



Assessing Your Household's Sources of Lead

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The goal of *Home•A•Syst* is to protect your health and the environment from pollutants in and around your home.

The following checklist is designed to help you pinpoint potential problem areas in your home that may be sources of lead, which can be extremely harmful to your health. If a statement reflects the current situation in your household, check "Agree." If the

statement does not describe your household, check "Disagree."

If you disagree with any of these statements, or if you are unsure, you may have a situation in your home that could affect the environment or your health. Refer to the fact section with the same number as that statement (under the heading, "What you should know about . . .") for more information.

Agree **Disagree**

- | | | |
|-----------------------|-----------------------|---|
| <input type="radio"/> | <input type="radio"/> | 1. My home was built after 1980. |
| <input type="radio"/> | <input type="radio"/> | 2. I have had my interior paint tested for lead. |
| <input type="radio"/> | <input type="radio"/> | 3. None of the lead-based paint in my house is cracking, chipping, flaking, or being worn off by contact. |
| <input type="radio"/> | <input type="radio"/> | 4. I haven't renovated or remodeled any parts of my home where there is lead-based paint. |
| <input type="radio"/> | <input type="radio"/> | 5. My plumbing contains no lead water pipes, leaded solder, or brass fixtures. |
| <input type="radio"/> | <input type="radio"/> | 6. I don't live near a major roadway, or near an industrial facility such as a lead smelter, incinerator, or battery recycler. |
| <input type="radio"/> | <input type="radio"/> | 7. None of the people in my household works in construction, bridge building, sandblasting, shipbuilding, plumbing, battery manufacturing, auto radiator repair, furniture refinishing, or foundry casting. |

Continued on p.2

Agree Disagree

8. My children don't come in close contact with lead-based paint, *and* all their toys were made in America.
9. My family's hobbies *don't* include stained-glass-making, furniture refinishing, collecting pewter or lead figurines, pottery, hunting, or fishing.

Don't be alarmed if you disagreed with many or even all of these statements. That does not automatically mean you have a lead problem. It may, however, tell you that change is needed to avoid potential problems. In the same way, agreeing with every statement does not mean you are *not* at risk or cannot make improvements.

Why should you be concerned?

Lead is a soft metal which has been widely used for thousands of years in countless products: ammunition, ceramics, printer's ink, paint, coins, crystal, water pipes, and gasoline, just to name a few. Lead lasts a long time in the environment because it does not break down chemically. It is also highly toxic, and the effects of lead poisoning are frequently irreversible.

Lead poisoning is a serious but preventable health problem—a problem many health experts consider to be the number-one environmental health concern in the United States. One in nine American children has elevated lead levels in his or her blood. Lead can slow mental development and cause learning and behavioral problems, even at very low levels. Severe lead poisoning can permanently damage the nervous and reproductive systems of the body. Children are at special risk because their bodies absorb up to 50% of the lead they ingest, while adults only absorb about 10%. The risk is equal whether you inhale lead dust or ingest lead orally.

The most common sources of lead are lead-based paint, household dust (containing lead dust from deteriorating lead-based paint), soils contaminated by leaded gasoline exhaust and decomposing lead-based

paint, and drinking water delivered through lead pipes or in contact with lead solder. You can't completely avoid lead in the environment (most homes contain at least one source of lead), but you can reduce your risk of exposure. For example, the most common cause of lead poisoning in children is lead-based paint in the home. Determining whether this is a risk you face and taking action to prevent exposure is vital to the health of your family.

Home•A•Syst is only for your own use and benefit. It is a voluntary program intended to provide general information about protecting your health and the environment. Information from a *Home•A•Syst* assessment will not be collected by Extension or any other outside agency and should remain in your private records.

What you should know about . . .

1. The age of your home

Lead was banned in house paint in 1978. Most homes in the United States were built before then. According to the U.S. Department of Housing and Urban Development, 74% of all homes built before 1980 contain potentially dangerous levels of lead paint. In addition, homes built before 1950 are very likely to have extremely high lead levels, especially in paint used on windows and exterior surfaces.

