



AFN ENVIRONMENTAL STEWARDSHIP

RESPECTING AND PROTECTING MOTHER EARTH

Note: The following information is provided as factual background for general areas of discussion on environmental issues as they relate to First Nations in Canada. It is not intended to be a research paper or to provide specific scientific background, but simply to stimulate thought and provide information to the reader.

TOXIC METALS – MERCURY

INTRODUCTION

Toxic metals are metals that have no known biological function. They are not essential minerals, or they are in a form that is different from that usually recognized by the body. Three common toxic metals are lead, mercury and cadmium. Other examples of toxic metals include: arsenic, chromium, copper, and nickel. Toxic metals are harmful because they form poisonous soluble compounds and can imitate the action of essential elements in the body. In this way, they interfere with normal metabolic processes and can cause illness. Toxic metals can also accumulate in the body and in the food chain.

MERCURY

Mercury is a naturally occurring shiny, silver-white, odourless metal that is liquid at room temperature. Three chemical forms of mercury are found in the environment : elemental, inorganic, and organic, or methylmercury. These three forms can change from one to another, but the major source of environmental exposure is primarily to methylmercury, the most toxic form of mercury. Although mercury can be found naturally in soils and rocks as well as lakes, streams and oceans, most of the mercury found in the environment today is released by human activities, such as pulp and paper processing, mining operations, coal-fired power generation, and the burning of garbage. Mercury may also be found in thermometers, dental fillings and batteries, as well as in fluorescent light bulbs, including compact fluorescent bulbs. It is also used in the manufacture of industrial chemicals, and for electrical and electronic applications.

Exposure to mercury can result in damage to virtually any system or organ in the human body, particularly the nervous system. Mercury and its compounds are particularly toxic to fetuses and infants. Prenatal exposure to mercury can interfere with the development of the fetal nervous system, resulting in neurological and developmental delays, or other birth defects. Women who breastfeed and have been exposed to methylmercury, may also expose their children through their breastmilk.

Methylmercury accumulates in the tissues of fish and animals, and works its way up the food chain as contaminated fish and animals are eaten by other fish or animals further up the chain. Consumption of contaminated fish and seafood is the most common means of mercury contamination in humans.

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(Source: <http://www.wikipedia.org> and <http://www.oceana.org/europe/what-we-do/stop-seafood-contamination/faqs/>)

CONSIDERATIONS AND CHALLENGES

In order to avoid unnecessary exposure to methylmercury:

- Pay attention to provincial and territorial wildlife and fish advisories. Although consumption of fish is the primary source of mercury exposure, fish remains an excellent source of high-quality protein and omega-3 fatty acids. It is also low in saturated fat. The nutritional, social and cultural benefits of eating fish in moderation (approximately, 1 to 2 servings per week) outweighs any potential risk;
- Pregnant and nursing women should limit their intake of fish, particularly fatty fish;
- Products that contain mercury, thermometers or fluorescent light bulbs, for example, should be handled and disposed of carefully. Spilled mercury should not be vacuumed up because it will vapourize and increase exposure. Older medicines that contain mercury should be returned to a pharmacy for proper disposal;
- All items containing mercury should be kept out of reach of children.

For More Information

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological Profile for Mercury CAS # 7439-97-6. Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service

Dartmouth Toxic Metals Research Program
<http://www.dartmouth.edu/~toxmetal/TX.shtml>

First Nations Environmental Health and Innovation Network – Mercury in Fish Fact Sheet
<http://www.fnehin.ca/uploads/docs/fs2-mercury-in-fish.pdf>

“It’s Your Health – Mercury and Human Health” Health Canada Updated November 2008
<http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/merc-eng.php>

Statistics Canada, Catalogue no 82-003-XPE, Health Reports, Vol. 19, no. 4, December 2008, “Lead, mercury, cadmium levels in Canadians – Health Matters” Suzy L. Wong and Ellen J.D. Lye
 Learn about provincial and territorial wildlife and fish advisories in your area from your public health or natural resources department. Refer to <http://www.ec.gc.ca/MERCURY/EN/fc.cfm#ON>