U.S. Army Center for Health Promotion and Preventive Medicine (Provisional)

Just the Facts

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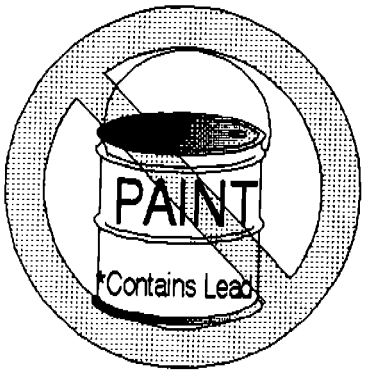
Lead-Based Paint Sampling



- **Installation Lead Teams, Inspectors, and Risk Assessors**
- **Methods**
- **Risk Assessment**

Why It Is Important to Sample for Lead-Based Paint

Sampling for lead-based paint (LBP) is an important part of a risk assessment to determine sources of lead exposure.

Sampling for LBP must occur in housing units and target facilities built prior to 1980 according to Department of Army (DA) policies; this also includes housing units and facilities transferred from DA control. DA policies contain specifics on sampling completion date.

Determining the lead concentration in paint enables the worker to use the proper personal protection before beginning any operations involving LBP.

Determining hazardous waste through analytical procedures is expensive. Using limited paint sampling to "screen" for the general presence of lead helps to determine if a hazardous waste exists.

When to Sample for Lead-Based Paint

The following are several situations which may call for analysis of lead concentration in paint:

- Investigating potential lead-exposure sources in the case of a lead-poisoned child.
- Performing risk assessments identifying potential lead exposures for occupants or maintenance personnel.
- Meeting property transferral requirements established in DA policies for buildings containing LBP.
- Establishing required worker protection for maintenance, renovation, abatement and demolition activities, according to Federal regulations, such as Title 29, Code of Federal Regulations, Part 1926.62.
- Determining if a particular waste product is hazardous.

How to Sample for Lead-Based Paint

DA policy, as well as Draft Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, contains specifics on sampling and sampling strategy.

A comprehensive survey provides the best health risk assessment; this includes sampling of all "unlike" painted surfaces on the interior and exterior of a building. A single paint-chip sample does not give an accurate picture of the extent or location of LBP.

Perform sampling for LBP using three methods:

- Paint Chip Laboratory Analysis Test
- Portable X-ray Fluorescence (XRF) Technology Test
- "Chemical Spot-Check" Test

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The advantages and disadvantages of the three methods are as follows:

METHOD	ADVANTAGES	DISADVANTAGES
Paint Chip Laboratory Analysis Test	Analyzed in a lab	Lengthy processing time
	Accurate results	High lab costs
	Results reflect lower as well as upper layers of paint	Many layers of paint may "dilute" results
		Destructive to painted surfaces
Portable XRF Technology Test	Performed onsite	Equipment is expensive
	Less destructive to painted surfaces	Requires trained operators
	Direct-reading	May not read accurately on some surfaces, such as brick and metal
		Requires operators to enroll in a dosimetry program
Chemical Spot-Check Test (sodium sulfide/rhodizonate)	Performed onsite	Other metals in paint can cause false positives
	Potential use as a screening tool on white paint with high lead content	Difficult to use on colored paint due to reliance on color change
		May fail to detect small amounts of lead or lead in bottom layer of paint
		Some surface destruction necessary
		Qualitative indicator

How To Interpret Sampling Results

The action level or "hazard level" for lead in paint is 1.0 milligram per square centimeter (mg/cm^2) when using XRF and 0.5 percent lead by weight when analyzing paint chips in a lab. Some states may have more stringent requirements. This is important when transferring Army property.

These results do not present an accurate picture of the true hazard to occupants or employees. A risk assessment is important because it considers the use and condition of the structure and the possible sources of lead (water, soil, etc.). A risk assessment, along with the results of LBP sampling, most accurately presents the health risks posed by LBP and lead in general. Consult the appropriate guidance before initiating a sampling program.

For More Information

◆ Memorandum, Office of the Assistant Secretary, 28 April 1993, subject: Lead-Based Paint Policy Guidance.

◆ Memorandum, Assistant Chief of Staff for Installation Management, DAIM-FDF-B, 5 November 1993, subject: Policy Guidance - Lead-Based Paint and Asbestos in Army Properties Affected by Base Realignment and Closure.

◆ U.S. Department of Housing and Urban Development, Office of Public and Indian Housing, September 1990 (pages 87, 89 and A14-111 revised May 1991), Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing.