Lead Fact Sheet

Lead is a heavy metal. In its pure state, it is a dense, dull grey and rather soft material, with a low melting point. Lead also exists as its sulfide, a fine black powder, and as its two oxides, which are bright white and yellow-orange.

Lead has been used for thousands of years in many applications, and thus can be found in all parts of the globe. Since Roman times lead was used to make plumbing. In fact, the Latin for lead, *plumbus*, is the source of the word plumbing. In Europe, lead was used to make roofing, much as copper continues to be used today. In the 19th and 20th centuries, lead was a popular paint pigment, and is found in almost all houses built before 1978 (when its use was banned). Until the 1970's, lead was also found in gasoline. Many parts of the world used leaded gas until the 1990's

Lead is used in solder, in some glasses (e.g. lead crystal) and as a barrier to high energy radiation such as X-rays. It is also used in weights such as fishing weights and in ammunition.

Toxic Effects

Lead is a neurotoxin, especially in developing bodies. Children exposed even to very low levels of lead have been shown to have reduced IQ's, reduced height at maturity, and a reduced ability to balance. There is some indication that children exposed to lead may have a greater tendency towards obesity as adults. There is no known safe level of lead exposure: effects have been observed at the lowest measured levels.

Lead has been shown to cause tremors and even death in relatively high doses. It can cause injury to the blood-forming cells, leading to anemia. Extreme exposure to lead is accompanied by a blackish-grey color to the gums.

How Lead Acts in the Environment

Although lead can be dispersed in the vapor form (which occurs when lead is melted), lead mostly occurs attached to surfaces in the environment. It binds quite strongly to soil and sediment particles, and if these are stable, the lead remains with them, and can be found in discrete layers. Lead is relatively insoluble in water, and typically does not enter aquifers. One exception is that very small soil particles can be mobile in aquifers, and any lead adsorbed on them can move into drinking water supplies this way. Because lead is an element, once in the environment it will not degrade.

How Lead Acts in Your Body

The great majority of lead enters the body through eating and drinking of contaminated food and drink. Young children can become exposed to lead by putting lead-

contaminated articles into their mouths. Some children eat soil, and this can cause high lead exposure. Some, but not all of the lead that is swallowed is actually absorbed through the walls of the stomach and intestinal tract to reach the bloodstream.

Lead vapor can be absorbed through the lungs, as occurs in industrial situations. It also may be inhaled with tobacco products contaminated with lead. This can occur when one handles lead objects, then handles tobacco products. When it is in its particle form, only the smallest particles can be inhaled deep enough into the lungs to become absorbed by the body.

Once lead enters the bloodstream, the body has no way to eliminate it. Instead, lead is stored in the bones within days to weeks of entering the bloodstream. There is some indication that conditions that cause deterioration of the bones (such as osteoporosis) can lead to the re-release of lead into the bloodstream.

What You Can Do to Protect Yourself

Test your environment for lead. If you suspect that your soils or water are contaminated, have them tested. There are many laboratories that test for lead in soils. For information on how to do your soil sampling and labs in western Washington State, see http://www.metrokc.gov/health/hazard/soilsamples.htm#resident

Do not permit small children to play in areas of known or suspected lead contamination. This is especially true in undisturbed soils (forested areas) and in bare dirt. Avoid eating root crops grown where soil contamination is suspected. Wash all fruits and vegetables thoroughly before eating. If you are working in contaminated soil areas, wet down the soils and wear rubber or plastic gloves. You can also use a respirator designed for lead protection. These are sometimes available in hardware stores. Dust masks will not stop the small-diameter particles that may draw lead into your lungs

If you suspect that your water supply is contaminated, you can reduce your exposure by using a water filter. For greater effectiveness, choose a filter that contains activated charcoal and place the filter at the faucet, rather than at an earlier point in the water system. Contaminants such as heavy metals can accumulate on the walls of your water pipes, and water becomes re-contaminated between the filter and your tap.

If you have lead paint in your home, you can have it removed professionally. In the meantime, you can reduce lead exposure by washing woodwork using a solution of TSP, or trisodium phosphate. Pay special attention to windows and doors, where repeated opening and closing can create breathable lead dust.

If your soil is contaminated, you may wish to have it remediated. There are many different ways to do this, ranging from removal of soil to washing to onsite burying.

We are collecting information about remedial techniques, including which ones work best under different circumstances, approximate costs and where to find contractors. We will

post that information once it becomes available. In the meantime we will be happy to discuss your particular concerns about heavy metals contamination. Contact us at staff@iere.org, or by phone at 206-463-7430

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