



## Lead Containing Materials

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### 1. PURPOSE

- 1.1 To ensure no employee is exposed to lead containing materials above the AL;
- 1.2 To identify and manage the hazards of airborne lead generated during the tasks and work activities associated with:
  - 1.2.1 Welding/cutting/grinding;
  - 1.2.2 Sandblasting, abrasive blasting;
  - 1.2.3 Painting and paint removal;
  - 1.2.4 Use of powder actuated tools;
  - 1.2.5 Soldering;
  - 1.2.6 Alloys containing lead (brass, bronze, solder);
  - 1.2.7 Maintenance activities involving lead and/or lead containing materials.
- 1.3 To document the program and compliance with applicable regulations and guidelines.

### 2. SCOPE

- 2.1 The Lead Containing Materials Program applies to occupational exposure to Lead in all work in which Lead is present in any amount. The OSHA Lead standards for General Industry and Construction do not specify a minimum level of Lead below which the



requirements of the Lead standard are exempt. Exposure of employees to the ambient environment which may contain small concentrations of lead is not subject to OSHA's Lead standard.

- 2.2 While Mosaic has facilities regulated by OSHA and MSHA, the OSHA Lead in Construction and Lead in General Industry standards are most protective as a best management practice. Mosaic will apply OSHA regulations to MSHA regulated facilities.
- 2.3 The Lead Containing Materials Program applies to Mosaic's Phosphate Business Unit facilities.

### 3. DEFINITIONS

- 3.1 Action Level (AL) - A concentration of airborne Lead of 30 micrograms per cubic meter of air ( $30 \mu\text{g}/\text{m}^3$ ) calculated as an 8-hour time-weighted average (TWA) that initiates certain actions under the Lead standard.
- 3.2 Blood Lead Level (BLL) - Measures the level of Lead in the blood.
- 3.3 Chelation - Administration of chelating agents to remove heavy metals (Lead) from the body.
- 3.4 Employee Exposure - The exposure to airborne Lead that would occur if the employee were not using a respirator.
- 3.5 Engineering and Work Practice (E&WP) Controls - Controls implemented to mitigate and manage a hazard, and practices implemented to maintain safe working conditions.
- 3.6 High-Efficiency Particulate Air (HEPA) filter - A filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.
- 3.7 Initial Determination - Determination if any employee may be exposed to Lead at or above the AL.
- 3.8 Lead / Lead Containing Materials (LCM) - Metallic Lead, all inorganic lead compounds, and organic lead soaps. Excluded from the definition are organic lead compounds.
- 3.9 Objective Data – Data collected within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in current operations.
- 3.10 Permissible Exposure Limit (PEL) - A concentration of airborne Lead of 50 micrograms per cubic meter of air ( $50 \mu\text{g}/\text{m}^3$ ) calculated as an 8-hour time-weighted average (TWA).
- 3.11 Surface Coating – Any paint, varnish, lacquer, stain, galvanizing or other surface treatment.
- 3.12 Zinc Protoporphyrin (ZPP) - Screen for and monitor chronic exposure to lead. (Note - ZPP is also used to screen for other chronic conditions).

### 4. GENERAL

- 4.1 No employee shall be exposed to an airborne concentration of Lead in excess of the PEL.
- 4.2 Table 1, Summary of Lead Requirements, lists a summary of the requirements for monitoring and managing the exposure to Lead.
- 4.3 Mosaic Phosphate Business Unit facilities will assume over-exposure if no initial exposure determination has been performed or no representative, objective data exists that indicates exposures are or will be below the AL.

### 5. PURCHASING

- 5.1 Purchasing shall ensure items and materials with Lead are not purchased by ensuring specifications prohibit its use and by inspecting incoming painted products for Lead via safety data sheet review or physical inspection.



- 5.2 Practices and procedures for plant wide maintenance painting or other large scale jobs will be defined in bid submittal documentation, job compliance plans, and the pre-job conference.

## 6. IDENTIFICATION OF LEAD CONTAINING MATERIALS

- 6.1 Phosphate Engineering and Facility Maintenance will ensure the identification of all work activities which may result in employee exposure to Lead.
  - 6.1.1 The following may be used as means to identify LCM that may result in employee exposure to Lead:
    - a. Review Material Safety Data Sheets;
    - b. Review any material or product specifications;
    - c. Quantitative evaluation of any materials that may contain Lead, such as in building substrates or coatings. Quantitative evaluations may include X-ray Fluorescence (XRF) analysis or bulk sample analysis and should follow the Mosaic Lead Evaluation Specification requirements.
    - d. Qualitative methodologies like colorimetric testing are not acceptable.
    - e. If Lead content of a surface coating cannot be identified through document review or testing, assume the surface coating contains lead.
  - 6.1.2 LCM will be identified and/or labeled to notify employees and contractors of their presence.
  - 6.1.3 Phosphate Engineering and Facility Maintenance shall ensure all quantitative evaluation data is properly documented and communicated to the affected parties.
  - 6.1.4 Phosphate Engineering and Facility Maintenance shall ensure documentation is transmitted to the central repository of quantitative evaluations for lead for each facility as described in the Mosaic Lead Evaluation Specification.

