

# GUIDELINES FOR THE SAFE CLEAN-UP OF HOUSEHOLD MERCURY SPILLS

## Mercury

Mercury (Hg) is a dense silver-grey liquid and is the only metal that exists in a liquid state at room temperature. It is a natural element that can be found in soil, air and water. The amount of mercury that is normally present in the environment is small and will not hurt us. However, in recent years, it has come to be seen as a serious environmental pollutant due to the introduction of man-made sources.



There are potentially serious health hazards associated with mercury spills, particularly when mercury vapours are inadvertently inhaled. Mercury vapour in the air is odourless, colourless and toxic. Therefore, it is important to know what to do in the event of a household mercury spill such as the release of mercury from a broken mercury fever thermometer. **The small amount of mercury in a fever thermometer, thermostat or fluorescent bulb is not likely to cause serious health problems, but it should be cleaned up properly.**

This article reviews what to do in the event of a household mercury spill.

## Sources of Mercury in the Home

You may be surprised to learn that mercury can be found in a variety of household items such as:



**Mercury Fever Thermometers** (0.5 - 1.5 grams )

- Some blood pressure devices (103 grams Hg)
- Home chemistry sets
- Mercury switches sump pumps
- Mercurochrome (antiseptics)
- Some barometers and some electrical switches



**Thermostats** (3.0 grams)



**Flourescent Light Bulbs**  
(12 milligrams)

- Some athletic shoes, toys and cards that light up or make noise
- Mercury metal brought home from work as a novelty item

Although concerns about mercury releases and their impacts on the environment have led to significant reductions in mercury in many products, it still makes good environmental sense to use some products which contain mercury. For instance, fluorescent bulbs remain an excellent lighting choice for the environment because they last longer and use 50 percent less energy than incandescent bulbs.

## **The Problem with Mercury**

Mercury is toxic to both humans and wildlife. Mercury attacks the nervous system and can cause tremors, impaired vision and hearing. In large doses, mercury can be fatal. Fetal exposure to the metal has been shown to contribute to birth defects. In 2000, 48 calls were received from Prince Edward Island and Nova Scotia by the Poison Control Centre in Halifax regarding metal (including mercury) poisoning. In 1998, the poison centres across the United States received 18,000 calls regarding broken mercury fever thermometers.

Just 0.5 grams of mercury, the amount found in most thermometers, is sufficient to contaminate 22.7 million litres (5 million gallons) of water, enough water to fill nearly 200 Olympic-sized swimming pools.

When liquid mercury is spilled, it forms tiny droplets that can accumulate in the smallest of places. These droplets can emit toxic vapours into the air that we cannot see or smell. People have been poisoned from mercury spills in the home which have not been properly cleaned up.

## **How Large Is the Mercury Spill?**

Most household spills will likely be from products that contain a few milligrams to 3.0 grams of mercury. A broken mercury fever thermometer may release 0.5 to 1.5 grams in a spill. Spills of this size can be safely handled by the homeowner if the cleanup is done properly.



If the spill involves a large area, is in cracks and crevices or other difficult to clean places, or is on items such as wall-to-wall carpeting or upholstery, it is recommended that you consider hiring a contractor skilled in mercury cleanup. **All large spills, anything over 10 grams, should** be cleaned up by an experienced contractor. Check your homeowners' insurance policy to see if cleanup costs are covered.

## **In the Event of a Mercury Spill, What Do I Do?**



- ✓ **CONTAIN** the spill by diking the mercury using rags or other disposable items to prevent spreading.
  
- ✓ **KEEP** children, pets and others away from the spill area to prevent the spread of contamination.

✓ **IMMEDIATELY** open windows and doors in the area of the spill to provide ventilation during cleanup. Fans can be used but make sure they are ventilating outside. Close doors to other indoor areas.

✓ **TURN OFF** heating, ventilating or air conditioning systems that circulate air from the spill area to other parts of the house.

✗ **NEVER** use an ordinary vacuum or shop vacuum to clean up mercury. The vacuum will allow mercury vapour to enter the air and increase the likelihood of human exposure. As well, any vacuum cleaner used for cleanup would need to be disposed of with the spilled mercury.



✗ **NEVER** use a broom or a paint brush to clean up mercury spills. Brooms and brushes will break the mercury into smaller beads and spread them around a larger area.



✗ **NEVER** pour mercury down a drain.



✗ **NEVER** allow persons whose shoes or clothing are contaminated with mercury to walk around the house. Contaminated clothing and shoes will need to be disposed of with the spilled mercury.

✗ **NEVER** wash mercury-contaminated items in a washing machine. Mercury may contaminate the machine and pollute your septic system.



