

1 PURPOSE

The purpose of this policy is to outline the management of lead containing material, suspected or verified, at the University at Albany. The information presented in this policy represents minimum safety requirements for handling lead containing materials for in-house maintenance, renovation, construction and repair, and for operations performed by an outside contractor engaged by the University or its related entities.

2 SCOPE

This policy applies to all employees who work in areas where exposures to lead may occur and to all employees that may assign work in areas where exposure to lead may occur.

The following regulations and guidelines may apply to this policy:

- Occupational Safety and Health Administration (OSHA)
 - 29 CFR 1910.1025 – Lead in General Industry
 - 29 CFR 1926.62 – Lead in Construction
 - 29 CFR 1910.1200 – Hazard Communication
 - 29 CFR 1910.134 – Respiratory Protection
 - 29 CFR 1910.1450 – Laboratory Standard
 - Environmental Protection Agency (EPA)
 - 40 CFR Part 745 – Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities
 - 40 CFR Parts 745 and 402/404 – Training and Certification
 - 40 CFR Parts 402 - 404 Toxic Substances Control Act (TSCA)
 - New York State Department of Environmental Conservation (NYSDEC)
 - Part 370 - 376 Hazardous Waste Management System
 - New York State Right-To-Know Law
 - Housing and Urban Development (HUD)
 - Guidelines for the Identification and Control of Lead-Based Paint Hazards in Housing
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3. DEFINITIONS

Action Level – An OSHA occupational exposure limit (without regard to use of respirators) for airborne contaminants. For lead, it is 30 micrograms per cubic meter of air (30 $\mu\text{g}/\text{m}^3$) for an 8-hour time-weighted average (TWA). Employees whose exposure is above the Action Level for more than 30 days per year are required to be in a medical surveillance program.

Affected Employee – Employee whose exposure is at or above the Action Level.

ALARA – As Low As Reasonably Achievable. The University at Albany policy is to keep any employee chemical exposure as low as feasible.

Blood Lead Level (BLL) – The amount of lead, measured in micrograms (μg), present in a deciliter (dL) of whole blood.

HEPA – A High Efficiency Particulate Air Filter capable of filtering 0.3 micron particles with 99.97 percent efficiency.

Lead – Metallic lead, all inorganic lead compounds (e.g., laboratory reagents, solder), and organic lead soaps. All other organic lead compounds, such as tetraethyl lead, are excluded from this definition.

Lead-Based Paint – Paint or other surface coatings that contain lead equal to or greater than 1.0 mg/cm^2 or 0.5% by weight (5000 ppm).

Medical Surveillance – Consists of medical examinations as well as blood sampling for lead and zinc protoporphyrin, if applicable. Performed by or under the supervision of a physician. The Office of Environmental Health and Safety (EH&S) is responsible for coordinating the Medical Surveillance Program.

Permissible Exposure Limit (PEL) – OSHA occupational exposure limit (without regard to the use of respirators) for airborne contaminants. For lead, it is 50 micrograms per cubic meter of air (50 $\mu\text{g}/\text{m}^3$) for an 8-hour time-weighted average (TWA). Exposure to airborne lead above the PEL triggers requirements such as housekeeping, engineering controls, showers, change and lunch rooms, area posting, personal protective equipment, and respiratory protection.

Personal Protective Equipment (PPE) – Safety equipment worn by employees; may include safety glasses, respirators, coveralls, etc.

Time Weighted Average (TWA) – The amount of lead dust a person is exposed to (by weight), divided by the number of hours of exposure during a day. Exposures at low concentrations will offset exposures at higher concentrations.

4. LEAD HAZARDS

4.1 Background

Lead is a naturally occurring element that has been used almost since the beginning of civilization. Lead is bluish-gray in color and has no characteristic taste or smell. It has many different uses and is considered a harmful environmental pollutant.

A variety of human activities have spread lead widely throughout the environment (e.g., lead gasoline). Lead can also be found in: some paints, some drinking water (due to lead pipes, lead fixtures or lead solder in pipes), pottery glazes, bullets, stained glass, leaded crystal, fishing sinkers, cigarettes and cigarette smoke, etc.