## 7. EXPOSURE DETERMINATION

- 7.1 Initial Exposure Determination
  - 7.1.1 Each Mosaic facility and every contractor performing work at a Mosaic facility shall determine if any employee may be exposed to Lead at or above the AL. This requires personal air sampling of every task unless there is objective, representative data available.
  - 7.1.2 Phosphate Occupational Health can determine if an initial exposure determination has been completed for each task.
  - 7.1.3 Phosphate Occupational Health shall maintain a database of all Lead air sampling results and interpret these results as objective, representative data for future tasks.
  - 7.1.4 The employer responsible for the employees performing the work - i.e. either Mosaic or the contractor - shall assess their employees' exposures and shall base the Initial Exposure Determination on any of the following:
    - a. NIOSH or OSHA approved personal air sampling data during the performance of the unique task; or
    - b. Objective, representative data such as air sampling data during a previous representative task. Representative means that it closely resembles the tasks, tools, work practices, control measures, and environmental conditions such as Lead content and ventilation/wind orientation to worker.
  - 7.1.5 Monitoring for the Initial Exposure Determination may be limited to a representative sample of the employees reasonably expected to be exposed to the greatest airborne concentrations of Lead in the workplace.
  - 7.1.6 If the Initial Exposure Determination is below the AL, further exposure determination need not be repeated except when there has been a change equipment, process,

control, personnel, or a new task has been initiated that may result in exposure above the AL.

7.2 Positive Initial Exposure Determination

- 7.2.1 If the Initial Exposure Determination indicates employee exposure may be at or above the AL but equal to or less than the PEL, further monitoring representative of each employee's exposure to Lead shall be performed at least every 6 months or the next representative task, whichever is more frequent.
- 7.2.2 If the Initial Exposure Determination indicates employee exposure may be above the PEL, further monitoring representative of each employee's exposure to Lead shall be performed at least every 3 months or the next representative task, whichever is more frequent.

**Periodic Monitoring Frequency**

Below AL <30 µg/m <sup>3</sup>	No periodic monitoring required unless equipment/process/control/personnel/task changes
Greater than AL but less than PEL >30 µg/m <sup>3</sup> and < 50 µg/m <sup>3</sup>	Monitor every 6 months or the next representative task, whichever is more frequent.
Greater than PEL >50 µg/m <sup>3</sup>	Monitor every 3 months or the next representative task, whichever is more frequent.

7.3 Discontinuing Exposure Assessments

- 7.3.1 If periodic monitoring indicates that employee exposures are below the AL, and the result is confirmed by the result of additional monitoring performed at least seven (7) days later, monitoring may be discontinued for affected employees whose exposures are represented by that monitoring.

7.4 Negative Initial Exposure Determination

- 7.4.1 If the Initial Exposure Determination shows no employee is exposed to airborne concentrations of Lead at or above the AL, a written record of such determination shall be made. The record shall include:
  - a. Information, observations, or calculations which would indicate employee exposure to lead;
  - b. Previous measurements of airborne lead;
  - c. Date of the determination;
  - d. Location within the workplace;
  - e. Name and social security number of each employee monitored.

- 7.4.2 Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to Lead.

7.5 All air sampling/monitoring will be documented on Mosaic's air sampling form (Appendix A). This form will be thoroughly filled out and forwarded to the Occupational Health Manager.

7.6 Observation of monitoring

- 7.6.1 Affected employees or their designated representatives shall be provided an opportunity to observe any air monitoring of employee exposure to airborne Lead.



- 7.6.2 When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the observers shall:
  - a. Be provided with and use protective clothing and equipment; and
  - b. Comply with all other applicable safety and health procedures.
- 7.7 Accuracy of monitoring
  - 7.7.1 A method of air monitoring and analysis must be used that has an accuracy not less than plus or minus 25 percent and to a confidence level of 95 percent for airborne concentrations at or above the AL.
- 7.8 Employee Notification
  - 7.8.1 Each affected employee shall be individually notified in writing of the results or the results posted in an accessible location within fifteen (15) working days after receipt of the results of the monitoring.
  - 7.8.2 If the monitoring results indicate that the PEL has been exceeded, without regard to respirators, the corrective action to reduce the exposure to or below the PEL shall be included in the written notification.

