

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES LICENSING AND REGULATORY AFFAIRS

DIRECTOR'S OFFICE

OCCUPATIONAL HEALTH STANDARDS—FORMALDEHYDE

Filed with the Secretary of State on December 9, 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 MCL 408.1024, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4, and 2011-4, MCL 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 Order Nos. 1996-1 and 1996-2, MCL 330.3101 and 445.2001)

R 325.51451, R 325.51452, R 325.51454, R 325.51457, R 325.51458, R 325.51459, R 325.51460, R 325.51461, R 325.51462, R 325.51463, R 325.51464, R 325.51465, R 325.51467, R 325.51468, R 325.51469, R 325.51470, R 325.51473, and R 325.51474 of the Michigan Administrative Code are amended, R 325.51451a, R 325.51461a, R 325.51463a, R 325.51472a, R 325.51472b, R 325.51472c, R 325.51472d, R 325.51474a, R 325.51474b, R 325.51474c, R 325.51474d, and R 325.51474e are added, and R 325.51472, R 325.51475, R 325.51476, and R 325.51477 are rescinded, as follows:

PART 306 FORMALDEHYDE

R 325.51451 Scope and application.

Rule 1. (1) These rules apply to exposures to any of the following:

- (a) Formaldehyde from any source.
- (b) Formaldehyde gas.
- (c) Formaldehyde solutions.
- (d) Materials that release formaldehyde.

(2) These rules apply to all employment situations, including general industry and construction industry employment.

~~(3) These rules replace all references to formaldehyde contained in tables G-1 and G-2 in occupational health rules 2102 and 2103; table G-1-A and G-2 in R 325.51108, and table 3 of exhibit I of occupational health rule 6201(1).~~

R 325.51451a 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. For quantities greater than 5, the cost, at the time of adoption of these rules, is 4 cents per page.

(a) Construction Safety Standard Part 6 "Personal Protective Equipment," R 408.40601 to R 408.40641.

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

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

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

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

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

(g) Occupational Health Standard Part 474 "Sanitation," R 325.47401 to R 325.47425.

(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 325.51452 Definitions.

Rule 2. ~~As used in these rules:~~ **(1)(a)** "Action level" means a concentration of 0.5 parts formaldehyde per million parts of air (0.5 ppm) calculated as an 8-hour, time-weighted average (TWA) concentration.

~~(2)(b)~~ **"Authorized person"** means any person who is required by work duties to be present in regulated areas or who is authorized to be present in regulated areas by the employer, by these rules, or by **the Michigan Occupational Safety and Health Act (MIOSHA), 1974 PA 154, MCL 408.1001 to 408.1094.** ~~-et seq-~~

~~(3)(c)~~ "Director" means the director of the Michigan department of **licensing and regulatory affairs** ~~consumer and industry services~~ or his or her designee.

~~(4)(d)~~ "Emergency" means any occurrence, such as an equipment failure, the rupture of containers, or the failure to control equipment, that results in an uncontrolled release of a significant amount of formaldehyde.

~~(5)(e)~~ "Employee exposure" means the exposure to airborne formaldehyde that would occur without the use of a respirator.

~~(6)(f)~~ "Formaldehyde" means the chemical substance HCHO, chemical abstracts service registry no. 50-00-0.

EXPOSURE MONITORING

R 325.51454 Exposure monitoring generally.

Rule 4. (1) An employer shall monitor to determine employee exposure to formaldehyde.

(2) An employer **shall** ~~is not~~ **be** required to monitor exposures if it can be documented, using objective data, that the presence of formaldehyde or formaldehyde-releasing products in the workplace could not possibly expose an employee at or above the action level or STEL under foreseeable conditions of use.

(3) Employee exposure to formaldehyde shall be determined by representative monitoring for each job classification, in each work area, for each shift, and during the full shift or for a short-term exposure, as appropriate. Other work shift monitoring ~~need~~ **shall** not be conducted if objective data can document equivalent exposures for different work shifts.

(4) Monitoring shall be accurate, at the 95% confidence level, to within plus or minus 25% for airborne concentrations of formaldehyde at the TWA and the STEL and to within plus or minus 35% for airborne concentrations of formaldehyde at the action level.

R 325.51457 Exposure monitoring; notification and observation.

Rule 7. (1) **The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. If employee exposure is above the PEL, affected employees shall be provided with a description of the corrective actions being taken by the employer to decrease exposure.** ~~Within 15 days of receiving the results of exposure monitoring conducted pursuant to these rules, an employer shall notify the affected employees of the results. Notification shall be accomplished by distributing copies of the results to the employees or by posting the results. If employee exposure is over either permissible exposure limit (TWA or STEL), an employer shall develop and implement a written plan to reduce employee exposure to or below both PELs and give written notice to employees. The written notice shall contain a description of the corrective action being taken by the employer to decrease exposure.~~

(2) An employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to formaldehyde required by these rules. ~~When observation of the monitoring of employee exposure to formaldehyde requires entry into an area where the use of protective clothing or equipment is required, an employer shall provide the clothing and equipment to the observer, require the observer to use such clothing and equipment, and assure that the observer complies with all other applicable safety and health procedures. When observation of the monitoring of employee exposure to formaldehyde requires entry into an area where the use of protective clothing or equipment is required, an employer shall provide the clothing and equipment to the observer, require the observer to use such clothing and equipment, and assure that the observer complies with all other applicable safety and health procedures.~~

(3) When observation of the monitoring of employee exposure to formaldehyde requires entry into an area where the use of protective clothing or equipment is required, an employer shall provide the clothing and equipment to the observer, require the observer to use such clothing and equipment, and assure that the observer complies with all other applicable safety and health procedures.

