Lead Awareness

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

IOWA STATE UNIVERSITY
Environmental Health and Safety

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Environmental Health and Safety Statement

Iowa State University strives to be a model for environmental, health and safety excellence in teaching, research, extension, and the management of its facilities. In pursuit of this goal, appropriate policies and procedures must be developed and followed to ensure this community operates in an environment free from recognized hazards. Faculty, staff, and students are responsible for compliance with established policies and are encouraged to enculturate practices that ensure safety, protect health, and minimize the institution's impact on the environment.

As an institution of higher learning, Iowa State University
- fosters an understanding of and a responsibility for the environment,
- encourages individuals to be knowledgeable about environmental, health and safety issues that affect their discipline, and
- shares examples of superior environmental health and safety performance with peer institutions, the State of Iowa and the local community.

As a responsible steward of facilities and the environment, Iowa State University
- strives to provide and maintain safe working environments that minimize the risk of injury or illness to employees, students and the public,
- continuously improves operations, with the goal of meeting or exceeding required and applicable environmental, health and safety regulations, rules, policies, or voluntary standards, and
- employs innovative strategies of waste minimization and pollution prevention to reduce the use of toxic substances, promote reuse, and encourage the purchase of renewable, recyclable and recycled materials.

The intent of this statement is to promote environmental stewardship, protect health, and encourage safe work practices within the Iowa State University community. The cooperative efforts of the campus community to remain mindful of these goals will ensure that Iowa State University continues to be a great place to live, work, and learn.

[Signature]

Dr. Steven Leath
President
Directory of Service and Emergency Providers

Services

Environmental Health and Safety
2408 Wanda Daley Drive | (515) 294-5359

Iowa State University Occupational Medicine Department
G11 Technical and Administrative Services Facility (TASF), 2408 Pammel Drive | (515) 294-2056

McFarland Clinic PC, Occupational Medicine
1018 Duff Avenue | (515) 239-4496

Thielen Student Health Center
2647 Union Drive | (515) 294-5801

Emergency

Emergency - Ambulance, Fire, Police
911

Department of Public Safety/ Iowa State University Police
Armory, 2519 Osborn Drive | (515) 294-4428

Mary Greeley Medical Center
1111 Duff Avenue | (515) 239-2011
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Lead - What is it? And Where is it?

Lead is a naturally occurring, heavy, bluish metal that has been used for centuries in manufactured products. Lead is nearly indestructible and is not biodegradable. No known technology will destroy or render lead harmless.

Lead is mined as ore in many countries throughout the world and refined for use in the following products:

- batteries
- solder
- pottery glaze
- glazing
- water and sewer piping
- gasoline
- paint

As of 2008, residential paint can only contain a maximum of .009% lead.

What is a lead-based paint?

Surfaces coated with materials containing one-half percent (0.5%) lead by weight, or that read 1.0 mg/cm² using an XRF direct reading instrument (discussed later), are considered by Iowa State University and the State of Iowa to be lead-based paint.

What’s the problem?

Disturbing Lead

If lead is present on or in a surface being disturbed by sanding, scraping, or welding, persons performing the work, as well as occupants of the areas where the work is performed, may be exposed to lead.

Where is it?

At Iowa State University, lead contained in painted surfaces poses the primary risk for lead exposure. Paint preparation (scraping and sanding), renovation and demolition activities can all generate significant personal exposures.

Leaded paint has been used in many of the buildings on campus. It is most commonly found on exterior surfaces. Lead-based paint was used more often in pre-World War II construction but can be
found in buildings built before the 1980s.

In 1978, the Consumer Product Safety Commission (CPSC) banned the use of lead in residential paint. As a result of this ban, most buildings built after 1978 are not typically considered to be a risk for lead contamination from paint.

A number of activities can disturb lead and generate potential exposures to lead dust. The activities that present the greatest risk for lead exposure include:

• renovation
• demolition
• painting projects (interior and exterior)
• window glazing
• plumbing and soldering
• firing range activities

What are the health effects?

Lead is recognized as a serious health hazard not only to those who work with it, but to workers’ families, especially to children under six years of age.

If lead paint is disturbed, small lead particles can become airborne and enter the body by inhalation or ingestion. Small particles containing lead enter the lungs or digestive tract, where lead is absorbed into the bloodstream.

Disturbed lead particles may also settle on your skin, hair, and clothing. Eating, drinking, or smoking without first washing your hands after exposure can deliver additional lead into your system. Once inside your body, lead becomes a poison that interferes with the brain, nerves, kidneys and blood-forming systems. When lead levels become high enough, lead can be stored in the bone marrow, where it may be released into the body at a later time. Damage from chronic lead poisoning may be irreversible and acute exposures can be fatal.

In adults, symptoms of lead poisoning include

• headaches
• memory and concentration problems
• abdominal pain
• high blood pressure
• kidney damage
• sleep disturbances

Learn more with the EPA, Protect Your Family From Lead In Your Home. brochure
Lead Awareness

• impotence
• muscle pain
• digestive problems

Developing fetuses and young children are most at risk for damage due to lead poisoning. Relatively low levels of lead can inhibit growth in developing fetuses. In young children, lead may cause irreversible damage to the developing nervous system, resulting in behavioral and learning problems. Slowed growth, hearing problems and kidney damage are also possible effects.