Most houses and buildings built before 1950 have had lead-based paint applied to their interior and/or exterior surfaces. In most cases, lead paint of this era contained up to 40% lead by weight. Paints made between 1950 and 1978 usually contained smaller amounts of lead. Lead paint that is in poor condition is known to be a potential hazard to small children and pregnant women.

In 1993, increasing concerns about exposure to lead paint during construction and renovation activities prompted OSHA to revise their Lead in Construction Standard to be more protective of workers engaged in such activities. The standard provides guidelines and work practices to minimize the generation and migration of lead-containing dust and establishes a permissible exposure limits for inhalation and biological monitoring criteria. OSHA considers any level of lead found in paint or other materials hazardous and thus, appropriate precautions must be taken to protect the employee from lead exposure.

Efforts have also been made by regulators to limit the use of lead-containing products to minimize harmful effects on people and animals. Lead-based paint containing more than 0.06% (by weight of dried product) was banned for residential use in the United States in 1978 by the U.S. Consumer Product Safety Division. Lead-based paint according to the U.S. Department of Housing and Urban Development (HUD) is defined as any paint containing equal to or in excess of 1.0 mg/cm² or equal to or in excess of 0.5% by weight. New York State Department of Environmental Conservation (NYSDEC) defines materials having a toxicity characteristic of 5.0 mg/L or greater as determined through toxicity characteristic leaching procedure (TCLP) as being hazardous waste.

4.2 Routes of Exposure

Lead can be absorbed into the body by inhalation (breathing) and ingestion (eating). Lead (except for some organic compounds not covered by this program) is not absorbed through intact skin.

Inhalation of lead is considered the most important source of occupational exposure. When lead is scattered in the air as a dust or fume particle, it can be inhaled and absorbed into the blood stream through the lungs and upper respiratory tract.

Lead can also enter the body via the digestive system, if it enters the mouth and is swallowed. Adults and children can ingest lead when they get lead paint dust on their hands and then eat.

4.3 Health Effects

When lead gets into the body, it is only partially eliminated. The majority of the lead is stored in the bones and other tissues. As exposure to lead continues, the amount stored in the body increases. Consequently, continuous exposure to low levels of lead can cause lead to accumulate in the body over time and lead poisoning may result.

Lead poisoning can affect every organ system, with the nervous system being the most sensitive. It also may affect children differently than adults with children experiencing effects, especially neurological effects, at much lower exposure levels.

Short term (acute) overexposure to large amounts of lead may cause seizures, coma, and death from cardio-respiratory arrest. Short term occupational exposures leading to these effects are unusual but possible. Long term (chronic) overexposure to lead may result in damage to the circulatory, nervous, urinary, and reproductive systems.

Some common symptoms of overexposure include: loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, insomnia, headache, irritability, muscle and joint pain, and tremors. Any employee that feels they have been overexposed to lead should contact their supervisor immediately.

4.4 Lead at the University at Albany

At the University at Albany, lead may be found in certain paints, lead-acid batteries, equipment, and solders. Lead may also be found in some of our laboratories, either for use in a chemical experiment or as radiation shielding.

Lead based paint has been found on walls on the Downtown Campus, on floor paint on the Uptown Campus, on the Carillon Tower before it was refurbished, and other areas around the campuses.

5 RESPONSIBILITIES AND PROCEDURES

5.1 Paint Testing and Scope of Work

Prior to building maintenance or renovation projects involving the disturbance of painted surfaces, particularly by means of scraping or sanding, the University's Project Manager/Supervisor is responsible for arranging a survey to determine by testing if lead-based paint is present in the work area, and if so, whether it will be impacted by the planned work.

If left undisturbed, lead-based paint does not always need to be removed. In some cases, management in place may be advisable.

Larger scale projects may require the Project Manager/Supervisor to hire an outside firm to design and coordinate the abatement plan. If a project involves a child care center or residential apartments where children are living, more stringent lead abatement regulations come into play and EH&S must be notified before any lead abatement commences.

If lead-based paint is suspected during the course of renovation/demolition work, the Project Manager/Site Supervisor should suspend work that could disturb the material and arrange for testing of the paint. Work must not resume until the material can be positively identified as lead based or non-lead-based.

The Project Manager/Supervisor is responsible for ensuring that all employees, contractors, and subcontractors are informed of the location of lead-containing paint in the work areas to which they are assigned, and that those painted surfaces that may be impacted by the work are abated. This notification should be included in the bid/contract specs for the project.

