

# Lead Based Paint

All information provided by the USEPA @:  
<http://www2.epa.gov/lead/learn-about-lead#lead>  
<http://www.epa.gov/iaq/homes/hip-lead.html>



## Learn about Lead

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## What is Lead?

Lead is a naturally occurring element found in small amounts in the earth's crust. While it has some beneficial uses, it can be toxic to humans and animals causing of health effects.

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## Where is Lead Found?

Lead can be found in all parts of our environment – the air, the soil, the water, and even inside our homes. Much of our exposure comes from human activities including the use of fossil fuels including past use of leaded gasoline, some types of industrial facilities, and past use of lead-based paint in homes. Lead and lead compounds have been used in a wide variety of products found in and around our homes, including paint, ceramics, pipes and plumbing materials, solders, gasoline, batteries, ammunition, and cosmetics.

Lead may enter the environment from these past and current uses. Lead can also be emitted into the environment from industrial sources and contaminated sites, such as former lead smelters. While natural levels of lead in soil range between 50 and 400 parts per million, mining, smelting, and refining activities have resulted in substantial increases in lead levels in the environment, especially near mining and smelting sites.

When lead is released to the air from industrial sources or vehicles, it may travel long distances before settling to the ground, where it usually sticks to soil particles. Lead may move from soil into ground water depending on the type of lead compound and the characteristics of the soil.

Federal and state regulatory standards have helped to minimize or eliminate the amount of lead in air, drinking water, soil, consumer products, food, and occupational settings.

Learn more about sources of lead exposure:

- [At home](#)
- [At schools and childcare facilities](#)
- [In products](#)
- [In drinking water](#)
- [In outdoor air](#)
- [In soil](#)
- [In dust](#)

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## Who is at Risk?

### *Children*

Lead is particularly dangerous to children because their growing bodies absorb more lead than adults do and their brains and nervous systems are more sensitive to the damaging effects of lead. Babies and young children can also be more highly exposed to lead because they often put their hands and other objects that can have lead from dust or soil on them into their mouths. Children may also be exposed to lead by eating and drinking food or water containing lead or from dishes or glasses that contain lead, inhaling lead dust from lead-based paint or lead-contaminated soil or from playing with toys with lead paint.

### *Adults, Including Pregnant Women*

Adults may be exposed to lead by eating and drinking food or water containing lead or from dishes or glasses that contain lead. They may also breathe lead dust by spending time in areas where lead-based paint is deteriorating, and during renovation or repair work that disturbs painted surfaces in older homes and buildings. Working in a job or engaging in hobbies where lead is used, such as making stained glass, can increase exposure as can certain folk remedies containing lead. A pregnant woman's exposure to lead from these sources is of particular concern because it can result in exposure to her developing baby.

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## *Lead Exposure Data*

The U.S. Centers for Disease Control and Prevention's (CDC) [National Center for Health Statistics](#) monitors blood lead levels in the United States. [Get information on the number of children with elevated blood lead levels, and number and percentage of children tested for lead in your area.](#)

[According to CDC \(PDF\)](#) (2 pp, 291 K, [About PDF](#))

- The most important step parents, doctors, and others can take is to **prevent lead exposure before it occurs**.
- Until recently, children were identified as having a blood lead level of concern if the test result is 10 or more micrograms per deciliter of lead in blood. Experts now use a new level based on the U.S. population of children ages 1-5 years who are in the top 2.5% of children when tested for lead in their blood (when compared to children who are exposed to more lead than most children). Currently that is 5 micrograms per deciliter of lead in blood. The new, lower value means that more children likely will be identified as having lead exposure allowing parents, doctors, public health officials, and communities to take action earlier to reduce the child's future exposure to lead.

EPA uses the CDC data to show [trends on blood lead levels in children](#) in *America's Children and the Environment*.

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## What are the Health Effects of Lead?

Lead can affect almost every organ and system in your body. Children six years old and younger are most susceptible to the effects of lead.

### *Children*

In children, the main target for lead toxicity is the nervous system. Even very low levels of lead in the blood of children can result in:

- Permanent damage to the brain and nervous system, leading to behavior and learning problems, lower IQ, and hearing problems
- Slowed growth
- Anemia

In rare cases, ingestion of lead can cause seizures, coma and even death.