2. Lead-paint testing

Lead was formerly added to paint to inhibit the growth of mold on the surfaces painted. Thus, paints with higher lead levels were used where exposure to moisture is greatest: windows, doors, and exterior walls.

To find out if your interior paint contains lead—and also to determine the amounts it contains—have it analyzed by experts who test samples in a laboratory or who examine paint on-site using a portable X-ray fluorescence (XRF) detector. (Look in the phone book under “Lead Detection and Removal.”) Professional inspectors may also test the dust in your home for lead by taking surface-wipe samples.

Do-it-yourself home test kits are available in some hardware and department stores. However, they only tell you whether or not lead is present; they cannot tell you the amount, or if the lead level in your home is dangerous. Professional testing is the only sure way to know how much lead is in your home.

3. Cracking, chipping, or peeling paint

If the paint in your home is intact, you run little risk of exposure to lead. However, if the paint is deteriorating, not only is there the risk of contact with the paint chips, but the paint particles will contribute to the dust in your household. This high-lead dust is easily ingested. It is most often found on surfaces that rub against each other, such as a window in its frame.

4. Remodeling or renovating

Remodeling or renovating areas that have lead-based paint is extremely risky. Scraping, sanding, or burning lead-based paint creates a hazardous atmosphere, requiring special caution if children, pregnant women, or pets are in the household. If possible, homeowners should use the services of a certified lead inspector and lead-abatement contractor. Potential solutions for dealing with lead-based paint if you are considering remodeling or renovating include removal of the paint, replacement of lead-painted parts (such as windows, door jambs, or moldings), liquid **encapsulants** (special paint-like products which cover the leaded surface), and off-site removal of leaded surfaces.

5. Your water supply

Although your drinking water is not usually a concentrated lead source like paint or soil, it can still pose risks to your family.

Lead can enter your water from several points: lead pipes that bring water to the home, lead pipe connectors, lead-soldered joints in copper plumbing, lead-containing brass faucets, and pump components. In some private wells, underwater pumps with lead-containing brass fittings can cause elevated lead concentrations in drinking water, especially if the pump is new or the water is soft.

Water that is **soft** (relatively free of minerals like calcium and magnesium, which prevent lathering with soap) or **corrosive** (tending to cause rust) dissolves lead from pipes and fittings more easily than **hard** water, which has minerals that prevent lead from dissolving. Home water softeners, although they have important benefits for some households, may increase the amount of lead dissolving into your drinking water *if* lead is present in the system.

Water testing will confirm the presence or absence of lead in your system. Contact a state-certified laboratory or health agency for more information. If the results of your test indicate a concentration of lead greater than 15 parts per billion in your drinking water, you should consider taking action.

The laboratory, the health department, or your physician can interpret the results of your test and advise you whether to take small or drastic measures. For example, a simple way to reduce lead concentrations in your water is to flush the plumbing system. If your water system has not been used for more than two hours, let the water run for a minute or two until it turns cold. Always use cold tap water for cooking and drinking; hot water is more likely to dissolve lead. However, for severe lead contamination, you may need to install a water-treatment device, such as a reverse osmosis system, a distillation system, or an activated carbon filter. *Never* use potentially leaded water to mix infant formula.

6. Lead in the soil

The soil around your home can be a significant source of lead exposure. (Lead levels tend to be highest where house walls meet the ground, because of paint weathering.) Lead-contaminated soil is a problem when children play outdoors, when soil is tracked inside the home, and when garden vegetables are grown.

In areas where auto traffic is heavy, leaded gasoline exhaust and old leaks from vehicles using leaded gas are responsible for high levels of lead in the soil. The shift to unleaded gasoline has reduced this risk, but after years of contamination, lead levels can still be high. Lead does not break down in the environment and therefore has considerable staying power. Lead levels in soil within 85 feet of busy roadways are typically 30 to 2,000 parts per million (ppm) higher than natural levels.