5.2 Exposure Monitoring

Before any lead abatement or work with lead containing materials (e.g., lead containing solder) is conducted in-house, an initial determination of University employee exposure must be conducted, in order to determine if any employee may be exposed to lead at or above the action level of 30 $\mu\text{g}/\text{m}^3$. This employee exposure is that exposure which would occur if the employee were not using a respirator.

Monitoring shall consist of full shift (for at least 7 continuous hours) personal samples including at least one sample for each shift for each job classification in each work area. These personal samples shall be representative of the monitored employee's regular, daily exposure to lead. Monitoring for the initial determination may be limited to a representative sample of the exposed employees who the University Project

Manager/Supervisor reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

Depending on the results of the initial determination, further action steps may be necessary. All affected employees must be notified in writing within 15 working days after the receipt by the Project Manager/Supervisor of any monitoring results. Additional monitoring may be required, if there is reason to believe a change has occurred that may result in new or additional exposures to lead for employees.

5.3 Training

Lead abatements done in-house shall only be done by those University at Albany employees that have successfully completed an EPA Lead-Based Paint Renovation Repair and Painting Program (RRP) certification course. A refresher course is required every five years. This training will be paid for and arranged by EH&S.

EH&S will also provide Lead Awareness training to employees that have the potential to be in contact with lead-based paint.

5.4 Best Management Practices

Whenever lead-based paint is to be disturbed or abated, Best Management Practices must be followed. These include but are not limited to:

- a. Securing and isolating the area from the University Community before abatement begins.
- b. Limiting dust generation by using wet methods and manual sanding and scraping when disturbing or abating the lead-based paint, if power tools are used for cleaning they must have HEPA filtered dust collection systems.
- c. Workers are to protect themselves from lead exposure by wearing the following personal protective equipment (PPE): disposable Tyveks, disposable gloves, safety glasses, possibly a hardhat and, if required by an initial determination through employee exposure monitoring, a respirator with HEPA filtration. If an employee must wear a respirator to perform the lead abatement, then the employee falls under the University's Respiratory Protection Program and all its requirements.
- d. Work area should be HEPA vacuumed and wet mopped once abatement is completed.
- e. Depending on the levels of lead found in the paint through a TCLP test, the paint and all contaminated debris, including PPE, may have to be disposed of as hazardous waste.

5.5 Disposal

Lead paint chips usually contain enough lead to be considered a hazardous waste. If paint chips are generated, they must be collected and set aside for proper disposal. TCLP tests are required of paint residues to determine if the material must be disposed of as hazardous waste.

Lead-based paint that has been characterized as hazardous waste must be disposed of in a manner consistent with all relevant state and federal regulations. Please contact EH&S at (518) 442-3495 for guidance before the project is scheduled to begin.

5.6 Areas occupied by children

If lead abatement is scheduled for any areas where children under the age of 6 reside or occupy an area for a length of time (e.g., child care center), certain additional regulations and precautions for the abatement apply. Please contact EH&S at (518) 442-3495 for guidance before the project is started.

5.7 Lead solder selection

Lead free or low lead solder will only be used at the University, as lead exposure can occur from solder containing lead, either through inhalation of fumes or through ingestion of lead due to surface contamination. If solder contains any amount of lead, the appropriate ventilation and PPE must be used while soldering.

5.8 Contractor requirements

Contractors that disturb or abate lead-containing paint must take the necessary precautions to protect their own employees and the University Community from lead exposure. Contractors are responsible for ensuring that their employees have had the appropriate level of training for the tasks being performed, the appropriate equipment, and have the appropriate PPE for the project. This includes respiratory protection where appropriate. This should be included in the project's bid/contract specs.

5.9 Enforcement

The Directors of Architecture, Engineering and Construction Management, Campus Planning, Physical Plant, and other University departments engaged in maintenance, renovation, and construction will be responsible for complying with this policy. Compliance includes the communication of the policy to all relevant members of their staff as well as all contractors under their control.

5.10 Recordkeeping

EH&S is responsible for maintaining all lead sampling results for the University. Project Managers are responsible for ensuring the results are given to EH&S.

5.10 Information and Questions

If you have any questions on this Lead Compliance Policy, please contact EH&S at (518) 442-3495 located in Chemistry B72.