

DIRECTOR'S OFFICE

OCCUPATIONAL HEALTH STANDARDS -BENZENE

Filed with the Secretary of State on August 5, 2014

These rules become effective immediately upon filing with the Secretary of State unless adopted under section 33, 44, or 45a(6) of 1969 PA 306.

Rules adopted under these sections become effective 7 days after filing with the Secretary of State.

(By authority conferred on the director of the department of **licensing and regulatory affairs by sections 14 and 24 of 1974 PA 154, MCL 408.1014 and 408.1024, and Executive Reorganization Order Nos. 1996-1, 1996-2, 2003-1, 2008-4, and 2011-4, MCL 330.3101, 445.2001, 445.2011, 445.2025, and 445.2030** consumer and industry services by section 24 of 1974 PA 154, MCL 408.1024, and Executive Reorganization Orders Nos. 1996-1 and 1996-2, MCL 330.3101 and 445.2001)

R 325.77101, R 325.77102, R 325.77105, R 325.77106, R 325.77107, R 325.77108, R 325.77109, , R 325.77111, and R 325.77112 of the Michigan Administrative Code are amended, and R 325.77101a, R 325.77105a, R 325.77105b, R 325.77105c, R 325.77105d, R 325.77105e, R 325.77105f, R 325.77106a, R 325.77109a, R 325.77109b, R 325.77109c, R 325.77109d, R 325.77109e, R 325.77109f, R 325.77109g, R 325.77109h, R 325.77110a, R 325.77110b, R 325.77110c R 325.77111a, and R 325.77111b are added, and R 325.77110, R 325.77114 and R 325.77115 are rescinded, as follows:

**PART 311. BENZENE**

R 325.77101. Scope.

Rule 1. (1) These rules apply to all occupational exposures to benzene, chemical abstracts service registry no. 71-43-2, except as provided in subrules (2) and (3) of this rule.

(2) These rules do not apply to any of the following:

(a) The storage, transportation, distribution, dispensing, sale, or use of gasoline, motor fuels, or other fuels that contain benzene after its final discharge from bulk wholesale storage facilities, except that operations which dispense gasoline or motor fuels for more than 4 hours per day in an indoor location are covered by these rules.

(b) Loading and unloading operations at bulk wholesale storage facilities which use vapor control systems for all loading and unloading operations. However, such operations are subject to the provisions of R 325.77107 and **R 325.77109(c)** ~~R 325.77109(9)~~ and the Hazard Communication provisions of sections 14a to 14m of **the Michigan Occupational Safety and Health Act (MIOSHA)**, 1974 PA 154, MCL 408.1014a to 408.1014m.

(c) The storage, transportation, distribution, or sale of benzene or liquid mixtures that contain more than 0.1% benzene in intact containers or in transportation pipelines while sealed in a manner to contain benzene vapors or liquid. However, such storage, transportation, distribution, or sale is subject to the provisions of R 325.77107 and **R 325.77109(c)** ~~R 325.77109(9)~~ and the hazard communication provisions of sections 14a to 14m **of the Michigan Occupational Safety and Health Act (MIOSHA)**, 1974 PA 154, MCL 408.1014a to 408.1014m.

(d) Containers and pipelines that carry mixtures which are less than 0.1% benzene.

(e) Natural gas-processing plants that process gas which contains less than 0.1% benzene.

(f) Work operations where the only exposure to benzene is from liquid mixtures that contain 0.5% or less of benzene, by volume, or the vapors released from the liquids until September 12, 1988; work operations where the only exposure to benzene is from liquid mixtures that contain 0.3% or less of benzene, by volume, or the vapors released from the liquids from September 12, 1988, to September 12, 1989; and work operations where the only exposure to benzene is from liquid mixtures that contain 0.1% or less of benzene, by volume, or the vapors released from the liquids after September 12, 1989; except that tire-building machine operators who use solvents which contain more than 0.1% benzene are subject to the provisions of R 325.77109 **to R 325.77109h**.

(g) Oil and gas drilling, production, and servicing operations.

(h) Coke oven batteries.

(3) Cleaning and repair operations of barges and tankers that have contained benzene are excluded from the provisions of R 325.77106, **R 325.77106a**, R 325.77105(1) to (4), and **R 325.77105b**. ~~R 325.77105(6)~~. Engineering and work practice controls shall be used to keep exposures below 10 ppm, unless it is proven to be not feasible.

~~(4) These rules replace those portions of O.H. rules 2101(5), 2101(8), and 2103 that pertain to benzene for those industries covered by subrule (1) of this rule.~~

**R 325.77101a. Referenced standards.**

**Rule 1a. (1) The following Michigan occupational safety and health standards are referenced in these rules. Up to 5 copies of these standards may be obtained at no charge from the Michigan Department of licensing and regulatory affairs, MIOSHA standards section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan 48909-8143, or via the internet at website: [www.michigan.gov/mioshastandards](http://www.michigan.gov/mioshastandards). For quantities greater than 5, the cost, at the time of adoption of these rules, is 4 cents per page.**

**(a) General Industry Safety Standard Part 33 "Personal Protective Equipment," R 408.13301 to R 408.13398.**

**(b) Occupational Health Standard Part 430 "Hazard Communication," R 325.77001 to R 325.77003.**

**(c) Occupational Health Standard Part 433 "Personal Protective Equipment," R 325.60001 to R 325.60013.**

**(d) Occupational Health Standard Part 451 "Respiratory Protection," R 325.60051 to R 325.60052.**

**(e) Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," R 325.3451 to R 325.3476.**

**(2) Appendices A, B, C, and D to these rules are informational only and are not intended to create any additional obligations or requirements not otherwise imposed by these rules or to detract from any established obligations or requirements.**

**R 325.77102. Definitions.**

**Rule 2. As used in these rules:**

**(1)(a) "Act" means Michigan Occupational Safety and Health Act (MIOSHA), 1974 PA 154, MCL 408.1001 to 408.2094 et seq.**

**(2)(b) "Action level" means an airborne concentration of benzene of 0.5 parts per million (ppm) calculated as an 8-hour, time-weighted average (TWA).**