## 8. COMPLIANCE

- 8.1 Compliance is required whenever exposures may exceed the AL or if exposure is unknown. Phosphate Occupational Health is the only function authorized to exempt tasks from having to comply with the following requirements based on objective, representative air sampling data.
- 8.2 Every task that will disturb Lead Containing Material (LCM) shall be air sampled unless there is objective, representative data available to determine exposure. Representative data can include the following:
  - 8.2.1 Quantitative fit testing results showing respiratory protection is capable of preventing employees from being exposed to greater than the AL at concentrations anticipated in work activities.
  - 8.2.2 Assigned protection factor values showing respiratory protection is capable of preventing employees from being exposed to greater than the AL at concentrations anticipated in work activities..
- 8.3 Project-Specific Work Plan for Construction and Demolition
  - 8.3.1 Where LCM is to be disturbed, the Project Manager will develop or obtain a written job-specific work plan that shall establish practices to reduce exposures to or below the AL. The work plan will comply with the Mosaic Lead Containing Materials Disturbance or Abatement Specification. The work plan shall include:
    - a. Description of the work that will disturb the LCM and emit Lead – tasks, tools, machinery used, material processed, and controls that will be put in place.
    - b. List of qualified personnel, their qualifications and job responsibilities.
    - c. Specific means that will be used to achieve compliance, including
      - i. Engineering controls;
      - ii. Engineering plans and studies if engineering controls are the sole means of controlling exposure to Lead;
      - iii. PPE to be used with which tasks and why (i.e. is it lead content, methodology or conditions that are influencing);
      - iv. Respiratory protection as dictated by the OSHA Construction standard.
    - d. Exposure Assessment data which documents the source of Lead emissions and personnel exposure.
    - e. Work practices which include protective work clothing, housekeeping, and hygiene facilities and practices.



- f. Administrative control schedule (where applicable).
  - g. Other relevant information.
- 8.3.2 The Project Manager shall ensure compliance with the Work Plan.
- 8.4 Engineering Controls
- 8.4.1 Engineering controls include, but are not limited to: substitution, local exhaust ventilation, general ventilation systems, tool dust collection systems, and special enclosures and isolation devices.
- 8.4.2 Mosaic requires enclosures around all abrasive blasting jobs and if the regulated area is going to be less than fifteen (15) foot radius. A plastic ground cover extending a minimum of fifteen (15) feet in all directions from the work is required in the absence of an enclosure for other jobs. If blast media is observed to land greater than fifteen (15) feet from the work, the plastic ground cover needs to be extended to cover the area where blast media is landing.
- 8.4.3 Mechanical ventilation/dust collection systems
- a. Shrouded power tools should be equipped with a HEPA dust collection system.
  - b. If mechanical ventilation is used to control exposure, an assessment of the systems' performance to effectively capture dust will be performed. The assessment shall include measurements such as capture velocity, duct velocity, or static pressure, and the leakage of seals on HEPA vacuums. The measurements shall also be made within five (5) days of any changes in production, process, or control which might affect exposure to lead.
- 8.5 Work Practice Controls
- 8.5.1 Wet methods shall be used instead of dry methods whenever feasible.
- 8.5.2 Lead paint should be removed prior to hot work to minimize high exposure potentials associated with hot work on lead coated surfaces.
- 8.5.3 Cold cutting methods shall be substituted for torch cutting where feasible.
- 8.5.4 Chemical stripping may be used on small scale jobs.
- 8.5.5 Lead work shall be performed outdoors whenever possible.
- 8.5.6 The use of compressed air to remove lead dust from equipment, work surfaces or clothing is prohibited.
- 8.6 Housekeeping
- a. The work area shall be covered with impervious material to aid in clean-up and prevent contamination.
  - b. The work area shall be kept as clean and clear of debris as reasonable possible.
  - c. Clean-up of surfaces where lead accumulates shall, whenever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne. Vacuums should be equipped with HEPA filters.
  - d. Shoveling, dry or wet sweeping and brushing may only be used if other methods are not feasible or effective.
- 8.7 Disposal
- a. Job waste, including disposable PPE and debris, shall be placed in a closed container and labeled using a red "Hazardous Waste" label. Arrange transportation to the Container Staging Area by contacting the facility Solid Waste Coordinator.
- 8.8 Administrative controls
- 8.8.1 If job rotation is used reduce employees TWA exposure to Lead, a job rotation schedule shall be established and implemented, and shall include:
- i. Name or identification of each employee;
  - ii. Duration and exposures at each job or work location; and

III. Any other information useful in assessing the reliability of the administrative controls.

8.8.2 Signage

- a. Regulated areas shall be established to ensure no exposure  $>30 \mu\text{g}/\text{m}^3$  is present outside the regulated area. Regulated areas shall have warning signs posted in plain view at all access points. The signs shall read:

“WARNING  
 LEAD WORK AREA  
 POISON  
 NO SMOKING OR EATING”

- b. The signs shall be illuminated and cleaned as necessary, and the legend readily visible.
- c. No statement shall appear on or near any Lead warning sign which contradicts or detracts from the meaning of the required sign.
- d. Signs required by other statutes, regulations or ordinances may be used in addition to, or in combination with, the Lead warning signs.

