

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

DIRECTOR'S OFFICE

OCCUPATIONAL HEALTH STANDARDS--LEAD

(By authority conferred on the director of the department of consumer and industry services by sections 14 and 24 of 1974 PA 154, MCL 408.1014 and 408.1024, and Executive Reorganization Order Nos. 1996-1 and 1996-2, MCL 330.3101 and 445.2001)

R 325.51901 Scope and application.

Rule 1. These rules apply to all occupational exposures to lead, except that they do not apply to construction work or to agricultural operations.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51902 Definitions.

Rule 2. (1) As used in these rules:

(a) "Act" means Act No. 154 of the Public Acts of 1974, as amended, being 408.1001 et seq. of the Michigan Compiled Laws.

(b) "Action level" means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter (30 ug/m³) of air averaged over an 8-hour period.

(c) "Chelate" means a compound that will inactivate a metallic ion by forming an inner ring structure in the molecule whereby the metal ion becomes a member of the ring and the original ion is effectively out of action.

(d) "Department" means the department of consumer and industry services.

(e) "Director" means the director of the department or his or her designee.

(f) "Lead" means metallic lead, all inorganic lead compounds, and organic lead soaps. Lead does not include any other organic lead compound.

(g) "O.H. rule" means an occupational health rule incorporated by reference under section 14 of the act or promulgated under section 24 of the act. Copies of O.H. rules are available from the department.

(h) "Zinc protoporphyrin or ZPP" means the metabolite formed when a zinc molecule instead of an iron molecule combines with the protoporphyrin molecule. ZPP gives an indication of the biological effect of lead absorption on heme synthesis. Heme is the basic component of both hemoglobin, which functions in the transportation of oxygen from the lungs to the body cells, and the cytochromes, which function in the respiration of the individual cells.

(2) The terms defined in the act have the same meanings when used in these rules.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51903 Airborne concentrations; permissible employee exposure limits.

Rule 3. (1) An employer shall assure that an employee will not be exposed to lead at a concentration of more than 50 micrograms per cubic meter (50 ug/m³) of air, averaged over an 8-hour period.

(2) If an employee is exposed to lead for more than 8 hours in any workday, then the permissible employee exposure limit as a time-weighted average for that day shall be reduced in accordance with formula A.

(3) Formula A reads as follows: Maximum permissible employee exposure limit (in ug/m³) = 400 hours - hours worked in the day.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51904 Permissible employee exposure limit; use of respirators.

Rule 4. If respirators are used to supplement engineering and work practice controls to comply with the permissible employee exposure limit, and if all of the requirements of R 325.51917 have been met, then employee exposure, for the purpose of determining if an employer has complied with the permissible employee exposure limit, may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods the respirator is worn may be averaged with exposure levels during periods when respirators are not worn to determine an employee's daily time-weighted average exposure to lead.

History: 1981 AACS; 1998-2000 AACS.

R 325.51905 Exposure monitoring generally.

Rule 5. (1) For purposes of this rule and R 325.51906 to R 325.51913, employee exposure to lead shall be the exposure that might occur if an employee did not use a respirator.

(2) Except for exposure monitoring under R 325.51907, an employer shall collect personal samples that are representative of the full shift exposure for each worker for each shift in each work area in accordance with recognized industrial hygiene practices. As used in this subrule, full shift means not less than 7 continuous hours.

(3) Personal samples shall be representative of a monitored employees regular daily exposure to lead.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51906 Exposure monitoring; initial determination.

Rule 6. An employer who has a workplace or work operation subject to these rules shall determine if an employee might be exposed to lead at or above the action level.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51907 Exposure monitoring; basis of initial determination.

Rule 7. (1) An employer shall monitor employee exposures and shall base initial determinations on employee exposure monitoring results and on any of the following considerations:

(a) Information, observations, or calculations that would indicate employee exposure to lead.

(b) Previous measurements of airborne lead.

(c) Employee complaints of symptoms which may be attributable to exposure to lead.

(2) Monitoring for the initial determination may be limited to a representative sample of those exposed employees who an employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

(3) Measurements of airborne lead concentrations made in the preceding 12 months may be used to satisfy the requirement to monitor pursuant to subrule (1) of this rule, if sampling and analytical methods used meet the accuracy and confidence levels required by R 325.51913.

History: 1981 AACS.

R 325.51908 Exposure monitoring; positive initial determination.

Rule 8. (1) If a determination conducted under R 325.51906 and R 325.51907 shows the possibility of employee exposure to lead at or above the action level, Then an employer shall conduct monitoring that is representative of the exposure for each employee in the workplace who is exposed to lead.

(2) Measurements of airborne lead concentrations made in the preceding 12 months may be used to satisfy the requirement to monitor under subrule (1) of this rule if the sampling and analytical methods used meet the accuracy and confidence levels required by R 325.51913.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51909 Exposure monitoring; negative initial determination.

Rule 9. If a determination is made, pursuant to R 325.51906 and R 325.51907, that employees are not exposed to airborne concentrations of lead at or above the action level, an employer shall make a written record of that determination. The record shall include the information required pursuant to R 325.51907 and shall also include all of the following:

- (a) The date of the determination.
- (b) The job descriptions and location within the worksite.
- (c) The name and social security number of each employee monitored.

History: 1981 AACS.

R 325.51910 Exposure monitoring; frequency.

Rule 10. (1) If initial monitoring reveals employee exposure to be below the action level, the measurements need not be repeated, except as provided pursuant to R 325.51911.