**(3)(c) "Authorized person" means any of the following:**

**(a)(i) A person who is specifically authorized by the employer to enter a regulated area and whose duties require the person to enter a regulated area.**

**(b)(ii) A person who enters a regulated area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under R 325.77112.**

**(c)(iii) Any other person authorized by the act or rules issued under the act.**

**(4)(d) "Benzene" (C<sub>6</sub>H<sub>6</sub>) (CAS registry no. 71-43-2) means liquefied or gaseous benzene. It includes benzene contained in liquid mixtures and the benzene vapors released by the liquids. It does not include trace amounts of unreacted benzene contained in solid materials.**

**(5)(e) "Bulk wholesale storage facility" means a bulk terminal or bulk plant where fuel is stored before delivery to wholesale customers.**

**(6)(f) "Container" means any barrel, bottle, can, cylinder, drum, reaction vessel, storage tank, or other receptacle, but does not include piping systems.**

**(7)(g) "Day" means any part of a calendar day.**

**(8)(h) "Department" means the Michigan department of licensing and regulatory affairs. ~~consumer and industry services.~~**

**(9)(i) "Director" means the director of the department or his or her designee.**

**(10)(j) "Emergency" means any occurrence, such as, equipment failure, rupture of containers, or failure of control equipment, which may or does result in an unexpected significant release of benzene.**

**(11)(k) "Employee exposure" means exposure to airborne benzene that would occur if an employee did not use respiratory protective equipment.**

~~**(l) "O.H. rule" means an occupational health rule adopted by reference in accordance with section 14 of the act. Printed copies of these rules are available for inspection and for distribution to the public at no cost as of the time of adoption of these rules from the offices of the Michigan Department of Consumer and Industry Services MIOSHA Standards Division 7150 Harris Drive Lansing Michigan 48909.**~~

**(12)(m) "Regulated area" means any area where airborne concentrations of benzene are more than or can reasonably be expected to be more than the permissible exposure limits of either the 8-hour time-weighted average exposure of 1 ppm or the short-term exposure limit of 5 ppm for 15 minutes.**

**(13)(n) "Vapor control system" means any equipment that is used for containing the total vapors displaced during the loading of gasoline motor fuel or other fuel tank trucks and the displacing of these vapors through a vapor processing system or balancing the vapor with the storage tank. This equipment also includes systems containing the vapors displaced from the storage tank during the unloading of the tank truck which balance the vapors back to the tank truck.**

**EXPOSURE MONITORING**

R 325.77105. Exposure ~~monitoring~~, ~~monitoring~~.

Rule 5. (1) Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee's average exposure to airborne benzene.

(2) Representative 8-hour TWA employee exposures shall be determined on the basis of 1 sample or samples representing the full shift exposures for each job classification in each work area.

(3) Determinations of compliance with the short-term exposure limits (STEL) shall be made from 15-minute employee breathing zone samples that are measured at operations where there is reason to believe exposures are high, such as where tanks are opened, filled, unloaded, or gauged, where containers or process equipment are opened, and where benzene is used for cleaning or as a solvent in an uncontrolled situation. An employer may use objective data, such as measurements from brief period measuring devices, to determine where STEL monitoring is needed.

(4) Except for initial monitoring required by **R 325.77105a**, ~~the provisions of subrule (5) of this rule~~, if an employer can document that one shift will consistently have higher exposures for an operation, then the employer shall only be required to determine representative employee exposure for that operation during the shift on which the highest exposure is expected.

~~(5) An employer who has a place of employment subject to these rules shall monitor each workplace and work operation to accurately determine the airborne concentrations of benzene to which employees may be exposed. Initial monitoring shall be completed within 30 days of the introduction of benzene into the workplace.~~

~~(6) If the monitoring required by subrule (5) of this rule reveals employee exposure at or above the action level, but at or below the TWA, then an employer shall repeat representative full-shift personal monitoring for each such employee at least every year. If the monitoring required by subrule (5) of this rule reveals employee exposure above the TWA, then an employer shall repeat the monitoring required by subrule (5) of this rule for each such employee at least every 6 months. An employer may alter the monitoring schedule from every 6 months to annually for an employee for whom 2 consecutive measurements, taken not less than 7 days apart, indicate that the employee exposure has decreased to the TWA or below, but is at or above the action level. Monitoring for the STEL shall be repeated as necessary to evaluate exposures of employees subject to short-term exposures.~~

~~(7) If the initial monitoring required by subrule (5) of this rule reveals employee exposure to be below the action level, then an employer may discontinue the monitoring for that employee, except as otherwise required by subrule (8) of this rule. If the periodic monitoring required by subrule (6) of this rule reveals that employee exposures, as indicated by not less than 2 consecutive measurements, taken not less than 7 days apart, are below the action level, then an employer may discontinue the monitoring for that employee, except as otherwise required by subrule (8) of this rule.~~

~~(8) An employer shall institute the exposure monitoring required by subrules (5) and (6) of this rule when there has been a change in the production, process, control equipment, personnel, or work practices which may result in new or additional exposures to benzene or when the employer has any reason to suspect a change which may result in new or additional exposures. If spills, leaks, ruptures, or other breakdowns that may lead to employee exposure occur, then an employer shall monitor, using area or personal sampling, after the cleanup of the spill or repair of the leak, rupture, or other breakdown to ensure that exposures have returned to the level that existed before the incident.~~

~~(9) Monitoring shall be accurate, to a confidence level of 95%, to within plus or minus 25% for airborne concentrations of benzene.~~

~~(10) An employer shall, within 15 working days after the receipt of the results of any monitoring performed under these rules, notify each employee of monitoring results, in writing, either individually or by posting the results in an appropriate location that is accessible to affected employees. If the PELs are exceeded, then the written notification required by this subrule shall contain the corrective action being taken by the employer to reduce the employee exposure to or below the PELs or shall refer to a document which is available to the employee and which states the corrective actions to be taken.~~

**R 325.77105a. Initial monitoring.**

Rule 5a. (1) An employer who has a place of employment subject to these rules shall monitor each workplace and work operation to accurately determine the airborne concentrations of benzene to which employees may be exposed.