REGULATED AREAS

R 325.51458 **Signs for** ~~R~~regulated areas.

Rule 8. (1) An employer shall establish regulated areas where the concentration of airborne formaldehyde is more than either the TWA or the STEL and post all entrances and accessways with signs bearing the following information:

<p style="text-align:center">DANGER FORMALDEHYDE MAY CAUSE CANCER CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION AUTHORIZED PERSONNEL ONLY</p>

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

DANGER
 FORMALDEHYDE
 IRRITANT AND POTENTIAL CANCER HAZARD
 AUTHORIZED PERSONNEL ONLY

(3) An employer shall limit access to regulated areas to authorized persons who have been trained to recognize the hazards of formaldehyde. ~~(2) An employer shall limit access to regulated areas to authorized persons who have been trained to recognize the hazards of formaldehyde.~~

(4) An employer at a multiemployer worksite who establishes a regulated area shall communicate the access restrictions and location of the area to other employers with work operations at that worksite. ~~(3) An employer at a multiemployer worksite who establishes a regulated area shall communicate the access restrictions and location of the area to other employers with work operations at that worksite.~~

METHODS OF COMPLIANCE

R 325.51459 Engineering and work practice controls.

Rule 9. (1) An employer shall institute engineering and work practice controls to reduce and maintain employee exposures to formaldehyde at or below the TWA and the STEL.

(2) If an employer has established that feasible engineering and work practice controls cannot reduce employee exposure to or below either of the PELs, the employer shall apply these controls to reduce employee exposures to PELs to the extent feasible and shall supplement them with respirator protection pursuant to the provisions of R 325.51460 to **R 325.51461a.** ~~and occupational health rule 3502.~~

RESPIRATORY PROTECTION

R 325.51460 Respiratory protection, **generally.**

Rule 10. ~~(4)~~ 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, such as maintenance and repair activities or vessel cleaning, for which the employer establishes that engineering and work practice controls are not feasible.
- (c) Work operations for which feasible engineering and work practice controls are not yet sufficient to reduce exposure to or below the PELs.
- (d) Emergencies.

~~(2) An employer shall select appropriate respirators from table 1 of this rule.~~

~~(3) An employer shall provide a powered air-purifying respirator that is adequate to protect against formaldehyde exposure to any employee who has difficulty using a negative-pressure respirator.~~

~~(4) Table 1 reads as follows:~~

Table 1
 Minimum Requirements for Respiratory Protection Against Formaldehyde

Condition of use of formaldehyde concentration (ppm)	Minimum respirator required ¹
Up to 7.5 ppm (10 x PEL)	Full facepiece with cartridges or canisters specifically approved for protection against formaldehyde².
Up to 75 ppm (100 x PEL)	Full face mask with chin-style or chest or back-mounted type with industrial-size canister specifically approved for protection against formaldehyde. Type C supplied-air respirator, pressure demand or continuous-flow type, with full facepiece, hood or helmet.
Above 75 ppm or unknown (emergencies) (100 x PEL)	Self-contained breathing apparatus (SCBA) with positive-pressure full facepiece. Combination supplied-air, full facepiece, positive-pressure respirator with auxiliary self-contained air supply.
Firefighting	SCBA with positive pressure in full facepiece.

Escape	SCBA in demand or pressure demand mode. Full face mask with chin style or front or back-mounted type industrial-size canister specifically approved for protection against formaldehyde.
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¹Respirators specified for use at higher concentrations may be used at lower concentrations.

²A half mask respirator with cartridges specifically approved for protection against formaldehyde can be substituted for the full facepiece respirator if effective gasproof goggles are provided and used in combination with the half-mask respirator.

R 325.51461 Respirator program.

Rule 11. (1) An employer shall implement a respiratory protection program in accordance with **pursuant to Occupational Health Standard Part 451 "Respiratory Protection," as referenced in R 325.51451a, 29 C.F.R. §1910.134 (b) to (d) and (f) to (m), except for (d)(1)(iii) and (d)(3)(iii)(b)(1) and (2), as adopted by reference in R 325.60051 et seq. of the Michigan Administrative Code. which covers each employee required by these rules to use a respirator.**

(2) **When employees use air-purifying respirators with chemical cartridges or canisters that do not contain end-of-service-life indicators approved by the National Institute for Occupational Safety and Health (NIOSH), employers shall replace these cartridges or canisters as specified in Occupational Health Standard Part 451 "Respiratory Protection," as referenced in R 325.51451a, or at the end of the work shift, whichever condition occurs first. If air-purifying chemical cartridge respirators are used, then the employer shall do both of the following:**

(a) **Replace the cartridge after 3 hours of use or at the end of the work shift, whichever occurs first, unless the cartridge contains a NIOSH-approved end-of-service-life indicator (ESLI) to show when breakthrough occurs.**

(b) **Unless the canister contains a NIOSH-approved ESLI to show when breakthrough occurs, replace canisters used in atmospheres up to 7.5 ppm (10 x PEL) every 4 hours and industrial-size canisters used in atmospheres up to 75 ppm (100 x PEL) every 2 hours, or at the end of the work shift, whichever occurs first.**

