bleach (or other appropriate disinfectant)
- A spray bottle for making 10% bleach solutions
- Forceps, an autoclavable broom and dust pan, or other mechanical devices for handling sharps
- Biohazard bags for the collection of contaminated spill clean-up items

***Biological Spill Kit Location:*** \_\_\_\_\_

### **First Aid Kit**

First aid supplies should be available in all work areas for the immediate treatment of minor injuries. You should know the location of your nearest first aid kit.

***First Aid Kit Location:*** \_\_\_\_\_

For information regarding what should be in a first aid kit, visit the [First Aid Kits and Supplies Safety Instruction](#) online.

## **SPILL KITS & FIRST AID**

## **Laser Exposure**

In the event of an exposure or suspected exposure to laser radiation capable of eye or skin injury

- Seek medical attention
- Notify the PI and the Laser Safety Officer (LSO)

In the case of suspected eye injury from a laser, the LSO may require an eye examination by a qualified medical expert to evaluate laser induced eye injury.

## **Radiation Exposure**

Radiation Safety must be notified when surface contamination at or above **500 dpm/100cm<sup>2</sup> beta-gamma** or **10 dpm/100cm<sup>2</sup> alpha** is found in an accessible area.

The Radiation Safety team can assist with measuring/evaluation surface contamination or exposure. Call EH&S (541-713-SAFE) to report any potential contamination or exposure.

## **Biological Spills and Exposures**

Possible exposures to infectious or potentially infectious materials must be *promptly* reported to the Biological Safety Officer (541-713-SAFE).

### **Low Risk Spills (BSL-1 or non-infectious materials):**

1. Notify others in the area.
2. Remove any contaminated clothing and wash exposed skin with soap and water.
3. Clean up the spill using appropriate PPE and procedures (see [Response Guide](#) for BSL-1 and BSL-2 Laboratories and Recombinant DNA Laboratories on the EH&S website).

### **Higher Risk Spills (BSL-2)**

1. If agent poses an inhalation risk, leave the room. Notify others to leave and post a warning on the closed door.
2. If liquid spill has contaminated clothing, remove contaminated clothing, turn exposed areas inward and place in biohazard bag.
3. Wash all exposed skin with soap and water.
4. Inform the PI or supervisor and if assistance is needed, contact the Biological Safety Officer (541-713-SAFE).
5. Clean up the spill using appropriate PPE and procedures (see [Response Guide](#) for BSL-1 and BSL-2 Laboratories and Recombinant DNA Laboratories on the EH&S website).

### **Sharps Injuries**

In the event of an injury involving a sharp instrument or object, the following steps should be used:

1. Encourage bleeding of the wound, but do not directly massage the break in the skin.
2. Wash the wound *thoroughly* with hot water and soap, if available. If no hot water is available, use cold water.
3. Treat the wound with antiseptic from a first aid kit.
4. Report the accident to the principal investigator (PI) or supervisor.
5. Seek medical attention as appropriate.
  - a. A minor cut with uncontaminated sharps may not require medical attention; personnel should use their best judgment.
  - b. If the accident involves potential exposure to human blood or other human source material, then medical attention is *required*. Accidents where the contamination status of the offending sharp is unclear should be treated as an exposure to infectious material.
6. The PI or supervisor must complete a [Sharps Injury Log](#) report and return it to EH&S.

**BIOLOGICAL SPILLS, EXPOSURES, AND INCIDENTS (INCLUDES SHARPS INJURIES)**



## Chemical Spills or Exposures

***If there is a fire or serious injury associated with a spill, call 911 immediately for assistance.***

All chemical spills of more than 1 gallon of liquid or 1 pound of solid must be reported to EH&S immediately via Public Safety Dispatch (541-737-7000).

Before attempting to clean up a spill, make sure employees have proper and adequate:

- personal protective equipment
- spill treatment materials

**SMALL** or low-hazard spills (less than 1 gallon of liquid or 1 pound of solid chemical):

1. Assess the magnitude of the spill and the associated hazards (broken glass, toxic fumes, risk of fire, etc.).
2. If the hazards can be safely mitigated with available personal protective equipment (PPE), do so. This includes:
  - a. Informing co-workers of the spill,
  - b. Removing ignition sources, and
  - c. Moving equipment that may be damaged by the spilled chemicals.
3. Once all hazards have been assessed, put on appropriate PPE (goggles, body protection, gloves, impervious shoes/boots, etc.).
4. Apply chemical spill absorbents (e.g. Pig Pads) to the spill and give the pads time to absorb the chemical.
5. Use gloves and cardboard to move the used absorbents to a garbage bag.
6. Seal the garbage bag with a zip tie and label the bag with a Hazardous Waste Label.
7. Place the garbage bag in secondary containment (a cardboard box or plastic tote/bin) labeled "Hazardous Waste." Place the box in a location in the laboratory where EH&S personnel will easily find it.
8. Request a Hazardous Waste Pickup (<http://oregonstate.edu/ehs/waste>).
9. Replenish spill kit's contents ***immediately***.