### *Pregnant Women*

Lead can accumulate in our bodies over time, where it is stored in bones along with calcium. During pregnancy, lead is released from bones as maternal calcium is used to help form the bones of the fetus. This is particularly true if a woman does not have enough dietary calcium. Lead can also be circulated from the mother's blood stream through the placenta to the fetus. Lead in a pregnant woman's body can result in serious effects on the pregnancy and her developing fetus, including:

- Miscarriage
- Reduced growth of the fetus and premature birth

Find out more about lead's effects on pregnancy:

- [March of Dimes Healthy Pregnancy Exit](#)
- [Effects of Workplace Hazards on Female Reproductive Health](#), National Institute for Occupational Safety and Health

Lead can also be transmitted through breast milk. [Read more on lead exposure in pregnancy and lactating women \(PDF\)](#) (302 pp, 4.2 MB, [About PDF](#)).

### *Adults*

Lead is also harmful to other adults. Adults exposed to lead can suffer from:

- Nervous system effects
- Cardiovascular effects, in increased blood pressure and incidence of hypertension
- Decreased kidney function
- Reproductive problems (in both men and women)

[Read more on the health effects of lead at the Agency for Toxic Substances and Disease Registry \(ATSDR\).](#)

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### **Lower Your Chances of Exposure to Lead**

Simple steps like keeping your home clean and well-maintained will go a long way in preventing lead exposure. You can lower the chances of exposure to lead in your home, both now and in the future, by taking these steps:

- Inspect and maintain all painted surfaces to prevent paint deterioration
  - Address water damage quickly and completely
  - Keep your home clean and dust-free
  - Clean around painted areas where friction can generate dust, such as doors, windows, and drawers. Wipe these areas with a wet sponge or rag to remove paint chips or dust
  - Use only cold water to prepare food and drinks
  - Flush water outlets used for drinking or food preparation
  - Clean debris out of outlet screens or faucet aerators on a regular basis
  - Wash children's hands, bottles, pacifiers and toys often
  - Teach children to wipe and remove their shoes and wash hands after playing outdoors
  - Ensure that your family members eat well-balanced meals. Children with healthy diets absorb less lead. See [Lead and a Healthy Diet, What You Can Do to Protect Your Child \(PDF\)](#)
  - [If you are having home renovation, repairs, or painting done, make sure your contractor is Lead-Safe Certified](#), and make sure they follow [lead safe work practices \(PDF\)](#)
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Lead has long been recognized as a harmful environmental pollutant. In late 1991, the Secretary of the Department of Health and Human Services called lead the *"number one environmental threat to the health of children in the United States."* There are many ways in which humans are exposed to lead: through air, drinking water, food, contaminated soil, deteriorating paint, and dust. Airborne lead enters the body when an individual breathes or swallows lead particles or dust once it has settled. Before it was known how harmful lead could be, it was used in paint, gasoline, water pipes, and many other products.

Old lead-based paint is the most significant source of lead exposure in the U.S. today. Most homes built before 1960 contain heavily leaded paint. Some homes built as recently as 1978 may also contain lead paint. This paint could be on window frames, walls, the outside of homes, or other surfaces. Harmful exposures to lead can be created when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning. High concentrations of airborne lead particles in homes can also result from lead dust from outdoor sources, including contaminated soil tracked inside, and use of lead in certain indoor activities such as soldering and stained-glass making.

### **Health Effects of Exposure to Lead**

Lead affects practically all systems within the body. At high levels it can cause convulsions, coma, and even death. Lower levels of lead can adversely affect the brain, central nervous system, blood cells, and kidneys.

The effects of lead exposure on fetuses and young children can be severe. They include delays in physical and mental development, lower IQ levels, shortened attention spans, and increased behavioral problems. Fetuses, infants, and children are more vulnerable to lead exposure than adults since lead is more easily absorbed into growing bodies, and the tissues of small children are more sensitive to the damaging effects of lead. Children may have higher exposures since they are more likely to get lead dust on their hands and then put their fingers or other lead-contaminated objects into their mouths.

Get your child tested for lead exposure. To find out where to do this, call your doctor or local health clinic. For more information on health effects, see [Preventing Lead Poisoning in Young Children \(PDF\)](#) (August 2005), a statement by the Center for Disease Control and Prevention.

### **Ways to Reduce Exposure to Lead**

#### **Renovation, Repair and Painting (RRP)**

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips by disturbing lead-based paint, which can be harmful to adults and children.