(2) If an initial determination or subsequent monitoring reveals employee exposure to be at or above the action level, but below the permissible employee exposure limit, an employer shall repeat monitoring in accordance with this rule, R 325.51905 to R 325.51909, and R 325.51911 to R 325.51913 at least once every 6 months. The employer shall continue monitoring at the required frequency until not less than 2 consecutive measurements, taken not less than 7 days apart, are below the action level, at which time the employer may discontinue monitoring for that employee, except as provided pursuant to R 325.51911.

(3) If initial monitoring reveals that employee exposure is above the permissible employee exposure limit, an employer shall repeat monitoring quarterly. The employer shall continue monitoring at the required frequency until not less than 2 consecutive measurements, taken not less than 7 days apart, are below the permissible employee exposure limit, but at or above the action level. At that time, the employer shall repeat monitoring for that employee at the frequency prescribed by subrule (2) of this rule, except as otherwise provided pursuant to R 325.51911.

History: 1981 AACS.

R 325.51911 Additional exposure monitoring.

Rule 11. If there has been a production, process, control, or personnel change which might result in new or additional employee exposure to lead, or if an employer has any other reason to suspect a change which might result in new or additional exposures to lead, additional monitoring pursuant to R 325.51905 to R 325.51910, R 325.51921, and R 325.51913 shall be conducted.

History: 1981 AACS.

R 325.51912 Exposure monitoring; employee notification.

Rule 12. (1) Within 5 working days after the receipt of monitoring results, an employer shall notify each employee, in writing, of the results which represent that employee's exposure to lead.

(2) If the monitoring results indicate that employee exposure, without regard to respirators, exceeds the permissible employee exposure limit, an employer shall include in the written notice required by subrule (1) of this rule a statement that the permissible employee exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to at or below the permissible employee exposure limit.

History: 1981 AACS.

R 325.51913 Exposure monitoring; accuracy of measurement.

Rule 13. An employer shall use a method of monitoring and analysis which has an accuracy, to a confidence level of 95%, of not less than plus or minus 20%, for airborne concentrations of lead equal to or greater than 30 micrograms per cubic meter (30 ug/m3) of air.

History: 1981 AACS.

R 325.51914 Methods of compliance; engineering and work practice controls.

Rule 14. (1) If an employee is exposed to lead above the permissible exposure limit for more than 30 days each year, then the employer shall implement engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to at or below 50 ug/m3; except employers in the brass and bronze ingot manufacture industry and small non-ferrous foundries, who must reduce and maintain employee exposure to at or below 75 ug/m3 in accordance with Table 1 of this rule, except to the extent that the employer can demonstrate that the controls are not feasible.

If the engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to at or below the permissible exposure limit, then the employer shall use the controls to reduce exposures to the lowest feasible level and shall supplement the controls by using respiratory protection that is in compliance with the requirements of R 325.51917.

(2) If an employee is exposed to lead above the permissible exposure limit for 30 days or less each year, then the employer shall implement engineering controls to reduce exposures to at or below 200 ug/m3, but thereafter may implement any combination of engineering, work practice, including administrative controls, and respiratory controls to reduce and maintain employee exposure to lead to at or below 50 ug/m3. (3) Table 1 reads as follows:

TABLE 1 - Implementation Schedule

Industry	Compliance Dates		
	50 ug/m3	75 ug/m3	200 ug/m3
Large Non-Ferrous Foundries	7/19/961	N/A	N/A
Small Non-Ferrous Foundries	N/A	7/19/961	N/A
Brass and Bronze Ingot Manufacture	N/A	6 years2	3/1/793

1 Large non-ferrous foundries that have 20 or more employees shall achieve 50 ug/m3 by means of engineering and work practice controls. Small non-ferrous foundries that have fewer than 20 employees, however, are only required to achieve 75 ug/m3 by means of engineering and work practice controls.2 Expressed as the number of years from the date on which the court lifts the stay on the implementation of paragraph 1910.1025(e)(1) of the Code of Federal Regulations for this industry for employers to achieve a lead-in-air concentration of 75 ug/m3. Compliance with paragraph 1910.1025(e)(1) in this industry is determined by a compliance directive that incorporates the elements from the settlement agreement between OSHA and industry representatives.3 7/28/84. This continues an obligation from table G-2 of O.H. rule 2103, which had been in effect since 1974, but which was deleted upon the effectiveness of this rule.

(4) If engineering and work practice controls do not reduce employee exposure to at or below the 50 micrograms per cubic meter (50 ug/m3) of air permissible employee exposure limit, then an employer shall supplement the controls with respirators in accordance with the provisions of R 325.51917.

History: 1981 AACS; 1984 AACS; 1987 AACS; 1998 AACS; 2000 AACS.

R 325.51915 Methods of compliance; compliance program.

Rule 15. (1) An employer shall establish and implement a written compliance program to reduce exposures to at or below the permissible employee exposure limit prescribed by R 325.51903, and interim levels if applicable, solely by means of engineering and work practice controls in accordance with the implementation schedule prescribed in R 325.51914.

(2) The written compliance program shall include at least all of the following:

(a) A description of each workplace operation in which lead is emitted, including, but not limited to, all of the following:

- (i) Machinery used.
- (ii) Material processed.
- (iii) Controls in place.
- (iv) Crew size.
- (v) Employee job responsibilities.
- (vi) Operating procedures.
- (vii) Maintenance practices.

(b) A description of the specific means that will be employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to lead.

(c) A report of the technology considered in meeting the permissible employee exposure limit.

(d) Air monitoring data which document the source of lead emissions.

(e) A detailed schedule for implementation of the compliance program, including documentation of purchase orders for equipment, construction contracts, and other means of implementation.

