



Oregon Administrative Rules
Chapter 437

Division 2
General Occupational Safety and Health

Methlenedianiline

Subdivision

Z

Administrative
Order 3-2019



Pursuant to **Oregon Revised Statutes (ORS) 654**, The Oregon Safe Employment Act (OSEAct), the Oregon Department of Consumer and Business Services, Occupational Safety and Health Division (Oregon OSHA), adopted these rules.

The Secretary of State designated Oregon Administrative Rules Chapter 437 as the Oregon Occupational Safety and Health Division Rules. Six subject areas are designated as “Divisions” of these rules.

- **Division 1** Administration of the Oregon Safe Employment Act
- **Division 2** General Occupational Safety and Health Rules
- **Division 3** Construction
- **Division 4** Agriculture
- **Division 5** Maritime Activities
- **Division 7** Forest Activities

Oregon-initiated rules are numbered in a uniform system developed by the Secretary of State. This system does not number the rules in sequence (001, 002, 003, etc.). Omitted numbers may be assigned to new rules at the time of their adoption.

Oregon-initiated rules are arranged in the following codification structure prescribed by the Secretary of State for Oregon Administrative Rules (OAR):

Chapter	Division	Subdivision	Rule	Section	Paragraphs
<i>437</i>	<i>002</i>	<i>N</i>	<i>0221</i>	<i>(1)</i>	<i>(a)(A)(i)(I)</i>

Cite as 437-002-0221(1)(a)

Many of the Oregon OSHA rules are adopted by reference from the Code of Federal Regulations (CFR), and are arranged in the following federal numbering system:

Part	Subpart (Subdivision)	Section	Paragraphs
1910	N	.176	(a)(1)(i)(A)(1)(i)

Cite as 1910.176(a)(1)

The terms “subdivision” and “subpart” are synonymous within OAR 437, Oregon Occupational Safety and Health rules.

These rules are available for viewing in the Office of the Secretary of State, Oregon State Archives Building, Salem, Oregon.

These rules are available in electronic and printable formats at osha.oregon.gov.

Printed copies of these rules are available at:

Department of Consumer & Business Services
Oregon Occupational Safety & Health Division (Oregon OSHA)
350 Winter St. NE
Salem, OR 97301-3882

Or call the Oregon OSHA Resource Library at 503-378-3272.

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437-002-0360 Adoption by Reference

In addition to, and not in lieu of, any other safety and health codes contained in OAR Chapter 437, the Department adopts by reference the following federal regulations printed as part of the Code of Federal Regulations, 29 CFR 1910, in the Federal Register:

(32) 29 CFR 1910.1050 Methylenedianiline (MDA), published 5/14/19, FR vol. 84, no. 93, p. 21416.

These standards are available at the Oregon Occupational Safety and Health Division, Oregon Department of Consumer and Business Services, and the United States Government Printing Office.

Stat. Auth.: ORS 654.025(2) and 656.726(4).

Stats. Implemented: ORS 654.001 through 654.295.

Hist: APD Admin. Order 13-1988, f. 8/2/88, ef. 8/2/88 (Benzene).

APD Admin. Order 14-1988, f. 9/12/88, ef. 9/12/88 (Formaldehyde).

APD Admin. Order 18-1988, f. 11/17/88, ef. 11/17/88 (Ethylene Oxide).

APD Admin. Order 4-1989, f. 3/31/89, ef. 5/1/89 (Asbestos-Temp).

APD Admin. Order 6-1989, f. 4/20/89, ef. 5/1/89 (Non-Asbestiforms-Temp).

APD Admin. Order 9-1989, f. 7/7/89, ef. 7/7/89 (Asbestos & Non-Asbestiforms-Perm).

APD Admin. Order 11-1989, f. 7/14/89, ef. 8/14/89 (Lead).

APD Admin. Order 13-1989, f. 7/17/89, ef. 7/17/89 (Air Contaminants).

OR-OSHA Admin. Order 1-1990, f. 1/11/90, ef. 1/11/90 (Formaldehyde-Temp).

OR-OSHA Admin. Order 3-1990, f. 1/19/90, ef. 1/19/90 (Asbestos & Non-Asbestiforms-Temp).

OR-OSHA Admin. Order 6-1990, f. 3/2/90, ef. 3/2/90 (Formaldehyde-Perm).

OR-OSHA Admin. Order 7-1990, f. 3/2/90, ef. 3/2/90 (Asbestos & Non-Asbestiforms-Perm).

OR-OSHA Admin. Order 9-1990, f. 5/8/90, ef. 8/8/90 (Labs).

OR-OSHA Admin. Order 11-1990, f. 6/7/90, ef. 7/1/90 (Air Contaminants).

OR-OSHA Admin. Order 13-1990, f. 6/28/90, ef. 8/1/90 (Asbestos-Temp).

OR-OSHA Admin. Order 14-1990, f. 6/28/90, ef. 8/1/90 (Lead).

OR-OSHA Admin. Order 19-1990, f. 8/31/90, ef. 8/31/90 (Asbestos-Perm).

OR-OSHA Admin. Order 20-1990, f. 9/18/90, ef. 9/18/90 (Lead).

OR-OSHA Admin. Order 21-1990, f. 9/18/90, ef. 9/18/90 (Air Contaminants).

OR-OSHA Admin. Order 7-1991, f. 4/25/91, ef. 4/25/91 (Air Contaminants, Asbestos, Formaldehyde).

OR-OSHA Admin. Order 13-1991, f. 10/10/91, ef. 10/10/91 (Lead, Formaldehyde).

OR-OSHA Admin. Order 15-1991, f. 12/13/91, ef. 12/13/91 (Asbestos).

OR-OSHA Admin. Order 1-1992, f. 1/22/92, ef. 1/22/92 (Formaldehyde).

OR-OSHA Admin. Order 4-1992, f. 4/16/92, ef. 4/16/92 (Formaldehyde).

OR-OSHA Admin. Order 5-1992, f. 4/24/92, ef. 7/1/92 (Bloodborne Pathogens).

OR-OSHA Admin. Order 6-1992, f. 5/18/92, ef. 5/18/92 (Asbestos).

OR-OSHA Admin. Order 10-1992, f. 9/24/92, ef. 9/24/92 (Lead-temp).

OR-OSHA Admin. Order 11-1992, f. 10/9/92, ef. 10/9/92 (Asbestos).

OR-OSHA Admin. Order 12-1992, f. 10/13/92, ef. 10/13/92 (Formaldehyde).

OR-OSHA Admin. Order 15-1992, f. 12/30/92, ef. 12/30/92 (Air Contaminants, BBP, Labs).

OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93 (Cadmium, MDA).

OR-OSHA Admin. Order 6-1993, f. 5/17/93, ef. 5/17/93 (Air Contaminants-Temp).

OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93 (remainder of 2/Z).

OR-OSHA Admin. Order 17-1993, f. 11/15/93, ef. 11/15/93 (Air Contaminants-Perm).

OR-OSHA Admin. Order 4-1995, f. 3/29/95, ef. 3/29/95 (Asbestos).

