



Lead-Based Paint

What Is It? Where Is It?

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Lead is a naturally occurring heavy metal found in small quantities in the earth's crust. It is not usually found as a pure metal but as a compound (combined with two or more other elements). As a result of human activities, such as fossil fuel burning, mining, and manufacturing, lead and lead compounds can be found in all parts of our environment. This includes air, soil, and water.

Lead is used in many different ways. It is used to produce batteries, ammunition, metal products like solder and pipes, and X-ray shielding devices. Lead is a highly toxic metal and as a result of related health concerns (see below), its use in several products like gasoline, paints, and pipe solder, has been drastically reduced in recent years.

White lead (lead carbonate) was for centuries the primary white pigment used in paints. Adding lead to paint was a common practice not only for pigmentation but to speed drying, to increase durability, and to resist moisture. In 1978, paint containing more than 0.6% lead was banned for residential use because of its toxicity. Leaded paint is still manufactured and is used, for example, for corrosion and rust inhibition of steel structures, and the painting of parking lot lines and stripes on roadways.

Lead-based paints are commonly found in homes and other buildings built before 1978. Decaying (peeling, chipping, cracking) lead-based paints in homes or other buildings is one way in which humans are exposed to lead. Paint chips and dust from damaged or deteriorated lead-based paint can be inhaled or ingested. Dust released during remodeling involving surfaces painted

with lead-based paint is a health concern as well. Lead can also be found in soil around homes or buildings with exteriors covered in lead-based paint that is decaying. Dust from these soils can be inhaled or consumed. Drinking water may be a source of lead exposure if a building's pipes or pipe solder contain lead. The most hazardous sources of lead are from paint chips and dust.

Health Risks

Whether swallowed or inhaled, effects of lead on the body are the same. Lead mainly affects the nervous system, but can also affect every organ or system in the body. Long-term lead exposure may cause weakness in fingers, wrists, or ankles; hearing loss; stunted growth; and delayed development. Lead exposure can cause anemia and also small increases in blood pressure. Exposure to high levels of lead can severely damage the brain and kidneys and ultimately cause death. High levels of exposure to lead may cause miscarriage in pregnant women. High-level exposure in men can damage the organs responsible for sperm production.

Children are more seriously affected by lead than adults, as their bodies do not process lead as efficiently. "About 99% of the amount of lead taken into the body of an adult will leave in the waste within a couple of weeks, but only about 32% of the lead taken into the body of a child will leave in the waste" (ATSDR, 2005). Children six years old and younger are most at risk, as they are growing so quickly in that age range. They are also more at risk for lead exposure due to a higher potential for ingesting lead-contaminated dust or soil through playing on the ground or floor. Babies and children are more likely than adults to ingest paint chips.

There is no conclusive proof that lead causes cancer, but it is a suspected carcinogen.

Removal, Management, and Disposal Issues

If you live in a home built prior to 1978 and you suspect the presence of leaded paint, keep the old paint as intact as possible, i.e. repaint before the old paint starts to chip. If you are remodeling or renovating a home containing lead-based paint, avoid dry sanding, dry scraping, removal of paint by torching/burning (do not use heat guns over 1,100 degrees F), machine sanding, or grinding without HEPA-filtered dust collection or HEPA-filtered vacuum (HEPA is a registered trademark and a generic term for highly efficient filters). Restricting access to work areas for children and pets, as well as wet-washing surfaces to clean thoroughly at the end of the day, are effective measures to protect household members from the dangers of lead inhalation and ingestion. If you do the work yourself, be sure to wear a HEPA filter while dealing with lead-based paint. A good resource for information on lead-based paint issues in general is, "Lead Paint Safety, Field Guide for Painting, House Maintenance, and Renovation Work," published by the Department of Housing and Urban Development (HUD) – see "For More Information" section below. A hard copy is also available from the Missouri Department of Natural Resources (573-526-5873).

While there is no requirement in Missouri to have a licensed contractor do residential remodeling/renovation involving lead-based paint, you may choose to do so just because a licensed contractor will be aware of all the safety issues associated with lead-based paint removal. A listing of Missouri licensed lead abatement contractors can be found at http://www.dhss.mo.gov/Lead/AbatementContractorsReport_1.html.

Please note that these contractors may be a bit more expensive than general contractors, as they need to spend the time and money for their personnel to be trained and licensed. General contractors specializing in remodeling/renovation often are trained in "Lead Safe Working Practices." While this does not substitute for licensure, a contractor with this particular training should be knowledgeable regarding most issues related to lead-based paint and may represent an alternative to

hiring a licensed lead abatement contractor. Before hiring a contractor for lead-based paint removal, you may want to ask about his/her training.

For renovation projects overseen by Missouri brownfield or voluntary cleanup programs and projects involving child-occupied structures (schools, day care facilities, etc.), lead-based paint or dust that may be a human health hazard must be removed. Removal and abatement of lead-based paint must be performed by licensed abatement specialists, due to the hazards of exposure to lead. In addition to removal, lead-based paint can be encapsulated on site. This usually involves re-coating lead-painted surfaces with suitable sealants such as epoxy paint, concrete, or drywall (MDNR, 2007). Lead-based paint in good condition is generally not hazardous and may be left in place, but controls must be in place to assure that if deterioration occurs, proper measures will be taken to deal with the problem appropriately.

In Missouri, requirements for disposal of leaded-paint residue depend upon the type of structure the residue originated from. Leaded-paint residue coming from residential properties containing no more than four family units (the owner of the property must occupy at least one of the four units), i.e. owner-occupied family residences, one family rental properties, and multi-family dwellings of up to four family units, may be placed in the household trash. Any lead-based paint residue should be wrapped tightly in a plastic bag or other container before placing it into the trash. Lead-based paint residue must be tested by a laboratory prior to disposal if it originated from multi-family dwellings that are not owner-occupied, multi-family dwellings containing more than four family units, commercial and business enterprises, institutions and industrial buildings, and other structures not specifically identified in the regulations. If you are in doubt about how to properly dispose of lead-based paint residue, contact the Environmental Regulations and Licensing Unit in the Missouri Department of Natural Resources' Lead Licensing Program at 573-526-5877.

Demolition projects involving structures containing lead-based paint are not regulated in Missouri.

Lead Contact Information

For more information on lead-based paint issues in Missouri, contact the Missouri Department of Natural Resources Hazardous Waste Program:

Missouri Department of Natural Resources
Hazardous Waste Program
P.O. Box 176
Jefferson, MO 65102-0176
1-800-361-4827 or (573) 751-3176
(573) 751-7869 fax
www.dnr.mo.gov/env/hwp Program Home Page

For More Information

More information on lead-based paint can be found at the following Web sites:

<http://www.hud.gov/offices/lead/training/LBPguide.pdf>:
Lead Paint Safety, A Field Guide for Painting,
House Maintenance, and Renovation Work

<http://www.epa.gov/lead/index.html>

<http://www.dnr.mo.gov/pubs/pub2099.pdf>

<http://www.dnr.mo.gov/pubs/pub2002.pdf>

<http://www.dhss.mo.gov/Lead/FAQs.html#perform>

<http://www.atsdr.cdc.gov/tfacts13.html>

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