8.9 Respiratory Protection

8.9.1 Respiratory protection must be provided to each employee where Engineering and Work Practice Controls do not reduce the exposure to below the AL or where exposure is unknown.

8.9.2 Respiratory protection must be provided as follows:

- a. Periods necessary to install or implement feasible work practice controls.
- b. When an employee requests a respirator.
- c. In accordance with Table 1

Table 1

Airborne Lead Concentration	Required Respirator
$>30$ but $<500 \mu\text{g}/\text{m}^3$	Half-face air purifying respirators with HEPA filters, PAPR optional
$>500$ but $<2,500 \mu\text{g}/\text{m}^3$	Full face air purifying respirator with HEPA filters
$>2,500 \mu\text{g}/\text{m}^3$	Full face pressure demand or positive pressure supplied air respirator

- d. The following are the respirator requirements when exposures are unknown:
  - i. Half-face Air Purifying Respirator (includes disposable filtering-face piece devices)
    - A. Manual demolition of structures, scraping, sanding
    - B. Power tool usage and cleaning with dust collection
  - ii. Full-face Air Purifying Respirator (not powered)
    - A. Cleaning power tools with no dust collection
    - B. Power tool usage without dust collection
    - C. Clean-up and enclosure take-down/movement following abrasive blasting
  - iii. Full-face Supplied-Air Respirator
    - A. Abrasive blasting

- B. Welding
- C. Torch cutting
- 8.9.3 Respirators required for mitigating Lead exposure, and their fit testing, care and cleaning are identified in the Mosaic Respiratory Protection Program.
- 8.9.4 Employees must be provided with a powered air-purifying respirator (PAPR) instead of a negative pressure respirator selected when an employee chooses to use it and it provides adequate protection.
- 8.10 Protective Work Clothing and Equipment
  - 8.10.1 If an employee is exposed to Lead above the AL, without regard to the use of respirators, or where the possibility of skin or eye irritation exists, appropriate personal protective clothing and equipment shall be provided at no cost to employees.
    - a. The protective clothing should include:
      - i. Protective coveralls or full-body work clothing (flame retardant suit is preferred),
      - ii. Gloves, hats, and shoes or disposable shoe coverlets; and
      - iii. Face shields, vented goggles, or other appropriate protective equipment;
    - b. Affected employees shall use such clothing and equipment that is provided.
  - 8.10.2 Cleaning and replacement
    - a. All protective clothing and equipment shall be provided in a clean and dry condition at least weekly and daily to employees whose exposure levels are over 200  $\mu\text{g}/\text{m}^3$  TWA.
    - b. The employer shall:
      - i. Repair or replace required protective clothing and equipment to maintain its effectiveness;
      - ii. Assure protective clothing and other disposable contaminated waste is to be removed in change rooms provided for that purpose; and
      - iii. Assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in closed container in the change room.
  - 8.10.3 Removal and storage
    - a. Before leaving the regulated area, workers shall remove disposable clothing and PPE. Disposable clothing and PPE shall be disposed of along with other waste from the job according to Mosaic Environmental requirements. Respirator, hard hat, boots and equipment shall be wet wiped or HEPA vacuumed to remove lead contamination. Clothing worn beneath disposable coveralls will also be HEPA vacuumed if contaminated. At no time shall street clothes be worn under protective coveralls.
    - b. Bags, recommend double lined, or containers of contaminated protective clothing or equipment shall be labeled in accordance with the requirements of Mosaic's Hazard Communication Program.

The label shall contain the wording:

“Caution: clothing contaminated with lead.  
Do not remove dust by blowing or shaking.  
Dispose of lead contaminated wash water in accordance with local, state, or federal regulations”
    - c. If the sealed bag is consigned for disposal add the words “DO NOT OPEN”.
    - d. Use of a HEPA vacuum is recommended to clean the sealed bags, followed by wiping bag surfaces down with a wet cloth or disposable towel.
  - 8.10.4 Any person who launders or cleans protective clothing or equipment contaminated with Lead shall be informed of:





- a. The potentially harmful effects of exposure to Lead; and
- b. That the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with Lead and effectively prevents the release of airborne Lead in excess of the PEL.

