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CHAPTER 9.4 MATERIALS THAT CONTAIN LEAD: HOW TO WORK WITH THEM SAFELY

9.4.1. Applicability of this chapter

9.4.1.1 You are required to follow this chapter if you do any task involving materials that contain lead, such as:

- a. Removing lead-containing paints by any method such as grinding, buffing, scraping, burning or chemical peeling.
- b. Welding or torching cut metal coated with lead-containing paint.
- c. Performing abrasive blast on surfaces coated with lead-containing paints.
- d. Preparing surfaces where lead is present.
- e. Applying lead paint.

9.4.2. Requirements for working with lead

Lead is a toxic material. Chronic or long-term overexposure may produce lead poisoning. Symptoms include headaches, stomach cramps, dizziness, drowsiness, tremors, loss of feeling, muscular aches, and pains. Prolonged exposure can affect the kidneys, bone marrow, and nervous and reproductive systems. Employees who do any of the tasks in paragraph 9.4.1 shall:

- a. Follow 29 CFR 1910.1025, "Lead," and 29 CFR 1926.62, "Lead," for construction.
- b. Determine whether any hazardous materials are involved before working on any kind of maintenance or renovation project. These include lead, chromium, asbestos, and other physical, chemical, or biological hazards.

9.4.3. Lead exposure limits

The permissible exposure limit (PEL) for lead is an airborne concentration of 50 micrograms per cubic meter of air (50 $\mu\text{g}/\text{m}^3$) averaged over an 8-hour period. The action level for lead is an airborne concentration of 30 $\mu\text{g}/\text{m}^3$ of air calculated as an 8-hour time-weighted average.

9.4.4. Exposure monitoring

9.4.4.1 Supervisors whose employees perform any operations where lead-containing materials may become airborne, posing an inhalation hazard shall:

- a. First determine whether any employee is or will be exposed at or above the action level, as required in 29 CFR 1910.1025(d) and 29 CFR 1926.62(d) for construction. If you do not have personnel who are trained and equipped to do the evaluation, contact Occupational Health at x36726 or Email jsc-dl-occ-health@mail.nasa.gov and they will do the evaluation.
- b. Provide initial and periodic exposure monitoring and feedback to employees as required in 29 CFR 1910.1025(d) and 29 CFR 1926.62(d) for construction
- c. Provide employees the opportunity to observe monitoring as required by 29 CFR 1910.1025(o) and 29 CFR 1926.62(o) for construction.

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9.4.5. Protection from exposure

9.4.5.1 Until an employer conducts exposure monitoring, the employer shall assume employee exposure to lead will exceed the PEL and provide employees with the following:

- a. Exposure controls as required by 29 CFR 1910.1025(e) and 29 CFR 1926.62(e) for construction.
- b. Appropriate respiratory protection as required by 29 CFR 1910.1025(f) and 29 CFR 1926.62(f) for construction or before completing a lead exposure assessment in areas where there is a high risk of airborne lead exposure.
- c. Appropriate protective work clothing and equipment as required by 29 CFR 1910.1025(d) and 29 CFR 1926.62(d) for construction.
- d. Proper housekeeping as required by 29 CFR 1910.1025(h) and 29 CFR 1926.62(h) for construction. Vacuuming with high-efficiency particulate air (HEPA) filtration is the preferred method of cleaning surfaces and clothing.
- e. Hygiene facilities and practices as required by 29 CFR 1910.1025(i) and 29 CFR 1926.62(i) for construction, such as clean change areas, hand-washing facilities and eating areas.
- f. Posting signs as required by 29 CFR 1910.1025(m) and 29 CFR 1926.62(m) for construction.

9.4.6. Respiratory protection

9.4.6.1 Employees working around lead shall use respiratory protection:

- a. When engineering and work practice controls cannot reduce exposures below the PEL.
- b. When an employee requests it.
- c. Before completing a lead exposure assessment in areas where there is a high risk of airborne lead exposure.

See Chapter 7.2, "Respiratory Protection," for more requirements.

9.4.7. Protective work clothing and equipment

9.4.7.1 When exposure to lead exceeds the PEL, the employer shall provide employees with clean and dry protective clothing. Never take lead-contaminated clothing home or remove dust by blowing or shaking. This includes clothing such as:

- a. Coveralls.
- b. Gloves.
- c. Shoes.
- d. Face shields.
- e. Vented goggles.
- f. Other appropriate protective equipment.

9.4.8. Housekeeping

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Employees shall keep all surfaces as free as possible of lead dust and follow specific work practices. Never use compressed air hoses for cleaning unless they are used in conjunction with a ventilation system.

9.4.9. Hygiene facilities and practices

9.4.9.1 Employees shall use wash facilities whenever they are exposed to lead. Once an exposure to lead exceeds the PEL, the employer shall provide the following:

- a. Change areas.
- b. Showers (where feasible).
- c. Eating areas.

9.4.10. Posting signs

Supervisors over lead work areas shall post signs in areas exceeding the PEL to keep untrained and unprotected personnel from entering the area. These signs shall include the appropriate language from the applicable standard, 29 CFR 1910.1025 or 29 CFR 1910.62.

9.4.11. Medical surveillance

9.4.11.1 Initial medical surveillance tests for blood lead (PbB) and Zinc Protoporphyrin (ZPP) levels is required if an employee is exposed to lead above the action level on any 1 day. Periodic blood tests for PbB and ZPP are required if an employee is exposed to lead above the action level for more than 30 days in any 12-month period. Medical surveillance shall follow 29 CFR 1910.1025(j) and 29 CFR 1926.62(j) for construction. A program of periodic medical exams shall be made available when employees:

- a. Have a PbB test at or above 40 µg/dl.
- b. Notify their employer they have signs of lead intoxication.
- c. Desire medical advice on the ability to produce a child.
- d. Become pregnant.
- e. Have difficulty breathing during a respirator fit test or during use.

See Chapter 3.6, "Occupational Healthcare Program," for more information.

9.4.12. Medical removal protection

Medical removal protection ensures employees will be removed from any type of work where lead exposures exceed the action level, as required by 29 CFR 1910.1025(k) and 29 CFR 1926.62(k) for construction.

9.4.13. Information and training

9.4.13.1 If an exposure to lead equals or exceeds the action level on any 1 day, employees shall have yearly lead training as required by 29 CFR 1910.1025(l) and 29 CFR 1926.62(l) for construction that includes:

- a. Content of the OSHA standard.

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- b. Specific exposure-producing operations.
- c. Respiratory protection program.
- d. Medical surveillance programs.
- e. Methods of compliance.
- f. Written compliance program.
- g. Use of chelating agents.
- h. Access to records.

NOTE: See Chapter 4.1, “Safety and Health Training,” for more information.

9.4.14. Records

Employers shall maintain records as required by 29 CFR 1910.1025(n) and 29 CFR 1926.62(n) for construction, and make all records available on request to employees, former employees, their designated representatives, and OSHA.