(3) **The cartridge shall be replaced after 3 hours of use or at the end of the work shift, whichever occurs first, unless the cartridge contains a NIOSH-approved end-of-service-life indicator (ESLI) to show when breakthrough occurs.**

(4) **Unless the canister contains a NIOSH-approved ESLI to show when breakthrough occurs, replace canisters used in atmospheres up to 7.5 ppm (10 x PEL) every 4 hours and industrial-size canisters used in atmospheres up to 75 ppm (100 x PEL) every 2 hours, or at the end of the work shift, whichever occurs first.**

R 325.51461a Respirator selection

Rule 11a. (1) The employer shall do all of the following:

(a) **Select, and provide to employees, the appropriate respirators specified in Occupational Health Standard Part 451 "Respiratory Protection," as referenced in R 325.51451a.**

(b) **Equip each air-purifying, full facepiece respirator with a canister or cartridge approved for protection against formaldehyde.**

(c) **For escape, provide employees with one of the following respirator options:**

(i) **A self-contained breathing apparatus operated in the demand or pressure-demand mode.**

(ii) **A full facepiece respirator having a chin-style.**

(iii) **A front-or back-mounted industrial-size, canister or cartridge approved for protection against formaldehyde.**

(2) **Employers may substitute an air-purifying, half mask respirator for an air-purifying, full facepiece respirator when they equip the half mask respirator with a cartridge approved for protection against formaldehyde and provide the affected employee with effective gas-proof goggles.**

(3) **An employer shall provide employees who have difficulty using negative pressure respirators with powered air-purifying respirators permitted for use under subrule (1)(a) of this rule, and that affords adequate protection against formaldehyde exposures.**

PROTECTIVE EQUIPMENT AND CLOTHING

R 325.51462 Protective equipment and clothing.

Rule 12. (1) An employer shall comply with the provisions of **General Industry Safety Standard Part 33 "Personal Protective Equipment," Occupational Health Standard Part 433 "Personal Protective Equipment," and Construction Safety Standard Part 6 "Personal Protective Equipment," as referenced in R 325.51451a. general industry safety standards, Part 33. Personal Protective Equipment, being R 408.13301 et seq. and construction standard Part 6. Personal Protective Equipment, being R 408.40601 et seq. of the Michigan Administrative Code. If protective equipment or clothing is provided under these rules, Part 33 or Part 6, then an employer shall provide the protective devices at no cost to the employee and assure that the employee wears the devices.**

(2) **An employer shall select protective clothing and equipment based upon the form of formaldehyde to be encountered, the conditions of use, and the hazard to be prevented.**

~~(3) An employer shall ensure that chemical protective clothing made of material impervious to formaldehyde and other personal protective equipment, such as goggles and face shields, is used to prevent an employee's eyes and skin from coming into contact with liquids that contain 1% or more formaldehyde, as appropriate to the operation.~~

~~(3)(4) An employer shall ensure all of the following:~~

~~(a) All contact of the eyes and skin with liquids containing 1% or more formaldehyde shall be prevented by the use of chemical protective clothing made of material impervious to formaldehyde and the use of other personal protective equipment, such as goggles and face shields, as appropriate to the operation. that contact with irritating or sensitizing materials is prevented to the extent necessary to eliminate the hazard. If a face shield is worn, then an employer shall ensure that an employee wears chemical safety goggles if there is a danger of formaldehyde reaching the area of the eye. An employer shall ensure that an employee wears full body protection for entry into areas where concentrations of formaldehyde are more than 100 ppm and for emergency reentry into areas of unknown concentrations.~~

~~(b) Contact with irritating or sensitizing materials shall be prevented to the extent necessary to eliminate the hazard.~~

~~(c) Where a face shield is worn, chemical safety goggles are also shall be required if there is a danger of formaldehyde reaching the area of the eye.~~

~~(d) Full body protection shall be worn for entry into areas where concentrations exceed 100 ppm and for emergency reentry into areas of unknown concentration.~~

R 325.51463 Maintenance of protective equipment and clothing.

Rule 13. (1) An employer shall assure that protective equipment and clothing that has become contaminated with formaldehyde is cleaned or laundered before its reuse.

(2) When ventilating formaldehyde-contaminated clothing and equipment, an employer shall establish a storage area so that employee exposure is minimized. ~~Labels for containers for contaminated clothing and equipment and signs for storage areas for contaminated clothing and equipment shall contain the following information:~~

<p style="text-align: center;">DANGER FORMALDEHYDE-CONTAMINATED CLOTHING/EQUIPMENT AVOID INHALATION AND SKIN CONTACT</p>
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~~(3) An employer shall assure that only persons who are trained to recognize the hazards of formaldehyde remove the contaminated items from the storage areas or container for the purposes of cleaning, laundering, or disposal.~~

~~(4) An employer shall assure that an employee does not take his or her formaldehyde-contaminated clothing or equipment home.~~

~~(5) An employer shall repair or replace all required protective clothing and equipment for each affected employee as necessary to assure its effectiveness.~~

~~(6) An employer shall inform any person who launders, cleans, or repairs contaminated clothing or equipment of formaldehyde's potentially harmful effects and of procedures to safely handle the clothing and equipment.~~

R 325.51463a Signs.