(f) A work practice program which includes items required pursuant to R 325.51922 to R 325.51931a.

(g) An administrative control schedule required by R 325.51916b.

(h) Other relevant information.

(3) Written compliance programs shall be submitted, upon request, to the director and shall be available at the workplace for examination and copying by the director, an affected employee, or authorized employee representative.

(4) A written compliance program shall be revised and updated at least once every 6 months to reflect the current status of the compliance program.

History: 1981 AACCS; 1984 AACCS.

R 325.51916 Rescinded.

History: 1981 AACCS; 1984 AACCS; 1998 AACCS.

R 325.51916a Methods of compliance; mechanical ventilation.

Rule 16a. (1) If ventilation is used to control employee exposure, measurements which demonstrate the effectiveness of the ventilation system in controlling exposure, such as capture velocity, duct velocity, or static pressure, shall be made at least once every 3 months. Measurements of the ventilation system's effectiveness in controlling employee exposure shall be made within 5 days of any change in production, process, or control which might result in a change in employee exposure to lead.

(2) If air from exhaust ventilation is recirculated into the workplace, the employer shall assure all of the following:

(a) The director has approved the air recirculation system.

(b) The ventilation system has a high efficiency filter with a reliable back-up filter.

(c) Controls are installed, operating, and maintained to monitor the concentration of lead in the return air and to bypass the recirculation system automatically if it fails.

History: 1984 AACCS.

R 325.51916b Methods of compliance; administrative controls.

Rule 16b. If administrative controls are used as a means to reduce an employee's time-weighted average exposure to lead, an employer shall establish and implement a job rotation schedule which shall include all of the following information:

(a) The name or identification number of each affected employee.

(b) The duration and exposure levels at each job or work station where each affected employee is located.

(c) Other information which may be useful in assessing the reliability of administrative controls to reduce employee exposure to lead.

History: 1984 AACCS.

R 325.51917 Respiratory protection.

Rule 17. (1) An employer shall provide respirators that comply with the requirements of these rules, for employees who use respirators required by this subrule. An employer shall ensure that an employee uses a respirator during all of the following:

- (a) Periods necessary to install or implement engineering or work practice controls.
- (b) Work operations for which engineering and work practice controls are not sufficient to reduce employee exposures to or below the permissible employee exposure limit.
- (c) Periods when an employee requests a respirator.
- (2) An employer shall implement a respiratory protection program in accordance with 29 C.F.R. 1910.134 (b) to (d) and (f) to (m), except for
- (d)(1)(iii), as adopted by reference in the respiratory protection standard, being R 325.60051 et seq. of the Michigan Administrative Code.
- (3) If an employee has breathing difficulty during fit testing or respirator use, then the employer shall provide the employee with a medical examination in accordance with R 325.51937(c) to determine whether or not the employee can use a respirator while performing the required duty.
- (4) An employer shall select the appropriate respirator or combination of respirators as set forth in table 2.

Table 2
Respiratory Protection for Lead Aerosols

Airborne Concentration of Lead or Condition of Use	Required Respirator ¹
Not more than 500 ug/m ³ (10 x PEL)	Half-mask, air-purifying respirator equipped with high-efficiency filters. ^{2,3}
Not more than 2500 ug/m ³ (50 x PEL)	Full facepiece, air-purifying respirator with high-efficiency filters. ³
Not more than 50,000 ug/m ³ (1000 x PEL)	(1) Any powered, air-purifying respirator with high-efficiency filters. ³ (2) Half-mask, supplied-air respirator operated in positive pressure mode. ²
Not more than 100,000 ug/m ³ (2000 x PEL)	Supplied-air respirators with full facepiece, hood, helmet, or suit operated in positive pressure mode.
More than 100,000 ug/m ³ , unknown concentration, or fire fighting	Full facepiece, self-contained

breathing apparatus operated in
positive pressure mode.

1. Respirators specified for high concentrations may be used at lower concentrations of lead.
2. A full facepiece is required if the lead aerosols cause eye or skin irritation at the use concentrations.
3. A high-efficiency particulate filter means 99.97% efficient against 0.3 micron size particles. N, R, or P-100 designated filters are acceptable.

(5) An employer shall provide a powered, air-purifying respirator instead of the respirator specified in table 2 of this rule when an employee chooses to use this type of respirator and such a respirator provides adequate protection to the employee.

History: 1981 AACS; 1988 AACS; 1990 AACS; 1998-2000 AACS.

Editor's note: R 325.51917 of the Michigan Administrative Code, appearing on page 436 of the 1988 Annual Supplement to the 1979 Michigan Administrative Code, is reprinted in this publication to correct an obvious error pursuant to the provisions of section 56 of Act No. 306 of the Public Acts of 1969, as amended, being S24.256 of the Michigan Compiled Laws. R 325.51917(a) contained a typographical error which has been corrected, in pertinent part, to read as follows: "...wear a negative-pressure respirator..."

R 325.51918 Rescinded.

History: 1981 AACS; 1988 AACS; 1998-2000 AACS.

R 325.51919 Rescinded.

History: 1981 AACS; 1988 AACS; 1998-2000 AACS.

R 325.51920 Rescinded.

History: 1981 AACS; 1987 AACS; 1988 AACS; 1998-2000 AACS.

R 325.51921 Filter elements and employee washing.

Rule 21. (1) An employer shall permit an employee who uses a filter respirator to change the filter elements when an increase in breathing resistance is detected. An employer shall maintain an adequate supply of filter elements for this purpose. (2) An employer shall permit an employee who wears a respirator to leave work areas to wash his or her face and respirator facepiece when necessary to prevent skin irritation associated with respirator use.

