

Mercury and the Environment Q&As

The Detroit River Canadian Cleanup has recently teamed up with the City of Windsor, the Town of LaSalle, the Essex-Windsor Solid Waste Authority, the Ontario Ministry of the Environment, and Environment Canada on a project to reduce mercury pollution in the Detroit River Canadian Area of Concern. The project aims to collect household items containing mercury such as thermometers, thermostats, fluorescent light bulbs, and batteries from residents of Windsor and surrounding areas. The public is encouraged to bring those items to the Household Chemical Waste Depot during the month of April 2004. To encourage the effort, replacement BD digital thermometers will be distributed in exchange for mercury thermometers (limited quantities available). In addition, everyone who brings in any mercury items during the month will receive a gift package including informational pamphlets and a Shoppers Drug Mart coupon, and their name will be entered in a draw for prizes including a garden centre gift certificate and a DVD player.

What is mercury?

Mercury is a naturally occurring, toxic trace element found in air, water, soil, and rocks. Mercury, a shiny, silvery-coloured liquid, is a member of a group of elements called trace metals. It is used in thousands of household and commercial products and industrial processes.

When exposed to air, elemental mercury can evaporate quickly and become a vapour which is odourless, colourless, and poisonous. Although exposure to small amounts of this vapour rarely causes serious health problems, it is a toxic substance and should be handled with caution. Mercury enters the environment when mercury-containing products are broken or incinerated, as well as when coal or oil containing mercury is burned for fuel. Atmospheric mercury is eventually deposited back into the environment (including into bodies of water) through precipitation. Mercury can also be released into the environment through municipal and industrial wastewater discharges.

Mercury released from human activities can be converted in the environment into methylmercury, which is more toxic than elemental mercury. Methylmercury is harmful to the central nervous system and kidneys, and causes a collection of symptoms known as Minimata disease. The symptoms vary depending on exposure, but may include tingling, numbness, tremors, impaired motor skills, hearing loss, slurred speech, or tunnel vision. Recent studies have suggested that people exposed to low levels of methylmercury may also experience cardiovascular or immune system deficiencies. Methylmercury is particularly harmful to unborn babies, who may experience impaired nervous system development even when exposed to very low levels of methylmercury that do not appear to affect the mother.

Methylmercury is the main source of mercury contamination in people. It is easily absorbed into the tissues of small aquatic organisms and plants that form the base of the aquatic food chain. Over time, larger organisms in the food chain repeatedly ingest contaminated food, accumulating higher concentrations of mercury in their bodies than is found in their environment or in the food sources themselves. As a result, fish-eating birds and other wildlife - and humans who eat lots of fish with high levels of mercury- could be exposed to enough mercury to pose a health risk.

Is mercury a problem in the Detroit River?

Mercury has been identified as a specific contaminant of concern in the Detroit River ecosystem, and has been an issue in the Great Lakes for over 30 years. There are a number of restrictions on the human consumption of Detroit River fish. Sixty-seven percent of the fish consumption advisories in the Detroit and St. Clair Rivers and Lake St. Clair are a result of elevated mercury levels. The types of problems associated with long-term exposure to mercury (including lowered reproductive rates) have been noted in some wildlife populations (in central Ontario and Nova Scotia), although there isn't enough research to determine if wildlife other than fish are affected

by mercury in the Detroit River at present.

People who consume fish from the Detroit River should follow current fish consumption advisories to avoid exposure to elevated levels of mercury or other contaminants. Pregnant women and young children should be cautious because mercury exposure can be particularly damaging to developing nervous systems. Fish consumption advisories for the Detroit River can be found in the Guide to Eating Ontario Sportfish, available from the Ontario Ministry of the Environment and the Ontario Ministry of Natural Resources.

Do household products really contribute to the mercury problem?

A mercury thermometer can contain between 0.5 and 3 grams of mercury, and there are about 2.8 million mercury fever thermometers in Canadian homes. Even ignoring all other household sources of mercury (such as fluorescent light bulbs), thermometers alone account for roughly 2.8 tonnes of mercury! Consider that 11 percent of Canadians who own a mercury thermometer have broken one in the past 5 years, and that only 12 percent of those broken thermometers are disposed of properly at a hazardous waste depot. This can add up to a significant environmental risk, especially since it only takes a small amount of mercury to contaminate the environment. Even if a spill is very small, the Poison Control Centre should be contacted for advice on how to properly clean up any mercury spill.

How can consumers help?

Mercury free alternatives are available for some products. For thermometers, there are digital models, ear scan models, forehead strip models, and some glass models that are all mercury free. For thermostats, there are digital models available that are mercury free, and some have programmable features that save energy - also reducing pollution. Be sure to check product packaging when shopping to ensure that you are buying a mercury free product.

In some cases, mercury free alternatives aren't available. In these situations, it is very important to ensure that items containing mercury are always disposed of properly at the Household Chemical Waste Depot, located near Central Avenue and EC Row Expressway. Fluorescent light bulbs, which contain mercury, can be recycled. Mercury-free (incandescent) bulbs are not as energy efficient as those with mercury, so in the end they cause more mercury to be emitted as a result of using more coal-fired power.

What else is being done to address the mercury issue?

The combined efforts of numerous partners working on Great Lakes programs have helped to make significant progress in reducing mercury pollution basin-wide, restoring healthy fisheries, and remediating areas affected by historical mercury contamination. Projects like this one are essential to continued progress and success.

The Detroit River Canadian Cleanup is a part of the Canada-United States Remedial Action Plan (RAP) aimed at cleaning up the Detroit River. The Detroit River has been designated one of 43 pollution hot-spots, or "Areas of Concern", in the Great Lakes. Mercury is one of the problems that must be addressed before the River can be returned to a healthy state.

For more information:

Detroit River Canadian Cleanup - (519) 776-5209, ext 356 or www.drccc.info/mercury
Environment Canada - www.ec.gc.ca/mercury
OMOE 2003-2004 Guide to Eating Ontario Sportfish
Poison Information Centre - 1-800-268-9017
EWSWA Waste Reduction Hotline - 1-800-563-3377