



LEAD

Fact Sheet

Lead occurs naturally in the environment, and trace amounts are found in many foods. Lead has many industrial uses. Lead is mined, and often associated with zinc ore deposits. Small amounts of lead can be hazardous to human health, and it has been characterized as a probable human carcinogen (cancer-causing agent). The introduction of leaded gasoline in the 1920's greatly increased lead in the environment, but since it has been replaced by unleaded gasoline, lead exposure in Canada has greatly decreased.

USES

- Plumbing and metal products
- Batteries
- Ammunition
- X-Ray shielding devices
- Some types of inexpensive PVC mini-blinds made in Asia or Mexico
- Lead paint (limits put in place 1976)
- Lead-based glazes on glassware and ceramics
- Leaded crystal glassware
- Lead fishing weights

LEAD AND MINING

- Lead is mined as sulfide ore and often associated with zinc ore deposits.
- Lead can contaminate air and water near mine sites.
- Lead is also a by-product of Acid Mine Drainage (see *Acid Mine Drainage* factsheet).

WHERE IS LEAD FOUND?

All people are exposed to some trace level of lead through various consumer products (see USES), air, soil, water, food, and drinking water.

AIR: Lead can travel thousands of kilometers from its source before settling to the ground, but larger particles tend to settle closer to the source. Various industrial operations such as smelters and refineries emit lead into the air. Lead concentrations in the air in Canada decreased by 76% in the decade following the introduction of unleaded gasoline.

WATER: Fallout of lead from the air can end up in surface water, as well as runoff and wastewater. Lead does not normally migrate to groundwater. Lead levels in Canadian drinking water are generally low, but can increase with water supply from lead solder, pipes, and connections in plumbing.

Lead levels in tap water increase when water stands in pipes. Be sure to run your tap water, especially soft water, before drinking. Hot water contains more lead than cold.

SOIL: Lead sticks to soil particles. Dust and soil can be significant sources of lead exposure, especially for young children. Lead dust can result from industrial emissions, lead paint in older homes, and natural processes in the environment.

ENVIRONMENTAL IMPACT

- Lead does not break down, but its compounds are changed by sunlight, air and water.
- Lead is not very soluble in water.
- Lead is toxic to all aquatic organisms, and does bioaccumulate in plants and animals, and some shellfish (but not fish).

(See *Bioaccumulation of Contaminants* Factsheet)



HUMAN HEALTH EFFECTS

Short-term exposure to high levels of lead can result in:

- ❖ Vomiting
- ❖ Diarrhea
- ❖ Convulsions
- ❖ Coma, and death

Lead poisoning is extremely rare in Canada.

Long-term exposure to lower levels of lead can have significant health impacts, including:

- ❖ Anemia
- ❖ Damage to nervous system
- ❖ Impaired mental function
- ❖ Appetite loss
- ❖ Abdominal pain
- ❖ Fatigue
- ❖ Sleeplessness
- ❖ Kidney damage (workplace exposure)

Children are particularly sensitive to lead poisoning as lead affects their brain development. There is really no safe level for lead in children. Exposure can harm:

- ❖ Intellectual development
- ❖ Behaviour
- ❖ Size
- ❖ Hearing

Pregnant women are also vulnerable to lead exposure. Pregnant women exposed to high levels of lead have had miscarriages and stillbirths.

ENVIRONMENTAL MANAGEMENT CRITERIA FOR LEAD

Canada's *Metal Mining Effluent Regulations* do lists lead as a "deleterious substance."

The Canadian Drinking Water Guidelines limit the lead content of drinking water to a Maximum Acceptable Concentration of 0.010 milligrams per litre of water.

FOR MORE INFORMATION

Health Canada

http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/water-eau/selenium/selenium-eng.pdf

Safe Drinking Water Foundation

<http://www.safewater.org/PDFS/resourcesknowhifacts/Mining+and+Water+Pollution.pdf>

Agency for Toxic Substances & Disease Registry

<http://www.atsdr.cdc.gov/>

CSP2 Fact Sheets Health & Environmental Effects of Trace Elements in Metal Mining Wastes

http://209.85.173.104/search?q=cache:5H-msLUonIJ:www.csp2.org/reports/Fact_Sheets--Trace_Elements_in_Mining_Waste.pdf+CSP2+FACT+SHEETS&hl=en&ct=clnk&cd=2&gl=ca&clie nt=firefox-a

Call us Toll-Free at 1-866-960-5223 for more environmental health resources.

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<http://www.phac-aspc.gc.ca/> (Public Health Agency of Canada).