



# RISK BULLETIN

## Lead And Lead-Based Paint Management In Industrial And Commercial Facilities

### WHY IS LEAD A CONCERN?

Attitudes on lead have drastically changed within the past 30 years due to increased knowledge of

adverse human health and environmental impacts of lead. What was once a routinely encountered material in commerce is now viewed as a serious occupational and environmental pollutant. The use of lead in many products has been severely restricted. For example, the use of lead in residential paint production has been prohibited since

1978. Although seldom used, lead-based paint (LBP) is still available and used on commercial structures, particularly in extreme environments. Much of the lead encountered today in commercial and industrial facilities remains from historic uses. Lead can be found in flashing, electrical conduit, piping, solder, tank linings, pottery glazes, radiation shielding, lead-acid battery cores, and paint.

Industries with particularly high potential exposures include construction work involving welding, cutting, brazing, and blasting on LBP, smelter operations, battery manufacturing facili-

ties, and firing ranges. LBP continues to be a common risk on older structures that require active management by a variety of industries, particularly the real estate industry. Inhalation and oral ingestion represent the major routes of exposure in the workplace. Hazardous levels of lead cause a variety of health effects ranging from nerve damage to digestive disorders to muscle/joint pain. Lead exposure is particularly dangerous to children and pregnant women due to their increased susceptibility.

### WHEN DOES LEAD BECOME A PROBLEM?

The mere presence of lead does not necessarily mean building occupants, employees or the public are at risk. Dust-generating activities such as abrasive blasting, sanding, and crushing activities on lead-painted surfaces or lead-containing materials increase the amount of lead-containing dust in the breathing zones of exposed individuals. Lead particularly becomes a problem when a building is being demolished or extensively renovated as large volumes of dust are generally created which have the potential to expose building occupants, workers, and the general public. Heating by torch cutting, welding, or similar activities increases airborne lead concentrations by converting lead into an ultra fine particulate known as lead fume. In operations where lead dust or fume is present, lead may settle on surfaces and become airborne again if disturbed. Individuals may also be exposed to lead indirectly after touching lead and then eating, drinking, smoking, or using smokeless tobacco without first washing their hands.



### LEAD REGULATIONS AND BEST MANAGEMENT PRACTICES (BMPS)

In the United States, the Occupational Safety and Health Administration (OSHA) regulates worker exposures to lead in the workplace in 29 CFR 1910.1025 (General Industry) and 29 CFR 1926.62 (Construction). The US Environmental Protection Agency (USEPA) regulates the presence of lead in homes and in the environment in the Toxic Substances Control Act (TSCA). USEPA regulations addressing LBP are still being promulgated; however, important TSCA sections and regulations follow:

#### **TSCA 402/404 - Training and Certification Program for Lead-Based Paint Activities in Target Housing and Child Occupied**

**Facilities:** Ensures that individuals conducting lead-based paint abatement, risk assessment, or inspection are properly trained and certified, that training programs are accredited, and that these activities are conducted according to reliable, effective and safe work practice standards.

#### **TSCA 403 - Residential Lead Hazard Standards for Lead in Paint, Dust, and**

**Soil:** Establishes standards for lead-based paint hazards and lead dust cleanup levels in most pre-1978 housing and child-occupied facilities.

#### **TSCA 406(b) - Pre-Renovation Lead**

**Information Rule:** Ensures that owners and occupants of most pre-1978 housing are provided information concerning potential hazards of lead-based paint exposure before certain renovations are begun on that housing.

#### **TSCA 1018 - Residential Lead-Based Paint Disclosure Program:**

Requires disclosure of known lead-based paint and/or lead-based paint hazards by persons selling or leasing housing constructed before the phase out of residential lead-based paint use in 1978.

### 40 CFR 745 Lead-Based Paint Poisoning Prevention in Certain Residential

**Structures:** Published alongside Department of Housing and Urban Development (HUD) regulations 24 CFR 35 and 40, establishes standards for preventing lead exposures in residential and child-occupied buildings.

Given the preponderance of regulatory requirements, building owners and property managers may find it prudent to conduct additional research or consult an expert or a regulatory official for specific individual concerns. However, there are several basic Best Management Practices (BMPs) owners/operators should utilize to minimize the risk of harmful exposures. These consist of identification, management, abatement, exposure control and waste disposal. A good resource is the USEPA publication, *The Lead-Based Paint Pre-Renovation Education Rule: A Handbook for Contractors, Property Managers, and Maintenance Personnel* (1999).



### IDENTIFICATION

One of the first things to do if it is suspected that lead is present in a facility is to map the location of the lead-containing materials. This can be done internally by qualified individuals or externally using qualified vendors. Most states require inspectors identifying lead in structures to be licensed. Once the location of lead-containing material has been identified, it should be shared with employees and contractors working in these areas. Part of this education should include instruction not to disturb the material. This information should also be shared with potential buyers and lease tenants.

