

CHAPTER 17 LEAD-BASED PAINT

C17.1 SCOPE

This Chapter contains criteria to establish and implement a lead hazard management program to identify, control or eliminate lead-based paint hazards, through interim controls or abatement, in child-occupied facilities and military family housing, in a manner protective of human health and the environment. Policy requirements for a comprehensive Occupational Health and Safety program are not covered in this Chapter. To protect personnel from lead exposure, refer to DoDI 6055.1, "DoD Occupational Safety and Health Program," DoDI 6055.5, "Industrial Hygiene and Occupational Health" and concomitant service instructions.

C17.2 DEFINITIONS

Abatement. Any set of measures designed to permanently eliminate lead-based paint or lead-based paint hazards. Abatement includes the removal of lead-based paint and lead-contaminated dust, the permanent enclosure or encapsulation of lead-based paint, the replacement of components or fixtures painted with lead-based paint, and the removal or covering of lead-contaminated soil. Abatement also includes all preparation, cleanup, disposal, and post-abatement clearance activities associated with such measures.

Accessible Surface. An interior or exterior surface painted with lead-based paint that is accessible for a young child to mouth or chew.

Bare Soil. Soil, including sand, not covered by grass, sod, or other live ground covers, or by wood chips, gravel, artificial turf, or similar covering.

BAT-Value. Biological Tolerance of Occupational Substances. This is the concentration of a substance (in blood or urine) that generally does not impair employees' health.

Child-Occupied Facility. A facility, or portion of a facility, visited regularly by the same child, 6 years of age or under, on at least 2 different days within any week, provided that each day's visit lasts at least 3 hours and the combined weekly visits last at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day-care centers, preschools, playgrounds, and kindergarten classrooms.

Clearance. Visual evaluation and testing (collection and analysis of environmental samples) conducted after lead-based paint hazard reduction activities, interim controls, and standard treatments to determine that the work is complete and no lead-contaminated bare soil or lead-contaminated settled dust exists in a facility in which children under the age of 6 frequent.

Deteriorated Paint. Any interior or exterior paint or other coating that is peeling, chipping, chalking, cracking or is otherwise damaged or separated from the substrate.

DIN. *Deutsches Institut für Normung, e.V.* German Institute for Standardization, registered association.

Elevated Blood Lead Level. A confirmed concentration of lead in whole blood of 20 µg/dL (micrograms of lead per deciliter) for a single test, or of 15-19 µg/dL in two tests taken at least 3 months apart.

Encapsulation. The application of any covering or coating that acts as a barrier between the lead-based paint and the environment. Encapsulation may be used as a method of abatement if it is designed to be permanent.

Enclosure. The use of rigid, durable construction materials that are mechanically fastened to the substrate in order to act as a barrier between lead-based paint and the environment. Enclosure may be used as a method of abatement if it is designed to be permanent.

Evaluation. A visual evaluation, risk assessment, risk assessment screen, paint inspection, paint testing, or a combination of risk assessment and paint inspection to determine the presence of deteriorated paint, lead-based paint, or a lead-based paint hazard.

Friction Surface. An interior or exterior surface that is subject to abrasion or friction, including but not limited to, window, floor, and stair surfaces.

Hazard Reduction. Measures designed to reduce or eliminate human exposure to lead-based paint hazards through methods including interim controls or abatement or a combination of the two.

Impact Surface. An interior or exterior surface that is subject to damage by repeated sudden force, such as certain parts of doorframes.

Interim Controls. A set of measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards. Interim controls include, but are not limited to, repairs, occasional and ongoing maintenance, painting, temporary containment, specialized cleaning, clearance, ongoing activities, and the establishment and operation of management and resident education programs.

Lead-Based Paint. Paint or other surface coatings that contain lead equal to or exceeding 1.0 milligram per square centimeter, or 0.5 percent by weight or 5,000 parts per million (ppm) by weight.

Lead-Based Paint Hazard. Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, or lead-contaminated paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces, and that would result in adverse human health effects.

Lead-Based Paint Inspection. A surface-by-surface investigation to determine the presence of lead-based paint and the provision of a report explaining the results of the investigation.

Lead-Contaminated Dust. Surface dust that contains an area concentration of:

Surface Concentrations		
Floors (mg/ft ²)	Interior Window Sills (mg/ft ²)	Window Troughs(mg/ft ²)
100	500	800

Notes:

"Floors" includes carpeted and uncarpeted floors.

For metric units, 1 µg/ft² = 0.01076 mg/m²; thus 250 µg/ft² = 2.7 mg/m², etc.

Lead-Contaminated Soil. Bare soil containing lead at or exceeding a concentration of 400 ppm in high contact play areas, or 2,000 ppm in areas where contact by children is less likely or frequent.

