

## **MAJOR PROGRAM POINT**

# **"WORKING WITH LEAD EXPOSURE IN CONSTRUCTION ENVIRONMENTS"**

**Part of the "CONSTRUCTION SAFETY KIT" Series**

**"Quality Safety and Health Products, for Today...and Tomorrow"**

# **OUTLINE OF MAJOR PROGRAM POINTS**

The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **In 1978, OSHA issued its "Lead Standard for General Industry."**
  - It did not apply to construction environments.
  
- **In 1993, OSHA issued the Interim Final Rule for Lead Exposure in Construction.**
  - This extended the same protection provided by the general industry standard to construction workers.
  - The standards are very similar.
  - Most differences deal with tasks of short duration experienced in construction work.
  
- **Lead is a toxic substance.**
  - Long-term exposure can cause serious health problems.
  - Absorbed in large amounts, lead can even be deadly.
  
- **Breathing airborne lead dust and fumes is the most common route of entry.**
  - But lead can also be ingested.
  
- **Once it is absorbed by the body, lead collects in a number of areas, including:**
  - The bloodstream.
  - Bones.
  - Other tissues.
  
- **Overexposure to lead can occur in two ways:**
  - "Long-term"...where small amounts accumulate in the body over time.
  - "Acute"...where large amounts are absorbed in a short period.

- **Health affects of long-term overexposure to lead can include damage to:**
  - Blood.
  - Kidneys.
  - Nervous system.
  - Reproductive system.
- **Common symptoms of long-term overexposure include:**
  - A metallic taste.
  - A loss of appetite.
  - Nausea.
  - Constipation.
  - Headache.
  - Dizziness.
  - Insomnia.
  - Hyperactivity.
  - Excessive tiredness.
  - Weakness.
  - Pain/soreness in muscles and joints.
- **The major health affect of acute overexposure to lead is "encephalopathy." It:**
  - Affects the brain.
  - Can quickly cause seizures, coma and death.
- **Symptoms of acute overexposure to lead include:**
  - A feeling of dullness.
  - Drowsiness.
  - Grogginess.
  - Poor memory.
  - Restlessness.
  - Irritability.
  - Tremors.
  - Convulsions.
  - Vomiting.
- **Workplace exposures to deadly amounts of lead are very unusual, but not impossible.**

- **OSHA has set a "permissible exposure limit" (PEL) of 50 micrograms of lead per cubic meter of air.**
  - This is the maximum exposure permitted per hour over an 8-hour day.
  
- **OSHA has also set an "action level" of 30 micrograms of lead per cubic meter of air. It is:**
  - Lower than the PEL.
  - The concentration at which employers are required to provide training and take precautionary measures.
  
- **If you undergo OSHA-mandated training you will receive instruction in a number of areas, including:**
  - The OSHA standards.
  - Jobs that can result in lead exposure.
  - Associated health hazards.
  - Your employer's written compliance program.
  - Engineering and work practice controls that can limit exposure.
  - The use of respirators.
  - Cleaning and decontamination practices.
  - Your company's medical surveillance and benefits program.
  
- **Employers must provide this information and training:**
  - Prior to any new job assignments involving lead.
  - Upon request, at any time.
  
- **OSHA has also set up specific "exposure risk assessment" procedures. They:**
  - Measure airborne lead concentration.
  - Must be used by employers when new operations or tasks are taking place.
  - Are based on air monitoring results or "accepted industry standards".
  
- **If the assessment shows lead concentrations above the action level, employers must conduct "initial air monitoring".**
  - Air samples are collected over an 8-hour workshift.
  - The samples are then tested for lead concentration.

- **In the construction industry some tasks are of very short duration.**
  - But they can still have the potential for high exposure to lead.
  - Workers must be protected in these situations.
  - The construction industry standard provides "interim protection" while waiting for the results of air monitoring.
  
- **OSHA has divided construction tasks into three categories.**
  - They are based on the potential for airborne lead concentration.
  - Each category requires different types of respirators to be used.
  
- **The first category includes tasks with potential exposure of ten times the PEL. Where lead-based paint is present, this includes:**
  - Manual demolition.
  - Manual scraping.
  - Manual sanding.
  - Heat gun use.
  - Paint removal with power tools (that have dust collection systems).
  
- **The second category deals with concentrations of up to 50 times the PEL. This includes:**
  - Rivet busting.
  - Paint removal with power tools (that don't have dust collection systems).
  - Moving "abrasive blasting enclosures".
  - Cleanup.
  - Lead burning.
  - Using mortar containing lead.
  
- **The third category deals with tasks generating concentrations exceeding 50 times the PEL, including:**
  - Abrasive blasting.
  - Welding.
  - Cutting.
  - Torch burning.