Rule 13a. (1) Storage areas for contaminated clothing and equipment shall have signs bearing the following legend:

<p style="text-align: center;">DANGER FORMALDEHYDE-CONTAMINATED [CLOTHING] EQUIPMENT MAY CAUSE CANCER CAUSES SKIN, EYE AND RESPIRATORY IRRITATION DO NOT BREATHE VAPOR DO NOT GET ON SKIN</p>

(2) The employer shall ensure containers for contaminated clothing and equipment are labeled consistent with the Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.51451a, and shall, as a minimum, include the following:

DANGER
FORMALDEHYDE-CONTAMINATED [CLOTHING]
EQUIPMENT
MAY CAUSE CANCER
CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION
DO NOT BREATHE VAPOR
DO NOT GET ON SKIN

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

DANGER
FORMALDEHYDE-CONTAMINATED
CLOTHING/EQUIPMENT
AVOID INHALATION AND SKIN CONTACT

(4) Prior to June 1, 2015, employers may include the following information on containers of protective clothing and equipment in lieu of the labeling requirements in subrule (2) of this rule:

DANGER
FORMALDEHYDE-CONTAMINATED
[CLOTHING] EQUIPMENT
AVOID INHALATION AND SKIN CONTACT

(5) An employer shall assure that only persons who are trained to recognize the hazards of formaldehyde remove the contaminated items from the storage areas or container for the purposes of cleaning, laundering, or disposal.

(6) An employer shall assure that an employee does not take his or her formaldehyde contaminated clothing or equipment home.

(7) An employer shall repair or replace all required protective clothing and equipment for each affected employee as necessary to assure its effectiveness.

(8) An employer shall inform any person who launders, cleans, or repairs contaminated clothing or equipment of formaldehyde's potentially harmful effects and of procedures to safely handle the clothing and equipment.

HYGIENE PROTECTION

R 325.51464 Hygiene facilities.

Rule 14. (1) An employer shall provide change rooms, as described in Occupational Health **Standard Part 474 "Sanitation," as referenced in R 325.51451a, rule 4201(5)**, for employees who are required to change from work clothing into protective clothing to prevent skin contact with formaldehyde.

(2) If the possibility of employee skin contact with solutions containing 1% or more formaldehyde exists, for example because of equipment failure or improper work practices, an employer shall provide conveniently located **quick drench** quick drench showers and assure that affected employees use these facilities immediately.

(3) If there is any possibility that an employee's eyes may be splashed with solutions containing 0.1% or more formaldehyde, an employer shall provide acceptable facilities for flushing eyes within the immediate work area for emergency use.

HOUSEKEEPING

R 325.51465 Housekeeping.

Rule 15. For operations involving formaldehyde liquids or gas, an employer shall conduct a program to detect leaks and spills, including regular visual inspections. The program shall include all of the following that are applicable:

- (a) Preventative maintenance of equipment, including surveys for leaks, shall be undertaken at regular intervals.
- (b) In work areas where spillage may occur, an employer shall provide for containing the spill, decontaminating the work area, and disposing of the waste.
- (c) An employer shall assure that all leaks are repaired and spills are cleaned promptly by employees wearing suitable protective equipment and trained in the proper methods for cleanup and decontamination.
- (d) Formaldehyde-contaminated waste and debris resulting from leaks or spills shall be placed for disposal in sealed containers bearing a label warning of formaldehyde's presence and of the hazards associated with formaldehyde. **The employer shall ensure that the labels are in accordance with R 325.51472a to R 325.51472d.**

MEDICAL SURVEILLANCE

R 325.51467 Medical surveillance, generally.

Rule 17. (1) An employer shall institute medical surveillance programs for all employees who are exposed to formaldehyde at concentrations at or exceeding the action level or exceeding the STEL.

(2) An employer shall make medical surveillance available for employees who develop signs and symptoms of overexposure to formaldehyde and for all employees who are exposed to formaldehyde in emergencies. When determining whether an employee may be experiencing signs and symptoms of possible overexposure to formaldehyde, an employer may rely on the evidence that signs and symptoms associated with formaldehyde exposure will occur only in exceptional circumstances when airborne exposure is less than 0.1 ppm and when formaldehyde is present in materials in concentrations less than 0.1%.

(3) All medical procedures, including the administration of medical disease questionnaires, shall be performed by or under the supervision of a licensed physician and shall be provided without cost to the employee, without loss of pay, and at a reasonable time and place.

(4) An employer shall make the following medical surveillance documents available to employees before assignment to a job where formaldehyde exposure is at or above the action level or above the STEL and annually thereafter. The employer shall also make the following medical surveillance documents available promptly upon determining that an employee is experiencing signs and symptoms indicative of possible overexposure to formaldehyde:

(a) An employer-administered medical disease questionnaire, such as in appendix D to these rules, which is designed to elicit information in the following areas:

- (i) Work history.
- (ii) Smoking history.
- (iii) Any evidence of eye, nose, or throat irritation.
- (iv) Chronic airway problems or hyperactive airway disease.
- (v) Allergic skin conditions or dermatitis.
- (vi) Upper or lower respiratory problems.

(b) A written determination by the physician, based on evaluation of the medical disease questionnaire, of whether a medical examination is necessary for employees who are not required to wear respirators to reduce the exposure to formaldehyde.

R 325.51468 Medical examinations.

Rule 18. (1) Medical examinations shall be given to any employee who the physician feels, based on information in the medical disease questionnaire, may be at increased risk from exposure to formaldehyde and shall be given at the time of initial assignment and at least annually thereafter to all employees who are required to wear a respirator to reduce exposure to formaldehyde. The medical examination shall include all of the following:

(a) A physical examination, with an emphasis on evidence of irritation or sensitization of the skin and respiratory system, shortness of breath, or irritation of the eyes.

