



# HOUSING

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## Lead-Based Paint in Homes

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### Quick Facts...

Exposure to lead-based paint can be harmful to children and adults.

Three-quarters of the homes built before 1978 contain some lead-based paint.

Test your home and family for lead if you think a potential hazard exists.

Temporary measures to reduce lead exposure range from following specified cleaning techniques to good nutrition.

Permanent measures include component removal and replacement, paint removal, and covering painted surfaces.

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### The Problem of Lead-Based Paint

In 1991, the Secretary of the U.S. Department of Housing and Urban Development (HUD) characterized lead poisoning as the “number one environmental threat to the health of children in the United States.”

Lead-based paint is a major source of lead poisoning for children and can affect adults. Even low levels of lead in children can result in retarded mental and physical development, learning disorders, behavior problems, and reduced attention span. Lead can cause abnormal fetal development in pregnant women. Severe lead poisoning in children and adults can cause irritability, poor muscle coordination and damage to the kidneys, nerves and brain. Lead poisoning also may increase blood pressure in adults.

You might have lead in and around your home without knowing it because you cannot see, taste or smell lead. Before the harmful effects of lead were known, lead was used in paint, gasoline, water pipes, solder, pottery, and many other products. As a result, you may have lead in the dust, paint, or soil in and around your home, or in your drinking water or food. Because lead does not break down naturally it can remain a problem until removed. The greatest threat is breathing or ingesting dust from lead-based paint as it wears and disintegrates over time.

Approximately three-quarters of the homes built before 1978 contain some lead-based paint. It may be found on any surface but is most commonly found on exterior-painted surfaces, interior woodwork, doors, and windows. Heavily-leaded paint was used in most homes built before the 1950s, with lower levels of lead used until 1977. In 1978, the U.S. Consumer Product Safety Commission banned the use of lead-based paint in housing. When properly maintained and managed, this paint poses little risk, although friction surfaces (windows and window sills, doors and door frames, and stairs and railings) are a concern. Lead-based paint that peels or deteriorates is especially risky. As a general rule, the older a home, the stronger the risk of lead-based paint. People are exposed to lead, not only through lead-based paint chips and flakes that you can see, but also through the fine dust that forms. This dust can get on carpets, floors, furniture, toys and other objects, as well as on the hands of children and adults in the home.

The Center for Disease Control and Prevention estimates that 310,000 children have blood-lead levels above safe limits (10 micrograms per deciliter), mostly due to exposure to lead-based paint hazards. This number continues to drop as a result of active government lead abatement programs. If your child is chronically cranky, restless or tired, sick to the stomach, experiences a poor appetite, and does not sleep well, he or she may suffer from lead poisoning. It only requires a few grains of lead-contaminated dust, eaten or inhaled on a regular basis, to cause these problems.

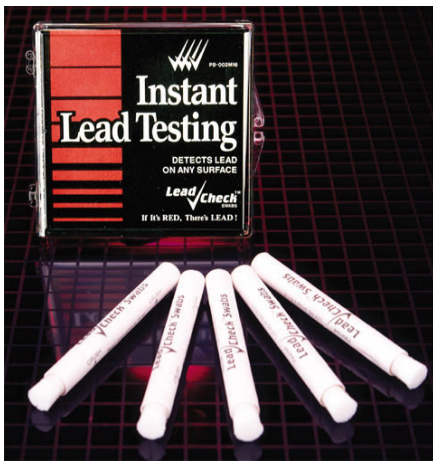


Figure 1. Example of a lead test kit.