History: 1981 AACS; 2000 AACS.

R 325.51922 Protective work clothing and equipment; provision and use.

Rule 22. If an employee is exposed to lead above the permissible employee exposure limit prescribed by R 325.51903, without regard to the use of respirators, or if the possibility of skin or eye irritation exists, an employer shall provide, at no cost to the employee, and shall assure that the employee uses, appropriate protective work clothing and equipment, including all of the following:

- (a) Coveralls or similar full-body work clothing.
- (b) Gloves, hats, and shoes or disposable shoe coverings.

(c) Face shields, vented goggles, or other appropriate protective equipment which complies with R 408.13501 to R 408.13569.

History: 1981 AACS.

R 325.51923 Protective work clothing and equipment; cleaning and replacement.

Rule 23. (1) An employer shall provide employees with the protective clothing required pursuant to R 325.51922 in a clean and dry condition at least once each week. For employees who are exposed to airborne concentrations of lead, without regard to the use of a respirator, greater than 200 micrograms per cubic meter (200 ug/m³) of air as an 8-hour, time-weighted average, protective clothing in a clean and dry condition shall be provided at least once each day.

(2) An employer shall provide for the cleaning, laundering, or disposal of protective clothing and equipment required pursuant to R 325.51922.

(3) An employer shall repair or replace required protective clothing and equipment as often as needed to maintain the effectiveness of the clothing and equipment.

(4) An employer shall assure both of the following:

(a) That an employee removes all protective clothing at the completion of a work shift and only in a change room of the type described in R 325.51929 if such a change room is provided by the employer.

(b) That contaminated protective clothing which is to be cleaned, laundered, or disposed of is placed in a closed container which prevents the dispersion of lead outside of the container.

History: 1981 AACS.

R 325.51924 Protective work clothing and equipment; modification; labeling of containers.

Rule 24. (1) An employer shall inform a person who cleans or launders protective clothing or equipment, in writing, of the potentially harmful effects of exposure to lead.

(2) An employer shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or other methods which may disperse lead into the air.

(3) An employer shall assure that containers of contaminated protective clothing and equipment required pursuant to R 325.51923(4)(b) are labeled. The labels shall bear the following legend:

CAUTION:

CLOTHING OR EQUIPMENT CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, OR LOCAL REGULATIONS.

History: 1981 AACS; 1988 AACS.

R 325.51925 Housekeeping; workplace surfaces.

Rule 25. Surfaces in a workplace shall be maintained as free as practicable from accumulations of lead.

History: 1981 AACS.

R 325.51926 Housekeeping; floor cleaning; vacuuming.

Rule 26. (1) Floors and other surfaces where lead may accumulate in a workplace shall not be cleaned with the use of compressed air.

(2) Shoveling, dry or wet sweeping, and brushing may be used for cleaning a workplace only if vacuuming or other equally effective methods have been tried and found not to be effective in removing lead accumulations.

(3) If vacuuming methods are selected for cleaning a workplace, a vacuum shall be used and emptied in a manner which minimizes the reentry of lead into the workplace.

History: 1981 AACS.

R 325.51927 Rescinded.

History: 1981 AACS; 1984 AACS.

R 325.51928 Prohibition of certain types of personal items in lead work areas.

Rule 28. An employer shall assure that food or beverages are not present or consumed, tobacco products are not present or used, and cosmetics are not applied, in areas where employees are exposed to lead concentrations greater than the permissible employee exposure limit prescribed by R 325.51903. These prohibitions do not apply in change rooms, lunchrooms, or showers.

History: 1981 AACS.

R 325.51929 Hygiene facilities; change rooms.

Rule 29. (1) An employer shall provide clean change rooms for employees who work in areas where airborne exposures to lead are greater than the permissible employee exposure limit prescribed by R 325.51903, without regard to the use of respirators.

(2) An employer shall equip change rooms with separate storage or locker facilities for protective work clothing and equipment under R 325.51922 and for street clothes that prevent cross-contamination.

History: 1981 AACS; 1984 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51930 Hygiene facilities; showers.

Rule 30. (1) An employer shall ensure that employees who work in areas where airborne exposures to lead are greater than the permissible employee exposure limit prescribed by R 325.51903, without regard to the use of respirators, shower at the end of each work shift.

(2) An employer shall provide shower facilities in accordance with O.H.rule 4201 (4)(c), sanitation.

(3) An employer shall ensure that an employee who is required to shower under subrule (1) of this rule does not leave the workplace wearing any of the protective work clothing or equipment required under R 325.51922 or other significantly contaminated clothing.

History: 1981 AACS; 1984 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51931 Hygiene facilities; lunchrooms.

Rule 31. (1) As soon as possible, but not later than January 28, 1985, lunchroom facilities shall be provided by an employer for employees who work in areas where airborne exposures to lead are greater than the permissible employee exposure limit prescribed by R 325.51903, without regard to the use of respirators.

(2) The employer shall assure that lunchroom facilities have a temperature-controlled, positive-pressure, filtered air supply, unless the lunchroom facilities are remote from the lead work area such that lead contamination is not possible, and shall assure that the facilities are readily accessible to employees.

(3) Employees whose work causes significant hand or face lead contamination shall be required to wash the contaminated skin areas prior to applying cosmetics, eating, drinking, or smoking.

(4) Employees shall not enter lunchroom facilities with protective work clothing or equipment until surface lead dust has been removed by vacuuming, downdraft booth, or other appropriate cleaning method.

History: 1981 AACS; 1984 AACS; 1987 AACS; 1988 AACS.