MAK-value (*Maximale Arbeitsplatzkonzentration*). Maximum workplace concentration value. This is the concentration of a substance in the air at workplace that in general does not impair the health of the employees.

Permanent. An expected design life of at least 20 years.

Reevaluation. A visual evaluation of painted surfaces and limited dust and soil sampling conducted periodically following lead-based paint hazard reduction where lead-based paint is still present.

Replacement. A strategy of abatement that entails removing building components that have surfaces coated with lead-based paint (such as windows, doors, and trim) and installing new components free of lead-based paint.

Risk Assessment. An on-site investigation to determine the existence, nature, severity, and location of lead-based paint hazards and the provision of a report explaining the results of the investigation and options for reducing lead-based paint hazards.

Risk Assessment Screen. A sampling protocol that is used in dwellings that are in relatively good condition and where the probability of finding lead-based hazards are low. The protocol involves inspecting such dwellings and collecting samples from representative locations on the floor, interior window sills, and window troughs to determine whether conducting a risk assessment is warranted.

State of the Art (*Stand der Technik*). State of development of progressive processes (*Entwicklungsstand fortschrittlicher Verfahren*). Facilities or operating procedures, which seem to warrant the practical suitability of a procedure to protect health; (*Einrichtungen oder Betriebsweisen, der die praktische Eignung einer Maßnahme zum Schutz der Gesundheit gesichert erscheinen läßt*).

TRK-Value (*Technische Richtkonzentration*). Technical Concentration Limit. This is the concentration of a toxic or hazardous substance in the air at a workplace that is feasible provided that state of the art work-processes and methods are implemented.

C17.3.1 GENERAL REQUIREMENTS

All installations will:

- C17.3.1.1 Develop and implement a multi-disciplinary lead-based paint hazard management program to identify, evaluate, and reduce lead-based paint hazards in child-occupied facilities and military family housing.
- C17.3.1.2 Manage identified lead-based paint hazards through interim controls or abatement.
- C17.3.1.3 Identify lead-based paint hazards in child-occupied facilities and military family housing using any or all of the following methods.
 - C17.3.1.3.1 Lead-based paint risk assessment screen. If screen identifies dust-lead levels $>50 \mu\text{g}/\text{ft}^2$ for floors, $250 \mu\text{g}/\text{ft}^2$ for interior window sills, or $400 \mu\text{g}/\text{ft}^2$ for window troughs, perform lead-based paint risk assessment.
 - C17.3.1.3.2 Lead-based paint risk assessments.
 - C17.3.1.3.3 Routine facility inspection for fire and safety.
 - C17.3.1.3.4 Occupant, facility manager, and worker reports of deteriorated paint.
 - C17.3.1.3.5 Results of childhood blood lead screening or reports of children identified to have elevated blood lead levels.
 - C17.3.1.3.6 Lead-based paint reevaluations.
 - C17.3.1.3.7 Review of construction, painting, and maintenance histories.
- C17.3.1.4 Ensure occupant and worker protection measures are taken during all maintenance, repair, and renovation activities that disturb areas known or assumed to have lead-based paint.
 - C17.3.1.4.1 During work activities, releases of lead dust must be reported to the proper labor supervisor.
 - C17.3.1.4.2 Work activities must be performed using state of the art technology to ensure lead-based gases, fumes, or airborne dusts will not escape.
 - C17.3.1.4.3 During work activities, an expert must measure airborne lead dust concentrations. Experts can be in-house personnel, contracted environmental consultants, or analytical/chemical laboratory personnel. While there is no published regulation, standard, or guideline that establishes the qualifications required of an expert, the measurement of airborne lead dust concentrations should be conducted by environmental or chemical technicians with proficiency in their field. In keeping with German industry standards, technicians typically must have two years or more of training at a technical school in order to be professionally accredited.

While German regulations do not contain specific requirements or provide detailed guidelines for the timing, location, or frequency of air sample collection, a specialist (e.g., environmental engineer or chemist) should develop a site-specific monitoring plan for each project conducted in an indoor area (i.e., workplaces or housing). The plan should include details on the placement of sampling devices, the number of sample locations, sampling time, and provisions for pre-cleaning and aggressive air sampling. The resulting monitoring data must be reported and maintained for at least 30 years.

The analytical method for the measurement of airborne lead particles is the German standard, DIN EN 13890, which should be used for workplaces, housing, and outdoor areas. Laboratories with ISO 45000 accreditation for the parameter lead are qualified to conduct analyses for airborne lead particles.

- C17.3.1.4.4 Operating instructions for emergencies and first aid must be developed to inform local national employees about potential dangers, personal protection measures, and similar issues. These operating instructions must be clearly written and available in the employee's language.
- C17.3.1.4.5 The storage of food and luxury items, including tobacco, at work sites is prohibited. The consumption of food at work sites is also prohibited.
- C17.3.1.4.6 During work activities, local national employees as well as all other persons being exposed to lead dust, are required to wear a half-face or full-face respirator equipped with high efficiency particulate air (HEPA) cartridges/filters or personal protective equipment that offers an equivalent or higher level of respiratory protection.

