



Heavy Metals in Soils Frequently Asked Questions

What are the recommended levels of heavy metals in soil?

The Canadian Council of Ministers of the Environment (CCME) provides guidance with respect to heavy metal concentrations in soils. For lead and arsenic the guideline values are 140 mg/kg and 12 mg/kg respectively.

What is the risk to my health when the levels exceed the guidelines?

The health impacts associated with exposure to various heavy metals depend on the dose, the duration of exposure, how you are exposed, personal traits and habits, and whether other heavy metals are present. The soil guideline values set by CCME take into account the potential health impacts for those most sensitive (children). You should be aware that these are guidelines and levels above the guideline value do not necessarily mean that the heavy metal will cause harm to you or your children.

Should I be concerned about lead in soils?

Lead can be found everywhere in our environment. Lead-contaminated dust and soil can cling to skin, hair, shoes, clothing and vehicles and can be carried indoors. Dust and soil can be a source of lead exposure for small children because they are close to the ground and because of their hand to mouth activity. It is, however, highly unlikely that a child could inhale or consume an amount of soil significant enough to result in elevated lead blood levels.

Lead exposure is most serious for young children because their growing bodies absorb lead more easily than adults and they are more susceptible to its harmful effects. Even low level lead exposure may harm the intellectual development, behaviour, size and hearing of infants. During pregnancy, especially in the last trimester, lead can cross the placenta and affect the unborn child.

What should I do if I feel my family has been exposed to lead in soil?

Factors that influence the amount of exposure include access to bare soil, whether the soil is covered by grass, gravel or concrete. It is also important to realize that exposure conditions vary due to snow coverage. If you feel you or your child has had a high level of exposure to lead in soil and you believe that lead may be impacting your health or the health of your children, you should visit your family physician. Your doctor may recommend a simple blood test to measure blood lead level.

How can I reduce my exposure and the exposure of my children to heavy metals in soil?

If you are concerned about your exposure to heavy metals, such as lead, in soil on your property, the following options to reduce exposure may be considered:

- Ensure that toddlers (aged two to six) wash their hands after playing with soil;
- Do not walk throughout your home with footwear that has been in contact with soil on your property.

Have a regular schedule for

- Wet mopping of floors
- Wet wiping window components
- Vacuuming of carpets

How does lead get into the soil of residential properties?

Lead is a metallic element that occurs naturally in all soils and waters. Human activities have resulted in lead concentrations exceeding levels that would have naturally occurred. Lead comes from different sources including lead-based exterior paint, from emissions of vehicles burning leaded gasoline, coal burning, mining and other industrial activities. Leaded paint has been banned in Canada since 1976 and that leaded gasoline has been banned since 1990. Lead does not breakdown and is not rapidly absorbed by plants, so it remains in the soil.

What should I do about other heavy metals that have been identified through this sampling?

If a given element exceeds the guidelines as listed above, it does not necessarily mean the soil is dangerous or that there is a health hazard. Taking precautions similar to those for soil lead should be effective in reducing your exposure to these heavy metals.

Is there someone I can talk to in order to get more information?

There are several people who can assist you in understanding this issue:

- Regarding the sampling that was done, please contact Mr. Dan Michielsen with the Department of Environment and Conservation at (709) 729-6697.
- Regarding health concerns, please contact your family physician or Dr. Ann Roberts, Medical Officer of Health with Central Health, at (709) 292-2454.

Protection of Children from Potential Exposure to Lead in Soils

- Always wash children's hands often, especially before they eat.
- Check the ground around your home for paint chips. Throw them into proper garbage canisters where children cannot get them.
- Build a covered sandbox where small children can dig. Small children often suck their fingers, so they should have a safe play area, away from potentially contaminated soil.
- In order to avoid potential soil lead dust exposure when eating outdoors, eat at a table. Wipe the table or use a table cloth.
- Vegetative ground cover like a lawn will help keep down dust as will mulch or rubber mats placed over scuff areas under swings or at the end of slides.
- If children will be actively gardening, consider planting in raised beds filled with clean soil and compost. Give children their own work gloves to wear while gardening.
- Help keep children healthy with a balanced diet. Good general health may help specifically in preventing the absorption of low levels of lead by the body.
- If you are concerned about your children's exposure to lead, talk to your family doctor about blood tests for lead.

References:

It's Your Health: Effects of Lead on Human Health, Health Canada. 2008

Protection of Children from Potential Exposure to Lead Dust in Soils. Vancouver Island Health Authority. 1997

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