#### 8.11 Hygiene Practices

##### 8.11.1 Where exposure to airborne Lead is above the PEL or unknown

- a. Change rooms shall be:
  - i. Provided. Change rooms are only required when employees must change out of their street clothes to use protective clothing and equipment.
  - ii. Equipped with separate storage facilities for protective clothing and equipment and for street clothes and that cross-contamination is prevented.
- b. Washing facilities shall be:
  - i. Provided. Affected employees are required to use these facilities. Employees are required to wash hands and face at the end of the shift or when their task is complete, whichever comes first. Showers shall be taken before leaving the facility if workers were performing abrasive blasting.
  - ii. Personnel who have skin contact with airborne Lead or are exposed to airborne Lead above the PEL shall wash their hands and face:
    - A. At the end of the work shift; and
    - B. Prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics; or
    - C. Using the toilet.
- c. Eating and drinking areas
  - i. Eating and drinking areas must be maintained as free as practicable of Lead dust whenever workers are allowed to consume food or beverages at a worksite where airborne dust is present.
  - ii. Personnel may not enter eating and drinking areas with protective work clothing or equipment.
  - iii. Personnel shall wash their hands and face prior to eating, drinking, smoking, or applying cosmetics.
- d. Employees may not:
  - i. Eat, drink, smoke, chew tobacco or gum, or apply cosmetics except in designated areas or lunchrooms, or in areas where skin or eye contact with Lead occurs or exposure is above the PEL; or
  - ii. Carry the products associated with these activities; or
  - iii. Store such products in these areas.

## 9. MEDICAL SURVEILLANCE

- 9.1 Medical surveillance shall be made available at no cost to the employee, and at a reasonable time and place, for all employees who are or may be occupationally exposed to lead at or above the AL. See the Respiratory Protection Program for additional information.
- 9.2 All medical examinations and procedures required shall be performed by or under the supervision of a licensed physician.
- 9.3 Biological monitoring (blood lead and zinc protoporphyrin) shall be made available as follows:
  - 9.3.1 At least every six (6) months for employees exposed at or above the AL for thirty (30) or more days per year and bimonthly for the first six (6) months.



- 9.3.2 At least every two (2) months for any employee having a BLL at or above forty (40)  $\mu\text{g}/\text{dl}$ . Continue this schedule until two consecutive BLL's are below forty (40)  $\mu\text{g}/\text{dl}$ .
- 9.3.3 At least monthly during any period an employee is medically removed from exposure to Lead.
- 9.3.4 Retest within two (2) weeks of receiving the results that the BLL is above fifty (50)  $\mu\text{g}/\text{dl}$  (medical removal).
- 9.4 Employee notification
  - 9.4.1 Within five (5) days of receiving the biological results any employee with a BLL at or above forty  $\mu\text{g}/\text{dl}$  shall be notified. The notification shall include a description of temporary medical removal with Medical Removal Protection Benefits when the employees BLL is at or above fifty (50)  $\mu\text{g}/\text{dl}$ .
- 9.5 A medical examination shall be provided:
  - 9.5.1 Prior to assignment for the first time to an area in which airborne concentrations of lead are at or above the AL.
  - 9.5.2 Annually.
  - 9.5.3 Whenever an employee shows signs or symptoms of the adverse health effects associated with Lead exposure; and
  - 9.5.4 As medically appropriate.
- 9.6 A medical examination consists of:
  - 9.6.1 Detailed work history and medical history;
  - 9.6.2 Thorough physical examination;
  - 9.6.3 Blood pressure measurement.
  - 9.6.4 Blood sample and analysis to determine:
    - a. BLL, ZPP, hemoglobin and hematocrit determinations /red blood cell indices / examination of peripheral smear morphology, blood urea nitrogen, and serum creatinine.
  - 9.6.5 Routine urinalysis with microscopic examination.
- 9.7 Multiple physician review
  - 9.7.1 If the employer selects the initial physician to perform any medical examination or consultation related to the OSHA Lead standard, the employee may designate a second physician.
- 9.8 Physician's written medical opinion
  - 9.8.1 The employer shall obtain a written medical opinion from the physician and provide it to the employee, which contains:
    - a. The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to Lead;
    - b. Any recommended limitations upon the employee's exposure to Lead or upon the use of personal protective equipment such as respirators;
    - c. Results of the blood lead determinations;
    - d. A statement that the physician has explained to the employee the results of the medical examination, including any medical conditions related to Lead exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.
  - 9.8.2 The physician shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to Lead.
  - 9.8.3 The employer shall provide a copy of the Primary Licensed Health Care Physician's (PLHCP) written medical opinion to the examined employee.