When an employer or building owner determines, through personal air monitoring or area monitoring, that the concentration of lead dust in the air to which the employee(s) could be exposed has either increased or decreased, then respirator selection can be adjusted accordingly. In addition, if exposure monitoring or experience indicates airborne exposures to contaminants other than lead, such as solvents or polyurethane coatings, these exposures must be considered when selecting respiratory protection for anyone exposed. A reevaluation of the respiratory protection program is required when personnel demonstrate a continued increase in blood lead levels.

For abrasive blasting and related operations, the use of abrasive blasting airline respirators is recommended. The manufacturer's instructions regarding quality of air, air pressure, and inside diameter and length of hoses must be strictly followed.

Warm and running water and skin protective detergents for cleaning must be available during work activities.

- C17.3.1.4.7 The MAK-value for lead and lead compounds is 0.1 mg Pb/m³ air.
- C17.3.1.4.8 The BAT-value for local national employees for lead and lead compounds is 700 µg Pb/L in blood and a maximum of 15 mg/L delta-aminolevulinic acid in

- urine (BAT-value for women under 45 years of age is 300 µg Pb/L in blood and a maximum of 6 mg/L delta-aminolevulinic acid in urine).
- C17.3.1.4.9 Local national employees engaging in work activities are to be medically monitored. If the BAT-value is exceeded for a particular local national employee, the local national employee should then be assigned work at low- or no-exposure sites.
- C17.3.1.4.10 If the MAK-value is exceeded at the work site or BAT-values are exceeded for a particular local national employee, personal protection equipment must be provided by the employer and worn by the employees.
- C17.3.1.4.11 Work activities requiring the use of personal protection equipment and filter masks should be minimized to the extent possible.
- C17.3.1.4.12 In the event of distinct increased lead exposures and MAK-value exceedances, the work site must be closed. Access to such work sites must be limited to employees conducting repairs.
- C17.3.1.4.13 Work sites must be cleaned so the air limit values of 2.0 mg Pb/m³ and 0.25 mg Pb/m²d are not exceeded.
- C17.3.1.5 Disclose to occupants of child-occupied facilities and military family housing the presence of any known lead-based paint or lead-based paint hazards and provide information on lead-based paint hazard reduction. In addition, inform occupants of military family housing, prior to conducting remodeling or renovation projects, of the hazards associated with these activities, and provide information on protecting family members from the hazards of lead-based paint.
- Provide residents with a document that requires their signature to acknowledge that they have been informed of the lead-based paint or lead-based paint hazards. Provide this document/form, and request that it be signed by the resident prior to their housing assignment and prior to remodeling or renovation projects. Maintain the signed document with the resident's housing file.
- C17.3.1.6 Ensure that all personnel involved in lead-based activities, including paint inspection, risk assessment, specification or design, supervision, and abatement, are properly trained.
- C17.3.1.6.1 All local national employees involved in lead-based paint and lead dust activities must be instructed prior to initiating work activities. The instruction must address operating procedures, protective measures, and employment restrictions. The instruction must be repeated yearly and renewed for each work site. The content and the date/time of the instruction have to be documented and confirmed by the local national personnel receiving the instruction via their signature. This instruction requirement is associated with construction work sites and the supervision of work activities. This requirement is not associated with the conduct of inspections or risk assessments or the development of specifications or designs.
- C17.3.1.7 Dispose of lead-containing waste as hazardous waste in accordance with Chapter 6, Hazardous Waste.

- C17.3.1.8 It is prohibited to use paints containing anhydrous, neutral lead carbonate, lead hydrocarbonate or lead sulfate. Exception: Use of such paint for maintenance or restoration of works of arts and historic components as well as for the furnishing of monuments true to original provided that the use of substitutes is not possible.
- C17.3.1.9 It is prohibited to use lead-based paints with more than 2 percent by weight of lead for spray painting use.
- C17.3.1.10 Containers of 125 mL or greater of lead-based paints with more than 0.15 percent lead by weight (determined according to ISO 6503/1984) must be labeled with the following:

“Contains lead. Do not use for the painting of objects
possibly being chewed or sucked by children.”

Containers of less than 125 mL of lead-based paints with more than 0.15 percent by weight (determined according to ISO 6503/1984) must be labeled with the following:

“Caution! Contains Lead”

- C17.3.1.11 Lead-based hazardous substances, including lead-based paints, must be stored so human health and the environment will not be affected. Lead-based hazardous substances must be stored in packaging that cannot be confused with food packaging. It is not prohibited to store lead-based hazardous substances in the vicinity of drugs, food, or feed.