(2) The employer shall complete the initial monitoring within 30 days of the introduction of benzene into the workplace.

**R 325.77105b. Periodic monitoring and monitoring frequency**

Rule 5b.(1) If the monitoring required by R 325.77105a reveals employee exposure at or above the action level, but at or below the TWA, then the employer shall repeat representative full-shift personal monitoring for each such employee at least every year.

(2) If the monitoring required by R 325.77105a reveals employee exposure above the TWA, then the employer shall repeat the monitoring for each such employee at least every 6 months.

(3) An employer may alter the monitoring schedule from every 6 months to annually for an employee for whom 2 consecutive measurements, taken not less than 7 days apart, indicate that the employee exposure has decreased to the TWA or below, but is at or above the action level.

(4) An employer shall repeat monitoring for the STEL as necessary to evaluate exposures of employees subject to short-term exposures.

**R 325.77105c. Termination of monitoring.**

Rule 5c. (1) If the initial monitoring required by R 325.77105a reveals employee exposure to be below the action level, then an employer may discontinue the monitoring for that employee, except as otherwise required by R 325.77105d.

(2) If the periodic monitoring required by R 325.77105b reveals that employee exposures, as indicated by not less than 2 consecutive measurements, taken not less than 7 days apart, are below the action level, then an employer may discontinue the monitoring for that employee, except as otherwise required by R 325.77105d.

**R 325.77105d. Additional monitoring.**

Rule 5d. (1) An employer shall institute the exposure monitoring required by R 325.77105a and R 325.77105b when there has been a change in the production, process, control equipment, personnel, or work practices which may result in new or additional exposures to benzene or when the employer has any reason to suspect a change which may result in new or additional exposures.

(2) If spills, leaks, ruptures, or other breakdowns that may lead to employee exposure occur, then an employer shall monitor, using area or personal sampling, after the cleanup of the spill or repair of the leak, rupture, or other breakdown to ensure that exposures have returned to the level that existed before the incident.

**R 325.77105e. Accuracy of monitoring.**

Rule 5e. Monitoring shall be accurate, to a confidence level of 95%, to within plus or minus 25% for airborne concentrations of benzene.

**R 325.77105f. Notification of monitoring.**

Rule 5f. (1) An employer shall, within 15 working days after the receipt of the results of any monitoring performed under these rules, notify each affected employee of monitoring results, either individually in writing or by posting the results in an appropriate location that is accessible to employees.

(2) If the PELs are exceeded, then the written notification required by this rule shall contain the corrective action being taken by the employer to reduce the employee exposure to or below the PELs or shall refer to a document which is available to the employee and which states the corrective actions to be taken.

## METHODS OF COMPLIANCE

### R 325.77106. **Engineering controls and work practices.** ~~Methods of compliance.~~

Rule 6. (1) An employer shall institute engineering controls and work practices to reduce and maintain employee exposure to benzene at or below the permissible exposure limits, except to the extent that the employer can establish that these controls are not feasible or where the provisions of subrule (3) of this rule or R 325.77107(1) apply.

(2) Where the feasible engineering controls and work practices that can be instituted are not sufficient to reduce employee exposure to or below the PELs, an employer shall use the controls and practices to reduce employee exposure to the lowest levels that can be achieved by such use and shall supplement the controls and practices with the use of respiratory protection which complies with the requirements of R 325.77107.

(3) Where an employer can document that benzene is used in a workplace less than a total of 30 days per year, the employer shall use engineering controls, work practice controls, respiratory protection, or any combination of these controls to reduce employee exposure to benzene to or below the PELs, except that an employer shall use engineering and work practice controls, if feasible, to reduce exposure to or below 10 ppm as an 8-hour TWA.

~~(4) When any exposures are above the PELs, an employer shall establish and implement a written program to reduce employee exposure to or below the PELs primarily by means of engineering and work practice controls, as required by the provisions of subrule (1) of this rule. The written program shall include a schedule for development and implementation of the engineering and work practice controls. These plans shall be reviewed and revised, as appropriate, based on the most recent exposure monitoring data, to reflect the current status of the program. Upon request, written compliance programs shall be furnished to the director, affected employees, and designated employee representatives for examination and copying.~~

### R 325.77106a. **Compliance program.**

**Rule 6a. (1) When any exposures are above the PELs, an employer shall establish and implement a written program to reduce employee exposure to or below the PELs primarily by means of engineering and work practice controls, as required by the provisions of R 325.77106.**

**(2) The written program shall include a schedule for development and implementation of the engineering and work practice controls. These plans shall be reviewed and revised, as appropriate, based on the most recent exposure monitoring data, to reflect the current status of the program.**

**(3) Upon request, an employer shall furnish written compliance programs to the director, affected employees, and designated employee representatives for examination and copying.**

### R 325.77107. **Respiratory protection.**

Rule 7. (1) For employees who use respirators required by these rules, the employer shall provide **each employee an appropriate respirator** ~~respirators that complies~~ ~~comply~~ with the requirements of these rules. An employer shall ensure that an employee uses a respirator during all of the following:

(a) Periods necessary to install or implement feasible engineering and work-practice controls.

(b) Work operations for which the employer establishes that compliance with either the TWA or STEL through the use of engineering and work-practice controls is not feasible; for example, some maintenance and repair activities, vessel cleaning, or other operations for which engineering and work-practice controls are not feasible because exposures are intermittent and limited in duration.

(c) Work operations for which feasible engineering and work-practice controls are not yet sufficient, or are not required under R 325.77106(3), to reduce employee exposure to or below the PELs.

(d) Emergencies.

(2) An employer shall implement a respiratory protection program in accordance with **Occupational Health Standard Part 451 "Respiratory Protection,"** 29 C.F.R. §1910.134 (b) to (d), (except for (d)(1)(iii), (d)(3)(iii)(b)(1), and (2)) and (f) to (m), **as referenced in R 325.77101a, which covers each employee required by this rule to use a respirator. Both of the following apply:**

(a) For air-purifying respirators, the employer shall replace the air-purifying element at the expiration of its service life or at the beginning of each shift in which such elements are used, whichever comes first.