Lead Detection – How do we know?

The presence of lead is most commonly detected through these two methods:

• **Laboratory Analysis** - A small amount of the material to be tested (e.g., paint chips) is collected and sent to an analytical laboratory, where chemical analysis is used to determine the lead content. This method is extremely accurate. Results can be obtained in one to two weeks.

• **XRF Testing** - An X-ray Fluorescence (XRF) device uses a radioactive source to excite lead molecules present in materials. XRF testing allows intact materials to be tested and usually produces an immediate result. EH&S maintains an XRF testing device that is used for testing materials that you suspect may contain lead.

How do we minimize exposure?

Maintenance tasks may require the disturbance of lead containing materials. In order to minimize exposure to the individual conducting the work and others in the area, and to avoid contamination of university property, a number of procedures are recommended. Most of the procedures reflect common sense approaches and can be accomplished with minimal effort:

Find out if the material you are working with contains lead. If it does not, there is no lead hazard. Contact EH&S at (515) 294-5359 to initiate testing.

• If the material contains lead, and sanding or scraping is required, use wet methods or ventilated tools connected to a high efficiency particulate air (HEPA) filtered vacuum cleaner.

• Use HEPA filtered vacuum cleaners for any cleanup.

• Use a drop cloth to collect debris. Do not leave lead dust/debris.
• Work involving lead materials should be conducted when areas are unoccupied.
• Do not use
  □ heat guns
  □ unshrouded and non-HEPA filtered tools
  □ welders on painted surfaces
  □ dry scraping or dry brushing/sanding methods
  □ compressed air to clean surfaces

Additional information and guidance is available in the Lead-Containing Materials Guidelines or by calling EH&S at (515) 294-5359.

What personal protective equipment (PPE) and personal hygiene methods should we use?

Since one of lead’s primary routes of entry into the body is the respiratory tract, the first line of defense is respiratory protection. Avoid breathing any dust that you suspect may contain lead particles.

• If monitoring indicates that the work you are conducting exceeds the PEL, use a half-face respirator with HEPA filters.
• Use gloves to minimize contamination to your hands.
• Wear disposable protective coveralls.
• Wash your hands before eating, drinking, or smoking.
Housekeeping

Use HEPA filtered vacuums and/or wet wiping when cleaning surfaces painted with lead paint.

Wet wiping should be accomplished with wipes soaked with a detergent solution. Never use compressed air to clean up lead contaminated dust.

How do the EPA, OSHA, HUD, IDPH and the CPSC regulate lead?

EPA

The Environmental Protection Agency (EPA) has adopted rules that govern the training required for workers who remove or disturb surfaces containing lead, inspectors who inspect for lead, and assessors who determine the relative risk posed by the presence of lead containing materials. The EPA rules dictate how work involving lead abatement, assessment and inspection must be carried out.

Residential Lead – EPA rules also require landlords to disclose to prospective tenants any knowledge concerning the presence of lead paint in the housing being leased. Sellers of housing must disclose any knowledge of the presence of lead paint to the buyer or agent and must allow the buyer 10 days to conduct a lead inspection. An EPA pamphlet is available describing the hazards of lead in the home.

OSHA

The Occupational Safety and Health Administration (OSHA) established regulations governing construction worker exposure to lead. Employers of construction workers engaged in the repair, renovation, removal, demolition, and salvage of structures and materials are responsible for the development and implementation of a worker protection program in accordance with Title 29 Code of Federal Regulations (CFR), Part 1926.62. This program is essential to minimize worker risk of lead exposure. OSHA regulations in Iowa are enforced by the Iowa Division of Labor through the Iowa Occupational Safety and Health (IOSH) bureau.

HUD

The Department of Housing and Urban Development (HUD) has issued rules that specifically govern abatement, inspection and risk assessment that cover “target” (federally funded and Native American) housing. While these rules only cover “target” housing,
they have been referenced by many other state regulations and related lead-specific guidelines.

**Iowa Department of Public Health**

The [Iowa Department of Public Health](https://www.idph.state.ia.us) (IDPH) has established rules covering training and certification requirements for workers and professionals who conduct work associated with lead testing, removal and abatement.

**Consumer Product Safety Commission (CPSC)**

The [Consumer Product Safety Commission](https://www.cpsc.gov) (CPSC) is charged with protecting the public from unreasonable risks of injury or death associated with the use of the thousands of types of consumer products under the agency’s jurisdiction. CPSC is committed to protecting consumers and families from products that pose a fire, electrical, chemical, or mechanical hazard. CPSC works to ensure the safety of consumer products, such as toys, cribs, power tools, cigarette lighters, and household chemicals. The Commission’s regulations at 16 CFR 1303.1 ban consumer products in which the lead content is in excess of 0.009 percent of the weight of the total nonvolatile content of the paint.

**Summary**

The health effects from lead exposure are serious. Lead-based paint is the primary material associated with lead exposure risks for those working at Iowa State University. In addition to lead paint, lead exposures can result from glazings, solder, electrical and plumbing connections, and other lead containing materials. Information presented in this publication will help minimize potential exposures to you, your co-workers, and your family.
Non-discrimination Statement

“Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 3350 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515 294-7612, email eooffice@iastate.edu”