



Lead Safety Program

University Safety and Assurances



<https://uwm.edu/safety-and-assurances/>

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1.0 Introduction

- 1.1 University of Wisconsin-Milwaukee (UWM) takes precautions to eliminate potential hazards in the workplace. The purpose of this Lead Safety Program is to provide the hazards associated with lead and lead-containing materials; outline the steps to take to ensure employees who work with, or around lead are not exposed to hazardous levels of lead; and to provide procedures for common lead related work duties to minimize exposure in accordance with the OSHA Lead Standard (29 CFR 1910.1025).

The primary use of lead in the U.S. is for automobile lead-acid storage batteries, a type of rechargeable electric battery which uses an almost pure lead alloy. Lead-formed alloys are typically found in pipes, cable covering, building material, solder, radiation shielding, and collapsible tubes. Lead is also used in ceramic glazes and as a stabilizer in plastics. Lead was used extensively as a corrosion inhibitor and pigment in paints but concerns over its toxicity led the ban of lead in paint for residential and public buildings.

Lead enters the body primarily through inhalation and ingestion. Today, adults are mainly exposed to lead by breathing in lead-containing dust and fumes at work, or from hobbies that involve lead (IE- Fishing). Lead passes through the lungs into the blood where it can harm many of the body's organ systems. While inorganic lead does not readily enter the body through the skin, it can enter the body through accidental ingestion (eating, drinking, and smoking) via contaminated hands, clothing, and surfaces. Workers may develop a variety of ailments, such as neurological effects, gastrointestinal effects, anemia, and kidney disease.

2.0 Responsibilities

- 2.1 University Safety and Assurance (US&A)
- 2.1.2 US&A provides program oversight and consultation to UWM work groups regarding potential risks, exposure prevention and training relating to lead exposures.
- 2.1.3 Conduct building assessments for lead containing materials and perform employee lead hazard assessments/monitoring.
- 2.2 UWM Departments (Facilities Operations Management (FM); Athletics; Student Life; etc.)
- 2.2.1 Each department with responsibilities for maintaining buildings or working in buildings with potential exposure to lead should:
- 2.2.1.1 Ensure the applicable components of the Lead Safety Program are available to all affected employees.
- 2.2.1.2 Provide applicable training to employees expected to work in, or with, building materials where there is a potential risk for lead exposure.
- 2.3 Supervisors
- 2.3.1 UWM employees who supervise personnel with responsibilities to work in areas where there is a risk of exposure to lead, must ensure employees are properly trained on the applicable contents of the Lead Safety Program and are provided appropriate personal protective equipment (PPE) when conducting such work.

2.4 Authorized Person

- 2.4.1 Employees working in areas where there is an identified risk of lead exposure must be properly trained on all applicable elements of the UWM Lead Safety Program; and be provided and utilize the appropriate PPE for the task being performed.

3.0 Definitions

- 3.1 The following definitions are provided to allow for a better understanding of the UWM Lead Safety Program.

Abatement:	Process of eliminating or reducing lead based paint hazards in building materials or other structures. This may include the removal of lead-based paint and lead-contaminated dust, the containment or encapsulation of lead-based paint, the replacement or demolition of lead-painted surfaces, and the removal or covering of lead-contaminated soil.
Action Level (AL):	Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air ($30\mu\text{g}/\text{m}^3$) calculated as an 8-hour time weighted average (TWA).
Authorized person:	An employee who has received proper training and exposure monitoring to safely work with lead containing materials.
Exposure Assessment:	The initial determination to find if any employee may be exposed to lead at or above the action level. Until the assessment is completed, employees shall take all precautions necessary to maintain exposures below the PEL.
HEPA:	High Efficiency Particulate Air. A filtering system capable of trapping and retaining at least 99.97% of all particles of 0.3 micron in diameter and larger.
Lead-based Paint:	Any paint, plaster, or other surface encapsulation materials containing more than 0.50% lead by weight calculated as lead metal in the dried solid, or more than $0.7 \text{ mg}/\text{cm}^2$.
Lead-contaminated Dust:	Dust with a lead content equal to or greater than (a) $10 \text{ mg}/\text{ft}^2$ in dust collected from a floor (b) $100 \mu\text{g}/\text{ft}^2$ in dust collected from a window sill
Lead-containing material:	Any material that has been confirmed through laboratory analysis, or other suitable means, to contain any detectable quantity of lead.
Permissible Exposure Limit:	(PEL) the OSHA limit for lead exposure. It is set at $50\mu\text{g}/\text{m}^3$, averaged over an 8-hour workday, as a TWA.
XRF:	X-Ray Fluorescence analyzer. A device that measures the lead content in paint and other materials with results typically expressed as mg of lead per square cm. (mg/cm^2).

