Action Steps for Science Teachers

- Do not use elemental mercury for demonstrations. Non-mercury experiments can effectively demonstrate scientific concepts such as density, pressure and spectral signatures. There are alternatives available to show students mercury's properties--for example, a video or slide presentation. And, New York State Regents examinations are not prepared with the expectation that students will have had hands-on access to mercury.
- Identify mercury sources you have on hand. Prevent spills by storing those items in secure locations until they can be properly disposed of or recycled. Make sure mercury-containing products are well protected against breakage. Double bag any item containing liquid mercury by placing it in two plastic bags, one inside the other. Tape each plastic bag securely and place the item in a covered, non-breakable container such as a plastic bucket. Label the container "Mercury-Containing Devices" and store the container in a locked cabinet or room until disposed of or recycled.
- Purchase and use only mercury-free devices and equipment for your classrooms. (Refer to "Facility-Wide Inventory of Mercury and Mercury-Containing Devices," for suggestions.) Manufacturer and supplier representatives can help identify devices with mercury and non-mercury models.
- Be part of a team to conduct an inventory of mercury sources in the school. A school-based team might include representatives from science classrooms, buildings and grounds, the school nurse's office, BOCES, your school's Parent Teacher Association (PTA) and the school health and safety committee.
- An inventory tool has been developed for your use. (See "Facility-Wide Inventory of Mercury and Mercury-Containing Devices.") When conducting an inventory, make a special effort to search for containers of liquid mercury. They may have been used for demonstrations and might be found in science classrooms or storerooms. Use the results of the inventory to set priorities for proper disposal/recycling and prompt replacement of items most vulnerable to breaking and spilling.
- Work with your team to develop a mercury spill response plan. While not required, a spill response plan might fit well as an appendix to your school's building-level emergency plan. Make sure school staff know their role and whom to contact in the event of a spill. Your response plan should include elements that deal with roles and responsibilities, staff training, evacuation, ventilation, ways to prevent tracking, contamination, decontamination, spill reporting, disposal/recycling and parental notification.
- Learn about proper disposal/recycling of mercury-containing products and cost-effective options. Schools should NOT throw them out in the trash! (Refer to "Disposal and Recycling Options for Mercury and Mercury-Containing Devices" for more information.) Clothing and other items directly contaminated by mercury must be disposed of as hazardous waste.

Contact names and numbers

For health questions or to get more brochures:

New York State Department of Health (NYSDOH)
(800) 458-1158 or e-mail at ceheduc@health.state.ny.us
http://www.health.state.ny.us/nysdoh/environ/hsees/mercury/index.htm

For questions about recycling and disposal:

New York State Department of Environmental Conservation (NYSDEC)
Division of Solid and Hazardous Materials
(518) 402-8633
NYSDEC Small Quantity Generator Helpline
(800) 462-6553
www.dec.ny.gov

To report a spill:

NYSDEC Spill Cleanup and Reporting Hotline
(800) 457-7362

For additional information:

NYSDEC Division of Environmental Permits, Pollution Prevention Unit
(518) 402-9469
www.dec.ny.gov

In New York City:

To report a mercury spill in a NYC Public School or to get more information about mercury, call the Department of Education Office of Environmental Health and Safety at (718) 361-3808.

To report a mercury spill in a private NYC school call 3-1-1 and ask to be connected to the Department of Environmental Protection (DEP) HazMat.

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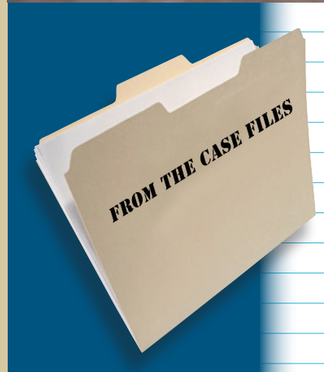
NOTE:

These brochures are intended to provide information and lessons learned. They are not intended to replace school district requirements for training and personal protective equipment.



This is a true story. It could happen in your school or your community.

An ordinary Tuesday turned out to be anything but ordinary when secondary school staff were notified that some sixth graders had gotten their hands on a small bottle of mercury...

...The mercury, in a storage closet for probably 20 years, had spilled in the science classroom. At least 20 people were temporarily evacuated from that section of the building, and a dozen students required decontamination. The school consulted with a Poison Control Center, the local health department, Board of Cooperative Educational Services (BOCES), NYS Department of Health and others about cleanup issues and health concerns. The room was restricted for several more days during cleanup.

New York State Hazardous Substances Emergency Events Surveillance (HSEES) database, US Agency for Toxic Substances and Disease Registry (ATSDR).

As a science education professional, you know about elemental mercury's physical properties and understand why mercury is so well suited for hands-on demonstrations to students. You may have already taken steps to prevent mercury spills in your classrooms, as many of your colleagues have done. Despite an increased awareness in the science community about the dangers of mercury in school settings, elemental mercury spills are still occurring.

