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Mercury Awareness for School Teachers

In 2007, the State of Ohio enacted a new law, House Bill 443, (www.epa.state.oh.us/ocapp/p2/mercury_pbt/fact115.pdf) and policies on mercury. All Ohio schools through the 12th grade may no longer purchase mercury, mercury compounds, or mercury-containing measuring devices for classroom use. The sale of mercury-containing thermometers and novelty items are also banned. In addition, the Ohio Department of Health has also developed rules, under House Bill 203, promoting the removal of mercury, mercury compounds and measuring devices from school premises.

What is mercury?

Mercury is a silvery liquid metal at room temperature. Mercury conducts electricity, expands uniformly with temperature and easily forms alloys with other metals. For this reason, it is used in many products found in homes and schools. Mercury is also an element that occurs naturally in the earth's surface. It does not degrade and is not destroyed by combustion. Instead, mercury changes into a vapor that can travel long distances. Mercury cycles between soils, the atmosphere and surface waters. It is toxic and can endanger living organisms and produce adverse health effects in humans. Organic



mercury, especially methylmercury, can accumulate in tissue and increase its toxicity as it moves up the food chain.

Why is mercury a concern?

There have been several incidents involving mercury spilled in schools, school buses or school property that cause alarm and require cleanup. Sometimes mercury comes from inside the school, and sometimes mercury is brought into the school from the community. Mercury that is spilled or spread through a school creates an immediate health issue, and may require expensive cleanup and monitoring.

Spilled mercury can evaporate at room temperature and easily be inhaled by the room occupants. Spilled mercury can spread long distances and settle in cracks and porous materials like cloth, carpet or wood, slowly emitting vapors over a long period of time. Mercury vapors are colorless, odorless and tasteless. Short term exposure to a concentration of mercury or

mercury vapors can lead to nausea, shortness of breath, bronchitis, migraine headaches and fatigue. Long-term exposure to mercury can result in damage to the nervous system, kidneys and liver; symptoms include shakiness, tremors, numbness in the fingers and toes, loss of muscle control, memory loss and kidney disease. Children (through age 15), developing fetuses and women of childbearing age are the most at risk for mercury poisoning. Mercury should be handled carefully, especially around children.

Mercury is a concern in the environment. Improper disposal of mercury-containing products is one way that mercury is released into the air, land and water. Mercury easily enters its vapor form, and can travel long distances. Mercury that reaches lakes, rivers and streams can be converted into methylmercury by organisms in the water. Methylmercury builds up in wildlife tissue, especially in fish. As larger fish eat smaller fish, the mercury concentrates the farther it travels up the food chain. Methylmercury can move up the food chain and create a risk for human consumption of fish. Current information about Ohio's statewide



Mercury Awareness for School Teachers

fish advisory for mercury is available at www.epa.state.oh.us/dsw/fishadvisory/index.html.

What can schools and teachers do to reduce the presence of mercury in schools?

- Help educate students, other teachers and administrators about the health hazards and environmental fate of mercury.
- Promote proper management and recycling of mercury and mercury-containing products, and eliminate the use of mercury wherever possible at schools.
- Prevent mercury spills and know what to do if a spill occurs.
- Promote the use of alternative products that do not contain mercury.
- Promote energy efficiency.



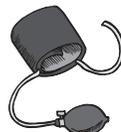
Mercury Issues for School Administrators (www.epa.state.oh.us/ocapp/p2/mercury_pbt/School%20Guide.pdf) has information to answer the specific questions of school teachers and administrators, including:

- Health impacts of elemental mercury;
- State law and policy;
- Recommended school use and purchasing policy and management plans;
- Where mercury is found in schools, by location, classroom and subject, and alternatives;
- Handling, management, and disposal of mercury-added products;
- What to do before, during and after a mercury spill; and
- Other resources for schools

Reduce the use of mercury and mercury-containing products

Mercury can be found in a lot of places in schools, some obvious and some you would not expect. Some of the places that mercury may be found include:

- laboratory equipment,
- thermometers,
- thermostats,
- art classrooms,
- nurses' office,
- high intensity discharge (HID) lamps over the gym or parking lot,

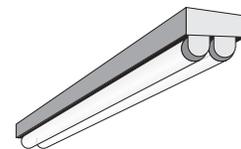


- button cell batteries,
- old microwave ovens,
- in latex paint produced before 1992, and
- in pesticides produced before 1994.

