Missouri Department of Natural Resources

Mercury Risks - Cleaning Up Small Spills

Hazardous Waste Program 9/2008

Mercury

Mercury is a naturally occurring element found in trace amounts in rocks, minerals, soils and the atmosphere. It is the only heavy metal that is liquid at room temperature. In the elemental form, mercury can vaporize with increasing temperature. Other forms of mercury include inorganic such as mercury salts and organic forms, such as methyl mercury.

The amount of mercury found in the atmosphere, soil and water has increased during the last hundred years due to human activities. Each year in the United States, 150 tons of mercury is emitted into the atmosphere. More than 50 tons is emitted by coal fired power plants alone. Waste incineration and improperly disposed of mercury products are responsible for the rest of the mercury released into the environment.

When mercury is exposed to the air, or heated, it is released into the atmosphere. Rainfall or snowmelt then carries the mercury into lakes and waterways. Once in the water, bacteria converts elemental mercury to methyl mercury. In this form, mercury accumulates in the tissues of some fish. When humans or other animals eat the fish, the mercury becomes a health risk. Mercury poisoning attacks the central nervous system in all humans. Unborn children and children under the age of 12 are at the highest risk, because their nervous system is still developing.

The greatest risk of exposure from elemental mercury in products such as fever thermometers is improper handling and disposal of spilled mercury. Mercury volatizes quickly and is easily inhaled. Improper clean up with a vacuum, paintbrush or household cleaner increases exposure. Indoor air may be contaminated by mercury vapor from a broken fever thermometer, or other products that have gone unnoticed, or improperly cleaned up. At a high level, mercury can cause damage to the central nervous system, tremors, inability to walk, convulsions and even death.

Mercury is used in many items such as thermometers, barometers, switches, thermostats and fluorescent lamps. Most of these items can be replaced with mercury-free (or lower-mercury) alternatives. Although hazardous waste generated from a single family dwelling can legally be disposed in the trash, the best practice is to dispose of your waste at an Household Hazardous Waste collection event or permanent collection facilities. Visit the department's Web site to find a facility at dnr.mo.gov/env/swmp/hhw/hhw.htm. The department has additional information regarding mercury on its Web site at www.dnr.mo.gov/env/mercury.htm.

Cleaning up Small Spills

A small spill is essentially the amount of mercury found in a fever thermometer. Metallic mercury is liquid at room temperature and has no odor, but some of the metal will evaporate into the air and can be carried long distances. Because mercury is toxic when inhaled, you must be careful when handling and disposing of all items that contain metallic mercury. If you break a thermometer, do not panic. The amount of mercury contained in an oral thermometer is small and does not present an immediate threat to human health.

However, if it is not properly cleaned up and disposed of, it may present a health risk over time, particularly to children less than 12 years old and pregnant women.

If small amounts of mercury are spilled in a room:

1. Evacuate the spill area. Leave all shoes, clothing and other articles that were splashed with mercury at the spill site.
2. Wash skin exposed to mercury with soap and water.
3. Turn off heating/air conditioning to prevent mercury vapors from being spread throughout the building.
4. Isolate the spill site by closing interior doors.
5. Ventilate the spill area to the outdoors by opening outside windows for passive ventilation. If a window fan is available, use it as an exhaust fan to provide active ventilation to the outdoors.
6. Assemble cleanup supplies. If a mercury spill kit is not readily available, use the following items:
    - Rubber, nitrile, or vinyl gloves.
    - Safety glasses.
    - Eye dropper or syringe without a needle.
    - Playing cards.
    - Rubber squeegee.
    - Duct tape or other heavy duty tape.
    - Plastic container with lid or heavy duty ziplock bags.
    - Flashlight.

NEVER USE A VACUUM CLEANER OR BROOM TO CLEAN UP A MERCURY SPILL.
A vacuum cleaner will vaporize mercury and disperse it to the air, creating a worse hazard. A broom will break mercury into smaller beads, making it more difficult to clean up.

7. Dress appropriately. Remove jewelry from hands and wrists so the mercury does not combine (amalgamate) with other metals. Put on protective gloves and safety glasses. Wear old clothes that can be discarded if they become contaminated.
8. Inspect the spill site with a bright flashlight (the mercury beads shine like mirrors).
9. Pick up the mercury drops using one or more techniques:
    - If a commercial mercury spill kit is available, follow the manufacturer's instructions to clean up the mercury.
    - If a spill kit is not available carefully use a squeegee or playing cards to combine the beads and concentrate the spill into as small an area as practical.
      Be very careful – mercury beads roll easily on a hard surface.
10. Use an eyedropper or syringe to suck up the beads. Put the beads in a plastic container, zip-lock bag, 35mm film cannister or other appropriate small container. Or use the sticky side of duct tape to grab the beads. Put the tape and beads into a zip-lock bag or other appropriat3e container. Once all the visible mercury beads have been picked up, reinspect the area with a flashlight to look for more beads that may have migrated to any cracks, baseboards, etc. Continue cleaning up until all visible mercury has been removed.

11. Double bag all mercury-contaminated materials using heavy-duty zip-lock bags.
12. If carpet has been contaminated, it may be necessary to remove it for disposal, depending upon the amount of mercury spilled.
    - Continue to ventilate the spill area to the outdoors for at least 24 hours after clean up has been completed.
13. Once cleanup is complete, again wash skin exposed to mercury with soap and water.

DO NOT DUMP MERCURY DOWN THE DRAIN OR INTO THE TRASH. Call the Missouri Department of Natural Resources' Environmental Emergency Response's 24-hour hotline at **573-634-2436**. Staff can provide technical assistance with any cleanup or disposal questions. On-scene cleanup and air monitoring assistance may be provided for larger mercury spills. The department may also provide direct assistance with disposal of elemental mercury. Do not hesitate to call the hotline with questions about mercury spills.

The law requires you to report any mercury spill greater than one pound, which equals the amount contained in about two tablespoons. To report a mercury spill, call the department's hotline listed above.

For larger mercury spills, follow the preliminary evacuation and isolation steps 1 through 5 and call the department's hotline number for on-scene cleanup assistance.

For more information call or write:

Missouri Department of Natural Resources
Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102-0176
800-361-4827 or 573-751-6822 office
573-526-8922 fax
dnr.mo.gov/env/hwp/index.html