(b) If NIOSH approves an air-purifying element with an end-of-service-life indicator for benzene, then the element may be used until the indicator shows no further useful life.

(3) An employer shall **do all of the following:** ~~select and provide, at not cost to the employee, the appropriate respirator from table 1 of this rule and shall ensure that the employee uses the respirator that is provided.~~

**(a) Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of Occupational Health Standard Part 451 "Respiratory Protection," as referenced in R 325.77101a.**

**(b) Provide employees with any organic vapor gas mask or any self-contained breathing apparatus with a full facepiece to use for escape.**

**(c) Use an organic vapor cartridge or canister with powered and non-powered air-purifying respirators, and a chin-style canister with full facepiece gas masks.**

(d) Ensure that canisters used with non-powered air-purifying respirators have a minimum service life of 4 hours when tested at 150 ppm benzene at a flow rate of 64 liters per minute (LPM), a temperature of 25 [deg]C, and a relative humidity of 85%; for canisters used with tight-fitting or loose-fitting powered air-purifying respirators, the flow rates for testing must be 115 LPM and 170 LPM, respectively.

(4) An employer shall allow an employee who cannot use a negative-pressure respirator to use a respirator with less breathing resistance, such as a powered air-purifying respirator or supplied-air respirator.

TABLE 1 - RESPIRATORY PROTECTION FOR BENZENE

Airborne concentration of benzene or condition of use	Respirator type
(a) Less than or equal to 10 ppm.	Half-mask air-purifying respirator with organic vapor cartridge.
(b) Less than or equal to 50 ppm.	Full facepiece respirator with organic vapor cartridges or full facepiece gas mask with chin style canister. <sup>†</sup>
(c) Less than or equal to 100 ppm.	Full facepiece powered air-purifying respirator with organic vapor canister. <sup>†</sup>
(d) Less than or equal to 1,000 ppm.	Supplied-air respirator with full facepiece in positive pressure mode.
(e) More than 1,000 ppm or unknown concentration.	Self-contained breathing apparatus with full facepiece positive pressure mode or full facepiece positive pressure supplied-air respirator with auxiliary self-contained air supply.
(f) Escape.	Any organic vapor gas mask or any self-contained breathing apparatus with full facepiece.
(g) Fire fighting.	Full facepiece self-contained breathing apparatus in positive pressure mode.

<sup>†</sup>A canister shall have a minimum service life of 4 hours when tested at 150 ppm benzene, at a flow rate of 64 liters per minute (LPM), 25 degrees Centigrade, and 85% relative humidity for nonpowered, air-purifying respirators. The flow rate shall be 115 LPM and 170 LPM respectively for tight-fitting and loose-fitting, powered, air-purifying respirators.

R 325.77108. Protective clothing and equipment.

Rule 8. **(1)** Personal protective clothing and equipment shall be worn in accordance with **Occupational Health Standard Part 433 "Personal Protective Equipment," as referenced in R 325.77101a** ~~R 325.60001 et seq. entitled occupational health standard Part 433. Personal Protective Equipment~~ where it is necessary to prevent eye contact and limit dermal exposure to liquid benzene. ~~Protective clothing and equipment shall be provided by the employer at no cost to the employee and the employer shall ensure its use where appropriate. Eye and face protection shall meet the requirements of R 408.13301 et seq. entitled general industry safety standard Part 33. Personal Protective Equipment.~~

**(2)** An employer shall provide protective clothing and equipment at no cost to the employee and the employer shall ensure its use where appropriate.

**(3)** Eye and face protection shall meet the requirements of General Industry Safety Standard Part 33 "Personal Protective Equipment," as referenced in R 325.77101a.

## MEDICAL SURVEILLANCE

R 325.77109. Medical **surveillance, generally.** ~~surveillance.~~

Rule 9. (1) An employer shall make a medical surveillance program available to all of the following persons:

- (a) Employees who are or may be exposed to benzene at or above the action level 30 or more days per year.
- (b) Employees who are exposed to benzene at or above the PELs 10 or more days per year.
- (c) Employees who are involved in tire-building operations, known as tire-building machine operators, and who use solvents that contain more than 0.1% benzene.

(2) An employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician and that all laboratory tests are conducted by an accredited laboratory.

(3) An employer shall ensure that persons other than licensed physicians who administer the pulmonary function testing required by this rule complete a training course in spirometry sponsored by an appropriate governmental, academic, or professional institution.

(4) An employer shall ensure that all examinations and procedures are provided without cost to the employee and at a reasonable time and place.

~~(5) Before the time of initial assignment, an employer shall provide a medical examination for each employee covered by the provisions of this rule. The examination shall include all of the following:~~

~~(a) A detailed occupational history, including all of the following:~~

~~(i) Past work exposure to benzene or any other hematological toxins.~~

~~(ii) A family history of blood dyscrasias, including hematological neoplasms.~~

~~(iii) A history of blood dyscrasias, including genetic hemoglobin abnormalities, bleeding abnormalities, and abnormal function of formed blood elements.~~

~~(iv) A history of renal or liver dysfunction.~~

~~(v) A history of medicinal drugs routinely taken.~~

~~(vi) A history of previous exposure to ionizing radiation.~~

~~(vii) Exposure to marrow toxins outside of the current work situation.~~

~~(b) A complete physical examination.~~

~~(c) A complete blood count, including all of the following:~~

~~(i) A leukocyte count with differential.~~

~~(ii) A quantitative thrombocyte count.~~

~~(iii) Hematocrit.~~

~~(iv) Hemoglobin.~~

~~(v) Erythrocyte count and erythrocyte indices (MCV, MCH, MCHC). The results of these tests shall be reviewed by the examining physician.~~

~~(d) Additional tests that the examining physician deems necessary due to alterations to the components of the blood or other signs which may be related to benzene exposure.~~

~~(e) For all workers who are required to wear respirators for not less than 30 days a year, the physical examination shall pay special attention to the cardiopulmonary system and shall include a pulmonary function test.~~

~~(6) An employer shall provide each employee who is subject to subrule (1) of this rule with an annual medical examination. An annual examination shall include, at a minimum, all of the following elements:~~

