



# Glossary

**AAAL:** American Association for Laboratory Accreditation. Also known as A2LA.

**Abatement:** A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

**Abrasion resistance:** Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

**Accessible surface:** Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

**Accreditation:** A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

**Accredited laboratory:** A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

**Accredited training provider:** A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

**Accuracy:** The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

**Acrylic:** A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

**Adhesion:** The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

**Administrative removal:** The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

**AIIHA:** American Industrial Hygiene Association.

**ALC:** See Apparent Lead Concentration.

**Aliquot:** See Subsample.

**Alkali:** A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

**Alkyd:** Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

**Apparent Lead Concentration (ALC):** The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

**Bare soil:** Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

**Bias:** A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

**Biennial report (for hazardous waste):** A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

**Binder:** Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

**Biological monitoring:** The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or  $\mu\text{g}/\text{dL}$ . They are also expressed in micromoles per liter ( $\mu\text{mol}/\text{L}$ ).

**Blank:** A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

**Blind sample:** A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

**Blood lead threshold:** Any blood lead level greater than or equal to  $10 \mu\text{g}/\text{dL}$  as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

**Building component:** Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

**Building component replacement:** See Replacement.

**Cementitious material:** A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

**Centimeter:** See cm.

**Certification:** The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

**Certified:** The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

**Certified Industrial Hygienist (CIH):** A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

**Certified reference material (CRM):** Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

**CFR:** See Code of Federal Regulations.

**Chalking:** The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.



**Characteristics (of hazardous waste):** EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

**Chewable surface:** See Chewed surface and Accessible surface.

**Chewed surface:** Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

**CLC:** See Corrected Lead Concentration (CLC).

**Cleaning:** The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

**Clearance examination:** Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

**Clearance examiner:** A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

**cm:** Centimeter; 1/100 of a meter.

**Code of Federal Regulations (CFR):** The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

**Cohesion:** Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

**Common area:** A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

**Competent person:** As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

**Complete abatement:** Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

**Compliance plan:** A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

**Composite sample:** A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

**Containment:** A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

**Contingency plan:** A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

**Corrected Lead Concentration (CLC):** The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

**Detection limit:** The minimum amount of a substance that can be reliably measured by a particular method.

**Deteriorated lead-based paint:** Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligating, cracking, or otherwise becoming separated from the substrate.

**Digestion blank:** A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

**Direct-reading XRF:** An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in  $\text{mg}/\text{cm}^2$  (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

**Disposal (of hazardous waste):** The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

**Disposal facility:** A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

**Door mat:** See Walk-off mat.

**Dust removal:** A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

**Dust trap:** A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

**EBL child:** See Elevated Blood Lead level (EBL) child.

**Efflorescence:** The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

**Elastomeric:** A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

**Elevated Blood Lead level (EBL) child:** A child who has a blood lead level greater than or equal to  $20 \mu\text{g}/\text{dL}$  or a persistent  $15 \mu\text{g}/\text{dL}$ . See also Blood lead threshold.

**Encapsulation:** Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

**Enclosure:** The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.



**Engineering controls:** Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

**Epoxy paint:** Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

**Evaluation:** Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

**Examination:** See Clearance examination.

**Examiner:** A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

**Exposure monitoring:** The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

**Exterior work area:** For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

**Facility (pertaining to hazardous waste):** All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

**Federal Register (FR):** A daily Federal publication that contains proposed and final regulations, rules, and notices.

**Fibermat:** A semirigid woven material attached with a liquid adhesive to a surface or substrate.

**Field blank:** A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

**FR:** See *Federal Register (FR)*.

**Friction surface:** Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

**Generator:** Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

**Generator identification number:** The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

**Hazardous waste:** As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.



**Investigator:** A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

**Laboratory analysis:** A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

**Landfill:** A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

**Landfill liner:** A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

**Latex:** A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

**Lead:** Lead includes metallic lead and inorganic and organic compounds of lead.

**Lead-based paint:** Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm<sup>2</sup> as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 µg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

**Lead-based paint hazard:** A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards

include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

**Lead-based paint hazard control:** Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

**Lead-based paint abatement planner/designer:** An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

**Lead-based paint abatement worker:** See Worker.

**Lead carbonate:** A pigment used in some lead-based paints as a hiding agent; also known as white lead.

**Lead-contaminated dust:** Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 µg/ft<sup>2</sup> on floors, 500 µg/ft<sup>2</sup> on interior window sills, and 800 µg/ft<sup>2</sup> on window troughs. The recommended standard for lead hazard screens for floors is 50 µg/ft<sup>2</sup> and for window troughs is 400 µg/ft<sup>2</sup>.

**Lead-contaminated soil:** Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 µg/g for high-contact play areas and 2,000 µg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 µg/g should be abated by removal or paving.

**Lead-free dwelling:** A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

**Lead hazard screen:** A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

**Lead-poisoned child:** A child with a single blood lead level that is greater than or equal to 20 µg/dL or consecutive blood lead levels greater than or equal to 15 µg/dL. Local definitions may vary.

