



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 – CADMIUM

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.

CADMIUM

Cadmium is a naturally-occurring soft, bluish-white metal that is found in small amounts in the earth's crust. Cadmium is produced mainly from zinc and lead mining and smelting, coal-fired power generation, household wastes, sewage and hazardous waste sites. Because cadmium does not corrode easily, it is often used in batteries. It may also be used in dye pigments, metal coatings and some plastics.

For the general population, tobacco or cigarette smoking is the single most common source of cadmium exposure. On average, smokers have 4 to 5 times the amount of cadmium in their blood, and 2 to 3 times the amount of cadmium in their kidneys, as non-smokers.

Other sources of cadmium may include shellfish, liver and kidney meats, contaminated drinking water, and contaminated air, particularly near industrial facilities that release cadmium into the air.

CONSIDERATIONS AND CHALLENGES

Cadmium is a known carcinogen, and chronic or acute exposure may result in lung damage or lung cancer.

When large amounts of cadmium are ingested through contaminated food or water, stomach irritation, vomiting or diarrhea may occur. Chronic cadmium exposure can also lead to kidney damage, bone mineral density loss and hypertension. Animal studies indicate that the health effects in children are similar to those seen in adults (kidney, lung and bone damage depending on the route of exposure). It is probable that children would absorb more cadmium than adults, and are more susceptible than adults to decreased bone strength and bone loss.

ASSEMBLY OF FIRST NATIONS

473 Albert Street, Suite 810, Ottawa, ON K1R 5B4

Telephone: 613 241-6789 • Toll-free: 1 866 869-6789 • Fax: 613 241-5808

www.afn.ca

Since cadmium is a component of tobacco or cigarette smoke, exposure to cadmium can be limited by avoiding smoking, especially in enclosed spaces, such as inside a home or car. Items containing cadmium, such as batteries, should be disposed of properly and kept out of reach of children. Since cadmium can be found in fish and many organ meats, a varied diet can also reduce exposure to potential sources of cadmium-contaminated food.

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

Cadmium - Wikipedia

<http://en.wikipedia.org/wiki/Cadmium>

Dartmouth Toxic Metals Research Program

<http://www.dartmouth.edu/~toxmetal/TX.shtml>

Agency for Toxic Substances and Disease Registry (ATSDR). 2008. Toxicological Profile for Cadmium (Draft for Public Comment) CAS # 7440-43-9. Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service

First Nations Environmental Health and Innovation Network – Cadmium Fact Sheet

<http://www.fnehin.ca/uploads/docs/fs2-cadmium.pdf>