~~(a) A brief history regarding any new exposure to potential marrow toxins, changes in medicinal drug use, or the appearance of physical signs relating to blood disorders.~~

~~(b) A complete blood count, including all of the following:~~

~~(i) A leukocyte count with differential.~~

~~(ii) A quantitative thrombocyte count.~~

~~(iii) Hemoglobin.~~

~~(iv) Hematocrit.~~

~~(v) Erythrocyte count and erythrocyte indices (MCV, MCH, MCHC).~~

~~(c) Appropriate additional tests that the examining physician deems necessary due to alterations in the components of the blood or other signs which may be related to benzene exposure.~~

~~(7) If an employee develops signs and symptoms commonly associated with toxic exposure to benzene, then an employer shall provide the employee with an additional medical examination that shall include the elements considered appropriate by the examining physician.~~

~~(8) For persons who are required to use respirators for not less than 30 days a year, a pulmonary function test shall be performed every 3 years. A specific evaluation of the cardiopulmonary system shall be made at the time of the pulmonary function test.~~

~~(9) If an employee is exposed to benzene in an emergency situation, then, in addition to the surveillance required by these rules, the employer shall ensure the employee has urinary phenol testing as follows:~~

~~(a) A urine sample shall be collected at the end of the employee's shift and tested within 72 hours of collection. The urine sample specific gravity shall be corrected to 1.024.~~

~~(b) If the results of the urinary phenol test is below 75 mg phenol/L of urine, then further testing is not required.~~

- (c) If the results of the urinary phenol test is equal to or more than 75 mg phenol/L of urine, then the employee shall have an initial complete blood count to be repeated every month for 3 months, which shall include all of the following:
- (i) Erythrocyte count.
  - (ii) Leukocyte count with differential.
  - (iii) Thrombocyte count.
- (d) If any of the conditions specified in subrule (10) of this rule exists, then the employer shall ensure that the requirements of subrule (10) are met and provide the employee with periodic examinations if directed by the physician.
- (10)(a) If the results of the complete blood count required for the initial and periodic examinations indicate that any of the following abnormal conditions exist, then the employer shall ensure that the blood count is repeated within 2 weeks:
- (i) The hemoglobin level or the hematocrit falls below the normal limit, that is, outside the 95% confidence interval (C.I.), as determined by the laboratory for the particular geographic area or these indices show a persistent downward trend from the individual's preexposure norms and these findings cannot be explained by other medical reasons.
  - (ii) The thrombocyte (platelet) count varies more than 20% below the employee's most recent values or falls outside the normal limit (95% C.I.) as determined by the laboratory.
  - (iii) The leukocyte count is below 4,000 per mm<sup>3</sup> or there is an abnormal differential count.
- (b) If the abnormality persists, then the employer shall ensure that the examining physician shall refer an employee to a hematologist or an internal medicine physician (internist) for further evaluation, unless the physician has good reason to believe the referral is unnecessary. (See appendix C for examples of conditions where a referral may be unnecessary.)
- (c) An employer shall provide the hematologist or internist with all the information required in subrule (11) of this rule and the medical record required to be maintained by R 325.77111(2).
- (d) An employer shall ensure that the hematologist's or internist's evaluation includes a determination as to the need for additional tests, and an employer shall ensure that the needed tests are provided.
- (11) An employer shall provide all of the following information to the examining physician:
- (a) A copy of these rules and adopted appendices.
  - (b) A description of the affected employee's duties as they relate to the employee's exposure.
  - (c) The employee's actual or representative exposure level.
  - (d) A description of any personal protective equipment used or to be used.
  - (e) Information from previous employment-related medical examinations of the affected employee that is not otherwise available to the examining physician.
- (12) For each examination under this rule, an employer shall obtain, and provide an employee with, a copy of the examining physician's written opinion within 15 days of the examination. The written opinion shall be limited to the following information:
- (a) The occupationally pertinent results of the medical examination and tests.
  - (b) The physician's opinion concerning whether the employee has any detected medical conditions that would place an employee's health at greater than normal risk of material impairment from exposure to benzene.
  - (c) The physician's recommended limitations upon an employee's exposure to benzene or upon an employee's use of protective clothing or equipment and respirators.
  - (d) A statement that an employee has been informed by a physician of the results of the medical examination and any medical conditions resulting from benzene exposure that require further explanation or treatment.
- The written opinion obtained by an employer shall not reveal specific records, findings, and diagnoses that have no bearing on the employee's ability to work in a benzene-exposed workplace.
- (13) If a physician makes a referral to a hematologist or internist under subrule (10) of this rule, then an employee shall be removed from areas where exposures may exceed the action level until the physician makes a determination under subrule (14) of this rule.
- (14) Following the examination and evaluation by a hematologist or internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the physician in consultation with the hematologist or internist. The physician shall communicate the decision, in writing, to the employer and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.
- (15) If an employee is removed under subrule (14) of this rule, then an employer shall provide a follow-up examination. The physician, in consultation with the hematologist or internist, shall make a decision, within 6 months of the date an employee was removed, as to whether the employee shall be returned to his or her usual job or whether the employee should be removed permanently.
- (16) If an employee is temporarily removed from benzene exposure under subrule (13) or (14) of this rule, then an employer shall transfer the employee to a comparable job for which the employee is qualified or which the employee can be trained for in a short period and where benzene exposures are as low as possible, but not higher than the action level. An employer shall maintain the employee's current wage rate, seniority, and other benefits. If no such job is available, then an employer shall provide medical removal protection benefits until a job becomes available or for 6 months, whichever comes first.