OR-OSHA Admin. Order 8-1995, f. 8/25/95, ef. 8/25/95 (Asbestos).

OR-OSHA Admin. Order 4-1996, f. 9/13/96, ef. 9/13/96 (Lead).

OR-OSHA Admin. Order 6-1996, f. 11/29/96, ef. 11/29/96 (Asbestos).

OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.

OR-OSHA Admin. Order 6-1997, f. 5/2/97, ef. 5/2/97.

OR-OSHA Admin. Order 8-1997, f. 11/14/97, ef. 11/14/97 (Methylene Chloride).

OR-OSHA Admin. Order 1-1998, f. 2/13/98, ef. 2/13/98 (Methylene Chloride).

OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.

OR-OSHA Admin. Order 1-1999, f. 3/22/99, ef. 3/22/99.

OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.
OR-OSHA Admin. Order 4-2006, f. 7/24/06, ef. 7/24/06.
OR-OSHA Admin. Order 10-2006, f. 11/30/06, ef. 11/30/06.
OR-OSHA Admin. Order 5-2009, f. 5/29/09, ef. 5/29/09.
OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.
OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12.
OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.
OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.
OR-OSHA Admin. Order 3-2013, f. 7/18/13, ef. 7/18/13.
OR-OSHA Admin. Order 4-2013, f. 7/19/13, ef. 7/19/13.
OR-OSHA Admin. Order 3-2019, f. 10/29/19, ef. 10/29/19.

1910.1050 Methylenedianiline

(a) Scope and application.

- (1) This section applies to all occupational exposures to MDA, Chemical Abstracts Service Registry No. 101-77-9, except as provided in paragraphs (a)(2) through (a)(7) of this section.
- (2) Except as provided in paragraphs (a)(8) and (e)(5) of this section, this section does not apply to the processing, use, and handling of products containing MDA where initial monitoring indicates that the product is not capable of releasing MDA in excess of the action level under the expected conditions of processing, use, and handling which will cause the greatest possible release; and where no “dermal exposure to MDA” can occur.
- (3) Except as provided in paragraph (a)(8) of this section, this section does not apply to the processing, use, and handling of products containing MDA where objective data are reasonably relied upon which demonstrate the product is not capable of releasing MDA under the expected conditions of processing, use, and handling which will cause the greatest possible release; and where no “dermal exposure to MDA” can occur.
- (4) This section does not apply to the storage, transportation, distribution or sale of MDA in intact containers sealed in such a manner as to contain the MDA dusts, vapors, or liquids, except for the provisions of 29 CFR 1910.1200 and paragraph (d) of this section.
- (5) This section does not apply to the construction industry as defined in 29 CFR 1910.12(b). (Exposure to MDA in the construction industry is covered by 29 CFR 1926.60).
- (6) Except as provided in paragraph (a)(8) of this section, this section does not apply to materials in any form which contain less than 0.1% MDA by weight or volume.
- (7) Except as provided in paragraph (a)(8) of this section, this section does not apply to “finished articles containing MDA.”

(8) Where products containing MDA are exempted under paragraphs (a)(2) through (a)(7) of this section, the employer shall maintain records of the initial monitoring results or objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in the recordkeeping provision of paragraph (n) of this section.

(b) Definitions. For the purpose of this section, the following definitions shall apply:

Action level means a concentration of airborne MDA of 5 ppb as an eight (8)-hour time-weighted average.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Authorized person means any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employees, for the purpose of exercising the right to observe monitoring and measuring procedures under paragraph (o) of this section, or any other person authorized by the Act or regulations issued under the Act.

Container means any barrel, bottle, can, cylinder, drum, reaction vessel, storage tank, commercial packaging or the like, but does not include piping systems.

Dermal exposure to MDA occurs where employees are engaged in the handling, application or use of mixtures or materials containing MDA, with any of the following non-airborne forms of MDA:

- (i) Liquid, powdered, granular, or flaked mixtures containing MDA in concentrations greater than 0.1% by weight or volume; and
- (ii) Materials other than "finished articles" containing MDA in concentrations greater than 0.1% by weight or volume.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which results in an unexpected and potentially hazardous release of MDA.

Employee exposure means exposure to MDA which would occur if the employee were not using respirators or protective work clothing and equipment.

Finished article containing MDA is defined as a manufactured item:

- (i) Which is formed to a specific shape or design during manufacture;

- (ii) Which has end use function(s) dependent in whole or part upon its shape or design during end use; and
- (iii) Where applicable, is an item which is fully cured by virtue of having been subjected to the conditions (temperature, time) necessary to complete the desired chemical reaction.

4,4' Methylenedianiline or MDA means the chemical, 4,4'-diaminodiphenylmethane, Chemical Abstract Service Registry number 101-77-9, in the form of a vapor, liquid, or solid. The definition also includes the salts of MDA.

Regulated areas means areas where airborne concentrations of MDA exceed or can reasonably be expected to exceed, the permissible exposure limits, or where dermal exposure to MDA can occur.

STEL means short term exposure limit as determined by any 15 minute sample period.

(c) Permissible exposure limits (PEL). The employer shall assure that no employee is exposed to an airborne concentration of MDA in excess of ten parts per billion (10 ppb) as an 8-hour time-weighted average or a STEL of 100 ppb.

(d) Emergency situations.

(1) Written plan.

- (i) A written plan for emergency situations shall be developed for each workplace where there is a possibility of an emergency. Appropriate portions of the plan shall be implemented in the event of an emergency.
- (ii) The plan shall specifically provide that employees engaged in correcting emergency conditions shall be equipped with the appropriate personal protective equipment and clothing as required in paragraphs (h) and (i) of this section until the emergency is abated.
- (iii) The plan shall specifically include provisions for alerting and evacuating affected employees as well as the elements prescribed in 29 CFR 1910.38, "Employee emergency plans and fire prevention plans."

(2) Alerting employees. Where there is the possibility of employee exposure to MDA due to an emergency, means shall be developed to alert promptly those employees who have the potential to be directly exposed. Affected employees not engaged in correcting emergency conditions shall be evacuated immediately in the event that an emergency occurs. Means shall also be developed and implemented for alerting other employees who may be exposed as a result of the emergency.

(e) Exposure monitoring.

(1) General.

- (i) Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee's exposure to airborne MDA over an eight (8) hour period. Determination of employee exposure to the STEL shall be made from breathing zone air samples collected over a 15 minute sampling period.
- (ii) Representative employee exposure shall be determined on the basis of one or more samples representing full shift exposure for each shift for each job classification in each work area where exposure to MDA may occur.
- (iii) Where the employer can document that exposure levels are equivalent for similar operations in different work shifts, the employer shall only be required to determine representative employee exposure for that operation during one shift.

(2) Initial monitoring. Each employer who has a workplace or work operation covered by this standard shall perform initial monitoring to determine accurately the airborne concentrations of MDA to which employees may be exposed.

(3) Periodic monitoring and monitoring frequency.

