

Focus Sheet / Mercury Spills

Responding to Mercury Spills

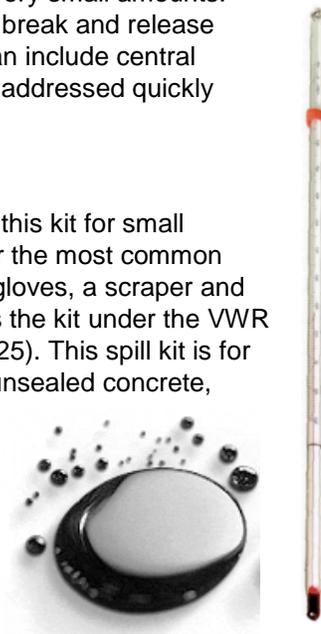
Elemental mercury is a potent neurotoxin that can cause adverse health effects in very small amounts. People can be exposed to mercury if instruments or equipment containing mercury break and release mercury-containing dust, liquid, or vapor. Health effects from mercury exposures can include central nervous system disorders, reproductive effects and kidney damage. Spills must be addressed quickly and completely by following safe cleanup procedures.

Mercury Spill Kits

VWR carries a custom mercury spill kit (VWR part # 470221-666). EH&S designed this kit for small elemental mercury spills, such as those from a broken mercury thermometer (by far the most common type of mercury spill.) It contains mercury absorbent powder, a syringe, a sponge, gloves, a scraper and waste labels. It costs about \$30. Biochemistry Stores (Health Science J014) carries the kit under the VWR part number. Chemistry Stockroom (Bagley room 36) also carries this kit (part # 4225). This spill kit is for one-time use and is not useful for large spills or spills on porous surfaces such as unsealed concrete, carpet or fabric (see “Difficult to manage mercury spills” below).

Never do the following when cleaning up a mercury spill:

- **Never walk around in an area that is contaminated with mercury. Mercury is easily spread and the spill area may not be easily identified. Contaminated clothing can also spread mercury to other locations.**
- **Never use an ordinary vacuum cleaner to clean up mercury. The vacuum will put mercury vapor into the air and increase exposure. The vacuum cleaner will be contaminated and will have to be disposed of as hazardous waste.**
- **Never use a broom to clean up mercury. It will break the mercury into smaller droplets and spread them over the spill area.**
- **Never pour mercury down a drain.**
- **Never wash mercury-contaminated items in a washing machine. Mercury may contaminate the machine and/or pollute the water system.**



Spill cleanup instructions for small manageable mercury spills

If you are trained to manage a small mercury spill on a smooth surface, such as a thermometer break on a linoleum floor, follow these directions carefully using your mercury spill kit.

Initial Steps

1. Keep everyone away from the room to prevent the spread of contamination. Mark or tape off the spill area to prevent others from walking through or touching the spill. Close any doors to isolate the room as long as you can do so without walking through the spill. Post sign(s) to not enter the area. Notify supervisor and others that use the area.
2. Before exiting the room, look for mercury on clothing and the bottom of shoes. Remove all contaminated shoes and clothing and double-bag it. EH&S will monitor clothing and shoes for contamination after the cleanup is complete.
3. If you or anyone has come in contact with mercury or suspect that you have been contaminated, shower or at least wash thoroughly before changing into fresh clothes.

Cleanup Procedures

- Put on nitrile gloves, a lab coat and eye protection. Put on disposable, non-porous shoe covers (plastic bags may work for this). Never walk around in a contaminated area without shoe covers.
- Inspect the area to determine extent of contamination. Use a flashlight to look for mercury beads. The light will reflect off shiny mercury beads to make it easier to see them. Start at least one foot behind where you believe the contamination starts. Turning off lights in the room may help to see the droplets. If you cannot find the mercury, contact EH&S at 206.543.0467 for assistance.
- Contain the spill to as small of an area as possible. Prevent it from spreading into drains, cracks or crevices, onto sloped or porous surfaces, or any other inaccessible areas. Do not sweep with a broom or use a household vacuum to manage the spill. Do not let mercury go down a drain.
- Work from the outside of the spill area to the center of the spill area. Using a scraper to push scattered mercury beads together into larger droplets. Aspirate the larger mercury droplets with the syringe aspirator and place them into a waste Ziploc bag or screw top container.
- If the spill involves glass pieces, such as from a glass thermometer, carefully place them on paper towel, fold up and place in same waste bag or container as the mercury droplets.
- Sprinkle mercury absorbent powder lightly over area to absorb the smallest mercury droplets. Spray a water mist over the powder.
- Using the scraper, mix the materials into a paste, and scoop up the paste. Wipe down the surfaces with the dampened sponge.
- Bag shoes or clothing that may be contaminated. EH&S will use monitoring equipment to determine if clothing and shoes are contaminated with mercury.
- Place the paste, sponge, scraper, scoop, shoe covers, gloves and all other mercury contaminated debris into the waste Ziploc bag. Tape the sharp ends of the broken glass thermometer before placing it in the waste bag. Seal the bag and place it inside of another plastic bag or place the waste bag inside of a plastic bucket with lid.
- Wash your hands. Shower if other parts of your body may have come into direct contact with mercury.
- Label the outer bag or container with a UW hazardous waste label. Identify the waste as "mercury thermometer spill debris". Complete either an [Online Chemical Waste Collection Request](#) or a [Chemical Collection Request Form](#) (PDF). Email the form to chmwaste@uw.edu.
- Submit the [Online Accident Reporting System \(OARS\)](#) form to EH&S within 24 hours (8 hours if serious injury or hospitalization) regardless of the size of the spill and regardless if injuries occurred or not.
- Before assuming the shoes, equipment or the floor is clean, contact EH&S at 206.543.7388 (M-F/8-5) to request air monitoring. Even trace amounts of mercury left behind may result in mercury vapor concentrations above regulated exposure limits in your workplace. A spill contractor may be necessary in larger spills or spills impacting hard to reach areas. If a spill contractor is needed call the EH&S spill line at 206.543.0467 for assistance.

