People exposed to lead at work should take some precautions to avoid contaminating their homes. It is important to change clothes/shoes and to shower after completing a day's work. Wash work clothes separately; do not wash your work clothes with the rest of your family's laundry.

What are the government regulations concerning lead and drinking water?

The maximum contaminant limit for lead in drinking water in the U.S. is 0.015 mg/l (milligrams per liter). Both public and private water utilities must comply with this standard. In Mexico, the maximum permissible limit for lead in drinking water is 0.01 mg/l.

Where can we get more information regarding lead?

Department of Health and Human Services - Agency for Toxic Substances and Disease Registry
— http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=93&tid=22 (English)
— http://www.atsdr.cdc.gov/es/toxfaqs/es_tfacts13.html (Spanish)

U.S. Environmental Protection Agency - Lead Program
— http://www.epa.gov/lead/index.html

NSF International
— http://www.nsf.org/

Instituto Nacional de Ecología
— http://www.ine.gob.mx/ueajei/publicaciones/libros/314/aspectosrelevantes.html
— http://www.ine.gob.mx/ueajei/publicaciones/libros/33/politica.html

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The mission of the Binational Center is to resolve environmental and human health challenges along the US – Mexico Border by:

Providing and supporting environmental science and toxicology training, research, and policy development.

Facilitating a binational dialogue between investigators and stakeholders concerning risk assessment and remediation problems.

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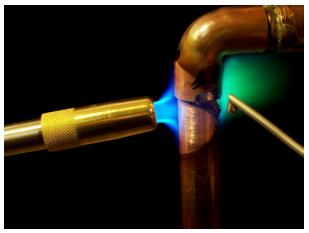
LEAD AND OUR HEALTH

What is lead?

Lead is a metal in the earth's crust that is normally found with other metals such as zinc, silver, and copper. Lead has many uses including manufacturing of paints, batteries, and fishing weights. Lead-based solder which had been used to connect copper water pipes was banned in the 1980s, but may still be a source of lead in drinking water in older homes. In the United States, lead was used as a gasoline additive, but was banned beginning in 1973 and eliminated by 1996. In Mexico, the use of leaded gasoline has decreased since 1986. In 1991, unleaded gasoline was introduced nationwide.



How does lead affect the environment?

All the soils in the world contain small amounts of naturally occurring lead with an average of 10 mg/kg (milligrams per kilogram). Higher levels of lead (contamination) are often due to human activity (e.g., leaded gasoline and mining). Generally, lead enters the environment through particles that contain lead residues. These particles may be deposited onto dirt or contaminate bodies of water.

How can we be exposed to lead?

Lead effects are similar whether you are exposed by breathing or ingesting particles containing lead (e.g., soils or dust particles). Although, scientific studies have identified that ingestion is the main route of exposure in humans. Children are most impacted by lead exposure because they often put their hands and/or toys

in their mouths. Pregnant women can also expose their unborn child to lead via ingestion (e.g., water or food). Adults are exposed to lead through food, water, and air. In addition, adults can be exposed via lifestyle choices (e.g., cigarette smoking) or through their occupation (e.g., soldering, manufacturing plants, construction/remodeling companies, smelters, and auto repair shops).

There are other sources of potential lead exposure which include: paints, glazed clay pots, wine, food, leaded glass (crystal), stained glass, dyes, and home remedies (e.g., azarcon and greta).

How can lead affect our health?

Lead has its predominant effects on the central nervous system in adults and children. Once absorbed by the body, lead can be stored for some time in bones and teeth. Lead can be released from these storage sites and enter the blood stream particularly when there is a lack of calcium in the body (e.g., pregnancy and osteoporosis). Generally, lead can cause problems in bones, blood, kidneys, and the brain.

High lead concentrations can have an effect on children's normal growth and mental development causing learning difficulties and mental impairment. In adults, lead exposure can increase blood pressure, digestive problems, anemia, weakness in fingers, wrists and ankles, nervous system problems, and impair memory/concentration.

Children are most sensitive to lead exposure (specifically children 6 years old and younger) because their brains and bodies are still developing and they can absorb more lead per weight in comparison with adults. If children ingest too much lead, they can have growth problems, stomachaches, headaches, muscle weakness, hearing problems, and brain damage. Even low amounts of lead can cause a lower intelligence coefficient, behavioral problems, and a decreased ability to pay attention or concentrate.

How can we reduce our lead exposure?

To reduce lead exposure you need to reduce the possible sources. It is important to wash your hands frequently and to clean toys used in soil or surfaces that may contain lead. Keep well informed about the toys that children play with and discard the ones that contain leaded paint or parts.

It has been shown that gastrointestinal absorption of lead is linked to calcium and iron deficiency and an excess of fat and proteins in the human body. Lead effects can be reduced by following a well-balanced diet and eating foods low in fat. It is also important to maintain a diet rich in iron and calcium.

If you suspect that you have been exposed to lead, consult with your doctor and ask to have a blood analysis. The blood analysis will determine if you have been exposed, estimate the amount of exposure, as well as when you were exposed. If suspected exposure, it is recommended that children between 12 and 24 months have a blood analysis done to determine their lead levels.

What options do we have to reduce our lead exposure at home?

Specific cleaning practices can reduce your lead exposure at home. It is better to use moistened brooms, mops, and cloths to clean your home and avoid redistribution of lead- containing dirt or dust. If possible, use rubber gloves and wash your hands when you finish cleaning. Discard the dirty mop water in the toilet, not in your kitchen sink or on the ground. It is also a good idea to investigate the history of your home to identify all possible sources of exposure. For example, if you know that your house paint contains lead, you should hire a professional to handle any remodeling work in your home.

If lead is found in your tap water, you should find out what kind of plumbing is in your home. You can also contact your local water provider to ask for the "consumer confidence report" which provides information on the quality of your drinking water. In Mexico, information on water quality can be found at the National Water Commission's National System of Water Information (Comisión Nacional del Agua – CONAGUA Sistema Nacional de Información del Agua). To further reduce your lead exposure from tap water, use only cold water for drinking and cooking. If you have not used your tap water for more than 6 hours, let the water run for one or two minutes before you use it. You can also install a water filtration system to reduce lead levels in your tap water.