- 9.9 Temporary medical removal
  - 9.9.1 Employees who have had a periodic and a follow-up blood sampling test conducted at or above fifty (50) µg/dl will be removed from work where potential exposure to lead is above the action level.
  - 9.9.2 Employees who have had a final medical determination resulting in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead will be removed from work where potential exposure to lead is above the action level.
- 9.10 Return to former job status
  - 9.10.1 Employees who were removed from work due to a blood lead level at or above fifty (50) µg/dl may return to their former job status when two consecutive blood sampling tests indicate that the employee's blood lead level is below forty (40) µg/dl.
  - 9.10.2 Employees who were removed from work due to a final medical determination may return to their former job status when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.
- 9.11 Medical removal protection benefits
  - 9.11.1 Employees will be given up to eighteen months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead.
  - 9.11.2 Employees will maintain the total normal earnings, seniority, and other employment rights and benefits, including the right to former job status as though the employee has not been removed from work as long as the employee participates in Mosaic provided follow up medical surveillance.
  - 9.11.3
- 9.12 Chelation
  - 9.12.1 No employee may engage in chelation except under the care of a licensed physician.

## 10. TRAINING

- 10.1 Potential exposure at any level
  - 10.1.1 Where there is the potential for exposure to airborne Lead at any level, Mosaic will provide employees with a copy of:
    - a. 29 CFR 1926.62 Appendix A - Substance Data Sheet For Occupational Exposure To Lead; and
    - b. 29 CFR 1926.62 Appendix B - Employee Lead Standard Summary.
  - 10.1.2 A copy of the OSHA Lead standard will be readily available to all affected employees.
- 10.2 Potential exposure at or above Action Level
  - 10.2.1 Training for any employees potentially exposed to Lead at or above the AL or for whom the possibility of skin or eye irritation exists.
    - a. Training shall be repeated at least annually and shall be informed of the following:
      - i. Content of the OSHA Lead standard and its appendices;
      - ii. Specific nature of the operations which could result in exposure to Lead above the AL;
      - iii. Purpose, proper selection, fitting, use, and limitations of respirators;
      - iv. Purpose and description of the medical surveillance plan;
      - v. Engineering and Work Practice (E&WP) Controls associated with a job assignment;



- vi. Contents of any compliance plan in effect; and
  - vii. That chelating agents should not be used routinely to remove Lead from their bodies, but only under the directions of a licensed physician.
- 10.2.2 A copy of the OSHA Lead standard and its appendices shall be distributed to employees as part of the training program.
- 10.2.3 Training shall be completed prior to the time of initial job assignment.

## 11. RECORDKEEPING

- 11.1 Air monitoring data - An accurate record of all air monitoring conducted shall be maintained. The data shall include at least the following information:
- 11.1.1 The date of measurement for each sample taken;
  - 11.1.2 Number, duration, location, and the results of samples taken;
  - 11.1.3 The operation involving exposure to Lead that is being monitored;
  - 11.1.4 Brief description of the sampling and analytical methods used and evidence of their accuracy;
  - 11.1.5 Type of respiratory protection worn, if any; and
  - 11.1.6 Name, social security number, and job classification of the employee monitored and of all other employees represented by the monitoring whose exposures the measurement represents.
  - 11.1.7 The environmental variables that could affect the measurement of employee exposure such as Lead content.
- 11.2 Exposure records:
- 11.2.1 Shall be maintained for forty (40) years, or for the duration of employment plus twenty (20) years; and
  - 11.2.2 Access made available to the affected employee or their representative.
- 11.3 Medical surveillance
- 11.3.1 An accurate medical record for each employee covered by medical surveillance shall be established and maintained. (For employees who are or may be exposed at or above the Action Level for more than thirty (30) days/year.)
  - 11.3.2 The medical record shall include the following information about the employee:
    - a. Name and social security number, and description of the employee's duties;
    - b. A copy of the physician's written opinions;
    - c. Results of any airborne exposure monitoring done for that employee and the representative exposure levels supplied to the physician;
    - d. Any employee medical complaints related to lead exposure.
  - 11.3.3 Either the employer or the physician shall keep the following medical records:
    - a. Copy of the medical examination results including medical and work history;
    - b. Description of the laboratory procedures and a copy of the standards or guidelines used to interpret the test results or references to that information; and
    - c. Biological monitoring results.
  - 11.3.4 The medical records shall be maintained by the employer or physician for at least forty (40) years, or for the duration of employment plus twenty (20) years, whichever is greater.
- 11.4 Medical removal
- 11.4.1 Medical removal records shall be maintained for each employee removed from current exposure to Lead.
  - 11.4.2 Each record shall include:



- a. Employee's name and social security number;
- b. Date on which the employee was removed from exposure to Lead, and date that they were returned to their former job status;
- c. Brief explanation how each removal was accomplished;
- d. Statement for each removal indicating if the removal was for elevated BLL.