**LARGE** or high-hazard spills (more than 1 gallon of liquid or 1 pound of solid chemical or particularly hazardous):

1. Call Public Safety Dispatch (541-737-7000) and tell them to contact the on-call EH&S personnel to respond to the spill.
2. Provide the following information:

- a. Your name and contact phone number,
  - b. Location of the spill (Building and room number),
  - c. Approximate volume of spilled liquid, and
  - d. Name of chemical.
3. **DO NOT** attempt to clean up large and/or hazardous chemical spills.
  4. Notify all other workers who could be affected by the spill and vacate the laboratory/floor/building, particularly if the chemical is explosive, produces hazardous vapors, or poses other potential health hazards.
  5. Wait at the building entrance for emergency response personnel.
  6. Serve as a point of contact and provide information about the spill as requested by emergency response personnel.

### **Spills Outside the Laboratory in Public Spaces**

Samples and Chemicals must be transported in secondary, leak-proof containers to minimize the potential for spills. However, if a spill does occur in a common hallway or public space and cannot be immediately decontaminated, cordon off the area, restrict access, and contact Public Safety Dispatch at 541-737-7000. Be sure to stay at the spill location, if safe to do so, until help arrives.










### **Laboratory Injuries:**

For minor medical attention, students may go to the OSU Student Health Service during daytime hours. Faculty and staff should go to the Corvallis Clinic Occupational Medicine or an urgent care center, and for injuries/exposures occurring after 8:00 PM or for serious injuries, go directly to an emergency room.

Always inform your supervisor when an injury occurs. Your supervisor will report the injury as soon as possible via the [Public Incident Reporting Form, HR Advocate](#).

# **CHEMICAL SPILLS OR EXPOSURES**

## Pictograms:

 <p><b>Explosive</b></p> <ul style="list-style-type: none"><li>• Explosives</li><li>• Self-reactive</li><li>• Organic Peroxides</li></ul>	 <p><b>Compressed Gas</b></p> <ul style="list-style-type: none"><li>• Gas under pressure</li></ul>	 <p><b>Health Hazard</b></p> <ul style="list-style-type: none"><li>• Carcinogen</li><li>• Mutagenicity</li><li>• Reproductive toxicity</li><li>• Respiratory sensitizer</li><li>• Target organ toxicity</li><li>• Aspiration toxicity</li></ul>
 <p><b>Flammable</b></p> <ul style="list-style-type: none"><li>• Pyrophorics</li><li>• Self-heating</li><li>• Emits Flammable Gas</li><li>• Self-reactive</li><li>• Organic Peroxides</li></ul>	 <p><b>Corrosive</b></p> <ul style="list-style-type: none"><li>• Skin Corrosion or Burns</li><li>• Eye Damage</li><li>• Corrosive to Metals</li></ul>	 <p><b>Harmful</b></p> <ul style="list-style-type: none"><li>• Irritant (skin and eye)</li><li>• Skin sensitizer</li><li>• Acute Toxicity</li><li>• Narcotic Effects</li><li>• Respiratory Tract Irritant</li></ul>
 <p><b>Oxidizer</b></p> <p>Examples:</p> <ul style="list-style-type: none"><li>• Nitric Acid</li><li>• Permanganates</li><li>• Nitrates</li></ul>	 <p><b>Environmental Hazard</b></p> <ul style="list-style-type: none"><li>• Aquatic toxicity</li><li>• Hazardous to Ozone Layer</li></ul>	 <p><b>Toxic</b></p> <p>Acute toxicity (Fatal)</p> <p>Examples:</p> <ul style="list-style-type: none"><li>• Formaldehyde solutions</li><li>• Cyanides</li><li>• Arsenics</li></ul>

## Labeling:

**SAMPLE LABEL**

CODE \_\_\_\_\_  
Product Name \_\_\_\_\_ } **Product Identifier**


Company Name \_\_\_\_\_  
Street Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ } **Supplier Identification**  
Postal Code \_\_\_\_\_ Country \_\_\_\_\_  
Emergency Phone Number \_\_\_\_\_

Keep container tightly closed. Store in a cool, well-ventilated place that is locked.  
Keep away from heat/sparks/open flame. No smoking.  
Only use non-sparking tools.  
Use explosion-proof electrical equipment.  
Take precautionary measures against static discharge.  
Ground and bond container and receiving equipment.  
Do not breathe vapors.  
Wear protective gloves.  
Do not eat, drink or smoke when using this product.  
Wash hands thoroughly after handling.  
Dispose of in accordance with local, regional, national, international regulations as specified.

**In Case of Fire:** use dry chemical (BC) or Carbon Dioxide (CO<sub>2</sub>) fire extinguisher to extinguish.

**First Aid**  
If exposed call Poison Center.  
If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

**Hazard Pictograms**



**Signal Word**  
**Danger**

Highly flammable liquid and vapor.  
May cause liver and kidney damage. } **Hazard Statements**

**Precautionary Statements**

**Supplemental Information**

Directions for Use  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Fill weight: \_\_\_\_\_ Lot Number: \_\_\_\_\_  
Gross weight: \_\_\_\_\_ Fill Date: \_\_\_\_\_  
Expiration Date: \_\_\_\_\_

## Safety Data Sheets (SDS):

Employers must ensure that SDSs are readily accessible to employees.

To access Safety Data Sheets for chemicals in your lab, you can access the MSDS Online program through OSU at [ehs.oregonstate.edu/sds](https://ehs.oregonstate.edu/sds). Search for specific chemicals (including the manufacturer) and find PDF versions of Safety Data Sheets.

### Location of Safety Data Sheets for my laboratory:

---

## HAZARD COMMUNICATION