(b) Laboratory examinations for respirator wearers consisting of baseline and annual pulmonary function tests. At a minimum, these tests shall consist of forced vital capacity (FVC), forced expiratory volume in 1 second (**FEV(1)**), (~~FEV4~~), and forced expiratory flow (FEF).

(c) Any other test which the examining physician deems necessary to complete the written opinion.

(d) Counseling of employees who have medical conditions that would be directly or indirectly aggravated by exposure to formaldehyde on the increased risk of impairment of their health.

(2) An employer shall make medical examinations available as soon as possible to all employees who have been exposed to formaldehyde in an emergency. ~~The examination shall include a medical and work history with an emphasis on any evidence of upper or lower respiratory problems, allergic conditions, skin reaction or hypersensitivity, and eye, nose, or throat irritation. Other examinations shall consist of those elements considered appropriate by the examining physician.~~

(3) The examination shall include a medical and work history with an emphasis on any evidence of any of the following:

- (a) Upper or lower respiratory problems.**
- (b) Allergic conditions.**
- (c) Skin reaction or hypersensitivity.**
- (d) Eye, nose, or throat irritation.**

(4) Other examinations shall consist of those elements considered appropriate by the examining physician.

~~(5)~~ (3) An employer shall provide all of the following information to the examining physician:

- (a) A copy of these rules and appendices A, C, **and D.** ~~and E.~~
- (b) A description of the affected employee's job duties as they relate to the employee's exposure to formaldehyde.
- (c) The representative exposure level for the employee's job assignment.
- (d) Information concerning any personal protective equipment and respiratory protection used or to be used by the employee.
- (e) Information from previous medical examinations of the affected employee within the control of the employer.

(f) For a nonroutine examination because of an emergency, an employer shall provide, as soon as possible, a description of how the emergency occurred and the exposure the victim may have received.

R 325.51469 Physician's written opinion.

Rule 19. (1) For each examination pursuant to **these rules**, ~~the provisions of R 325.51468~~, an employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination, except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde. The written opinion shall include all of the following:

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

(b) Any recommended limitations on the employee's exposure or changes in the use of personal protective equipment, including respirators.

(c) A statement that the employee has been informed by the physician of any medical conditions which would be aggravated by exposure to formaldehyde, whether these conditions may have resulted from past formaldehyde exposure or from exposure in an emergency, and whether there is a need for further examination or treatment.

(2) An employer shall provide for retention of the results of the medical examination and tests conducted by the physician.

(3) An employer shall provide a copy of the physician's written opinion to the affected employee within 15 days of its receipt.

R 325.51470 Employee medical removal procedures.

Rule 20. (1) This rule applies if an employee reports any of the following symptoms attributed to workplace formaldehyde exposure:

(a) Significant irritation of the mucosa of the eyes or of the upper airways.

(b) Respiratory sensitization.

(c) Dermal irritation.

(d) Dermal sensitization.

Note: This rule does not apply in the case of dermal irritation or sensitization if the product that is suspected of causing the dermal condition contains less than 0.05% formaldehyde.

(2) A physician shall evaluate an employee's report of signs or symptoms of possible overexposure to formaldehyde. An employer shall select the physician under R 325.51467. If the physician determines that a medical examination is not necessary, then there shall be a 2-week evaluation and remediation period to permit the employer to ascertain whether the signs or symptoms subside untreated or with the use of creams, gloves, first aid treatment, or personal protective equipment. An employer may also implement industrial hygiene measures that limit an employee's exposure to formaldehyde during the 2-week period. An employer shall immediately refer an employee to a physician before the end of the 2-week period if the signs or symptoms worsen. An employer shall not alter earnings, seniority, and benefits during the 2-week period because of an employee's medical report.

(3) If an employee's signs or symptoms of possible overexposure to formaldehyde have not subsided or been remedied by the end of the 2-week period, or earlier if the signs or symptoms warrant, then a physician who is selected by the employer shall examine the employee. The physician shall presume, absent contrary evidence, that observed dermal irritation or dermal sensitization is not attributable to formaldehyde when products to which the affected employee is exposed contain less than 0.1% formaldehyde.

(4) An employer shall ensure that a medical examination is conducted in compliance with **R 325.51468**. ~~R 325.51468(2)~~. Additional guidelines for conducting medical exams are contained in appendix C to these rules.

(5) If the physician finds that significant irritation of the mucosa of the eyes or the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization results from workplace formaldehyde exposure and recommends restrictions or removal of the employee from formaldehyde exposure, then the employer shall promptly comply with the restrictions or recommendation of removal. If there is a recommendation of removal, then the employer shall remove the affected employee from the current formaldehyde exposure and, if possible, transfer the employee to work that does not result in exposure to formaldehyde or that results in significantly less exposure to formaldehyde.

(6) If an employee is removed under subrule (5) of this rule, then an employer shall transfer the employee to comparable work for which the employee is qualified or can be trained in not more than a 6-month period and work where the formaldehyde exposures are as low as possible, but not higher than the action level. The employer shall maintain the employee's current earnings, seniority, and other benefits. If comparable work is not available, then the employer shall maintain the employee's current earnings, seniority, and other benefits until comparable work becomes available, until the employee is determined to be unable to return to workplace formaldehyde exposure, until the employee is determined to be able to return to the original job status, or for 6 months, whichever occurs first.