- (i) If the monitoring required by paragraph (e)(2) of this section reveals employee exposure at or above the action level, but at or below the PELs, the employer shall repeat such representative monitoring for each such employee at least every six (6) months.
- (ii) If the monitoring required by paragraph (e)(2) of this section reveals employee exposure above the PELs, the employer shall repeat such monitoring for each such employee at least every three (3) months.
- (iii) The employer may alter the monitoring schedule from every three months to every six months for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee exposure has decreased to below the TWA but above the action level.

(4) Termination of monitoring.

- (i) If the initial monitoring required by paragraph (e)(2) of this section reveals employee exposure to be below the action level, the employer may discontinue the monitoring for that employee, except as otherwise required by paragraph (e)(5) of this section.

- (ii) If the periodic monitoring required by paragraph (e)(3) of this section reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level the employer may discontinue the monitoring for that employee, except as otherwise required by paragraph (e)(5) of this section.
 - (5) Additional monitoring. The employer shall institute the exposure monitoring required under paragraphs (e)(2) and (e)(3) of this section when there has been a change in production process, chemicals present, control equipment, personnel, or work practices which may result in new or additional exposures to MDA, or when the employer has any reason to suspect a change which may result in new or additional exposures.
 - (6) Accuracy of monitoring. Monitoring shall be accurate, to a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of MDA.
 - (7) Employee notification of monitoring results.
 - (i) The employer shall, within 15 working days after the receipt of the results of any monitoring performed under this standard, notify each employee of these results, in writing, either individually or by posting of results in an appropriate location that is accessible to affected employees.
 - (ii) The written notification required by paragraph (e)(7)(i) of this section shall contain the corrective action being taken by the employer to reduce the employee exposure to or below the PELs, wherever the PELs are exceeded.
 - (8) Visual monitoring. The employer shall make routine inspections of employee hands, face and forearms potentially exposed to MDA. Other potential dermal exposures reported by the employee must be referred to the appropriate medical personnel for observation. If the employer determines that the employee has been exposed to MDA the employer shall:
 - (i) Determine the source of exposure;
 - (ii) Implement protective measures to correct the hazard; and
 - (iii) Maintain records of the corrective actions in accordance with paragraph (n) of this section.
- (f) Regulated areas.
- (1) Establishment.

- (i) Airborne exposures. The employer shall establish regulated areas where airborne concentrations of MDA exceed or can reasonably be expected to exceed, the permissible exposure limits.
 - (ii) Dermal exposures. Where employees are subject to dermal exposure to MDA the employer shall establish those work areas as regulated areas.
 - (2) Demarcation. Regulated areas shall be demarcated from the rest of the workplace in a manner that minimizes the number of persons potentially exposed.
 - (3) Access. Access to regulated areas shall be limited to authorized persons.
 - (4) Personal protective equipment and clothing. Each person entering a regulated area shall be supplied with, and required to use, the appropriate personal protective clothing and equipment in accordance with paragraphs (h) and (i) of this section.
 - (5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.
- (g) Methods of compliance.
- (1) Engineering controls and work practices.
 - (i) The employer shall institute engineering controls and work practices to reduce and maintain employee exposure to MDA at or below the PELs except to the extent that the employer can establish that these controls are not feasible or where the provisions of paragraph (g)(1)(ii) or (h)(1)(i) through (iv) of this section apply.
 - (ii) Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the PELs, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protective devices which comply with the requirements of paragraph (h) of this section.
 - (2) Compliance program.
 - (i) The employer shall establish and implement a written program to reduce employee exposure to or below the PELs by means of engineering and work practice controls, as required by paragraph (g)(1) of this section, and by use of respiratory protection where permitted under this section. The program shall include a schedule for periodic maintenance (e.g., leak detection) and shall include the written plan for emergency situations as specified in paragraph (d) of this section.

- (ii) Upon request this written program shall be furnished for examination and copying to the Assistant Secretary, the Director, affected employees, and designated employee representatives. The employer shall review and, as necessary, update such plans at least once every 12 months to make certain they reflect the current status of the program.
- (3) Employee rotation. Employee rotation shall not be permitted as a means of reducing exposure.
- (h) Respiratory protection.
 - (1) General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:
 - (i) Periods necessary to install or implement feasible engineering and work-practice controls.
 - (ii) Work operations for which the employer establishes that engineering and work-practice controls are not feasible.
 - (iii) Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the PEL.
 - (iv) Emergencies.

Oregon OSHA repealed 1910.1050(h)(2). In Oregon, OAR 437-002-1050 applies.

437-002-1050 *Methylenedianiline Respiratory Protection Program*

The employer must implement a respiratory protection program in accordance with Division 2/I, 1910.134(b) through (d) (except (d)(1)(iii)), and (e) through (m) and (o), which covers each employee required by Division 2/Z, 1910.1050 Methylenedianiline, to use a respirator.

Note: This is in addition to other respiratory protection and medical surveillance requirements specified in these Methylenedianiline rules.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12.

1910.1050(h)(3) Respirator selection.

- (i) Employers must:

- (A) Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.
 - (B) Provide HEPA filters for powered and non-powered air-purifying respirators.
 - (C) For escape, provide employees with one of the following respirator options: Any self-contained breathing apparatus with a full facepiece or hood operated in the positive-pressure or continuous-flow mode; or a full facepiece air-purifying respirator.
 - (D) Provide a combination HEPA filter and organic vapor canister or cartridge with powered or non-powered air-purifying respirators when MDA is in liquid form or used as part of a process requiring heat.
- (ii) Any employee who cannot use a negative-pressure respirator must be given the option of using a positive-pressure respirator, or a supplied-air respirator operated in the continuous-flow or pressure-demand mode.
- (i) Protective work clothing and equipment.
 - (1) Provision and use. Where employees are subject to dermal exposure to MDA, where liquids containing MDA can be splashed into the eyes, or where airborne concentrations of MDA are in excess of the PEL, the employer shall provide, at no cost to the employee, and ensure that the employee uses, appropriate protective work clothing and equipment which prevent contact with MDA such as, but not limited to:
 - (i) Aprons, coveralls or other full-body work clothing;
 - (ii) Gloves, head coverings, and foot coverings; and
 - (iii) Face shields, chemical goggles; or
 - (iv) Other appropriate protective equipment which comply with OAR 437-002-0134(8).
 - (2) Removal and storage.
 - (i) The employer shall ensure that, at the end of their work shift, employees remove MDA-contaminated protective work clothing and equipment that is not routinely removed throughout the day in change rooms provided in accordance with the provisions established for change rooms.
 - (ii) The employer shall ensure that, during their work shift, employees remove all other MDA-contaminated protective work clothing or equipment before leaving a regulated area.