~~(17) If an employee is removed permanently from benzene exposure based on a physician's recommendation under subrule (15) of this rule, then an employee shall be given the opportunity to transfer to another position which is available or later becomes available for which the employee is qualified or which the employee can be trained for in a short period and where benzene exposures are as low as possible, but not higher than the action level. An employer shall ensure that the employee does not suffer a reduction in current wage rate, seniority, or other benefits as a result of the transfer.~~

~~(18) An employer shall provide to an employee 6 months of medical removal protection benefits immediately following each occasion that an employee is removed from exposure to benzene because of hematological findings under subrule (13) or (14) of this rule, unless the employee has been transferred to a comparable job where benzene exposures are below the action level.~~

~~(19) For the purposes of this rule, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the current wage rate, seniority, and other benefits of an employee as though the employee had not been removed.~~

~~(20) An employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program or from employment with another employer made possible by virtue of the employee's removal.~~

#### **R 325.77109a. Initial examination.**

**Rule 9a. Before the time of initial assignment, an employer shall provide a medical examination for each employee covered by the provisions of this rule. The examination shall include all of the following:**

- (a) A detailed occupational history, including all of the following:**
  - (i) Past work exposure to benzene or any other hematological toxins.**
  - (ii) A family history of blood dyscrasias, including hematological neoplasms.**
  - (iii) A history of blood dyscrasias, including genetic hemoglobin abnormalities, bleeding abnormalities, and abnormal function of formed blood elements.**
  - (iv) A history of renal or liver dysfunction.**
  - (v) A history of medicinal drugs routinely taken.**
  - (vi) A history of previous exposure to ionizing radiation.**
  - (vii) Exposure to marrow toxins outside of the current work situation.**
- (b) A complete physical examination.**
- (c) A complete blood count, including all of the following:**
  - (i) A leukocyte count with differential.**
  - (ii) A quantitative thrombocyte count.**
  - (iii) Hematocrit.**
  - (iv) Hemoglobin.**
  - (v) Erythrocyte count and erythrocyte indices (MCV, MCH, MCHC). The results of these tests shall be reviewed by the examining physician.**
- (d) Additional tests that the examining physician deems necessary due to alterations to the components of the blood or other signs which may be related to benzene exposure.**
- (e) For all workers who are required to wear respirators for not less than 30 days a year, the physical examination shall pay special attention to the cardiopulmonary system and shall include a pulmonary function test.**

#### **R 325.77109b. Periodic examinations.**

**Rule 9b. (1) An employer shall provide each employee who is subject to R 325.77109 with an annual medical examination. An annual examination shall include, at a minimum, all of the following elements:**

- (a) A brief history regarding any new exposure to potential marrow toxins, changes in medicinal drug use, or the appearance of physical signs relating to blood disorders.**
- (b) A complete blood count, including all of the following:**
  - (i) A leukocyte count with differential.**
  - (ii) A quantitative thrombocyte count.**
  - (iii) Hemoglobin.**
  - (iv) Hematocrit.**
  - (v) Erythrocyte count and erythrocyte indices (MCV, MCH, MCHC).**
- (c) Appropriate additional tests that the examining physician deems necessary due to alterations in the components of the blood or other signs which may be related to benzene exposure.**

**(2) If an employee develops signs and symptoms commonly associated with toxic exposure to benzene, then an employer shall provide the employee with an additional medical examination that shall include the elements considered appropriate by the examining physician.**

(3) For employees who are required to use respirators for not less than 30 days a year, a pulmonary function test shall be performed every 3 years. A specific evaluation of the cardiopulmonary system shall be made at the time of the pulmonary function test.

**R 325.77109c. Emergency examinations.**

Rule 9c. If an employee is exposed to benzene in an emergency situation, then, in addition to the surveillance required by these rules, the employer shall ensure the employee has urinary phenol testing as follows:

(a) A urine sample shall be collected at the end of the employee's shift and tested within 72 hours of collection. The urine sample specific gravity shall be corrected to 1.024.

(b) If the results of the urinary phenol test is below 75 mg phenol/L of urine, then further testing is not required.

(c) If the results of the urinary phenol test is equal to or more than 75 mg phenol/L of urine, then the employee shall have an initial complete blood count to be repeated every month for 3 months, which shall include all of the following:

(i) Erythrocyte count.

(ii) Leukocyte count with differential.

(iii) Thrombocyte count.

(d) If any of the conditions specified in R 325.77109d exist, then the employer shall ensure that the requirements of R 325.77109d are met and provide the employee with periodic examinations if directed by the physician.

**R 325.77109d. Additional examinations and referrals.**

Rule 9d. (a) If the results of the complete blood count required for the initial and periodic examinations indicate that any of the following abnormal conditions exist, then the employer shall ensure that the blood count is repeated within 2 weeks:

(i) The hemoglobin level or the hematocrit falls below the normal limit, that is, outside the 95% confidence interval (C.I.), as determined by the laboratory for the particular geographic area or these indices show a persistent downward trend from the individual's preexposure norms and these findings cannot be explained by other medical reasons.

(ii) The thrombocyte (platelet) count varies more than 20% below the employee's most recent values or falls outside the normal limit (95% C.I.) as determined by the laboratory.

(iii) The leukocyte count is below 4,000 per mm<sup>3</sup> or there is an abnormal differential count.

(b) If the abnormality persists, then the employer shall ensure that the examining physician refers an employee to a hematologist or an internal medicine physician (internist) for further evaluation, unless the physician has good reason to believe the referral is unnecessary. (See Appendix C for examples of conditions where a referral may be unnecessary.)

(c) An employer shall provide the hematologist or internist with all the information required under R 325.77109e and the medical record required to be maintained according to R 325.77111a.

(d) An employer shall ensure that the hematologist's or internist's evaluation includes a determination as to the need for additional tests, and an employer shall ensure that the needed tests are provided.

**R 325.77109e. Information provided to physician.**

Rule 9e. An employer shall provide all of the following information to the examining physician:

(a) A copy of these rules and adopted appendices.

(b) A description of the affected employee's duties as they relate to the employee's exposure.

(c) The employee's actual or representative exposure level.

(d) A description of any personal protective equipment used or to be used.

(e) Information from previous employment-related medical examinations of the affected employee that is not otherwise available to the examining physician.

**R 325.77109f. Physician's written opinions.**

Rule 9f. (1) For each examination under this rule, an employer shall obtain, and provide an employee with, a copy of the examining physician's written opinion within 15 days of the examination. The written opinion shall be limited to the following information:

(a) The occupationally pertinent results of the medical examination and tests.

(b) The physician's opinion concerning whether the employee has any detected medical conditions that would place an employee's health at greater than normal risk of material impairment from exposure to benzene.