### MANAGEMENT

If lead is present such as in the form of LBP and it is in good condition, one approach is to leave it alone unless activities are being performed which would make it airborne or expose occupants. If this approach is taken, the owner or manager of the property should inspect the condition of the LBP at least annually. If the LBP is found in poor, peeling/chipping condition upon inspection, it should be abated or encapsulated if it is a potential exposure to building occupants. Scenarios in which lead exposures may be a concern include LBP on concrete floors exposed to fork truck traffic or LBP on a door jam that young children may chew on. A Lead Exposure Control Plan (LECP) should be developed and a Lead Control Manager (LCM) appointed to coordinate the plan and conduct routine inspections. Building owners must determine which occupants, if any, are potentially exposed. For example, almost all employees in the core manufacturing area of a lead-acid battery plant would be potentially exposed whereas only maintenance personnel in commercial real estate properties that perform welding, paint removal, or grinding on LBP may be exposed. If employees are not potentially exposed, or if the lead is inaccessible, occupants should be informed of its presence and instructed not to disturb the material.

As early as possible, an initial exposure assessment should be performed for potentially exposed personnel, particularly those in industrial settings. Representative personal air sampling should be performed for each job description having potential exposure. Employees must be protected during this exposure assessment. Upon receipt of monitoring results, employees should be notified of the findings. If levels are below the OSHA Action Level (AL) of 30 micrograms of lead per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ), no further action is required unless

conditions change. If results are above the AL, but below the Permissible Exposure Limit (PEL) of  $50 \mu\text{g}/\text{m}^3$ , then medical surveillance and air sampling at least every 6 months is required. If exposures exceed the PEL, a written plan describing how lead exposures will be controlled is required. This program must be in writing and must include a description of the work being performed; the engineering, administrative, and PPE controls; blood and air monitoring results; and the work schedule. The plan is subject to review and revision at least every six months. Employers should also incorporate relevant aspects of their respiratory protection and medical surveillance program.

### EXPOSURE CONTROLS

If it is determined that lead exists at unhealthy levels, engineering, administrative, and personal protective equipment (PPE) controls must be implemented, in this order. Engineering controls consist of process changes such as chemical stripping of paint instead of abrasive blasting to reduce airborne lead concentrations. Providing exhaust ventilation and enclosures to prevent migration of lead are also examples of engineering controls. Administrative controls include employee rotation and medical removal of excessively exposed employees. PPE controls consist of respiratory protection, coveralls, and gloves. PPE must be selected based on the type of hazard and the nature of work to be performed. Specific guidance can be found within OSHA's lead standards. Along with the aforementioned controls, personal hygiene facilities such as hand washing facilities, showers, separate eating facilities and laundering services may



also be required. These potential controls should be selected prior to undertaking any capital improvement or renovation projects. Initially, owners or property managers should first determine the absence or presence of lead, evaluate the effectiveness and costs of potential controls, select controls, then ensure that exposure controls are being implemented effectively.

### ABATEMENT

If removal is determined to be the most appropriate course of action, or if employees are potentially exposed, the facility owner or operator may have qualified in-house staff or a licensed firm perform lead removal. Abatement of lead typically includes creating a negative air enclosure around the abatement worksite to prevent the spread of lead to clean areas. The lead is then physically removed by workers in protected clothing who bag the removed material for disposal. The abated areas as well as the air inside the containment area are then monitored prior to removal of the enclosure. Removal activities are subject to regulation under OSHA standards.

### WASTE MANAGEMENT

Facility owners and operators must ensure the proper disposal of all lead-containing materials. This includes contaminated materials such as paint chips, PPE, laundry, shower and hand washing wastewater, and rags used to decontaminate tools and equipment. These wastes must be properly classified and taken to

appropriate disposal facilities in accordance with US EPA (40 CFR Subchapter I, Subtitle C) and state-specific solid and hazardous waste regulations. Lead wastes must typically be managed as a hazardous waste with USEPA Waste Number D008; however, TSCA and USEPA policy have established less stringent disposal requirements for LBP debris in nonhazardous landfills.

### CONCLUSION

The presence of lead in an industrial or commercial facility need not create panic. Instead, facility owners and operators should implement best management practices that focus on identification, management, exposure control, abatement and waste management in order to prevent potential problematic exposures and liabilities.



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XL Environmental  
Risk Control Division  
505 Eagleview Boulevard  
Suite 100  
PO Box 636  
Exton, PA 19341-0636  
Phone: 800-327-1414  
Fax: 610-458-7285  
[www.xlenvironmental.com](http://www.xlenvironmental.com)

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