#### **Temporary lead-removal measures:**

- *Clean up paint chips immediately (duct tape efficiently picks up chips).*
- *Clean floors, window frames, window sills and other surfaces weekly. Use a mop or sponge with warm water and a powdered high-phosphate automatic dishwasher detergent or a solution of trisodium phosphate (TSP). Wear protective gloves and use two buckets--one for wash water and one for clear rinse water. Always wring dirty water into the wash bucket.*
- *Thoroughly rinse sponges and mop heads after cleaning.*
- *Wash children's hands often, especially before they eat or go to sleep.*
- *Keep play areas and toys clean.*
- *Keep children from chewing painted surfaces such as window sills or cribs.*
- *Remove shoes before entering your home to avoid tracking in lead from soil.*
- *Make sure children eat nutritious, low-fat meals high in iron and calcium (such as dairy products, eggs, beans, spinach, and lean red meat). Children with good diets absorb less lead.*

## Checking Your Home and Family for Lead

Determine if your home was built before 1978 and inspect for signs of paint chips or dust. Consider purchasing do-it-yourself test kits from home centers, paint stores, and ceramics supply outlets. However, these test kits cannot distinguish between low and high levels of lead and it may be difficult to get accurate readings on surfaces with multiple levels of paint. A typical test kit consists of sealed pouches containing a chemical substance, swab sticks and instructions. Mix the chemical powder with a moistened swab stick and apply it to the surface to be tested. If the swab stick turns a given color (usually pink or red), lead is present.

There is an important distinction between the presence of lead-based paint and a lead-paint hazard. The latter poses an immediate threat, while lead-based paint in good condition might pose a hazard some time in the future. For this reason, HUD defined a detailed procedure that involves analyzing many painted surfaces in the home, evaluating the condition of paint, and measuring lead dust concentrations. A risk assessment conducted by a qualified professional will tell you if there are any sources of serious lead exposure and what actions to take. Consider using a laboratory to analyze paint and dust samples for lead content. Your local health department may be able to suggest private laboratories in your area that can test your paint and tell you how to obtain a sample for testing.

Young children (up to 6 years) are especially at risk. Frequent hand-to-mouth activity of young children provides an important path for ingestion of leaded dust. A child's digestive tract will absorb a high proportion of lead in comparison to adults. Most important, the period of rapid growth and development in the early years of life leaves the body's systems most vulnerable to the effects of toxins. You cannot tell if a child has lead poisoning unless you have him or her tested. The American Academy of Pediatrics recommends that all children up to age 6 be tested for blood lead. A blood test takes only 10 minutes and results should be ready within a week. Ask your doctor for details. This is especially important for children living in older homes, deteriorated homes and urban areas.

## Reducing Lead Exposure

Instead of addressing homes after a child is poisoned, ensure that poisoning does not occur in the first place. There are several ways to reduce your family's lead exposure ranging from partial measures that reduce immediate exposure, to abatement (complete removal of lead-based paint). Remediation costs can be as low as a few hundred dollars to tens of thousands of dollars for abatement.

Avoid activities that disturb or damage lead-based paint and create dust. It is extremely important to avoid sanding or scraping leaded paint. These are preventative measures only and are not an adequate alternative to replacement or removal of lead-based paint.

## Removing Lead-Based Paint

Measures to permanently eliminate lead dust hazards include component removal and replacement, paint removal, and covering surfaces. There is no completely safe method for do-it-yourself removal of lead-based paint. Each paint removal method — sandpaper, scrapers, chemicals, and heat guns — can produce lead fumes or dust in the air that can be inhaled. Dust can settle on floors, walls and tables. It can be ingested through hand-to-mouth contact and re-enter the air through cleaning (such as sweeping or vacuuming) or when people move throughout the house.

Except for the most elementary measures, dealing with lead removal is a complex task. Implementation may be affected by local regulations. In most instances, lead-based paint should be removed by professionals who follow detailed procedures to minimize, control and contain lead dust created by the removal process. Do not attempt to remove more than a small amount of lead-based paint. However, address all chipping, peeling, or flaking lead-based paint, as well as friction surfaces (for example windows and doors) in the home.

It often is much safer, and sometimes more economical, to replace painted items and cover painted surfaces. You can replace a door, molding, or other item yourself if it can be easily removed without creating lead dust. Cover walls and ceilings with gypsum wallboard, plaster, or paneling (encapsulation). If it is necessary to strip lead-based paint to maintain historic integrity, remove the item (for example molding) from the home for stripping. If the painted surface is not peeling or cracking, you can spray the surface with a sealant. Painting over lead-based paint is not a permanent solution. Obtain a copy of the Environmental Protection Agency's (EPA) pamphlet *Reducing Lead Hazards When Remodeling Your Home* before you begin any lead removal project.