R 325.51931a Washing facilities.

Rule 31a. An employer shall provide an adequate number of washing facilities that are in compliance with O.H. rule 4201(4)(a) and (b).

History: 1984 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51932 Medical surveillance generally.

Rule 32. (1) An employer shall institute a medical surveillance program for each employee who is or may be exposed to concentrations of lead greater than the action level for more than 30 days a year.

(2) A licensed physician or someone under the supervision of a licensed physician shall establish procedures for, and shall perform, medical examinations.

(3) An employer shall provide the required medical surveillance at a convenient time and place, without cost to employees.

(4) An employer shall give priority for biological monitoring and medical examinations shall be provided to employees who the employer believes are at the greatest risk from continued exposure to lead.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51933 Medical surveillance; biological monitoring; blood lead and zinc protoporphyrin (ZPP) level sampling and analysis.

Rule 33. An employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee who is or may be exposed to concentrations of lead greater than the action level for more than 30 days a year in accordance with the following schedule:

(a) At least once every 6 months for each employee.

(b) At least once every 2 months for each employee whose blood sample and analysis indicated a blood lead level at or above 40 micrograms per 100 grams (40 ug/100 g) of whole blood. The 2-month frequency shall continue until 2 consecutive blood samples and analyses indicate a blood level below 40 micrograms per 100 grams (40 ug/100 g) of whole blood.

(c) At least monthly during the period of time an employee is removed from exposure to lead due to an elevated blood lead level.

History: 1981 AACS; 1984 AACS; 1988 AACS.

R 325.51934 Medical surveillance; biological monitoring follow-up blood sampling tests.

Rule 34. If the results of a blood level test indicate that an employee's blood lead level exceeds the numerical criterion for medical removal under R 325.51943, then an employer shall provide a second (follow-up) blood sampling test within 2 weeks after the results of the first blood sampling test are received.

History: 1981 AACS; 1998-2000 AACS.

R 325.51935 Medical surveillance; biological monitoring; accuracy of blood lead level sampling and analysis.

Rule 35. Blood lead level sampling and analysis provided pursuant to R 325.51933 and R 325.51934 shall have an accuracy, to a confidence level of 95%, within plus or minus 15% or 6 micrograms per

100 milliliters (6 ug/100 ml), whichever is greater. Sample analyses shall be conducted by a laboratory licensed or approved by the center for disease control, United States department of health and human services, or which has received a satisfactory grade in blood lead proficiency testing from the center for disease control in the prior 12 months.

History: 1981 AACS.

R 325.51936 Medical surveillance; biological monitoring; employee notifications.

Rule 36. Within 5 working days after the receipt of biological monitoring results, an employer shall notify each employee, in writing, whose blood lead level exceeds 40 micrograms per 100 grams of whole blood of both of the following:

- (a) The employee's blood lead level.
- (b) That these rules require temporary medical removal with medical removal protection benefits when an employee's blood lead level exceeds the numerical criterion for medical removal pursuant to R 325.51938.

History: 1981 AACS.

R 325.51937 Medical surveillance; medical examinations and consultations; frequency.

Rule 37. An employer shall make available medical examinations and consultations to each employee who is or may be exposed to concentrations of lead greater than the action level for more than 30 days a year according to the following schedule:

- (a) At least annually for each employee for whom a blood sampling test conducted at any time during the previous 12 months indicated a blood lead level at or above 40 micrograms per 100 grams (40 ug/100 g) of whole blood.
- (b) Prior to an employee being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level.
- (c) As soon as possible after notification by an employee that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing either during a respirator fitting test or during use of a respirator.
- (d) As medically appropriate for an employee who is either removed from exposure to lead due to a risk of sustaining material impairment to health or who is otherwise limited pursuant to a final medical determination.

History: 1981 AACS.

R 325.51938 Medical surveillance; medical examinations and consultations; content.

Rule 38. (1) A medical examination made available pursuant to R 325.51937(a) and (b) shall include all of the following elements:

- (a) A detailed work history and a medical history, with particular attention to past occupational and non-occupational lead exposure; personal habits, including smoking and hygiene; and past gastrointestinal, hemotological, renal, cardiovascular, reproductive, and neurological problems.
- (b) A thorough physical examination, with particular attention to teeth, gums, and hemotological, gastrointestinal, renal, cardiovascular, and neurological status. Pulmonary status shall be evaluated if respiratory protection is to be used.
- (c) A blood pressure measurement.
- (d) A blood sample and an analysis which determines all of the following:
 - (i) Blood lead level.
 - (ii) Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology.
 - (iii) Blood urea nitrogen.

- (iv) Serum creatinine.
 - (e) A routine urinalysis with microscopic examination.
 - (f) A laboratory or other test which an examining physician deems necessary by sound medical practice.
- (2) The contents of a medical examination made available pursuant to R 325.51937(c) and (d) shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility, as the case may be.

History: 1981 AACS.

R 325.51938a Medical surveillance; medical examinations and consultations; multiple physician review.

Rule 38a. (1) If an employer selects the initial physician to conduct a medical examination or consultation provided to an employee pursuant to R 325.51937 and R 325.51938, an employee may designate a second physician to do both of the following:

- (a) Review the findings, determinations, or recommendations of the initial physician.
- (b) Conduct examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate his or her review of the findings, determinations, or recommendations of the initial physician.

(2) An employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that a physician selected by the employer conducts a medical examination or consultation pursuant to R 325.51937 and R 325.51938.