**Lead-specific detergent:** A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

**Leaded dust:** See Lead-contaminated dust.

**Leaded zinc:** A paint primer made from zinc oxide and lead sulfates.

**Licensed:** Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

**Listed waste:** A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

**Maintenance:** Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

**Manifest:** The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport

from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

**Mat:** See Walk-off mat.

**Matrix blank:** A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

**MDL:** See Method detection limit (MDL).

**Mean:** The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

**Medical removal:** The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

**Method blank:** See Digestion blank.

**Method detection limit (MDL):** The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

**mg:** Milligram; 1/1,000 of a gram.

**Microgram:** See µg.

**Mil:** 1/1,000 of an inch; used to measure thickness.

**Milligram:** See mg.

**Monitoring:** Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected





lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

**Monofil:** A State-approved landfill that accepts only construction debris.

**Mouthable surface:** See Chewed surface.

**Multifamily housing:** Housing that contains more than one dwelling unit per location.

**NLLAP requirements:** Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

**Offsite paint removal:** The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

**Ongoing monitoring:** See Monitoring.

**Owner:** A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

**Oxidation:** A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

**Paint film stabilization:** The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

**Paint removal:** An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

**Patch test:** A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

**Personal breathing zone samples:** Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

**Personal Protective Equipment (PPE):** Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total non-volatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.



**Reference material:** A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

**Reinspection:** See Reevaluation.

**Removal:** See Paint removal.

**Renovation:** Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

**Replacement:** A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

**Representative sample:** A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

**Resident:** A person who lives in a dwelling.

**Resource Conservation and Recovery Act (RCRA):** The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

**Risk assessment:** An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of child-bearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

**Risk assessment screen:** A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

**Risk assessor:** A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

**Sample site:** A specific spot on a surface being tested for lead concentration.

**Saponification:** The chemical reaction between alkalis and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

**Screen:** See Risk assessment screen or Lead hazard screen.

**Screening:** The process of testing children to determine if they have elevated blood lead levels.

**Secondary prevention:** The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

**SEL:** See Substrate Equivalent Lead (SEL).

**Site:** The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

**Small-quantity generator:** Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

**Soil:** See Bare soil.

**Solid waste:** As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

**Spectrum analyzer:** A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

**Spiked matrix:** See Spiked sample.

**Spiked sample:** A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

**Spot-prime:** To apply a paint primer to localized areas of exposed substrate.

**Standard deviation:** A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

**Standard reevaluation schedule (SRS):** A schedule that determines the frequency that reevaluations should be performed on a property.

**Standard reference material (SRM):** A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

**Subsample:** A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

**Substrate:** A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

**Substrate effect:** The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.



**Substrate Equivalent Lead (SEL):** The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula:  $\text{Apparent Lead Concentration} - \text{Substrate Equivalent Lead} = \text{Corrected Lead Concentration}$ . See also **Apparent Lead Concentration (ALC)**, **Corrected Lead Concentration (CLC)**, and **XRF analyzer**.

**Target housing:** Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

**Targeted sample:** A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multi-family housing when it is not possible to select a worst-case sample. See also **Worst-case sample** and **Random sample**.

**TCLP:** See **Toxicity Characteristic Leaching Procedure (TCLP)**.

**Tertiary prevention:** Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

**Testing combination:** A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

**Test location:** A specific area on a testing combination where XRF instruments will test for lead-based paint.

**Toxicity Characteristic Leaching Procedure (TCLP):** A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

**Trained:** Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

**Transporter:** A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

**Treatment:** In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste “treatment” is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

**Treatment, Storage, and Disposal (TSD) facility:** A facility licensed to handle hazardous waste.

**Trisodium phosphate (TSP) detergent:** A detergent that contains trisodium phosphate.

**Trough:** See **Window trough**.

**Truck-mounted vacuum unit:** A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

**TSD:** See **Treatment, Storage, and Disposal (TSD) facility**.

**TSP:** See **Trisodium phosphate (TSP) detergent**.

**µg (or ug):** Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 µg).

**Urethane-modified alkyd:** An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

**Useful life:** The life expectancy of a coating before it requires refinishing or some other form of maintenance.

**VOC:** See Volatile Organic Compound (VOC).

**Volatile Organic Compound (VOC):** Substances that vaporize or evaporate from a coating during the coating or curing process.

**Walk-off mat:** A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

**White lead:** A white pigment, usually lead carbonate. See also Lead carbonate.

**Window sill:** See Interior window sill.

**Window stool:** See Interior window sill.

**Window trough:** For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

**Window well:** The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

**Worker:** An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

**Worksite:** Any interior or exterior area where lead-based paint hazard control work takes place.

**Worksite preparation level:** A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

**Worst-case sample:** A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

**XRF analyzer:** An instrument that determines lead concentration in milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.