11.4.3 The medical removal record shall be maintained for at least the duration of employment.

#### 11.5 Training records

11.5.1 Mosaic will maintain training records for at least forty (40) years, or for the duration of employment plus twenty (20) years, whichever is greater.

#### 11.6 Records availability

11.6.1 Monitoring, medical records and medical removal records shall be provided upon request to the employee or their representative.

#### 11.7 Transfer of records

11.7.1 If an employer ceases to do business the successor employer shall receive and retain all records required to be maintained above.

## 12. CONTRACTORS

12.1 Contractors performing work that exposes employees to airborne Lead shall be responsible for:

12.1.1 Developing a Lead Containing Materials program and providing Mosaic with their Program.

12.1.2 Developing project-specific Work Plans that comply with Appendix B "Work Plan Checklist".

12.1.3 Coordinating with the Mosaic's project contact to review the potential exposure to Lead and the contractor's work plan to maintain employee exposure below either the AL or PEL.

12.1.4 Knowing the OSHA regulations and best management practices that apply to each location where work is performed.

12.1.5 Having completed the initial exposure determination, or implementing employee protection during the assessment of exposure as per the Mosaic Contractor Lead Containing Materials Disturbance or Abatement Specification.

12.1.6 Performing their work in a manner that minimizes the exposure to Lead by implementing Engineering and Work Practice Controls, warning signs, respiratory protection, protective work clothing and equipment, hygiene practices, and housekeeping.

12.1.7 Having appropriate medical surveillance and recordkeeping practices in their company for Lead exposure.

## 13. TABLES

13.1 Table 1-Summary of Lead Requirements

## 14. APPENDICES

14.1 Appendix A – Lead/Chromium Coating employee Exposure Monitoring Data Sheet

14.2 Appendix B – Work Plan Checklist

14.3 Appendix C – Lead-Abatement Process

14.4 Appendix D –Lead Flow Chart Description

## 15. REFERENCES

15.1 OSHA



- 15.1.1 29 CFR 1910.1025 - Lead
- 15.1.2 29 CFR 1910.1025 Appendix A - Substance Data Sheet For Occupational Exposure To Lead
- 15.1.3 29 CFR 1910.1025 Appendix B - Employee Lead Standard Summary
- 15.1.4 29 CFR 1926.62 - Lead
- 15.1.5 OSHA Publication No. 3142, Lead in Construction
- 15.1.6 Letter of Interpretation, January 13, 2003 - Organization Resources Counselors, Inc., Clarification of "as free as practicable"...
- 15.1.7 Letter of Interpretation, September 10, 2008 – William F. Alcarese, Clarification on "lead free" coatings ...
- 15.1.8 Letter of Interpretation, March 1, 1999 – Panacea Environmental Services, Clarification on the "lead in construction standard trigger" ...
- 15.1.9 Letter of Interpretation, May 8, 2000 – Niton Corporation, Clarification on "Using X-ray Fluorescence (XRF) for analysis of Lead in Paint and Applicability of other Agencies Lead Levels."
- 15.2 MSHA
  - 15.2.1 30 CFR - 56. - Lead
- 15.3 Phosphate Business Unit -
  - 15.3.1 Respiratory Protection Program
  - 15.3.2 Hazard Communication Program
  - 15.3.3 Employee Access to Medical Records
  - 15.3.4 Lead Evaluation Specification
  - 15.3.5 Lead Containing Materials Disturbance or Abatement Specification

**16. REVISION LOG**

Revision Log				
Rev. No.	Requested By	Approved By	Revised By	Reviewed Date
1	Initial Issue		Luke Garard	04/30/2013
N/A	Annual Review	EHSS PMO	N/A	12/15/2021
N/A	Annual Review	EHSS PMO	Delano J. Hart	12/15/2022

Contact the Facility Safety Dept. for additional information on this program.