(3) An employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing both of the following within 15 days after receipt of the employer's notification, as required in subrule (2) of this rule, or receipt of the initial physician's written opinion, whichever is later:

- (a) The employee informs the employer that he or she intends to seek a second medical opinion.
- (b) The employee initiates steps to make an appointment with a second physician.

(4) If the findings, determinations, or recommendations of a second physician differ from those of an initial physician, the employee and the employer shall assure that efforts are made for the 2 physicians to resolve the disagreement. If the 2 physicians are unable to quickly resolve the disagreement, the employer and employee, through their respective physicians, shall designate a third physician to do both of the following:

- (a) Review the findings, determinations, or recommendations of the prior physicians.
- (b) Conduct examinations, consultations, laboratory tests, and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement between the prior physicians.

(5) The employer shall act consistent with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least 1 of the 3 physicians.

History: 1984 AACS; 1988 AACS.

R 325.51939 Medical surveillance; medical examinations and consultations; information provided to examining and consulting physicians.

Rule 39. (1) An employer shall provide a physician conducting a medical examination or consultation pursuant to R 325.51937 and R 325.51938 with all of the following information:

- (a) A copy of these rules and their appendices.
- (b) A description of an affected employee's duties as they relate to the employee's exposure to lead.
- (c) An employee's lead exposure level or anticipated lead exposure level and an employee's actual or anticipated exposure level to any other toxic substance, if applicable.
- (d) A description of personal protective equipment used or to be used.
- (e) An employee's prior blood lead determinations.
- (f) All prior written medical opinions in the employer's possession or control concerning an employee.

(2) Upon request by the other physician or by an employee, the employer shall provide the information required by subrule (1) of this rule to another physician conducting a medical examination pursuant to these rules.

History: 1981 AACS.

R 325.51940 Medical surveillance; examinations and consultations; written medical opinions.

Rule 40. (1) An employer shall obtain, and provide an employee with a copy of, a written medical opinion from each examining or consulting physician which shall contain all of the following information:

(a) The physician's opinion as to whether the employee has a detected medical condition which would place the employee at an increased risk of material impairment of the employee's health from exposure to lead.

(b) Any recommended special protective measures to be provided to the employee or limitations to be placed upon the employee's exposure to lead.

(c) Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air-purifying respirator if a physician determines that the employee cannot wear a negative-pressure respirator.

(d) The results of the blood lead determinations.

(2) An employer shall instruct each examining and consulting physician to do each of the following:

(a) Not reveal, in the written opinion or in other means of communication with the employer, findings, laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead.

(b) Advise the employee of any occupational or nonoccupational medical condition which dictates further medical examination or treatment.

History: 1981 AACS.

R 325.51941 Medical surveillance; medical examinations and consultations; alternate physician determination.

Rule 41. An employer and an employee or authorized employee representative, with the written approval of the employee in question, may agree upon the use of an expeditious alternate physician determination, instead of the multiple physician review mechanism provided in R 325.51938a, if the alternate physician determination otherwise satisfies the requirements of these rules.

History: 1981 AACS; 1984 AACS.

R 325.51942 Chelation.

Rule 42. (1) A person retained, employed, supervised, or controlled by an employer shall not engage in prophylactic chelation of an employee at any time.

(2) If therapeutic or diagnostic chelation is to be performed by a person retained, employed, supervised, or controlled by an employer, the employer shall assure that the chelation shall be carried out under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing and that the employee consents thereto in writing prior to its occurrence.

History: 1981 AACS.

R 325.51943 Medical removal protection; temporary medical removal; elevated blood lead levels.

Rule 43. (1) An employer shall remove an employee from work who has an exposure to lead at or above the action level on each occasion that a periodic blood sampling test and a follow-up blood sampling test conducted under these rules indicate that the employee's blood lead level is at or above 60 micrograms per 100 grams (60 ug/100 g) of whole blood.

(2) An employer shall remove an employee from work if the employee has an exposure to lead at or above the action level on each occasion that the average of the last 3 blood sampling tests conducted under these rules, or the average of all blood sampling tests conducted over the previous 6 months, whichever is longer, indicates that the employee's blood lead level is at or above 50 micrograms per 100 grams (50 ug/100 g) of whole blood. However, an employee shall not be required to be removed if the last blood sampling test indicates a blood lead level at or below 40 micrograms per 100 grams (40 ug/100 g) of whole blood.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51944 Medical removal protection; temporary medical removal; final medical determination.

Rule 44. (1) For purposes of this rule, "final medical determination" means the outcome of an alternate medical determination made pursuant to R 325.51941.

(2) An employer shall remove from work an employee who has an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at an increased risk of material impairment to health from exposure to lead.

(3) If a final medical determination results in any recommended special protective measures for an employee or limitation on an employee's exposure to lead, an employer shall implement and act consistently with the recommended protective measures.

History: 1981 AACS.

R 325.51945 Medical removal protection; return of an employee to former job status.

Rule 45. (1) An employer shall return an employee to his or her former job status under any of the following circumstances:

(a) For an employee removed due to a blood lead level at or above 70 micrograms per 100 grams of whole blood (70 ug/100 g), when 2 consecutive blood sampling tests indicate that the employee's blood lead level is at or below 50 micrograms per 100 grams of whole blood (50 ug/100 g).

(b) For an employee removed due to a blood lead level at or above 60 micrograms per 100 grams of whole blood (60 ug/100 g) or due to an average blood lead level at or above 50 micrograms per 100 grams of blood (50 ug/100 g), when 2 consecutive blood sampling tests indicate that the employee's blood lead level is at or below 40 micrograms per 100 grams of whole blood (40 ug/100 g).