If you live near industrial sources such as incinerators, lead smelters, and battery recyclers, you should

be concerned about lead in your soil. Areas downwind of these sources may have dangerously high levels of lead.

Testing your soil is the only way to detect a lead problem. Private laboratories or your local health department may provide this service. Your soil is safe if lead concentrations are 200 ppm or less. If your soil is contaminated, there are several steps you can take. One is to plant grass or cover the soil with mulch to keep your family from tracking the soil indoors or breathing soil dust. However, if your topsoil has extremely high levels of lead, you may be advised to remove and replace the soil in question. Soils with lead levels of 500 ppm or more should not be used for growing vegetables unless the top six to eight inches of soil is removed and replaced.

7. Occupational hazards

Lead-contaminated dust from construction and other occupations listed in Statement 7 can be carried into your home on your clothing or skin. Workers exposed to leaded dusts should shower and change clothes before entering their homes.

8. Children and lead

Children are much more likely than adults to be affected by lead. They are not only more likely to ingest lead from putting objects in their mouths, but their developing bodies can absorb up to half the lead they take in.

Most children with elevated blood lead levels do not have outward symptoms; this is typical of the lowest levels of lead poisoning, which does damage the brain. At higher levels, lead poisoning causes fatigue, short attention span, restlessness, poor appetite, constipation, headache, sudden behavioral changes, vomiting, and hearing loss—all symptoms of dozens of other health problems. If you suspect that your child has been exposed to lead, request a blood test for him or her. This is the only way to know if your child has elevated levels of lead in the bloodstream.

The paint on toys from other countries (or on very old American-made toys) may contain significant quantities of lead. Imported foods may also come in cans with lead solder. Although lead is now less common in printing inks, it may be present in food packaging labels and newspaper print. If a product is suspicious, keep it away from your children, especially very young children who are apt to put things in their mouths. Encourage them to wash their hands after playing with their toys.

Iron and calcium are two minerals that protect against lead poisoning. Make sure your child's diet includes plenty of both.

9. Hobbies

If your hobbies include those mentioned in Statement 8, you may be exposing yourself and others to lead from fumes and dust created by these activities. Work only in well-ventilated areas, take care not to breathe fumes, keep children away, and wash your hands thoroughly when you're done.

For hunters and fishers, lead bullets and lead sinkers are the sources of exposure. Bullets can also cause exposure to lead at indoor firing ranges.

Make a note:

The table on page 6 of SP508M, *Assessing Your Homesite*, provides a space for you to list all the problem areas in your home that you find while completing *Home•A•Syst*. Take a few minutes now to list any lead-related problems you discovered as you completed *Assessing Your Household's Sources of Lead*. Later, when you complete *Assessing Your Homesite*, you will include these items on the map you draw of your property. Potential items from this factsheet include:

- cracking or chipping lead-based paint
- lead plumbing

Remember:

- Lead can cause damage whether you breathe it in or ingest it.
- If your home was built before 1978, have the interior paint tested for lead.
- If leaded paint in your home is deteriorating, contact a lead-abatement contractor for advice.
- Don't disturb leaded paint that is intact.
- Keep children away from deteriorating lead-based paint and other sources of contamination.

- Have your child's blood lead level tested by his or her pediatrician.
- Make sure your child's diet contains plenty of calcium and iron.
- Don't let toddlers chew on woodwork.
- If you are remodeling or renovating an area that contains leaded paint, keep children, pregnant women, and pets out of the area.
- Always consult an expert to help remove lead paint.
- Have your water tested for lead if you live in an older home with pipes that may contain lead or lead-based solder.
- If your water is contaminated with lead, install a water-treatment device or take other steps as recommended by your local health agency.
- If you're concerned about the possibility of lead in your water, use only cold tap water for drinking and cooking.
- Never mix infant formula with potentially lead-contaminated water.
- Don't store food or drinks in open imported cans, handmade pottery, dishes made in foreign countries, or leaded crystal.
- If the soil around your home is at high risk of lead contamination, have it tested.
- Take precautions against tracking leaded soil inside your house. Don't allow children to play in contaminated soil. Grow vegetables only if your soil has been tested and deemed safe.
- If you are exposed to leaded dust in your workplace, shower and change clothes before you go home. Keep the clothes separate from other laundry and wash them separately.
- If your hobbies put you at risk of lead exposure, take extra precautions not to breathe the fumes, to clean up carefully afterward, and to keep children and pets away.