(7) An employer shall arrange for a follow-up medical examination to take place within 6 months after an employee is removed from formaldehyde exposure under this rule. The examination shall determine if the employee can return to the original job status or if the removal is to be permanent. A physician shall make a decision within 6 months of the date that an employee was removed as to whether the employee can be returned to the original job status or if the removal is to be permanent.

(8) An employer's obligation to provide earnings, seniority, and other benefits to an employee who is removed from formaldehyde exposure may 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 that is made possible by the employee's removal.

(9) In making determinations of the formaldehyde content of materials under this rule, an employer may rely on objective data.

HAZARD COMMUNICATION

R 325.51472a Hazard communication, generally.

Rule 22a. (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 325.51451a, for formaldehyde.

(2) In classifying the hazards of formaldehyde at least the following hazards shall be addressed:

(a) Cancer.

(b) Skin and respiratory sensitization.

(c) Eye, skin and respiratory tract irritation.

(d) Acute toxicity effects.

(e) Flammability.

(3) Employers shall include formaldehyde in the hazard communication program established to comply with the Occupational Health Standard Part 430 "Hazard Communication." Employers shall ensure that each employee has access to labels on containers of formaldehyde and to safety data sheets, and is trained in accordance with the requirements of R 325.51473 and Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.51451a.

(4) Subrules (1), (2), and (3) of this rule apply to chemicals associated with formaldehyde gas, all mixtures or solutions composed of greater than 0.1 percent formaldehyde, and materials capable of releasing formaldehyde into the air at concentrations reaching or exceeding 0.1 ppm.

(5) In making the determinations of anticipated levels of formaldehyde release, the employer may rely on objective data indicating the extent of potential formaldehyde release under reasonably foreseeable conditions of use.

(6) In addition to the requirements in subrules (1) through (4) of this rule, for materials listed in subrule (4) of this rule capable of releasing formaldehyde at levels above 0.5 ppm, labels shall appropriately address all hazards as defined in Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.51451a, and Appendices A and B, including cancer and respiratory sensitization, and shall contain the hazard statement "May Cause Cancer."

(7) As a minimum, for all materials listed in subrules (1) and (4) of this rule capable of releasing formaldehyde at levels of 0.1 ppm to 0.5 ppm, labels shall include all of the following:

(a) Identify that the product contains formaldehyde.

(b) List the name and address of the responsible party.

(c) State that physical and health hazard information is readily available from the employer and from safety data sheets.

(8) Prior to June 1, 2015, employers may include the phrase "Potential Cancer Hazard" instead of "May Cause Cancer" as specified in subrule (6) of this rule.

R 325.51472b Hazard warning labels.

Rule 22b. (1) The employer shall assure that hazard warning labels complying with the requirements of Occupational Health Standard Part 430 "Hazard Communication," are affixed to all containers of materials listed in R 325.51472a(1), except to the extent that Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.51451a, is inconsistent with this rule.

(2) For materials listed in R 325.51472a(1) capable of releasing formaldehyde at levels above 0.5 ppm, labels shall appropriately address all hazards as defined in Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.51451a, and Appendices A and B, including respiratory sensitization, and shall contain the words "Potential Cancer Hazard."

(3) In making the determinations of anticipated levels of formaldehyde release, the employer may rely on objective data indicating the extent of potential formaldehyde release under reasonably foreseeable conditions of use.

(4) The employer may use warning labels required by other statutes, regulations, or ordinances which impart the same information as the warning statements required by these rules.

R 325.51472c Safety data sheets.

Rule 22c. (1) Any employer who uses formaldehyde-containing materials listed in R 325.51472a(1) shall comply with the requirements of Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.51451a, with regard to the development and updating of safety data sheets.

(2) Manufacturers, importers, and distributors of formaldehyde-containing materials listed in R 325.51472a(1) shall assure that safety data sheets and updated information are provided to all employers purchasing such materials at the time of the initial shipment and at the time of the first shipment after a safety data sheet is updated.

R 325.51472d Written hazard communication program.

Rule 22d. (1) The employer shall develop, implement, and maintain at the workplace, a written hazard communication program for formaldehyde exposures in the workplace, which at a minimum describes how the requirements specified in this rule for labels and other forms of warning and safety data sheets, and R 325.51473 for employee information and training, will be met.

(2) Employers in multi-employer workplaces shall comply with the requirements of Occupational Health Standard Part 430 "Hazard Communication," as referenced in R 325.51451a.

R 325.51472 Rescinded. Hazard communication.

~~Rule 22. (1) Communication to employees of the hazards associated with formaldehyde in the workplace shall be governed by the provisions of this rule. The definitions set forth in the provisions of 29 C.F.R. S1910.1200 apply to these rules. The provisions of 29 C.F.R. S1910.1200 were incorporated by reference in Act No. 154 of the Public Acts of 1974, as amended, being S408.1001 et seq. of the Michigan Compiled Laws, by Act No.80 of the Public Acts of 1986, which added S408.1014a.~~

~~(2) The hazard communication requirements of this rule shall apply to formaldehyde gas, all mixtures or solutions composed of more than 0.1% formaldehyde, and materials that are capable of releasing formaldehyde into the air under any reasonably foreseeable condition of use at concentrations of, or more than, 0.1 ppm. At a minimum, an employer shall address all of the following specific health hazards:~~