(c) For an employee removed due to a final medical determination, 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 an increased risk of material impairment to health from exposure to lead.

(2) For purposes of this rule, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.

History: 1981 AACS.

R 325.51946 Medical removal protection; removal of other employee protective measures or limitations.

Rule 46. An employer shall remove any limitations placed on an employee or shall terminate any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.

History: 1981 AACS.

R 325.51947 Medical removal protection; employer options pending final medical determinations.

Rule 47. If an alternate medical determination used pursuant to R 325.51941 has not resulted in a final medical determination with respect to an employee, an employer may do either of the following:

(a) Remove the employee from exposure to lead, provide special protective measures to the employee, or place limitations upon the employee consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.

(b) Return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, except as follows:

(i) If the initial removal, special protection, or limitation of the employee resulted from a medical determination which differed from the findings, determinations, or recommendations of the initial physician, the employer shall await a final medical determination.

(ii) If the employee has been on removal status for the preceding 18 months due to an elevated blood lead level, the employer shall await a final medical determination.

History: 1981 AACCS.

R 325.51948 Medical removal protection benefits.

Rule 48. (1) For purposes of these rules, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority, and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to lead or had not been otherwise limited. Medical removal benefits shall not replace employee earnings and shall not be related to the cost of medical treatment for which the employee remains responsible, that is not lead related.

(2) An employer shall provide to an employee up to 18 months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead or is otherwise limited pursuant to this rule.

(3) During the time that an employee is removed from normal exposure to lead or is otherwise limited, an employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this rule.

(4) If a removed employee files a claim for workers' compensation payments for a lead-related disability, the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by that amount. The employer shall not receive credit for workers' compensation payments received by the employee for treatment-related expenses.

(5) An employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that an employee receives compensation for earnings lost during the period of removal from either a publicly or employer-funded compensation program or from employment with another employer made possible by virtue of the employee's removal.

(6) An employer shall take both of the following measures with respect to an employee removed from exposure to lead due to an elevated blood lead level, whose blood lead level has not declined within the past 18 months of removal so that the employee has been returned to his or her former job status:

(a) Make available to the employee a medical examination pursuant to these rules to obtain a final medical determination with respect to the employee.

(b) Assure that the final medical determination obtained indicates the employee may be returned to his or her former job status and, if not, the steps which are to be taken to protect the employee's health.

(7) If a final medical determination has not yet been obtained or, if obtained, indicates that the employee may not yet be returned to his or her former job status, the employer shall continue to provide medical removal protection benefits to the employee until either the employee is returned to his or her former job status or until a final medical determination is made that the employee is incapable of ever safely returning to his or her former job status.

(8) If an employer acts pursuant to a final medical determination which permits the return of an employee to his or her former job status despite what would otherwise be an unacceptable blood lead level, later determinations concerning removal of the employee shall be decided by a final medical determination. An employer shall not be required to automatically remove that employee pursuant to the blood lead level removal criteria provided by these rules until a final medical determination is made.

(9) If an employer, whether or not required by this rule, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by subrule (2) of this rule.

History: 1981 AACS.

R 325.51949 Employee information and training; training program.

Rule 49. (1) An employer who has a workplace in which there is a potential exposure to airborne lead at any level shall inform employees of the contents of Appendices A to 29 C.F.R. 1910.1025, Substance Data Sheet for Occupational Exposure to Lead, and B to 29 C.F.R. 1910.1025, Employee Standard Summary. Appendices A and B are adopted by reference in R 325.51958.

(2) An employer shall institute a training program for, and assure participation by, all employees who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritation exists from exposure to lead.

(3) An employer shall provide initial training in accordance with both of the following provisions:

(a) Within 180 days from the effective date of these rules for employees subject to subrule (2) of this rule.

(b) For new employees who subsequently become subject to subrule (2) of this rule, before the time of initial job assignment.

(4) The training program shall be repeated at least annually for each employee.

(5) An employer shall assure that each employee is informed of all of the following information:

(a) The contents of these rules and appendices.

(b) The specific nature of the operations that could result in exposure to lead above the action level.

(c) The purpose, proper selection, fitting, use, and limitations of respirators.

(d) The purpose and a description of the medical surveillance program and the medical removal protection program, including information regarding adverse health effects associated with excessive exposures to lead, with particular attention to the adverse reproductive effects on both males and females.

(e) The engineering controls and work practices associated with the employee's job assignment.

(f) The contents of any compliance plan in effect.

(g) Instructions to employees that chelating agents shall not routinely be used to remove lead from their bodies and shall not be used at all except under the direction of a licensed physician.

History: 1981 AACS; 1987 AACS; 1998-2000 AACS.

R 325.51950 Employee information and training; access to information and training materials.

Rule 50. (1) An employer shall make a copy of these rules and their appendices readily available to all affected employees.

(2) Upon request, an employer shall provide to the director all materials relating to the employee information and training program.

(3) In addition to the information required by R 325.51949(5), an employer shall include as part of the training program, and shall distribute to employees, all materials pertaining to the act and the rules promulgated thereunder which are provided to the employer by the department.

History: 1981 AACS.

R 325.51950a Signs generally.

Rule 50a. (1) An employer may use signs required by other statutes, rules, regulations, or ordinances in addition to, or in combination with, signs required by R 325.51950b.

(2) An employer shall assure that no statement appears on or near any sign required by R 325.51950b which contradicts or detracts from the meaning of the required sign.

History: 1981 AACS.

R 325.51950b Sign requirements.