4.0 Material Assessment

- 4.1 Any time there is a potential for lead containing materials to be involved in a renovation or demolition project, sources of lead must be assessed prior to disturbing. UWM US&A or an authorized contractor can perform building material assessments to determine lead content in building materials.
- 4.2 Building materials can be assessed through sampling and laboratory analysis. Results of testing should be made available to US&A and other departments/contractors involved in the project.
- 4.3 If airborne lead is expected to be generated during the project, UWM US&A shall be contacted to conduct exposure monitoring and ensure all safety precautions are followed to minimize exposure to airborne lead.

5.0 Exposure Monitoring

5.1 Initial Exposure Monitoring:

- 5.1.1 UWM employees expected to come in contact/work with lead containing materials where there is a risk of exposure through inhalation of lead dust should develop an exposure monitoring program.
- 5.1.2 Initial exposure monitoring should be conducted by UWM US&A to quantitatively evaluate the exposure to airborne lead.

5.2 Periodic Exposure Monitoring:

- 5.2.1 Whenever lead exposure levels are greater than, or equal to the Action Level ($30\mu\text{g}/\text{m}^3$), periodic exposure monitoring is required. It is the responsibility of the affected department to work with UWM and develop a periodic exposure monitoring schedule.

- 5.2.2 The frequency of exposure monitoring should be as follows:

<u>Measured Concentration:</u>	<u>Monitoring Frequency:</u>
Action level – $30\mu\text{g}/\text{m}^3$	6 months
Permissible Exposure Level – $50\mu\text{g}/\text{m}^3$	3 months

- 5.2.3 Exposure monitoring is not required by every employee at risk of airborne lead exposure. Enough sampling must be done to enable the employee's exposure level to be reasonably represented.

5.3 Termination of Exposure Monitoring:

- 5.3.1 Periodic exposure monitoring may be discontinued if results from two consecutive sampling periods taken at least 7 days apart show that employee exposure is below the action level.

5.4 Sampling methods

- 5.4.1 Personal exposure monitoring will be conducted using an approved NIOSH method. Monitoring records shall include the following.

- 5.4.1.1 The date, number, duration, location and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable.

5.4.1.2 A description of the sampling and analytical methods used.

5.4.1.3 The type of respiratory protective devices work, if any.

5.4.1.4 Name and job classification of the employee monitored.

5.4.1.5 Any environmental variables that could affect the measurement of the employee exposure.

5.5 Reporting of exposure monitoring results

5.5.1 UWM will notify the department/supervisor of exposure monitoring results within as soon as the final laboratory analysis is completed. The department/supervisor must provide this information to the affected employee(s) within 5 working days.

5.5.2 If levels are measured during the exposure monitoring exceeding the PEL, the EHS report will include steps and controls to reduce exposure to below the PEL.

5.5.3 Follow up exposure monitoring may be necessary if engineering or administrative controls are put in place to reduce hazardous exposures.

6.0 Exposure Control

6.1 Pre-project planning

6.1.1 Prior to projects taking place affecting UWM buildings/facilities, US&A reviews planning documents to account for potential exposures to hazardous materials, including lead.

6.1.2 FM can conduct building material assessments to make determinations if there are any lead containing materials, which may be impacted by the project.

6.1.3 During the planning process, any lead containing materials are addressed and methods for exposure control are provided prior to work beginning.

6.1.4 If lead containing materials are to be disturbed during the project, the appropriate exposure control methods will be recommended by US&A.

6.2 Administrative/Engineering Controls

6.2.1 Where lead exposures at or above the Action Level have been documented, or are expected, the appropriate engineering or administrative controls will be implemented, where feasible. Follow-up exposure monitoring may be necessary when administrative or engineering exposure controls are utilized.

6.2.2 Laboratory/research applications where airborne lead is a potential risk, should be conducted in a chemical fume hood to mitigate exposure risks.

6.3 Personal Protective Equipment (PPE)

6.3.1 In addition to administrative/engineering controls, employees may be required to wear specific PPE during the handling of lead containing materials and/or when airborne lead is present. The level of protection will depend on the task being conducted and the tools being utilized to complete the task.