- (iii) The employer shall ensure that no employee takes MDA-contaminated work clothing or equipment out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.
 - (iv) MDA-contaminated work clothing or equipment shall be placed and stored in closed containers which prevent dispersion of the MDA outside the container.
 - (v) Containers of MDA-contaminated protective work clothing or equipment which are to be taken out of change rooms or the workplace for cleaning, maintenance, or disposal, shall bear labels warning of the hazards of MDA.
- (3) Cleaning and replacement.
- (i) The employer shall provide the employee with clean protective clothing and equipment. The employer shall ensure that protective work clothing or equipment required by this paragraph is cleaned, laundered, repaired, or replaced at intervals appropriate to maintain its effectiveness.
 - (ii) The employer shall prohibit the removal of MDA from protective work clothing or equipment by blowing, shaking, or any methods which allow MDA to re-enter the workplace.
 - (iii) The employer shall ensure that laundering of MDA-contaminated clothing shall be done so as to prevent the release of MDA in the workplace.
 - (iv) Any employer who gives MDA-contaminated clothing to another person for laundering shall inform such person of the requirement to prevent the release of MDA.
 - (v) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with MDA of the potentially harmful effects of exposure.
 - (vi) MDA-contaminated clothing shall be transported in properly labeled, sealed, impermeable bags or containers.
- (j) Hygiene facilities and practices.
- (1) Change rooms.
- (i) The employer shall provide clean change rooms for employees, who must wear protective clothing, or who must use protective equipment because of their exposure to MDA.

- (ii) Change rooms must be equipped with separate storage for protective clothing and equipment and for street clothes which prevents MDA contamination of street clothes.

(2) Showers.

- (i) The employer shall ensure that employees, who work in areas where there is the potential for exposure resulting from airborne MDA (e.g., particulates or vapors) above the action level, shower at the end of the work shift.
 - (A) Shower facilities required by this paragraph shall comply with 1910.141 (d)(3).
 - (B) The employer shall ensure that employees who are required to shower pursuant to the provisions contained herein do not leave the workplace wearing any protective clothing or equipment worn during the work shift.
- (ii) Where dermal exposure to MDA occurs, the employer shall ensure that materials spilled or deposited on the skin are removed as soon as possible by methods which do not facilitate the dermal absorption of MDA.

(3) Lunch facilities.

- (i) Availability and construction.
 - (A) Whenever food or beverages are consumed at the worksite and employees are exposed to MDA at or above the PEL or are subject to dermal exposure to MDA the employer shall provide readily accessible lunch areas.
 - (B) Lunch areas located within the workplace and in areas where there is the potential for airborne exposure to MDA at or above the PEL shall have a positive pressure, temperature controlled, filtered air supply.
 - (C) Lunch areas may not be located in areas within the workplace where the potential for dermal exposure to MDA exists.
- (ii) The employer shall ensure that employees who have been subjected to dermal exposure to MDA or who have been exposed to MDA above the PEL wash their hands and faces with soap and water prior to eating, drinking, smoking, or applying cosmetics.

- (iii) The employer shall ensure that employees exposed to MDA do not enter lunch facilities with MDA-contaminated protective work clothing or equipment.

(k) Communication of hazards.

(1) Hazard communication – general.

- (i) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (1910.1200) for MDA.
- (ii) In classifying the hazards of MDA at least the following hazards are to be addressed: Cancer; liver effects; and skin sensitization.
- (iii) Employers shall include MDA in the hazard communication program established to comply with the HCS (1910.1200). Employers shall ensure that each employee has access to labels on containers of MDA and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (k)(4) of this section.

(2) Signs and labels.

(i) Signs.

- (A) The employer shall post and maintain legible signs demarcating regulated areas and entrances or access ways to regulated areas that bear the following legend:

DANGER
MDA
MAY CAUSE CANCER
CAUSES DAMAGE TO THE LIVER
RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING MAY BE
REQUIRED IN THIS AREA
AUTHORIZED PERSONNEL ONLY

- (B) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (k)(2)(i)(A) of this section:

DANGER
MDA
MAY CAUSE CANCER

**LIVER TOXIN
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED
TO BE WORN IN THIS AREA**

(ii) Labels. Prior to June 1, 2015, employers may include the following information workplace labels in lieu of the labeling requirements in paragraph (k)(1) of this section:

(A) For pure MDA:

**DANGER
CONTAINS MDA
MAY CAUSE CANCER
LIVER TOXIN**

(B) For mixtures containing MDA:

**DANGER
CONTAINS MDA
CONTAINS MATERIALS WHICH MAY CAUSE CANCER
LIVER TOXIN**

(3) Safety data sheets (SDS). In meeting the obligation to provide safety data sheets, employers shall make appropriate use of the information found in Appendices A and B to 1910.1050.

(4) Information and training.

- (i) The employer shall provide employees with information and training on MDA, in accordance with 29 CFR 1910.1200(h), at the time of initial assignment and at least annually thereafter.
- (ii) In addition to the information required under 29 CFR 1910.1200, the employer shall:
- (A) Provide an explanation of the contents of this section, including appendices A and B, and indicate to employees where a copy of the standard is available;
- (B) Describe the medical surveillance program required under paragraph (m) of this section, and explain the information contained in Appendix C; and

(C) Describe the medical removal provision required under paragraph (m) of this section.

(5) Access to training materials.

(i) The employer shall make readily available to all affected employees, without cost, all written materials relating to the employee training program, including a copy of this regulation.

(ii) The employer shall provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

(l) Housekeeping.

(1) All surfaces shall be maintained as free as practicable of visible accumulations of MDA.

(2) The employer shall institute a program for detecting MDA leaks, spills, and discharges, including regular visual inspections of operations involving liquid or solid MDA.

(3) All leaks shall be repaired and liquid or dust spills cleaned up promptly.

(4) Surfaces contaminated with MDA may not be cleaned by the use of compressed air.

(5) Shoveling, dry sweeping, and other methods of dry clean-up of MDA may be used where HEPA-filtered vacuuming and/or wet cleaning are not feasible or practical.

(6) Waste, scrap, debris, bags, containers, equipment, and clothing contaminated with MDA shall be collected and disposed of in a manner to prevent the re-entry of MDA into the workplace.

(m) Medical surveillance.

(1) General.

(i) The employer shall make available a medical surveillance program for employees exposed to MDA:

(A) Employees exposed at or above the action level for 30 or more days per year;

(B) Employees who are subject to dermal exposure to MDA for 15 or more days per year;

(C) Employees who have been exposed in an emergency situation;

- (D) Employees whom the employer, based on results from compliance with paragraph (e)(8) of this section, has reason to believe are being dermally exposed; and
 - (E) Employees who show signs or symptoms of MDA exposure.
- (ii) The employer shall ensure that all medical examinations and procedures are performed by, or under the supervision of, a licensed physician, at a reasonable time and place, and provided without cost to the employee.
- (2) Initial examinations.
- (i) Within 150 days of the effective date of this standard, or before the time of initial assignment, the employer shall provide each employee covered by paragraph (m)(1)(i) of this section with a medical examination including the following elements:
- (A) A detailed history which includes:
 - (1) Past work exposure to MDA or any other toxic substances;
 - (2) A history of drugs, alcohol, tobacco, and medication routinely taken (duration and quantity); and
 - (3) A history of dermatitis, chemical skin sensitization, or previous hepatic disease.
 - (B) A physical examination which includes all routine physical examination parameters, skin examination, and signs of liver disease.
 - (C) Laboratory tests including:
 - (1) Liver function tests and
 - (2) Urinalysis.
 - (D) Additional tests as necessary in the opinion of the physician.
- (ii) No initial medical examination is required if adequate records show that the employee has been examined in accordance with the requirements of this section within the previous six months prior to the effective date of this standard or prior to the date of initial assignment.
- (3) Periodic examinations.
- (i) The employer shall provide each employee covered by this section with a medical examination at least annually following the initial examination. These periodic examinations shall include at least the following elements:

- (A) A brief history regarding any new exposure to potential liver toxins, changes in drug, tobacco, and alcohol intake, and the appearance of physical signs relating to the liver, and the skin;
 - (B) The appropriate tests and examinations including liver function tests and skin examinations; and
 - (C) Appropriate additional tests or examinations as deemed necessary by the physician.
- (ii) If in the physicians' opinion the results of liver function tests indicate an abnormality, the employee shall be removed from further MDA exposure in accordance with paragraph (m)(9) of this section. Repeat liver function tests shall be conducted on advice of the physician.
- (4) Emergency examinations. If the employer determines that the employee has been exposed to a potentially hazardous amount of MDA in an emergency situation as addressed in paragraph (d) of this section, the employer shall provide medical examinations in accordance with paragraphs (m)(3)(i) and (ii) of this section. If the results of liver function testing indicate an abnormality, the employee shall be removed in accordance with paragraph (m)(9) of this section. Repeat liver function tests shall be conducted on the advice of the physician. If the results of the tests are normal, tests must be repeated two to three weeks from the initial testing. If the results of the second set of tests are normal and on the advice of the physician, no additional testing is required.
- (5) Additional examinations. Where the employee develops signs and symptoms associated with exposure to MDA, the employer shall provide the employee with an additional medical examination including a liver function test. Repeat liver function tests shall be conducted on the advice of the physician. If the results of the tests are normal, tests must be repeated two to three weeks from the initial testing. If the results of the second set of tests are normal and, on the advice of the physician, no additional testing is required.
- (6) Multiple physician review mechanism.
- (i) If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, and the employee has signs or symptoms of occupational exposure to MDA (which could include an abnormal liver function test), and the employee disagrees with the opinion of the examining physician, and this opinion could affect the employee's job status, the employee may designate an appropriate, mutually acceptable second physician:

- (A) To review any findings, determinations, or recommendations of the initial physician; and
 - (B) To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.
 - (ii) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later:
 - (A) The employee informing the employer that he or she intends to seek a second medical opinion, and
 - (B) The employee initiating steps to make an appointment with a second physician.
 - (iii) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.
 - (iv) If the two physicians have been unable to resolve quickly their disagreement, then the employer and the employee through their respective physicians shall designate a third physician;
 - (A) To review any findings, determinations, or recommendations of the prior physicians; and
 - (B) To conduct such examinations, consultations, laboratory tests, and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.
 - (v) The employer shall act consistent with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.
- (7) Information provided to the examining and consulting physicians.
- (i) The employer shall provide the following information to the examining physician:

- (A) A copy of this regulation and its appendices;
 - (B) A description of the affected employee's duties as they relate to the employee's potential exposure to MDA;
 - (C) The employee's current actual or representative MDA exposure level;
 - (D) A description of any personal protective equipment used or to be used; and
 - (E) Information from previous employment-related medical examinations of the affected employee.
- (ii) The employer shall provide the foregoing information to a second physician under this section upon request either by the second physician, or by the employee.
- (8) Physician's written opinion.
- (i) For each examination under this section, the employer shall obtain, and provide the employee with a copy of, the examining physician's written opinion within 15 days of its receipt. The written opinion shall include the following:
 - (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 which would place the employee at increased risk of material impairment of health from exposure to MDA;
 - (C) The physician's recommended limitations upon the employee's exposure to MDA or upon the employee's use of protective clothing or equipment and respirators; and
 - (D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from MDA exposure which require further explanation or treatment.
 - (ii) The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposures.
- (9) Medical removal.
- (i) Temporary medical removal of an employee.

- (A) Temporary removal resulting from occupational exposure. The employee shall be removed from work environments in which exposure to MDA is at or above the action level or where dermal exposure to MDA may occur, following an initial examination (paragraph (m)(2) of this section), periodic examinations (paragraph (m)(3) of this section), an emergency situation paragraph (m)(4) of this section, or an additional examination (paragraph (m)(5) of this section) in the following circumstances:
- (1) When the employee exhibits signs and/or symptoms indicative of acute exposure to MDA; or
 - (2) When the examining physician determines that an employee's abnormal liver function tests are not associated with MDA exposure but that the abnormalities may be exacerbated as a result of occupational exposure to MDA.
- (B) Temporary removal due to a final medical determination.
- (1) The employer shall remove an employee from work environments in which exposure to MDA is at or above the action level or where dermal exposure to MDA may occur, on each occasion that there is a final medical determination or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to MDA.
 - (2) For the purposes of this section, the phrase "final medical determination" shall mean the outcome of the physician review mechanism used pursuant to the medical surveillance provisions of this section.
 - (3) Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to MDA, the employer shall implement and act consistent with the recommendation.
- (ii) Return of the employee to former job status.
- (A) The employer shall return an employee to his or her former job status:
- (1) When the employee no longer shows signs or symptoms of exposure to MDA, or upon the advice of the physician.

- (2) When a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to MDA.
- (B) For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.
- (iii) Removal of other employee special protective measure or limitations. The employer shall remove any limitations placed on an employee, or end any special protective measures provided to an employee, pursuant to a final medical determination, when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.
- (iv) Employer options pending a final medical determination. Where the physician review mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:
- (A) Removal. The employer may remove the employee from exposure to MDA, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.
- (B) Return. The employer may return the employee to his or her former job status, and end any special protective measures provided to the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions.
- (1) If the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician; or

(2) If the employee has been on removal status for the preceding six months as a result of exposure to MDA, then the employer shall await a final medical determination.

(v) Medical removal protection benefits.

- (A) Provisions of medical removal protection benefits. The employer shall provide to an employee up to six (6) months of medical removal protection benefits on each occasion that an employee is removed from exposure to MDA or otherwise limited pursuant to this section.
- (B) Definition of medical removal protection benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority, and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to MDA or otherwise limited.
- (C) Follow-up medical surveillance during the period of employee removal or limitations. During the period of time that an employee is removed from normal exposure to MDA or otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.
- (D) Workers' compensation claims. If a removed employee files a claim for workers' compensation payments for a MDA-related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment-related expenses.
- (E) Other credits. The 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 receives income from non-MDA-related employment with any employer made possible by virtue of the employee's removal.