Rule 50b. (1) An employer shall post the following warning sign in each work area where the permissible employee exposure limit is exceeded:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

(2) An employer shall assure that signs required by this rule are illuminated and cleaned as necessary so that the legend is readily visible.

History: 1984 AACS.

R 325.51951 Recordkeeping; exposure monitoring.

Rule 51. (1) An employer shall establish and maintain an accurate record of all monitoring required pursuant to R 325.51906 and R 325.51913.

(2) The monitoring record shall include all of the following:

(a) The date or dates, number, duration, locations, and results in each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure, where applicable.

(b) A description of the sampling and analytical methods used and evidence of their accuracy.

(c) The type of respiratory protective devices worn, if any.

(d) The name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent.

(e) The environmental variables that could affect the measurement of employee exposure.

(3) An employer shall maintain monitoring records for not less than 40 years or for the duration of employment plus 20 years, whichever is longer.

History: 1981 AACS.

R 325.51952 Recordkeeping; medical surveillance.

Rule 52. (1) An employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by R 325.51932 to R 325.51942.

(2) The medical surveillance record shall include all of the following:

(a) The name, social security number, and description of the duties of the employee.

(b) A copy of the physicians' written opinions.

(c) Results of any airborne exposure monitoring carried out for that employee and the representative exposure levels supplied to the employee's physician or physicians.

(d) Employee medical complaints related to exposure to lead.

(3) An employer shall maintain, or assure that the examining physician maintains, all of the following medical records:

(a) A copy of the medical examination results including medical and work history required pursuant to R 325.51932 to R 325.51942.

(b) A description of the laboratory procedures and a copy of standards or guidelines used to interpret test results or references to that information.

(c) A copy of the results of biological monitoring.

(4) An employer shall maintain, or assure that the physician maintains, medical records for not less than 40 years or for the duration of employment plus 20 years, whichever is longer.

History: 1981 AACS.

R 325.51953 Recordkeeping; medical removals.

Rule 53. (1) An employer shall establish and maintain an accurate record for each employee removed from exposure to lead pursuant to R 325.51943 to R 325.51948.

(2) Each medical removal record shall include all of the following:

(a) The name and social security number of the employee.

(b) The date on each occasion that the employee was removed from current exposure to lead, and the corresponding date on which the employee was returned to his or her former job status.

(c) A brief explanation of how each removal was or is being accomplished.

(d) With respect to each removal, a statement indicating if the reason for the removal was an elevated blood lead level.

(3) The employer shall maintain a medical removal record for at least the duration of an employee's employment.

History: 1981 AACS.

R 325.51954 Availability of records.

Rule 54. (1) Upon request, an employer shall make all records to be maintained pursuant to R 325.51951 to R 325.51953 available to the director for examination and copying.

(2) Upon request, an employer shall make environmental monitoring, biological monitoring, and medical removal records available for examination and copying to affected employees, former employees, or authorized employee representatives.

(3) Upon request, an employer shall make an employee's medical records required to be maintained by this rule available for examination and copying to an affected employee, former employee, a physician, or other individual designated by an affected employee or former employee.

History: 1981 AACS.

R 325.51955 Transfer of records.

Rule 55. (1) If an employer ceases to do business and there is a successor employer, the successor employer shall receive and retain all records required to be maintained pursuant to R 325.51951 to R 325.51953.

(2) If an employer ceases to do business and there is no successor employer to receive and retain the records required to be maintained for the prescribed period by R 325.51951 to R 325.51953, the records shall be transmitted to the director.

(3) At the expiration of the retention period for the records required to be maintained by R 325.51951 to R 325.51953, an employer shall notify the director not less than 3 months prior to the disposal of the records. The employer shall transmit the records to the director, upon request, within the 3-month period.

History: 1981 AACS.

R 325.51956 Observation of monitoring; employee observation.

Rule 56. An employer shall provide affected employees or their designated representatives an opportunity to observe monitoring of employee exposure to lead conducted pursuant to R 325.51905 to R 325.51913.

History: 1981 AACS.

R 325.51957 Observation of monitoring; procedures.

Rule 57. (1) If observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing, or equipment is required, an employer shall provide the observer with, and assure the use of, respirators, protective clothing, and equipment and shall require the observer to comply with all other applicable safety and health procedures.

(2) Without interfering with the monitoring, an observer shall be entitled to all of the following:

- (a) Receipt of an explanation of the measurement procedures.
- (b) Observation of all steps related to the monitoring of lead performed at the place of exposure.
- (c) To record the results obtained or to receive copies of the results when returned by the laboratory.

History: 1981 AACS.

R 325.51958 Adoption of appendices by reference; availability of rules and appendices; permission to reproduce.

Rule 58. (1) The provisions of Appendixes A and B to 29 C.F.R. §§1910.1025 are adopted by reference in these rules. Appendixes A and B to these rules are exact copies of appendices A and B to 29 C.F.R. §§1910.1025.

(2) The provisions of appendix C is informational and not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(3) A copy of these rules and related appendices, which are titled "Appendix A--Substance Data Sheet for Occupational Exposure to Lead," "Appendix B--Employee Standard Summary," and "Appendix C--Medical Surveillance Information," are available to affected employers and employees at no cost as of the time of adoption of these rules from the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, P. O. Box 30643, Lansing, Michigan 48909-8143. Copies of appendices A and B of 29 C. F. R. §§1910.1025 may also be obtained from the United States Department of Labor, OSHA Area Office, 801 S. Waverly Road, Lansing, Michigan 48917, at no cost as of the time of adoption of these rules.

(4) Permission to reproduce any of these documents in full is granted by the director.

History: 1981 AACS; 1998-2000 AACS.