(c) The physician's recommended limitations upon an employee's exposure to benzene or upon an employee's use of protective clothing or equipment and respirators.

(d) A statement that an employee has been informed by a physician of the results of the medical examination and any medical conditions resulting from benzene exposure that require further explanation or treatment.

(2) The written opinion obtained by an employer shall not reveal specific records, findings, and diagnoses that have no bearing on the employee's ability to work in a benzene-exposed workplace.

**R 325.77109g. Medical removal plan.**

Rule 9g. (1) If a physician makes a referral to a hematologist or internist under R 325.77109d, then an employee shall be removed from areas where exposures may exceed the action level until the physician makes a determination under subrule (2) of this rule.

(2) Following the examination and evaluation by a hematologist or internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the physician in consultation with a hematologist or internist. The physician shall communicate the decision, in writing, to the employer and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

(3) If an employee is removed under subrule (2) of this rule, then an employer shall provide a follow-up examination. The physician, in consultation with a hematologist or internist, shall make a decision, within 6 months of the date an employee was removed, as to whether the employee may be returned to his or her usual job or whether the employee should be removed permanently.

(4) If an employee is temporarily removed from benzene exposure under subrule (1) or (2) of this rule, then an employer shall transfer the employee to a comparable job for which the employee is qualified or which the employee can be trained for in a short period and where benzene exposures are as low as possible, but not higher than the action level. An employer shall maintain the employee's current wage rate, seniority, and other benefits. If no such job is available, then an employer shall provide medical removal protection benefits until a job becomes available or for 6 months, whichever comes first.

(5) If an employee is removed permanently from benzene exposure based on a physician's recommendation under subrule (3) of this rule, then an employee shall be given the opportunity to transfer to another position which is available or later becomes available for which the employee is qualified or which the employee can be trained for in a short period and where benzene exposures are as low as possible, but not higher than the action level. An employer shall ensure that the employee does not suffer a reduction in current wage rate, seniority, or other benefits as a result of the transfer.

**R 325.77109h. Medical removal protection benefits.**

Rule 9h. (1) An employer shall provide to an employee 6 months of medical removal protection benefits immediately following each occasion that an employee is removed from exposure to benzene because of hematological findings under R 325.77109g (1) or (2), unless the employee has been transferred to a comparable job where benzene exposures are below the action level.

(2) For purposes of this rule, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the current wage rate, seniority, and other benefits of an employee as though the employee had not been removed.

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

**R 325.77110 Rescinded. Communication of benzene hazards to employees.**

Rule 10. (1) An employer shall post signs at entrances to regulated areas. The signs shall bear the following legend:

<p>DANGER          BENZENE          CANCER HAZARD          FLAMMABLE — NO SMOKING          AUTHORIZED PERSONNEL ONLY          RESPIRATOR REQUIRED</p>
---

(2) An employer shall ensure that labels or other appropriate forms of warning are provided for containers of benzene within the workplace. The labels shall comply with the hazard communication provisions of sections 14a to 14m of 1974 PA 154, MCL 408.1014a to 408.1014m and, in addition, shall include the following legend:

<p>DANGER          CONTAINS BENZENE CANCER          HAZARD</p>
--

(3) An employer shall obtain or develop, and provide its employees access to, a material safety data sheet (MSDS) which addresses benzene and complies with the hazard communication provisions referenced in subrule (2) of this rule. An

employer who is a manufacturer or importer shall comply with the provisions of this subrule and with the hazard communication provisions referenced in subrule (2) of this rule, that the employer deliver to downstream employers an MSDS that addresses benzene.

(4) An employer shall provide employees with information and training at the time of their initial assignment to a work area where benzene is present. If exposures are above the action level, then employees shall be provided with information and training at least annually thereafter. The training program shall comply with the hazard communication provisions referenced in subrule (2) of this rule and shall include specific information on benzene for each category of information included in sections 14a to 14m of 1974 PA 154, MCL 408.1014a to 408.1014m. In addition to the information required, pursuant to the hazard communication provisions referenced in subrule (2) of this rule, the employer shall do both of the following:

- (a) Provide employees with an explanation of the contents of this rule, including appendices A and B, which are adopted by reference in R 325.77114, and indicate to employees where copies of these rules are available.
- (b) Describe the medical surveillance program required under R 325.77109 and explain the information contained in appendix C.

### COMMUNICATION OF HAZARDS

#### R 325.77110a. Hazard communication, generally.

Rule 10a. (1) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.77101a.

(2) In classifying the hazards of benzene a minimum of the following hazard classifications shall be addressed:

- (a) Cancer.
- (b) Central nervous system effects.
- (c) Blood effects.
- (d) Aspiration.
- (e) Skin, eye, and respiratory tract irritation.
- (f) Flammability.

(3) An employer shall include benzene in the hazard communication program established to comply with the Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.77101a. An employer shall ensure that each employee has access to labels on containers of benzene and to safety data sheets, and is trained in accordance with the requirements of R 325.77110(c) and Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.77101a.

#### R 325.77110b. Warning signs and labels.

Rule 10b. (1) An employer shall post signs at entrances to regulated areas. The signs shall bear the following legend:

<p><b>DANGER BENZENE MAY CAUSE CANCER HIGHLY FLAMMABLE LIQUID AND VAPOR DO NOT SMOKE WEAR RESPIRATORY PROTECTION IN THIS AREA AUTHORIZED PERSONNEL ONLY</b></p>
---

(2) Prior to June 1, 2016, an employer may use the following legend instead of that specified in subrule (1) of this rule:

<p><b>DANGER BENZENE CANCER HAZARD FLAMMABLE - NO SMOKING AUTHORIZED PERSONNEL ONLY RESPIRATOR REQUIRED</b></p>
---

(3) An employer shall ensure that labels or other appropriate forms of warning are provided for containers of benzene within the workplace. The labels shall comply with the requirements of R 325.77110a, Occupational Health Standard Part 430 "Hazard Communication," section (f), as referenced in R 325.77101a, and in sections 14a to 14m of the act.