**Table 1 - SUMMARY OF LEAD REQUIREMENTS**

**Lead Exposure Range**

Requirement	Any Exposure	< 30 (µg/m <sup>3</sup> )	Action Level (AL) ≥ 30 and ≤ 50 (µg/m <sup>3</sup> )	PEL > 50 (µg/m <sup>3</sup> )
<b>Exception</b>	Not applicable if Pb is not present in surface coatings or materials to be disturbed. Not applicable to ambient environmental Pb exposure.			
<b>Initial Exposure Determination (Monitoring)</b>	Determine the TWA for employees exposed to Pb. 1) Initial air monitoring. 2) Any change that may result in new or additional exposures.	Discontinue monitoring. Retest if change in equipment, process, personnel, or task that may affect Pb concentrations	No initial monitoring required if objective data available. Periodic monitoring required	No initial monitoring required if objective data available. Periodic monitoring required
<b>Periodic Monitoring</b>	Not required	Same as "Any Exposure"	Periodic monitoring every 6 months. If resampling (twice at least 7 days apart) indicates exposure is below AL, monitoring may be discontinued.	Periodic monitoring every 3 months.
<b>Employee Notification</b>	Within 15 days after receipt of results, notify affected employees of the results in writing or post the results in an appropriate accessible location.	Same as "Any Exposure"	Same as "Any Exposure"	If the exposure exceeds the PEL, the written notification will include the corrective action to reduce the exposure.
<b>Monitoring Observation</b>	Affected employees or their representative have opportunity to observe the monitoring.	Same as "Any Exposure"	Same as "Any Exposure"	Same as "Any Exposure"
<b>Regulated Area</b>		Not required.	Establish a regulated area where exposures are, or can be reasonably expected to be, in excess of the AL. Area is demarcated and access controlled.	Establish a regulated area where exposures are, or can be reasonably expected to be, in excess of the PEL. Area is demarcated and access controlled.
<b>Engineering &amp; Work Practice Controls</b>		Not required.	Use E&WP controls to reduce & maintain exposure below the AL where feasible. If controls are insufficient, use them to reduce exposure to the lowest levels achievable, supplement them by the use of respirators.	Use E&WP controls to reduce & maintain exposure below the PEL where feasible. If controls are insufficient, use them to reduce exposure to the lowest levels achievable, supplement them by the use of respirators.
<b>Respiratory Protection</b>	If exposure is unknown, respiratory protection with an assigned protection factor of at least 1000 is required	Not required.	Respiratory protection is required based on the level of exposure	Respiratory protection is required based on the level of exposure



Table 1 - continued

**Lead Exposure Range**

Requirement	Any Exposure	< 30 (µg/m <sup>3</sup> )	<u>Action Level (AL)</u> ≥ 30 and ≤ 50 (µg/m <sup>3</sup> )	<u>PEL</u> > 50 (µg/m <sup>3</sup> )
<b>Protective Work Clothing &amp; Equipment</b>	Provide protective work clothing and equipment if exposure to skin or eye contact is possible,  Employer will clean, launder, repair, replace all protective clothing.  Prohibit removal of Pb from protective clothing by any means that disperses Pb into the air.	Same as "Any Exposure"	Same as "Any Exposure"	Same as "Any Exposure"
<b>Hygiene Areas &amp; Practices</b>	Where protective clothing is required, change rooms provided. Where skin contact occurs, washing facilities provided. Eating and drinking areas maintained as free as practicable of Pb.	Same as "Any Exposure"	Same as "Any Exposure"	Same as "Any Exposure"
<b>Housekeeping</b>	All surfaces maintained as free as practicable of accumulations of Pb.	Same as "Any Exposure"	Same as "Any Exposure"	Same as "Any Exposure"
<b>Biological Monitoring</b>			Bi-monthly for six months and then every six months thereafter. More frequent if high BLL.	Bi-monthly for six months and then every six months thereafter. More frequent if high BLL.
<b>Medical Surveillance</b>		Not required.	Make medical surveillance - no cost to employees: 1) Occupationally exposed to Pb at or above the Action Level 30 or more days per yr.; 2) Experiencing signs or symptoms of adverse health effects associated with exposure to Pb;  Medical exam provided: 1) Prior to assignment in an area where lead concentrations are greater than the AL; 2) Annually; 3) Experiencing signs or symptoms of adverse health effects associated with exposure to Pb; 4) As medically appropriate; 6) At end of employment.	Make medical surveillance - no cost to employees: 1) Occupationally exposed to Pb at or above the Action Level 30 or more days per yr.; 2) Experiencing signs or symptoms of adverse health effects associated with exposure to Pb;  Medical exam provided: 1) Prior to assignment in an area where lead concentrations are greater than the AL; 2) Annually; 3) Experiencing signs or symptoms of adverse health effects associated with exposure to Pb; 4) As medically appropriate; 6) At end of employment.
<b>Communication</b>	Comply with HazCom standard. Pb standard is readily available.	Same as "Any Exposure"	Same as "Any Exposure"	Same as "Any Exposure"
<b>Recordkeeping</b>	Maintain an accurate record: 1) Of air monitoring performed. 2) Historical air monitoring or Objective Data used to determine exposure.	Same as "Any Exposure"	Same as "Any Exposure"	Same as "Any Exposure"