



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 – LEAD

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.

LEAD

Lead is a naturally-occurring, soft, bluish-grey heavy metal that can be found in all parts of our environment. It is usually found in ores with zinc, silver and copper. However, much of the lead in the environment comes from human activities such as the burning of fossil fuels, mining and manufacturing. Lead is used in many common items, including, construction materials, batteries, ammunition, solder and pipes, fishing weights and X-ray shields.

CONSIDERATIONS AND CHALLENGES

Short term exposure to high levels of lead can cause vomiting, diarrhea, convulsions and death. Over the long term, lead can accumulate in soft tissues and bones, resulting most commonly in nervous system damage. However, long term exposure can damage any organ or system in the body. Children are particularly susceptible to lead poisoning because their bodies absorb lead more readily than do adult bodies. Lead exposure in children can lead to decreased intellectual development, behavioural problems, interrupted growth, and hearing impairment. When pregnant women are exposed to high levels of lead, miscarriage, stillbirth or premature births may occur. Chronic exposure may affect the development of the fetus.

A significant amount of exposure to lead usually occurs in and around the home. Until fairly recently, lead was used in household paint and plumbing. It can therefore still be found in many homes. Lead exposure can result from drinking water that has been contaminated by lead plumbing. Over time, lead-based paints produce dust that can then enter the body when inhaled. Lead-based paints have

also been used, and in some case, continue to be used, on children's toys. When children chew on such objects, they may ingest small quantities of lead. Food grown in lead-contaminated soil may also be a source of lead exposure. Lead from shotgun shells used to harvest wild game could be a major source of exposure for First Nations communities in Canada.



(Source: <http://www.wikipedia.org> and [https:// http://www.bfr.bund.de/cd/10091](https://http://www.bfr.bund.de/cd/10091))

Children should not be allowed to chew on toys or other surfaces that may have been painted with lead-based paint. If water pipes in the home contain lead, the pipes should be flushed of any water that has been standing overnight before fresh water is used for drinking or cooking. Paints, make-up or hair colouring that contains lead should be kept away from children. In homes with lead-based paint, or areas contaminated with lead, children should be encouraged to wash their hands frequently to remove any lead dust and soil, and shoes should be removed at the door to avoid tracking contaminated soil into the home.

For More Information

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Lead (Update) CAS # 7439-92-1. Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service

CDC's *Third National Report on Human Exposure to Environmental Chemicals* - Spotlight on Lead
http://www.cdc.gov/exposurereport/pdf/factsheet_lead.pdf

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

First Nations Environmental Health and Innovation Network – Lead Fact Sheet
http://landkeepers.ca/images/uploads/reports/LEAD_FS_FNEHIN.pdf

Statistics Canada, Catalogue no 82-003-XPE, Health Reports, Vol. 19, no. 4, December 2008, "Lead, mercury, cadmium levels in Canadians – Health Matters"

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The Definitive Identification Of Lead Shotgun Shell As A Major Source Of Lead Exposure In Native Communities -
http://www.hc-sc.gc.ca/sr-sr/finance/tsri-irst/proj/metals-metaux/tsri_287-eng.php