- (F) Employees who do not recover within the 6 months of removal. The employer shall take the following measures with respect to any employee removed from exposure to MDA:
- (1) The employer shall make available to the employee a medical examination pursuant to this section to obtain a final medical determination with respect to the employee;
 - (2) The employer shall assure that the final medical determination obtained indicates whether or not the employee may be returned to his or her former job status, and, if not, what steps should be taken to protect the employee's health;
 - (3) Where the final medical determination has not yet been obtained, or, once obtained indicates that the employee may not yet be returned to his or her former job status, the employer shall continue to provide medical removal protection benefits to the employee until either the employee is returned to former job status, or a final medical determination is made that the employee is incapable of ever safely returning to his or her former job status; and
 - (4) Where the employer acts pursuant to a final medical determination which permits the return of the employee to his or her former job status, despite what would otherwise be an abnormal liver function test, later questions concerning removing the employee again shall be decided by a final medical determination. The employer need not automatically remove such an employee pursuant to the MDA removal criteria provided by this section.
- (vi) Voluntary removal or restriction of an employee. Where an employer, although not required by this section to do so, removes an employee from exposure to MDA or otherwise places limitations on an employee due to the effects of MDA exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by paragraph (m)(9)(v) of this section.
- (n) Recordkeeping.
- (1) Monitoring data for exempted employers.

- (i) Where as a result of the initial monitoring the processing, use, or handling of products made from or containing MDA are exempted from other requirements of this section under paragraph (a)(2) of this section, the employer shall establish and maintain an accurate record of monitoring relied on in support of the exemption.
 - (ii) This record shall include at least the following information:
 - (A) The product qualifying for exemption;
 - (B) The source of the monitoring data (e.g., was monitoring performed by the employer or a private contractor);
 - (C) The testing protocol, results of testing, and/or analysis of the material for the release of MDA;
 - (D) A description of the operation exempted and how the data support the exemption (e.g., are the monitoring data representative of the conditions at the affected facility); and
 - (E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.
 - (iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.
- (2) Objective data for exempted employers.
- (i) Where the processing, use, or handling of products made from or containing MDA are exempted from other requirements of this section under paragraph (a) of this section, the employer shall establish and maintain an accurate record of objective data relied upon in support of the exemption.
 - (ii) This record shall include at least the following information:
 - (A) The product qualifying for exemption;
 - (B) The source of the objective data;
 - (C) The testing protocol, results of testing, and/or analysis of the material for the release of MDA;
 - (D) A description of the operation exempted and how the data support the exemption; and
 - (E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(3) Exposure measurements.

(i) The employer shall establish and maintain an accurate record of all measurements required by paragraph (e) of this section, in accordance with 29 CFR 1910.1020.

(ii) This record shall include:

- (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) Identification of the sampling and analytical methods used;
- (C) A description of the type of respiratory protective devices worn, if any; and
- (D) The name, job classification, and exposure levels of the employee monitored and all other employees whose exposure the measurement is intended to represent.

(iii) The employer shall maintain this record for at least 30 years, in accordance with 29 CFR 1910.1020.

(4) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance required by paragraph (m) of this section, in accordance with 29 CFR 1910.1020.

(ii) This record shall include:

- (A) The name and description of the duties of the employee;
- (B) The employer's copy of the physician's written opinion on the initial, periodic, and any special examinations, including results of medical examination and all tests, opinions, and recommendations;
- (C) Results of any airborne exposure monitoring done for that employee and the representative exposure levels supplied to the physician; and
- (D) Any employee medical complaints related to exposure to MDA;

(iii) The employer shall keep, or assure that the examining physician keeps, the following medical records:

- (A) A copy of this standard and its appendices, except that the employer may keep one copy of the standard and its appendices for all employees provided the employer references the standard and its appendices in the medical surveillance record of each employee;
 - (B) A copy of the information provided to the physician as required by any paragraphs in the regulatory text;
 - (C) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to the information;
 - (D) A copy of the employee's medical and work history related to exposure to MDA; and
- (iv) The employer shall maintain this record for at least the duration of employment plus 30 years, in accordance with 29 CFR 1910.1020.
- (5) Medical removals.
- (i) The employer shall establish and maintain an accurate record for each employee removed from current exposure to MDA pursuant to paragraph (m) of this section.
 - (ii) Each record shall include:
 - (A) The name of the employee;
 - (B) The date of each occasion that the employee was removed from current exposure to MDA as well as the corresponding date on which the employee was returned to his or her former job status;
 - (C) A brief explanation of how each removal was or is being accomplished; and
 - (D) A statement with respect to each removal indicating the reason for the removal.
 - (iii) The employer shall maintain each medical removal record for at least the duration of an employee's employment plus 30 years.
- (6) Availability.
- (i) The employer shall assure that records required to be maintained by this section shall be made available, upon request, to the Assistant Secretary and the Director for examination and copying.

- (ii) Employee exposure monitoring records required by this section shall be provided upon request for examination and copying to employees, employee representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a) through (e) and (g) through (i).
- (iii) Employee medical records required by this section 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 Assistant Secretary in accordance with 29 CFR 1910.1020.
- (7) Transfer of records. The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).
- (o) Observation of monitoring.
- (1) Employee observation. The employer shall provide affected employees, or their designated representatives, an opportunity to observe the measuring or monitoring of employee exposure to MDA conducted pursuant to paragraph (e) of this section.
- (2) Observation procedures. When observation of the measuring or monitoring of employee exposure to MDA requires entry into areas where the use of protective clothing and equipment or respirators is required, the employer shall provide the observer with personal protective clothing and equipment or respirators required to be worn by employees working in the area, assure the use of such clothing and equipment or respirators, and require the observer to comply with all other applicable safety and health procedures.
- (p) Reserved.
- (q) Appendices. The information contained in appendices A, B, C and D of this section is not intended, by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

[57 FR 35666, Aug. 10, 1992, as amended at 57 FR 49649, Nov. 3, 1992; 61 FR 5508, Feb. 13, 1996; 63 FR 1293, Jan. 8, 1998; 67 FR 67965, Nov. 7, 2002; 71 FR 16672, 16673, Apr. 3, 2006; 71 FR 50190, Aug. 24, 2006; 73 FR 75586, Dec. 12, 2008; 76 FR 33609, June 8, 2011; 77 FR 17785, Mar. 26, 2012; 84 FR 21416, May 14, 2019.]

Stat. Auth.: ORS 654.025(2) and ORS 656.726(4).

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93.
OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.
OR-OSHA Admin. Order 4-2006, f. 7/24/06, ef. 7/24/06.
OR-OSHA Admin. Order 10-2006, f. 11/30/06, ef. 11/30/06.
OR-OSHA Admin. Order 5-2009, f. 5/29/09, ef. 5/29/09.
OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.
OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12.
OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.
OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.
OR-OSHA Admin. Order 3-2019, f. 10/29/19, ef. 10/29/19.

Appendix A to 1910.1050 - Substance Data Sheet for 4,4'-Methylenedianiline

I. Substance Identification

A. Substance: Methylenedianiline (MDA)

B. Permissible Exposure:

1. Airborne: Ten parts per billion parts of air (10 ppb), time-weighted average (TWA) for an 8-hour workday and an action level of five parts per billion parts of air (5 ppb).
2. Dermal: Eye contact and skin contact with MDA are not permitted.

C. Appearance and odor: White to tan solid; amine odor

II. Health Hazard Data

A. Ways in which MDA affects your health. MDA can affect your health if you inhale it, or if it comes in contact with your skin or eyes. MDA is also harmful if you happen to swallow it. Do not get MDA in eyes, on skin, or on clothing.

