



**The Environmental Institute**  
**LEAD-BASED PAINT (LBP) KEY TERMS AND UNITS OF MEASURE**  
V. 1-2021

---

**Units of Measurements**

<b>µg</b>	microgram; 1 millionth of a gram
<b>µg/ft<sup>2</sup></b>	micrograms per square foot, used for <u>dust wipe samples</u>
<b>ppm</b>	parts per million by weight (10,000 ppm = 1 percent)
<b>ppb</b>	parts per billion by weight (1000ppb = 1 ppm)
<b>µg/g</b>	micrograms per gram of sample, <u>equivalent to ppm by weight</u>
<b>percent</b>	percent by weight, used primarily for paint (1% = 10,000 ppm or µg/g)
<b>mg/cm<sup>2</sup></b>	milligrams per square centimeter, used for <u>paint</u>
<b>µg/m<sup>3</sup></b>	micrograms per cubic meter, used for <u>air samples</u>
<b>µg/dL</b>	micrograms per deciliter (dL), used for <u>blood samples</u>

=====

**Federal Lead Standards**

**Paint (surface coatings)**

<b>≥ 1.0 mg/cm<sup>2</sup></b>	Federal Lead definition for LBP ( <u>by XRF</u> )
<b>≥ 0.5%</b>	Federal Lead definition for LBP ( <u>by paint chip sampling</u> , same as 5000 ppm)
<b>≤ 90 ppm</b>	2009 <u>CPSC</u> LBP limit for paints/coatings in <u>homes and schools &amp; children's products</u> (same as 0.009%)

-----

**OSHA:** Any detectable level of lead in a surface coating...or any material



# The Environmental Institute

## LEAD-BASED PAINT (LBP) KEY TERMS AND UNITS OF MEASURE

V. 1-2021

---

### Lead Dust Levels for Hazard Screen (Wipe Sampling)

EPA:  $\geq 10 \mu\text{g}/\text{ft}^2$  floors &  $\geq 100 \mu\text{g}/\text{ft}^2$  window sills

HUD:  $\geq 25 \mu\text{g}/\text{ft}^2$  floors &  $\geq 125 \mu\text{g}/\text{ft}^2$  window sills

*NOTE: EPA 40 CFR Part 745 screens are based on composite sampling. HUD: single surface sampling. The lab must have specific NLLAP accreditation for composite analysis. There are few labs that can perform composite analysis. GA DOES NOT allow composite sampling.*

### Lead Dust Clearance Levels (HUD/EPA by Wipe Sampling)

GA: All clearance wipes are single surface, not composite samples.

<  $10 \mu\text{g}/\text{ft}^2$  floors (carpeted and uncarpeted)

<  $100 \mu\text{g}/\text{ft}^2$  interior window sills

<  $400 \mu\text{g}/\text{ft}^2$  window troughs (or window wells)

<  $800 \mu\text{g}/\text{ft}^2$  exterior concrete surfaces (**Georgia**)

Floors and sills as  
of March 8, 2021



### EPA Identification of Lead Hazards; Surfaces & Soil

$\geq 10 \mu\text{g}/\text{ft}^2$  floors (carpeted & uncarpeted) [wipe sample] (as of 1-6-2020)

$\geq 100 \mu\text{g}/\text{ft}^2$  interior window sills [wipe sample] (as of 1-6-2020)

$\geq 1,200 \text{ ppm}$  building perimeter and yard [soil sample]

$\geq 400 \text{ ppm}$  play areas and high-contact areas for children [soil sample]

Soil: replacement soil  $\leq 400 \text{ ppm}$  or equal to local “background” level

### HUD (24 CFR Part 35) Bare Residential Soil Recommendations

$\geq 5,000 \text{ ppm}$  paving or removal criteria

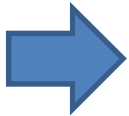
Soil: replacement soil  $\leq 400 \text{ ppm}$  or equal to local “background” level,  $\leq 200 \text{ ppm}$  if possible



# The Environmental Institute

## LEAD-BASED PAINT (LBP) KEY TERMS AND UNITS OF MEASURE

V. 1-2021



### All Lead-Based Paint Hazard Control (LBPHC) and Lead Hazard Reduction (LHRD) Demonstration Grantees

*Effective April 1, 2017*

#### Dust-Lead Action Levels (Wipe Sampling)

$\geq 10 \mu\text{g}/\text{ft}^2$  floors

$\geq 100 \mu\text{g}/\text{ft}^2$  window sills

#### Lead Clearance Action Levels (Wipe Sampling)

$< 10 \mu\text{g}/\text{ft}^2$  interior floors \*\*

$< 40 \mu\text{g}/\text{ft}^2$  porch floors \*\*

$< 100 \mu\text{g}/\text{ft}^2$  window sills

$< 100 \mu\text{g}/\text{ft}^2$  window troughs

NOTE: required use of these action levels **applies only** to the OLHCHH's LBPHC and LHRD grants, At this time these levels **do NOT apply** to any other HUD work or ANY EPA work.

\*\* The Dust-lead Action Levels **WILL be EPA's risk assessment values as of January 6, 2020**

#### **Approaches to being able to report results at the new Action Levels**

1. Use a 1 ft<sup>2</sup> floor sample area using one dust wipe: Laboratory already meets EPA National Lead Laboratory Accreditation Program (NLLAP) quality control requirements (e.g., Minimum Reporting Level  $< 5 \mu\text{g}/\text{ft}^2$  and Minimum Detection Level  $< \text{half the MRL}$ ), or will by the effective date; or
2. Use a 2 sf floor sample area using one dust wipe, with lab currently meeting NLLAP requirements.

*When in doubt, call your NLLAP lab for advice*



# The Environmental Institute

## LEAD-BASED PAINT (LBP) KEY TERMS AND UNITS OF MEASURE

V. 1-2021

---

### Airborne Lead Particulate

- ≥ 30  $\mu\text{g}/\text{m}^3$**  OSHA Action Level (8-hour time weighted average)
- ≥ 50  $\mu\text{g}/\text{m}^3$**  OSHA Permissible Exposure Limit (8-hour time weighted average)

### Hazardous Waste

- ≥ 5 ppm** EPA/RCRA TCLP Limit (Toxicity Characteristic Leaching Procedure)

*Note; this most often applies to non-housing waste; child-occupied facilities in commercial buildings and commercial/industrial work*

### Drinking Water Standards

- ≥ 15 ppb** EPA SDWA action level for drinking water (**S**afe **D**rinking **W**ater **A**ct)
- ≥ 20 ppb** HUD recommended “first draw” value for housing

### CDC and HUD Elevated Blood Lead Levels (EBL) for Children

- 5  $\mu\text{g}/\text{dL}$**  CDC Reference Value (children ages 1-5)  
(This was previously known as the Level of Concern)
- 20  $\mu\text{g}/\text{dL}$**  CDC/HUD definition of a child elevated blood lead level for a single test
- 15-19  $\mu\text{g}/\text{dL}$**  CDC/HUD definition of a child elevated blood lead level for two consecutive samples taken several months apart

### Elevated Blood Lead Levels - OSHA

- 40  $\mu\text{g}/\text{dL}$**  OSHA worker blood limit for medical surveillance, follow-up testing and medical removal return
- 50  $\mu\text{g}/\text{dL}$**  OSHA medical removal (two tests within two weeks)