Difficult to manage mercury spills

| Type of Mercury Spill | Initial Steps |
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| <ul style="list-style-type: none"> Spills on Porous Surfaces¹ Large Spills² Spills in Common Areas or Corridors | <ol style="list-style-type: none"> Keep everyone away from the room to prevent the spread of contamination. Mark or tape off the spill area to prevent others from walking through or touching the spill. Close any doors to isolate the room as long as you can do so without walking through the spill. Post sign(s) to not enter the area. Notify supervisor and others that use the area. Before exiting the room, look for mercury on clothing and the bottom of shoes. Remove all contaminated shoes and clothing and double-bag it. EH&S will monitor clothing and shoes for contamination after the cleanup is complete. If you or anyone has come in contact with mercury or suspect that you have been contaminated, shower or at least wash thoroughly before changing into fresh clothes. |
| <ul style="list-style-type: none"> Heated Spills | <ol style="list-style-type: none"> Shut off the equipment. If the equipment is small enough, place it in a fume hood. Leave the area immediately. |

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| | 2. Close any doors to isolate the room as long as you can do so without walking through the spill. Post sign(s) to not enter the area. Notify supervisor and others that use the area. |
| <ul style="list-style-type: none"> • Spills into Drains | <ol style="list-style-type: none"> 1. Shut off water to the sink or drain. Cover or plug the drain if possible. 2. Mark or tape off the spill area to prevent others from using the sink or drain. Post sign(s) to not enter the area or use the sink or drain. Notify supervisor and others that use the area. |

¹Porous surfaces include carpeting, fabrics, unfinished wood, unsealed concrete, or similar surfaces. Mercury cannot be completely removed from carpeting. The contaminated carpeting must be carefully removed and disposed of as hazardous waste.

²A large spill is a quantity larger than the amount of mercury in a laboratory thermometer.

| Next Steps: Contact EH&S | |
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| 1. | On UW Seattle campus, call EH&S at 206.543.0467 (M-F/8-5) or off hours, call UWPD at 911 from a campus phone. At medical centers and other locations follow internal emergency procedures. EH&S will work with the lab, equipment manufacturer, spill contractor or others to complete cleanup. Before cleanup is initiated and as needed, EH&S will arrange for a cleanup contractor to conduct mercury vapor monitoring. |
| 2. | After cleanup, EH&S will arrange for post-cleanup monitoring to ensure the cleanup was thorough. Even trace amounts of mercury left behind may result in mercury vapor concentrations above regulated exposure limits. |
| 3. | Any spill incident requires the involved person or supervisor to complete and submit the Online Accident Reporting System (OARS) form to EH&S within 24 hours (8 hours if serious injury or hospitalization). |

Alternatives to mercury thermometers

Inexpensive and safe non-mercury thermometers are widely available, and EH&S recommends their use whenever possible. EH&S is aware that research sometimes requires the use of mercury thermometers such as work with very high temperature applications (greater than 260°C/500°F), ASTM tests, and equipment-specific mercury thermometers.

EH&S thermometer exchange

Recycle your mercury-filled thermometers through EH&S; we'll deliver one alcohol-filled thermometer for free in exchange. Our alcohol thermometers are semi-submersible and measure from -20 to 110°C to within 1°. They perform most routine laboratory functions that mercury thermometers are used for, such as measuring the temperature of water baths or ambient air. And when you drop one, all you have to do is wipe up the liquid and place the broken glass in your lab glass waste bin.

To get a free alcohol thermometer, request collection of your mercury thermometers by using a [Mercury Thermometer Swap Request](#) on the EH&S website. Write in the number of thermometers you have for pickup, and ask for your free alcohol thermometer. (This offer does not apply to UWMC and HMC, which have their own mercury-free mandates and purchasing plans.) We offer only one alcohol thermometer per location, but we encourage you to replace all your thermometers. The Chemistry Stockroom, Biochemistry Stores and VWR all sell basic thermometers for about \$6. Keep in mind that if you keep mercury thermometers or other mercury-filled equipment, you must have a mercury spill kit.

For more information about mercury hazards and spill response, including mercury-containing fluorescent and other lights, see the EH&S website at <https://www.ehs.washington.edu/epo/spills/hgspills.shtm>.

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| <p>Environmental Health and Safety Environmental Programs 201 Hall Health Center, Box 354400 Seattle, Washington 98195-4400 206.616.5835 FAX 206.685.2915 www.ehs.washington.edu</p> |
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For copies of this and other EH&S focus sheets, visit <http://www.ehs.washington.edu> or call 206.543.7262.