~~(a) Cancer.~~

~~(b) Irritation and sensitization of the skin and respiratory system.~~

~~(c) Eye and throat irritation.~~

~~(d) Acute toxicity.~~

~~(3) Manufacturers and importers that produce or import formaldehyde or formaldehyde-containing products shall provide downstream employers who use or handle these products with an objective determination through the required labels and material safety data sheets (MSDS) if these items may constitute a health hazard within the meaning of the provisions of 29 C.F.R. S1910.1200(d) under normal conditions of use.~~

~~(4) With regard to labeling, all of the following provisions shall apply:~~

~~(a) An employer shall ensure that hazard warning labels that are in compliance with the requirements of 29 C.F.R. S1910.1200(f) are affixed to all containers of materials listed in subrule (2) of this rule, unless the provisions of 29 C.F.R. S1910.1200(f) are inconsistent with the provisions of this subdivision.~~

~~(b) Labels for all materials which are listed in subrule (2) of this rule and which are capable of releasing formaldehyde at levels of 0.1 ppm to 0.5 ppm shall contain all of the following information:~~

~~(i) A statement that the material contains formaldehyde.~~

~~(ii) The name and address of the manufacturer's or importer's responsible person.~~

~~(iii) A statement that physical and health hazard information is readily available from the employer and from material safety data sheets (MSDS).~~

~~(c) Labels for all materials which are listed in subrule (2) of this rule and which are capable of releasing formaldehyde at levels of more than 0.5 ppm shall appropriately address all hazards that are defined in 29 C.F.R. S1910.1200(d) and appendices A and B of 29 C.F.R. S1910.1200. The label shall contain a statement that formaldehyde is a potential sensitizer of the respiratory system and shall contain the words "POTENTIAL CANCER HAZARD."~~

~~(d) In determining an anticipated level of formaldehyde release, an employer may rely on objective data that indicates the extent of potential formaldehyde release under reasonably foreseeable conditions of use.~~

~~(e) An employer may use warning labels which are required by other statutes, regulations, or ordinances and which impart the same information as the warning statements required by this subrule.~~

~~(5) With regard to material safety data sheets, both of the following provisions apply:~~

~~(a) An employer who uses formaldehyde-containing materials listed in subrule (2) of this rule shall comply with the requirements of 29 C.F.R. S1910.1200(g) with regard to the development and updating of material safety data sheets.~~

~~(b) Manufacturers, importers, and distributors of formaldehyde-containing materials listed in subrule (2) of this rule shall ensure that material safety data sheets and updated information are provided to all employers who purchase such materials at the time of the initial shipment and at the time of the first shipment after a material safety data sheet is updated.~~

~~(6) An employer shall develop, implement, and maintain, at the workplace, a written hazard communication program for formaldehyde exposures in the workplace. At a minimum, the program shall describe how the requirements of this rule~~

~~and R 325.51473 will be met and how an employer in a multi-employer facility where other employers' workers may be exposed to formaldehyde will accomplish all of the following:~~

- ~~(a) Make copies of material safety data sheets for formaldehyde materials available to other employers and their employees.~~
- ~~(b) Inform other employers of precautionary measures that are needed to protect employees from formaldehyde exposure during normal operations and in foreseeable emergencies.~~
- ~~(c) Inform other employers of the labeling system that is used for formaldehyde materials.~~

EMPLOYEE INFORMATION AND TRAINING

R 325.51473 Employee information and training.

Rule 23. (1) An employer shall ensure that all employees who are assigned to workplaces where there is exposure to formaldehyde at or above 0.1 ppm participate in a training program.

(2) An employer shall provide employees with information and training on formaldehyde at the time of their initial assignment and when a new exposure to formaldehyde is introduced into their work areas. Employers shall provide such information and training at least annually.

(3) The training program shall be conducted in a manner that an employee is able to understand and shall include all of the following:

(a) A discussion of the contents of these rules and the contents of the ~~material~~ safety data sheet.

(b) An explanation of the purpose for, and a description of, the medical surveillance program required by these rules, including both of the following:

(i) A description of the potential health hazards associated with exposure to formaldehyde and a description of the signs and symptoms of exposure to formaldehyde.

(ii) Instructions to immediately report to the employer the development of any adverse signs or symptoms that the employee suspects is attributable to formaldehyde exposure.

(c) A description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure to formaldehyde in each job.

(d) An explanation of the purpose for, and proper use and limitations of, personal protective clothing and equipment.

(e) Instructions for the handling of spills, emergencies, and clean-up procedures.

(f) An explanation of the importance of engineering and work practice controls for employee protection and any necessary instruction in the use of these controls.

(g) A review of emergency procedures, including the specific duties or assignments of each employee in an emergency.

(4) An employer shall inform all affected employees of the location of written training materials and shall make these materials readily available, without cost, to the affected employees. ~~The employer shall provide, to the director, upon request, all training materials relating to the employee training program.~~

(5) The employer shall provide, to the director, upon request, all training materials relating to the employee training program.

RECORDKEEPING

R 325.51474 Recordkeeping.

Rule 24. ~~(1)~~An employer shall establish and maintain an accurate record of all measurements taken to monitor employee exposure to formaldehyde. This record shall include all of the following information:

(a) The date of measurement.

(b) The operation being monitored.

(c) The methods of sampling and analysis and evidence of their accuracy and precision.

(d) The number, durations, time, and results of samples taken.

(e) The types of protective devices worn.

(f) The names, job classifications, social security numbers, and exposure estimates of the employees whose exposures are represented by the actual monitoring results.