- **For any category of exposure your employer will provide you with the appropriate personal protective equipment (PPE).**
- **The three categories have been set up to provide "interim" protection for workers while they are waiting for the results of air monitoring.**
  - When the results are received, employers can adjust protection measures accordingly.
- **If air monitoring shows lead concentrations to be below the action level, no air sampling is required until conditions change.**
- **If monitoring shows concentrations that are at or above the action level:**
  - Additional air monitoring is required.
  - Monitoring will be conducted at different intervals (depending on the concentrations).
- **If the results of monitoring show concentrations to be below the PEL, use of PPE may be discontinued.**
- **If the lead concentration is above the PEL, exposure controls required by the standard must be used to reduce exposure to below the PEL.**
- **Your employer must inform you of the results of any air monitoring that is conducted:**
  - It must be in writing.
  - It must be issued within five days.
  - If lead concentrations were above the PEL, a description of the protective actions being taken must be included.
- **Both OSHA lead standards require employers to implement a written compliance program which must include:**
  - Descriptions of work activities involving lead.
  - Records of air monitoring.
  - Methods used to limit employee exposure.

- **"Engineering controls" are one way employers can limit lead exposure. These include:**
  - Mechanical ventilation.
  - Containment systems.
  - Local exhaust ventilation systems.
  
- **"Work practice controls" are another method of control, and include:**
  - Wetting paint before scraping.
  - The use of vacuums with high efficiency particulate filters (HEPA filters).
  
- **"Administrative controls" are also recommended, and include:**
  - Abbreviated shifts.
  - Job rotation.
  
- **OSHA says respirators should only be used when other compliance methods are not effective or feasible (or when lead concentrations are unknown).**
  - They are the last line of defense.
  - If you must use one, it is important that you choose the correct respirator for your activity.
  - Check with your supervisor if questions arise.
  
- **OSHA requires respirator fit-testing.**
  - This insures proper "face-fit".
  - They test for necessary protection.
  
- **Employers must provide instruction regarding:**
  - The proper use of respirators.
  - Respirator maintenance.
  - Changing cartridge filters.
  
- **Hygiene facilities and practices are also important in preventing lead exposure.**
  - These include changing rooms/decontamination chambers.
  
- **When removing contaminated clothing:**
  - Never shake/blow off excess lead dust.
  - Use a HEPA vacuum.
  - Deposit contaminated clothing in appropriate containers.

- **Employers must provide showering facilities, where feasible.**
- **If showers are not provided, you must:**
  - Wash your face and hands before leaving work.
  - Shower immediately upon getting home.
- **Eating areas must also be kept as free of lead as possible.**
  - Never enter these areas wearing PPE (unless it has been thoroughly cleaned).
  - Wash your face and hands before eating, smoking and applying cosmetics.
- **Even with appropriate precautions, lead exposure can occur.**
  - That is why OSHA requires that "medical surveillance programs" be established.
- **A surveillance program includes, at no charge to employees:**
  - Blood testing.
  - Medical examinations.
- **Blood samples measure indicators of recent and short-term lead exposure, including:**
  - Blood lead level (BLL).
  - Zinc protoporphyrin level.
- **Additional blood sampling is based on results of initial tests:**
  - The higher the BLL, the greater the sampling frequency.
  - Employers must inform you of your BLL within five days of receiving test results.
- **Medical examinations are another part of a surveillance program. They:**
  - Must be conducted under the supervision of a licensed physician.
  - Be based on results of blood tests.
  - Are also required if any lead symptoms occur.
- **If your BLL is too high, "temporary medical removal" will be required.**
  - You must be moved to another work area, with less exposure...or...
  - Be sent home with pay (this is based on "medical removal benefits guidelines").



- **Temporary medical removal gives your body a chance to reduce its lead levels.**
  - Blood sampling and medical examinations will continue.
  - You cannot return to your original job until your BLL gets to a safe level.
  
- **Doctors can also recommend temporary medical removal for other reasons, such as:**
  - Anemia.
  - Other conditions that make you more susceptible to lead exposure.
  
- **Lead absorbed by the body can have negative affects on men's and women's reproductive systems.**
  - OSHA recommends that workers who are planning to have children maintain their BLL below 30 micrograms per deciliter.
  
- **The lead standards require employers to provide medical removal protection benefits that maintain employees' normal:**
  - Earnings.
  - Benefits.
  - Job status.
  - Seniority.
  - Other employment rights.
  
- **Employers are also required to maintain a number of records, including:**
  - Exposure assessments.
  - Air monitoring data.
  - Blood testing results.
  - Medical examinations records.
  - Temporary medical removal data.
  
- **These records must be made available upon request to:**
  - Affected employees.
  - Former employees.
  - Employees' designated representatives.

**\* \* \* SUMMARY \* \* \***

- **Become familiar with the lead standard that affects you.**
- **Discuss how the standard applies to you and your company.**
- **Remember that lead is toxic, and can pose serious hazards.**
- **Exercise extreme caution when working in lead exposure situations.**
- **If you are uncertain about the safety precautions that you should take when working in environments where lead exposure could occur, ask your supervisor.**