B. Effects of overexposure.

1. Short-term (acute) overexposure: Over-exposure to MDA may produce fever, chills, loss of appetite, vomiting, jaundice. Contact may irritate skin, eyes and mucous membranes. Sensitization may occur.
2. Long-term (chronic) exposure. Repeated or prolonged exposure to MDA, even at relatively low concentrations, may cause cancer. In addition, damage to the liver, kidneys, blood, and spleen may occur with long term exposure.
3. Reporting signs and symptoms: You should inform your employer if you develop any signs or symptoms which you suspect are caused by exposure to MDA including yellow staining of the skin.

III. Protective Clothing and Equipment

- A. Respirators. Respirators are required for those operations in which engineering controls or work-practice controls are not adequate or feasible to reduce exposure to the permissible limit. If respirators are worn, they must have a label issued by the National Institute for Occupational Safety and Health under the provisions of 42 CFR part 84 stating that the respirators have been approved for this purpose, and cartridges and canisters must be replaced in accordance with the requirements of 29 CFR 1910.134. If you experience difficulty breathing while wearing a respirator, you can request a positive-pressure respirator from your employer. You must be thoroughly trained to use the assigned respirator, and the training must be provided by your employer.

MDA does not have a detectable odor except at levels well above the permissible exposure limits. Do not depend on odor to warn you when a respirator canister is exhausted. If you can smell MDA while wearing a respirator, proceed immediately to fresh air. If you experience difficulty breathing while wearing a respirator, tell your employer.

- B. Protective Clothing. You may be required to wear coveralls, aprons, gloves, face shields, or other appropriate protective clothing to prevent skin contact with MDA. Where protective clothing is required, your employer is required to provide clean garments to you, as necessary, to assure that the clothing protects you adequately. Replace or repair impervious clothing that has developed leaks.

MDA should never be allowed to remain on the skin. Clothing and shoes which are not impervious to MDA should not be allowed to become contaminated with MDA, and if they do, the clothing and shoes should be promptly removed and decontaminated. The clothing should be laundered to remove MDA or discarded. Once MDA penetrates shoes or other leather articles, they should not be worn again.

- C. Eye protection. You must wear splashproof safety goggles in areas where liquid MDA may contact your eyes. Contact lenses should not be worn in areas where eye contact with MDA can occur. In addition, you must wear a face shield if your face could be splashed with MDA liquid.

IV. Emergency and First Aid Procedures

- A. Eye and face exposure. If MDA is splashed into the eyes, wash the eyes for at least 15 minutes. See a doctor as soon as possible.

- B. Skin exposure. If MDA is spilled on your clothing or skin, remove the contaminated clothing and wash the exposed skin with large amounts of soap and water immediately. Wash contaminated clothing before you wear it again.
- C. Breathing. If you or any other person breathes in large amounts of MDA, get the exposed person to fresh air at once. Apply artificial respiration if breathing has stopped. Call for medical assistance or a doctor as soon as possible. Never enter any vessel or confined space where the MDA concentration might be high without proper safety equipment and at least one other person present who will stay outside. A life line should be used.
- D. Swallowing. If MDA has been swallowed and the patient is conscious, do not induce vomiting. Call for medical assistance or a doctor immediately.

V. Medical Requirements

If you are exposed to MDA at a concentration at or above the action level for more than 30 days per year, or exposed to liquid mixtures more than 15 days per year, your employer is required to provide a medical examination, including a medical history and laboratory tests, within 60 days of the effective date of this standard and annually thereafter. These tests shall be provided without cost to you. In addition, if you are accidentally exposed to MDA (either by ingestion, inhalation, or skin/eye contact) under conditions known or suspected to constitute toxic exposure to MDA, your employer is required to make special examinations and tests available to you.

VI. Observation of Monitoring

Your employer is required to perform measurements that are representative of your exposure to MDA and you or your designated representative are entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you and your representative must also be provided with, and must wear, the protective clothing and equipment.

VII. Access to Records

You or your representative are entitled to see the records of measurements of your exposure to MDA upon written request to your employer. Your medical examination records can be furnished to your physician or designated representative upon request by you to your employer.

VIII. Precautions for Safe Use, Handling and Storage

- A. Material is combustible. Avoid strong acids and their anhydrides. Avoid strong oxidants. Consult supervisor for disposal requirements.
- B. Emergency clean-up. Wear self-contained breathing apparatus and fully clothe the body in the appropriate personal protective clothing and equipment.

Stat. Auth.: ORS 654.025(2) and ORS 656.726(4).

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93.

OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.

Appendix B to 1910.1050 - Substance Technical Guidelines, MDA**I. Identification****A. Substance identification.**

1. Synonyms: CAS No. 101-77-9. 4,4'-methylenedianiline; 4,4'-methylene-bisaniline; methylenedianiline; dianilinomethane.
2. Formula: $C_{13}H_{14}N_2$

II. Physical Data

1. Appearance and Odor: White to tan solid; amine odor
2. Molecular Weight: 198.26
3. Boiling Point: 398-399° C at 760 mm Hg
4. Melting Point: 88-93° C (190-100° F)
5. Vapor Pressure: 9 mm Hg at 232° C
6. Evaporation Rate (n-butyl acetate = 1): Negligible
7. Vapor Density (Air = 1): Not Applicable
8. Volatile Fraction by Weight: Negligible
9. Specific Gravity (Water = 1): Slight
10. Heat of Combustion: -8.40 kcal/g
11. Solubility in Water: Slightly soluble in cold water, very soluble in alcohol, benzene, ether, and many organic solvents.

III. Fire, Explosion, and Reactivity Hazard Data

1. Flash Point: 190° C (374° F) Setaflash closed cup
2. Flash Point: 226° C (439° F) Cleveland open cup
3. Extinguishing Media: Water spray; Dry Chemical; Carbon dioxide.
4. Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
5. Unusual Fire and Explosion Hazards: Fire or excessive heat may cause production of hazardous decomposition products.

IV. Reactivity Data

1. Stability: Stable

2. Incompatibility: Strong oxidizers
 3. Hazardous Decomposition Products: As with any other organic material, combustion may produce carbon monoxide. Oxides of nitrogen may also be present.
 4. Hazardous Polymerization: Will not occur.
- V. Spill and Leak Procedures
1. Sweep material onto paper and place in fiber carton.
 2. Package appropriately for safe feed to an incinerator or dissolve in compatible waste solvents prior to incineration.
 3. Dispose of in an approved incinerator equipped with afterburner and scrubber or contract with licensed chemical waste disposal service.
 4. Discharge treatment or disposal may be subject to federal, state, or local laws.
 5. Wear appropriate personal protective equipment.
- VI. Special Storage and Handling Precautions
- A. High exposure to MDA can occur when transferring the substance from one container to another. Such operations should be well ventilated and good work practices must be established to avoid spills.
 - B. Pure MDA is a solid with a low vapor pressure. Grinding or heating operations increase the potential for exposure.
 - C. Store away from oxidizing materials.
 - D. Employers shall advise employees of all areas and operations where exposure to MDA could occur.
- VII. Housekeeping and Hygiene Facilities
- A. The workplace should be kept clean, orderly, and in a sanitary condition. The employer should institute a leak and spill detection program for operations involving MDA in order to detect sources of fugitive MDA emissions.
 - B. Adequate washing facilities with hot and cold water are to be provided and maintained in a sanitary condition. Suitable cleansing agents should also be provided to assure the effective removal of MDA from the skin.
- VIII. Common Operations

Common operations in which exposure to MDA is likely to occur include the following: Manufacture of MDA; Manufacture of Methylene diisocyanate; Curing agent for epoxy resin structures; Wire coating operations; and filament winding.