~~(2) If an employer has determined that monitoring is not required pursuant to these rules, the employer shall maintain a record of the objective data relied upon to support the determination that employees are not exposed to formaldehyde at or above the action level.~~

~~(3) An employer shall establish and maintain an accurate record for each employee who is subject to medical surveillance pursuant to these rules. This record shall include all of the following information:~~

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

~~(b) The physician's written opinion.~~

~~(c) A list of any employee health complaints that may be related to exposure to formaldehyde.~~

~~(d) A copy of the medical examination results, including medical disease questionnaires and results of any medical tests required by these rules or mandated by the examining physician.~~

~~(4) An employer shall establish and maintain accurate records for employees who are subject to negative-pressure respirator fit testing required by these rules. These records shall include all of the following information:~~

- ~~(a) A copy of the protocol selected for respirator fit testing.~~
- ~~(b) A copy of the results of any fit testing performed.~~
- ~~(c) The size and manufacturer of the types of respirators available for selection.~~
- ~~(d) The date of the most recent fit testing, the name and social security number of each tested employee, and the respirator type and facepiece selected.~~
- ~~(5) An employer shall retain records required by these rules for not less than the following periods:~~
 - ~~(a) Exposure records and determinations shall be kept for not less than 30 years.~~
 - ~~(b) Medical records shall be kept for the duration of employment, plus 30 years.~~
 - ~~(c) Respirator fit testing records shall be kept until replaced by a more recent record.~~
- ~~(6) All of the following provisions apply with regard to the availability of records:~~
 - ~~(a) Upon request, an employer shall make all records maintained as a requirement of these rules available for examination and copying to the director.~~
 - ~~(b) An employer shall make employee exposure records, including estimates made from representative monitoring, available upon request for examination and copying to the subject employee or former employee and to employee representatives in accordance with the provisions of R 325.3451 et seq.~~
 - ~~(c) Employee medical records required by these rules shall be provided upon request for examination and copying to the subject employee or former employee or to anyone who has the specific written consent of the subject employee or former employee in accordance with the provisions of R 325.3451 et seq.~~

R 325.51474a Exposure determinations.

Rule 24a. If an employer has determined that monitoring is not required pursuant to these rules, the employer shall maintain a record of the objective data relied upon to support the determination that employees are not exposed to formaldehyde at or above the action level.

R 325.51474b Medical surveillance.

Rule 24b. An employer shall establish and maintain an accurate record for each employee who is subject to medical surveillance pursuant to these rules. This record shall include all of the following information:

- (a)** The name and social security number of the employee.
- (b)** The physician's written opinion.
- (c)** A list of any employee health complaints that may be related to exposure to formaldehyde.
- (d)** A copy of the medical examination results, including medical disease questionnaires and results of any medical tests required by these rules or mandated by the examining physician.

R 325.51474c Respirator fit testing.

Rule 24c. An employer shall establish and maintain accurate records for employees who are subject to negative-pressure respirator fit testing required by these rules. These records shall include all of the following information:

- (a)** A copy of the protocol selected for respirator fit testing.
- (b)** A copy of the results of any fit testing performed.
- (c)** The size and manufacturer of the types of respirators available for selection.
- (d)** The date of the most recent fit testing, the name and social security number of each tested employee, and the respirator type and facepiece selected.

R 325.51474d Record retention.

Rule 24d. An employer shall retain records required by these rules for not less than the following periods:

- (a)** Exposure records and determinations shall be kept for not less than 30 years.
- (b)** Medical records shall be kept for the duration of employment, plus 30 years.
- (c)** Respirator fit testing records shall be kept until replaced by a more recent record.

R 325.51474e Availability of records.

Rule 24e. All of the following provisions apply with regard to the availability of records:

- (a)** Upon request, an employer shall make all records maintained as a requirement of these rules available for examination and copying to the director.
- (b)** An employer shall make employee exposure records, including estimates made from representative monitoring, available upon request for examination and copying to the subject employee or former employee and to employee representatives in accordance with Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.51451a.
- (c)** Employee medical records required by these rules shall be provided upon request for examination and copying to the subject employee or former employee or to anyone who has the specific written consent of the subject employee or former employee in accordance with Occupational Health Standard Part 470 "Employee Medical Records and Trade Secrets," as referenced in R 325.51451a.

R 325.51475 **Rescinded.** Compliance dates.

~~Rule 25. (1) Except as indicated in subrule (2) of this rule, compliance with the requirements of these rules is required on the effective date of these rules.~~

~~(2) Compliance with the rules specified in this subrule shall be as follows:~~

~~(a) R 325.51459, compliance with the 0.75 ppm exposure limit shall be completed as soon as possible, but not later than June 26, 1993.~~

~~(b) R 325.51470 and R 325.51471, compliance is required not later than December 31, 1992.~~

~~(c) R 325.51472(4), compliance is required not later than December 31, 1992.~~

R 325.51476 **Rescinded.** Appendices.

~~Rule 26. Appendices A, B, C, and D to these rules are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.~~

R 325.51477 **Rescinded.** Availability of rules; permission to reproduce.

~~Rule 27. (1) Single copies of these rules and appendices is available to affected employers and employees at no cost from the Michigan Department of Consumer and Industry Services, Standards Division, P.O. Box 30643, Lansing, Michigan 48909.~~

~~(2) Permission to reproduce these rules and their appendices, in full or in part, is granted by the director.~~