If you want more information . . .

Contact:

- Your local Extension office
- Your local health department
They, as well as private laboratories, can test your paint samples and drinking water.
- National Lead Information Center
1(800)LEAD-FYI
Call this number to receive a free packet of materials about lead.
or
1(800)424-LEAD
For personal assistance on a lead-related question.
- Tennessee Department of Health
312 8th Avenue
Nashville, TN 37247-0101
(615)741-3111
- Poison Control Center
1(800)288-9999

Read:

- *Preventing Lead Poisoning in Young Children.* U.S. Department of Health and Human Services, Centers for Disease Control. 1991.
- *Lead in Your Drinking Water.* U.S. Environmental Protection Agency, 1993.
- *Reducing Lead Hazards When Remodeling Your Home.* U.S. Environmental Protection Agency, 1994.

The above publications are available from your University of Tennessee Agricultural Extension Service county office.

- *Water Treatment Notes.* 329FSW. \$10.00.
This set of 10 factsheets from Cornell University outlines water-treatment problems and methods for correction, including information about lead in drinking water. Each individual factsheet, listed below, can be purchased separately for \$2.00.

- *Guidelines for Purchasing Water Treatment Equipment.* 329FS1.
- *Lead in Drinking Water.* 329FS2.
- *Activated Carbon Treatment of Drinking Water.* 329FS3.
- *Reverse Osmosis.* 329FS4.
- *Chlorination of Drinking Water.* 329FS5.
- *Iron and Manganese in Household Water.* 329FS6.
- *Hydrogen Sulfide in Household Water.* 329FS7.
- *Private Household Water Supplies.* 329FS8.
- *Terminology for Onsite Sewage Treatment Systems.* 329FS9.
- *Ultraviolet Radiation for Disinfecting Household Drinking Water.* 329FS10.

To order, write:

Cornell University Resource Center
8 BTP
Ithaca, NY 14850

Download:

- <http://funnelweb.utcc.utk.edu/~utext>
The University of Tennessee Agricultural Extension Service's home page.
- <http://www.ucdmc.ucdavis.edu/health/index.html>
The University of California, Davis, home page. See "Lead Poisoning" under the heading, "Health Information."
- <http://www.nsc.org/ehc/lead.htm>
The National Safety Council's National Lead Information Center home page.
- <http://www.epa.gov>
The U.S. Environmental Protection Agency's home page. Use their search function to find information; just type "lead" in the query box. Great links to other sites!
- <http://www.kellco.com/kellco/primer2.html>
Good information about the composition of lead paint and how it poisons the body.

- <http://www.logicnet.com/cathy.kitlar/world.htm>
Site recommended by Infoseek with links to information about recycling, composting, lead poisoning, ozone, acid rain, and more.
- <http://www.hud.gov/lea/leahome.html>
The Department of Housing and Urban Development's (HUD's) lead information page.
- <http://www.parentsplace.com/readroom/lead/index.html>
The California Department of Health's lead information factsheet.
- <http://www.webdirectory.com>
Comprehensive environmental search engine/bulletin board—a great way to find information about any environmental topic.

This *Home•A•Syst* assessment does not cover all potential health or environmental risks related to lead. It is meant to be a starting point for identifying and addressing the most apparent risks.

Tennessee *Home•A•Syst* publications have been adapted from the national model by Karin A. Beuerlein and members of the University of Tennessee Agricultural Extension Service Environmental Stewardship Priority Program Team.

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Agricultural Extension Service

Billy G. Hicks, Dean