Reducing mercury in schools is an important goal for science teachers, buildings and grounds personnel, health and safety committees, school boards, superintendents, principals, school nurses, parents and students. This brochure will help you find mercury sources in your school and avoid potential spills.

Brochures in this series

- Mercury and Schools: A Risky Combination
- Reducing Mercury in Schools: Superintendents, Principals, and School Boards
- Reducing Mercury in Schools: Science Teachers
- Reducing Mercury in Schools: Buildings and Grounds Superintendents
- Reducing Mercury in Schools: Health and Safety Committees
- Reducing Mercury in Schools: School Nurses
- Facility-Wide Inventory of Mercury and Mercury-Containing Devices
- Guidelines for Cleanup of Mercury Spills
- Disposal and Recycling Options for Mercury and Mercury-Containing Devices

What is Mercury?

Mercury is an element that occurs naturally in the earth's surface. The form of mercury that poses an exposure concern in schools is known as elemental mercury, or simply, mercury. Mercury is a silvery, liquid metal that releases mercury vapor into the indoor air at room temperature. It is fascinating to children because it easily breaks up into many smaller droplets.

Mercury is a concern for human health and for the environment. It does not degrade and is not destroyed by burning, which is why proper disposal and recycling are essential.

Mercury Exposure is a Health Concern

Spilled liquid mercury is a health concern. The central nervous system is probably the most sensitive target organ for mercury vapor exposure. Mercury vapors can affect different areas of the brain, resulting in a variety of symptoms. Some symptoms from exposure to high levels of mercury vapor, or from long-term exposure to low levels, can include memory loss, headache, sleeplessness, irritability and tremors. Short-term exposure to high levels can also cause coughing, shortness of breath, chest pain, nausea, vomiting, diarrhea, fever, high blood pressure and skin rashes. Young children's exposure to mercury is of particular concern because their nervous systems are still developing.

Exposure to elemental mercury can occur by breathing mercury vapors, eating or swallowing contaminated food or drinks, or having skin contact with liquid mercury. After a spill, the primary health concern is from breathing in mercury vapors. Since mercury vapor is colorless and odorless, people are not aware that the indoor air contains mercury or that they are breathing mercury vapor. The exposure can last a long time if the spill is not properly cleaned up. Just a few drops of mercury can produce harmful vapor levels in enclosed spaces such as rooms or vehicles.

The State Health Department recommends that containers of elemental mercury identified by staff or found during an inventory be given the highest priority for removal. Should a spill occur, many individuals could be exposed resulting in health effects, significant cleanup costs and widespread environmental contamination.
Legislation banning the purchase or use of elemental mercury in primary and secondary schools in New York State became effective September 4, 2004. Check with the Office of Facilities Planning in the State Education Department (518-474-3906) or, in NYC, the Office of Environmental Health and Safety in the Department of Education (718-361-3808) for the latest information about this and other initiatives for removing mercury from schools.

Mercury Sources in Schools

Instruments containing mercury can be found virtually anywhere on school property – in the nurse's office, science rooms, gymnasiums, art rooms and boiler rooms. Liquid mercury is used in instruments that measure temperature (thermometers), pressure (barometers or sphygmomanometers), humidity (hygrometers), vacuum (laboratory manometers), flow (water meters) and air speed (anemometers). Mercury can also be found in lights (particularly gymnasium and fluorescent lights), thermostats, heating/ventilation and air conditioning (HVAC) systems, plumbing systems, cafeteria equipment, medical devices, regulators, gauges and science room equipment.

Mercury and mercury-containing devices can be found in various science classrooms in numerous types of instruments, such as lab thermometers, sling psychrometers, mercury spectral tubes, mercury switches or molecular motion demonstration devices.

Sometimes children or adults who are unaware of the hazard bring mercury into schools as a novelty, for demonstrations or as part of cultural rituals. Contractors, guest speakers, parents, staff or students might bring mercury-containing devices into the school.

If Mercury Spills

Never use a vacuum cleaner, mop or broom to clean up a mercury spill! Heat from the vacuum's motor will increase the amount of mercury vapor in the air. Mops and brooms will spread the mercury, making proper cleanup more difficult and costly. The vacuum cleaner, mop or broom will become contaminated and require disposal as hazardous waste. If you do not know the cleanup protocols, do not attempt to clean up a mercury spill because you might spread the contamination.

If you are considered the expert, make sure your information is current. (Refer to the brochure "Guidelines for Cleanup of Mercury Spills," for more information.) A quick call for guidance can prevent a minor spill from becoming a big problem and can ensure you meet any reporting requirements as well. Cleanup of spills even as small as the amount in a fever thermometer requires some training and the right tools. Contact your district BOCES or local health department for additional guidance. Advise your superintendent that the local health department should be apprised of a spill and that reporting most spills to the New York State Department of Environmental Conservation (NYSDEC) is required.