(4) Prior to June 1, 2015, an employer shall include the following legend or similar language on the labels or other appropriate forms of warning:

**DANGER  
CONTAINS BENZENE  
CANCER HAZARD**

**R 325.77110c. Information and training.**

Rule 10c. (1) An employer shall provide employees with information and training at the time of their initial assignment to a work area where benzene is present. If exposures are above the action level, then employees shall be provided with information and training at least annually thereafter.

(2) The training program shall comply with the requirements of Occupational Health Standard Part 430 "Hazard Communication," Sections (h)(1) and (2), as referenced in R 325.77101a, and shall include specific information on benzene for each category of information included in sections 14a to 14m of the act.

(3) In addition to the information required, pursuant to the requirements of Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.77101a, the employer shall do both of the following:

(a) Provide employees with an explanation of the contents of this rule, including Appendices A and B, which are adopted in R 325.77101a, and indicate to employees where copies of these rules are available.

(b) Describe the medical surveillance program required under R 325.77109 and explain the information contained in Appendix C, which is adopted in R 325.77101a,

**RECORDKEEPING**

**R 325.77111. Exposure measurements. Recordkeeping.**

Rule 11. (1) An employer shall establish and maintain an accurate record of all measurements required by R 325.77105 to R 325.77105f in accordance with the provisions of the **Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets,"** as referenced in R 325.77101a. ~~occupational health standard, employee medical records and trade secrets, being R 325.3451 et seq. The record shall include all of the following information:~~

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

(a) ~~The dates, number, duration, and results of each of the samples taken, including a description of the procedure used to determine representative employee exposures.~~

(b) ~~A description of the sampling and analytical methods used.~~

(c) ~~A description of the type of respiratory protective devices worn, if any.~~

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

(3) ~~An employer shall maintain the record for not less than 30 years and in accordance with Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.77101a.~~

~~(a) The dates, number, duration, and results of each of the samples taken, including a description of the procedure used to determine representative employee exposures.~~

~~(b) A description of the sampling and analytical methods used.~~

~~(c) A description of the type of respiratory protective devices worn, if any.~~

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

~~An employer shall maintain this record for not less than 30 years and in accordance with R 325.3451 to R 325.3476.~~

~~(2) An employer shall establish and maintain an accurate record for each employee who is subject to medical surveillance required by the provisions of R 325.77109. The record shall be maintained in accordance with R 325.3451 to R 325.3476. The record shall include all of the following information:~~

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

~~(b) The employer's copy of the physician's written opinion on the initial, annual, and special examinations, including results of medical examinations and all tests, opinions, and recommendations.~~

~~(c) Any employee medical complaints related to exposure to benzene.~~

~~(d) A copy of the information provided to the physician as required by R 325.77109(11)(b) to (e).~~

~~(e) A copy of the employee's medical and work history related to exposure to benzene or any other hematologic toxins. An employer shall maintain the record for not less than the duration of employment plus 30 years. The record shall be maintained in accordance with R 325.3451 to R 325.3476.~~

~~(3) An employer shall ensure that all records required to be maintained by this rule shall be made available, upon request, to the director for examination and copying. Employee exposure monitoring records required by this rule shall be provided, upon request, for examination and copying to employees, employee representatives, and the director in accordance with R 325.3451 to R 325.3476. Employee medical records required by this rule shall be provided, upon request, for examination and copying to the subject employee, to anyone having the specific written consent of the subject employee, and to the director in accordance with R 325.3451 to R 325.3476.~~

~~(4) An employer shall comply with the requirements involving the transfer of records set forth in R 325.3475. If an employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed~~

~~period, then the employer shall notify the director not less than 3 months before disposal and transmit them to the director if required by the director within that period.~~

**R 325.77111a. Medical surveillance.**

**Rule 11a. (1)** An employer shall establish and maintain an accurate record for each employee who is subject to medical surveillance required by the provisions of 'Medical Surveillance' R 325.77109 to R 325.77109h. The record shall be maintained in accordance with Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.77101a.

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

- (a)** The name and social security number of the employee.
- (b)** The employer's copy of the physician's written opinion on the initial, annual, and special examinations, including results of medical examinations and all tests, opinions, and recommendations.
- (c)** Any employee medical complaints related to exposure to benzene.
- (d)** A copy of the information provided to the physician as required by R 325.77109e.
- (e)** A copy of the employee's medical and work history related to exposure to benzene or any other hematologic toxins.

**(3)** An employer shall maintain the record for not less than the duration of employment plus 30 years. The record shall be maintained in accordance with Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.77101a.

**R 325.77111b. Records availability and transfer.**

**Rule 11b. (1)** An employer shall ensure that all records required to be maintained by this rule are made available, upon request, to the director for examination and copying.

**(2)** Employee exposure monitoring records required by this rule shall be provided, upon request, for examination and copying to employees, employee representatives, and the director in accordance with Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.77101a.

**(3)** Employee medical records required by this rule shall be provided, upon request, for examination and copying to the subject employee, to anyone having the specific written consent of the subject employee, and to the director in accordance with Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.77101a.

**(4)** An employer shall comply with the requirements involving the transfer of records in Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.77101a.

**R 325.77112. Observation of monitoring.**

**Rule 12. (1)** An employer shall provide affected employees or their designated representatives an opportunity to observe the measuring of monitoring of employee exposure to benzene conducted pursuant to the provisions of **under R 325.77105 to R 325.77105f.**

**(2)** When observation of the measuring or monitoring of employee exposure to benzene requires entry into areas where the use of protective clothing and equipment or respirators is required, an employer shall provide the observer with personal protective clothing and equipment or respirators required to be worn by employees working in the area, **ensure** ~~assure~~ the use of such clothing and equipment or respirators, and require the observer to comply with all other applicable safety and health procedures.

**R 325.77114. Rescinded. Appendices.**

~~Rule 14. Appendices A, B, C, and D are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.~~

**R 325.77115. Rescinded. Availability of rules; permission to reproduce.**

~~Rule 15. (1) Printed copies of these rules are available for inspection and for distribution to the public at no cost at the offices of the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, 7150 Harris Drive, Lansing, Michigan, 48909.~~

~~(2) Permission to reproduce any of these documents in full is granted by the director.~~