

## Lead Exposure Prevention Strategies

*Georgia Tech's Safety and Health Consultation Program is a free and confidential service funded by the U.S. Department of Labor and available to small businesses in the state of Georgia.*

### About Lead Exposure

Lead exposure in the workplace and the related toxic effects are well established. Lead in the human body serves no useful purpose; therefore, when lead enters the body it may damage any organ or body system. The health effects of lead exposure include, but are not limited to: problems with the liver; kidneys; blood-forming system; muscles and joints; and the central and peripheral nervous systems. Lead exposure is also linked to reproductive system disorders and sterility and/or impotence in males. Lead exposure may also result in irritability, fatigue, weight loss, high blood pressure, constipation, and insomnia. Lead exposure in the workplace can be prevented by using effective **engineering and work practice controls**.

### Some Operations that Generate Lead Dust and Fumes

Exposure to lead may arise from any operation that disturbs surfaces painted with lead-containing paint or in which lead is a product in the industrial process.

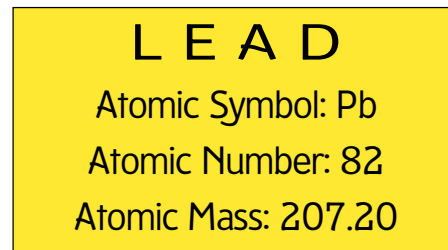
- abrasive blasting
- flame-torch cutting
- bridge repair
- welding
- dry sanding
- dry scrapping
- construction
- renovation
- demolition
- hydro-blasting
- use of heat guns
- battery making
- mining
- plumbing
- iron work
- wire making
- cable making
- electronics
- smelter work
- plastic manufacturers

### Workplace Airborne Exposure Levels

In an effort to reduce and maintain employee exposure at or below the permissible exposure limit (PEL), OSHA's hierarchy of controls requires the implementation of engineering controls. Employers must first determine if lead is present in the workplace. If so, then an exposure assessment (air monitoring) must be conducted in the workplace. Respiratory protection must be provided during the exposure assessment. If employees' exposure is:

≥ 30 µg/m<sup>3</sup> (**Action Level**), employers must conduct biological monitoring and training;

> 50 µg/m<sup>3</sup> (**Permissible Exposure Limit**), employers must install engineering controls and use respiratory protection accordingly.



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#### Engineering Controls

**Substitution** includes utilization of a material that is less hazardous, or implementing a process change or equipment change to capture lead particles at the point of generation.

**Isolation** limits workers' exposure to lead by placing workers who are not directly exposed at a greater distance from the source of exposure.

**Ventilation** of a lead-contaminated work area is best accomplished using local exhaust ventilation. Local exhaust ventilation captures the lead at or near the source of generation.

## Work Practice Controls

**Housekeeping** that includes a regular cleaning schedule to remove lead dust and debris will reduce lead exposure.

**Good personal hygiene practices** will reduce workers' lead exposure and the potential to ingest lead. This also limits the potential for lead to be transported out of the workplace and into workers' homes.

**Clean change areas, showers, clean eating facilities, hand-washing facilities, supervision, performance of task, periodic inspection and maintenance, and administrative controls** are work practice control measures that minimize additional sources of exposure that engineering controls may not capture.

## For More Information

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### Links to OSHA Web Site Advisors

General Industry\_29 CFR 1910.1025  
<http://www.osha-slc.gov/dts/osta/oshasoft/gilead.html>

Construction Industry\_29 CFR 1926.62  
<http://www.osha-slc.gov/dts/osta/oshasoft/LeadxWb.html>

More detailed information may be found in the OSHA Technical Manual Section V: Chapter 3.  
[http://www.osha-slc.gov/dts/osta/otm/otm\\_v/otm\\_v\\_3.html](http://www.osha-slc.gov/dts/osta/otm/otm_v/otm_v_3.html)

Or contact the Safety, Health, and Environmental Technology Division at 404.894.3806 or  
<http://www.oshainfo.gatech.edu>.

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