### **Possible Mercury Poisoning?**

**If you suspect that a person may have consumed mercury from a spill, inhaled mercury vapour or had physical contact with the metal, immediately contact the Poison Control Emergency Number for assistance.**



**Call Toll Free 1-800-565-8161 - 24 Hour Service**



## **Suggested Cleanup Equipment and Supplies - Check List!**

- ✓ Rubber squeegee
- ✓ Plastic dust pan
- ✓ Large tray or box
- ✓ Tape
- ✓ Plastic trash bags
- ✓ Zipper-shut plastic bags
- ✓ Flashlight
- ✓ Rubber gloves
- ✓ Wide-mouth plastic container with tight lid
- ✓ Facial tissues, toilet paper, or paper towels
- ✓ Eye dropper (optional)
- ✓ 2-index cards, playing cards
- ✓ Knife
- ✓ Plastic wrap
- ✓ Sulphur powder
- ✓ Zinc or copper flakes



## **Cleanup Methods**



### **If a Spill Occurs on a Hard Surface**

- Before beginning to clean up a mercury spill, change into old shoes and clothing that can be thrown away if they get contaminated. Remove all jewelry because the mercury may combine with the metal in it. Put on rubber gloves to keep the mercury from getting under your fingernails.
- Carefully pick up pieces of broken glass, if any. Working over a tray or box that is lined or covered with plastic wrap, place the pieces on a paper towel, fold, place in a plastic bag and seal with tape.
- Working from the outside of the spill area towards the centre, push the small mercury beads together with a card, stiff paper, or squeegee to form a larger droplet(s). Then, gently push the droplet(s) into a plastic dust pan or use an eye dropper to pick them up. Collect all mercury into a leak-tight plastic bag or wide-mouth sealable plastic container.
- Work over the lined tray or box when pouring mercury. Mercury's high density and smoothness cause it to roll fast.

- Use a flashlight to determine if all the mercury has been recovered. The light will reflect off the shiny mercury beads making it easier to see them. Make sure you look into crevices where mercury may accumulate.
- Use the sticky side of the tape to pick up any glass and mercury beads that you couldn't pick up with the cardboard. Again, use the flashlight to look around. Working in the tray or box, place the tape on a paper towel, fold, place in the plastic bag, and seal with tape or zipper.
- Sulphur powder can be sprinkled onto the spill area after cleaning to determine if more cleanup is required - a color change from yellow to brown indicates that mercury is still present.
- Sprinkle zinc flakes or copper flakes (available at hardware stores) to amalgamate any small amounts of mercury which remain.
- Dispose of all items that came in contact with the mercury. Items such as the tray or box, tape, contaminated clothes or shoes, and rubber gloves should be placed in a large plastic trash bag and sealed with tape. Do not touch glove fingertips or any items that may have been in contact with mercury.
- Wash all body parts that may have been in contact with mercury.
- Continue to ventilate the room with outside air for a minimum of two days, preferably longer. Some homes heavily contaminated with a large mercury spill have required ventilation for up to three months after cleanup.



### **If a Spill Occurs on Porous Items such as Rugs or Clothing**

- Use a sharp knife to cut the contaminated areas away from the uncontaminated area.
- Carefully fold the contaminated item so that the mercury is trapped inside it. Place it in a plastic trash bag and seal with tape.
- Throw away the knife, gloves and any other contaminated items by placing them in another large trash bag and sealing with tape.

**Contact the Island Waste Management Corporation to arrange for disposal of the elemental mercury, mercury devices and mercury-contaminated items.**

## Tests to Ensure that No Mercury Exposure is Occurring after Cleanup

There are tests available to determine if a person is safe from exposure to mercury after cleaning up a spill.

1. You can discuss with your family doctor whether urine mercury tests should be conducted on the persons using the area the most.
2. Mercury vapour badges are sold in packages of 10 and can be used to measure how much mercury is in the air. They can either be worn by the people who use the area or hung at the breathing level of five feet for adults and two feet for children. These badges can be purchased in Canada from Integra Environmental Inc. at (905) 336-2096.

## Alternative Mercury-Free Products for Your Household

There are now mercury-free alternatives to many household products. Some of these alternative products have been listed below.

| <u>Product</u>                           | <u>Description</u>                       | <u>Mercury-Free Alternative</u>                                  |
|--|--|--|
| <b>Mercury fever thermometers</b>        | Silver liquid in glass tube              | Use alcohol or digital thermometer                               |
| <b>Thermostats</b>                       | All non-electronic models                | Electronic digital thermostats                                   |
| <b>Old alkaline batteries</b>            | Bought before 1990                       | Rechargeable batteries or more recent alkaline batteries         |
| <b>Mercurochrome</b>                     | Old time antiseptic for cuts and scrapes | New antiseptics do not contain mercury                           |
| <b>Maze toys</b>                         | Contain bead of mercury                  | Mercury-free games   |
| <b>Chemistry sets</b>                    | May contain mercury compounds            | Other mercury-free toys  |
| <b>Shoes that light up when you step</b> | Bought before June 1994                  | Sneakers manufactured after 1994 or sneakers that don't light up |

There are no mercury-free product alternatives for fluorescent, mercury vapour, metal halide, high pressure sodium and neon lights. However, newer bulbs have less mercury in them than the older ones. Industry will continue to reduce the mercury in its products until alternatives are found.

## **Contact Information**

For further information on how to clean up a household mercury spill, please contact the Department of Fisheries, Aquaculture and Environment at 368-5047.

For instructions on where to dispose of mercury, mercury products or mercury contaminated materials, please contact the Island Waste Management Corporation at 894-0330 (household mercury only).

The IWK Grace Poison Control Centre provides a 24 hour/day poison control information and consultation service to PEI residents and hospitals. The service can be accessed by calling toll free 1-800-565-8161.

Information on mercury and the environment can also be obtained on Environment Canada's website ([www.ec.gc.ca/mercury/](http://www.ec.gc.ca/mercury/)).