Ohio EPA recommends that schools to replace mercury-containing equipment or choose to purchase products that contain less mercury to reduce the long-term impact on the environment. There are alternatives for almost every use and product that uses mercury.

The Guide to Mercury Issues for School Administrators (www.epa.state.oh.us/ocapp/p2/mercury_pbt/School%20Guide.pdf) provides many examples of more environmentally friendly alternatives. If mercury was used in experiments, often it is possible to use other chemicals to illustrate the same chemistry principles or have a recording of the mercury experiment to share with the class.

Fluorescent lamps do currently contain mercury, but there are low-mercury versions readily available. On the other hand, the greater energy efficiency of fluorescent lamps reduces the amount of mercury discharged by power plants.



Learn more about mercury

Teachers can educate students about mercury by including it as part of their science lesson plans. There are several resources available for teachers. The Mercury in Schools Pollution Prevention Project (www.mercuryinschools.uwex.edu) has materials and exercises for the classroom and Ohio's Guide to



Mercury Awareness for School Teachers

Energy efficiency



Electricity generation by power plants is currently the largest source of mercury emissions in the United States. Practicing energy conservation at your school, by using energy-efficient products and practices, can save money and help reduce emissions of mercury and other pollutants, such as carbon dioxide, sulphur oxides, and nitrogen oxides.

Proper management and retirement of mercury-containing devices

Many mercury-containing products can be recycled. Mercury metal, thermostats, batteries, thermometers and fluorescent lights are some products that can be safely recycled. Mercury recycling companies are listed on Ohio EPA's Web page at www.epa.state.oh.us/ocapp/p2/recyc/mercrec.html. Bowling Green State University's Mercury Collection Program (www.bgsu.edu/offices/envhs/page18364.html or phone (419) 372-2173) will pick up mercury or retired mercury-containing devices free of charge anywhere in Ohio. If these products are not recycled, they may have to be disposed as hazardous waste.

Other products such as older mercury-containing latex paints and pesticides must be disposed as hazardous waste. Always properly dispose of mercury and mercury-containing products.

In case of a spill

By monitoring, properly maintaining mercury products and replacing them with mercury-free alternatives, the risk of a mercury spill is greatly reduced. If a spill does occur, it is important to have a plan to address it. See Ohio Guide to Mercury Issues for School Administrators for information on creating a plan.



The safest and best way to clean up a mercury spill is by hiring a licensed professional contractor.

When mercury spills or an item containing mercury breaks, carefully evacuate the area around the spill and move students to a different room. Follow your mercury spill plan. Some general tips for handling mercury spills include:

- Mercury and its vapors are very difficult to remove from items such as clothes, carpet, floors, walls and furniture.

- Keep everyone away from the area to prevent them from inhaling the mercury, since it can evaporate quickly.
- Never wear shoes or clothing that are contaminated with mercury, since it is absorbed in cloth and easily spread from one place to another.
- If possible, open windows to ventilate the spill area to the outdoors.
- Close the doors and place signs prohibiting entry on the entrances to the impacted rooms.
- Contact the school maintenance personnel to turn off heating, air-conditioning systems and fans. This will help avoid circulating contaminated air to other rooms.
- **NEVER** clean up a spill with a vacuum cleaner. This contaminates the vacuum and circulates some mercury into the air.
- **DO NOT** use brooms or paintbrushes to clean up, since mercury will disperse into smaller beads and be harder to collect.

Never pour mercury down a drain! Mercury may sit in pipes for a long time and continue to be a hazard.

Mercury Awareness for School Teachers

The Ohio Department of Health has a fact sheet on what to do if mercury spills at school. The Web page is located at www.epa.state.oh.us/opp/merc_school_FS.html.

Numbers to have available in case of a mercury spill

1. Local fire department: **911**
2. Local health department, phone: _____
3. Ohio EPA Spill Hotline: **(800) 282-9378**

Where can I get more information?

For more information about mercury contact the Office of Compliance Assistance and Pollution Prevention at (800) 329-7518, by e-mail at p2mail@epa.state.oh.us, or at Ohio EPA's mercury reduction Web page, www.epa.state.oh.us/ocapp/p2/mercury_pbt/mercury.html.