To protect against this risk, on April 22, 2008, EPA issued the [Renovation, Repair and Painting Rule](#). It requires that firms performing renovation, repair, and painting projects that disturb lead-based

paint in pre-1978 homes, child care facilities and schools be certified by EPA and that they use certified renovators who are trained by EPA-approved training providers to follow lead-safe work practices. Individuals can become certified renovators by taking an eight-hour training course from an EPA-approved training provider. [Learn how to become an EPA certified firm and where to take a training course near you.](#)

### **Separate remodeling areas from living areas.**

It is important to keep the remodeling work, and dust associated with the work, separated from other areas in the home. This can be done using [barriers](#), an [exhaust ventilation strategy](#), and good work practices as described in EPA's 2010 [Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools \(PDF\)](#) (11 pp, 1.1 M, [about PDF](#)), en Español ([PDE](#), 11 pp, 2.4 M). Make sure your contractor is aware of these practices, and ask him or her to use them.

### **Keep areas where children play as dust-free and clean as possible.**

Mop floors and wipe window ledges and chewable surfaces such as cribs with either a general all-purpose cleaner or a cleaner made specifically for lead. Wash toys and stuffed animals regularly. Make sure that children wash their hands before meals, nap time, and bedtime. These practices are important at all times, however, pay special attention during remodeling work.

### **Reduce the risk from lead-based paint.**

As mentioned above, most homes built before 1960 contain heavily leaded paint, and some homes built as recently as 1978 may also contain lead paint. This paint could be on window frames, walls, the outside of homes, or other surfaces. Do not burn painted wood since it may contain lead.

**Leave lead-based paint undisturbed if it is in good condition** – do not sand or burn off paint that may contain lead.

Lead paint in good condition is usually not a problem except in places where painted surfaces rub against each other and create dust (for example, opening a window).

**Call the National Lead Information Center** [www.epa.gov/lead/pubs/nlic.htm](http://www.epa.gov/lead/pubs/nlic.htm) call and speak with a specialist Monday through Friday, 8:00 am to 6:00 pm eastern time (except Federal holidays) at **1(800) 424-LEAD [5323]**. The Hotline provides a basic information packet on lead in English and Spanish.

### **Do not remove lead paint yourself.**

Individuals have been poisoned by scraping or sanding lead paint because these activities generate large amounts of lead dust. Consult your state health or housing department for suggestions on which private laboratories or public agencies may be able to help test your home for lead in paint. Home test kits cannot detect small amounts of lead under some conditions. Hire a person with

special training for correcting lead paint problems to remove lead-based paint. Occupants, especially children and pregnant women, should leave the building until all work is finished and clean-up is done.

### **Do not bring lead dust into the home.**

During remodeling, avoid tracking dust from the work area throughout the rest of the home. It is also important to avoid bringing lead in from other sources. If you work in construction, demolition, painting, with batteries, in a radiator repair shop or lead factory, or your hobby involves lead, you may unknowingly bring lead into your home on your hands or clothes. You may also be tracking in lead from soil around your home. Soil very close to homes may be contaminated from lead paint on the outside of the building. Soil by roads and highways may be contaminated from years of exhaust fumes from cars and trucks that used leaded gas. Use door mats to wipe your feet before entering the home. If you work with lead in your job or a hobby, change your clothes before you go home and wash these clothes separately. Encourage your children to play in sand and grassy areas instead of dirt which sticks to fingers and toys. Try to keep your children from eating dirt, and make sure they wash their hands when they come inside.

### **Find out about lead in drinking water.**

Most well and city water does not usually contain lead. Water usually picks up lead inside the home from household plumbing that is made with lead materials. The only way to know if there is lead in drinking water is to have it tested. Contact the local health department or the water supplier to find out how to get the water tested. See Lead in Paint, Dust and Soil at [www.epa.gov/lead/pubs/leadinfo.htm](http://www.epa.gov/lead/pubs/leadinfo.htm). See also [www.epa.gov/lead](http://www.epa.gov/lead) for more information about what you can do if you have lead in your drinking water. Call EPA's Safe Drinking Water Hotline (800-426-4791) for more information.

### **Eat right.**

A child who gets enough iron and calcium will absorb less lead. Foods rich in iron include eggs, red meats, and beans. Dairy products are high in calcium. Do not store food or liquid in lead crystal glassware or imported or old pottery. If you reuse old plastic bags to store or carry food, keep the printing on the outside of the bag.