## Selecting Professionals

Before hiring, question paint-removal contractors about their familiarity with the following procedures.

- Seal the room from the rest of the house. Remove all furniture, rugs and drapes. Cover floors, windows and doorways with heavy plastic sheeting and seal with duct tape.
- Turn off forced-air heating and air conditioning systems.
- Workers should wear protective clothing and shoes as well as respirators designed to avoid inhaling (high efficiency particulate absorption [HEPA] respirators).
- Do not eat, drink, or smoke in the work area. Remove all food and eating utensils from the room. Cover and seal all cabinets and food contact surfaces.
- Keep children and other occupants (especially infants, pregnant women, and adults with high blood pressure) out of the house until the job is complete.
- Standard dry sanding and dry scraping methods create airborne dust and are not acceptable. Remove loose and flaking paint by wet methods such as spraying the surface with water, gently scraping off the loose paint, and collecting debris (on a disposable drop cloth).
- Carefully collect construction debris into plastic bags and seal for disposal according to local ordinances. Remove plastic sheeting by rolling or folding inward.
- Schedule final cleanup and removal of plastic bags at least one day after work is complete to allow any airborne dust to settle. Clean up the entire area using a special vacuum cleaner with a HEPA filter. This is a special type of vacuum cleaner that removes small lead particles from surfaces and keeps them inside the vacuum cleaner. After vacuuming, wet wash the area with a TSP solution and vacuum with a HEPA vacuum.
- Dispose clothing worn in the room after working. Work clothing should not be worn in other areas of the house and workers should shower and wash hair after finishing work.
- Test work areas for lead dust contamination after final cleanup. If you decide to remove lead-based paint yourself, understand these procedures.

*Training and certification programs for lead-abatement contractors are available, but certified lead-removal contractors may be hard to find. However, asbestos removal contractors, trained in hazardous material removal, are widely available.*

## Lead and Real Estate

To protect families from exposure to lead, Congress passed the Residential Lead-Based Paint Hazard Reduction Act (also known as Title X). As a result, almost all sellers and landlords of housing built before 1978 must disclose known lead-based paint and lead-paint hazards and provide available reports to buyers or renters before ratification of a contract for housing sale or lease. Buyers and renters are given 10 days to have lead-hazard testing conducted (at their expense). Additionally, buyers and renters must receive a copy of the EPA's pamphlet Protect Your Family from Lead in Your Home, which describes lead poisoning. Home renovators also are required to provide their clients with this pamphlet.

## Web Sites

Among the many web sites available, the following are especially useful:

American Lung Association. <http://www.lungusa.org>

Centers for Disease Control and Prevention. <http://www.cdc.gov>

Home\*A\*Syst. <http://www.wisc.edu/farmasyst>

National Lead Information Center Clearinghouse. <http://www.nsc.org>

U.S. Consumer Product Safety Commission. <http://www.cpsc.gov>

U.S. Department of Housing and Urban Development. <http://www.hud.gov>

U.S. Environmental Protection Agency. <http://www.epa.gov>

## Resources

Free pamphlets on how to prevent lead poisoning and remove lead-based paint are available from the National Lead Information Center Hotline at 1-800-424-LEAD. You can also obtain answers to technical questions from a specialist and get a list of laboratories that analyze paint and dust samples for lead. All EPA pamphlets and the lead disclosure rule can be obtained by contacting the U.S. Environmental Protection Agency at [www.epa.gov/lead](http://www.epa.gov/lead).

The EPA Region 8 Office (Denver) can be reached at [www.epa.gov/region8](http://www.epa.gov/region8). For information about lead hazards and assistance, contact the state lead-poisoning prevention program (Lead Hazard Reduction Program) at [www.cdph.state.co.us/ap/leadhome.html](http://www.cdph.state.co.us/ap/leadhome.html). Call your local building code officials to find out what regulations apply to renovation or remodeling work.

Your Colorado State University county agent is a source of additional information, and your county health unit or family doctor can provide blood tests and medical advice.

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