Stat. Auth.: ORS 654.025(2) and ORS 656.726(4).

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93.

Appendix C to 1910.1050 - Medical Surveillance Guidelines for MDA

I. Route of Entry

Inhalation; skin absorption; ingestion. MDA can be inhaled, absorbed through the skin, or ingested.

II. Toxicology

MDA is a suspect carcinogen in humans. There are several reports of liver disease in humans and animals resulting from acute exposure to MDA. A well documented case of an acute cardiomyopathy secondary to exposure to MDA is on record. Numerous human cases of hepatitis secondary to MDA are known. Upon direct contact MDA may also cause damage to the eyes. Dermatitis and skin sensitization have been observed. Almost all forms of acute environmental hepatic injury in humans involve the hepatic parenchyma and produce hepatocellular jaundice. This agent produces intrahepatic cholestasis. The clinical picture consists of cholestatic jaundice, preceded or accompanied by abdominal pain, fever, and chills. Onset in about 60% of all observed cases is abrupt with severe abdominal pain. In about 30% of observed cases, the illness presented and evolved more slowly and less dramatically, with only slight abdominal pain. In about 10% of the cases only jaundice was evident. The cholestatic nature of the jaundice is evident in the prominence of itching, the histologic predominance of bile stasis, and portal inflammatory infiltration, accompanied by only slight parenchymal injury in most cases, and by the moderately elevated transaminase values. Acute, high doses, however, have been known to cause hepatocellular damage resulting in elevated SGPT, SGOT, alkaline phosphatase and bilirubin.

Absorption through the skin is rapid. MDA is metabolized and excreted over a 48-hour period. Direct contact may be irritating to the skin, causing dermatitis. Also MDA which is deposited on the skin is not thoroughly removed through washing.

MDA may cause bladder cancer in humans. Animal data supporting this assumption is not available nor is conclusive human data. However, human data collected on workers at a helicopter manufacturing facility where MDA is used suggests a higher incidence of bladder cancer among exposed workers.

III. Signs and Symptoms

Skin may become yellow from contact with MDA.

Repeated or prolonged contact with MDA may result in recurring dermatitis (red-itchy, cracked skin) and eye irritation. Inhalation, ingestion or absorption through the skin at high concentrations may result in hepatitis, causing symptoms such as fever and chills, nausea and vomiting, dark urine, anorexia, rash, right upper quadrant pain and jaundice. Corneal burns may occur when MDA is splashed in the eyes.

IV. Treatment of Acute Toxic Effects/Emergency Situation

If MDA gets into the eyes, immediately wash eyes with large amounts of water. If MDA is splashed on the skin, immediately wash contaminated skin with mild soap or detergent. Employee should be removed from exposure and given proper medical treatment. Medical tests required under the emergency section of the medical surveillance section (m)(4) must be conducted.

If the chemical is swallowed do not induce vomiting but remove by gastric lavage.

Stat. Auth.: ORS 654.025(2) and ORS 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
Hist: OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93.

Appendix D to 1910.1050 - Sampling and Analytical Methods for MDA Monitoring and Measurement Procedures

Measurements taken for the purpose of determining employee exposure to MDA are best taken so that the representative average 8-hour exposure may be determined from a single 8-hour sample or two (2) 4-hour samples. Short-time interval samples (or grab samples) may also be used to determine average exposure level if a minimum of five measurements are taken in a random manner over the 8-hour work shift. Random sampling means that any portion of the work shift has the same chance of being sampled as any other. The arithmetic average of all such random samples taken on one work shift is an estimate of an employee's average level of exposure for that work shift. Air samples should be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

There are a number of methods available for monitoring employee exposures to MDA. The method OSHA currently uses is included below.

The employer, however, has the obligation of selecting any monitoring method which meets the accuracy and precision requirements of the standard under his unique field conditions. The standard requires that the method of monitoring must have an accuracy, to a 95 percent confidence level, of not less than plus or minus 25 percent for the select PEL.

OSHA Methodology

Sampling Procedure

Apparatus

Samples are collected by use of a personal sampling pump that can be calibrated within $\pm 5\%$ of the recommended flow rate with the sampling filter in line.

Samples are collected on 37 mm Gelman type A/E glass fiber filters treated with sulfuric acid. The filters are prepared by soaking each filter with 0.5 mL of 0.26N H_2SO_4 . (0.26 N H_2SO_4 can be prepared by diluting 1.5 mL of 36N H_2SO_4 to 200 mL with deionized water.) The filters are dried in an oven at 100° C for one hour and then assembled into two-piece 37 mm polystyrene cassettes with backup pads. The cassettes are sealed with shrink bands and the ends are plugged with plastic plugs.

After sampling, the filters are carefully removed from the cassettes and individually transferred to small vials containing approximately 2 mL deionized water. The vials must be tightly sealed. The water can be added before or after the filters are transferred. The vials must be sealable and capable of holding at least 7 mL of liquid. Small glass scintillation vials with caps containing Teflon liners are recommended.

Reagents

Deionized water is needed for addition to the vials.

Sampling Technique

Immediately before sampling, remove the plastic plugs from the filter cassettes.

Attach the cassette to the sampling pump with flexible tubing and place the cassette in the employee's breathing zone.

After sampling, seal the cassettes with plastic plugs until the filters are transferred to the vials containing deionized water.

At some convenient time within 10 hours of sampling, transfer the sample filters to vials.

Seal the small vials lengthwise.

Submit at least one blank filter with each sample set. Blanks should be handled in the same manner as samples, but no air is drawn through them.

Record sample volumes (in L of air) for each sample, along with any potential interferences.

Retention Efficiency

A retention efficiency study was performed by drawing 100 L of air (80% relative humidity) at 1 L/min through sample filters that had been spiked with 0.814 µg MDA. Instead of using backup pads, blank acid-treated filters were used as backups in each cassette. Upon analysis, the top filters were found to have an average of 91.8% of the spiked amount. There was no MDA found on the bottom filters, so the amount lost was probably due to the slight instability of the MDA salt.

Extraction Efficiency

The average extraction efficiency for six filters spiked at the target concentration is 99.6%.

The stability of extracted and derivatized samples was verified by reanalyzing the above six samples the next day using fresh standards. The average extraction efficiency for the reanalyzed samples is 98.7%.

Recommended Air Volume and Sampling Rate

The recommended air volume is 100 L.

The recommended sampling rate is 1 L/min.

Interferences (Sampling)

MDI appears to be a positive interference. It was found that when MDI was spiked onto an acid-treated filter, the MDI converted to MDA after air was drawn through it. Suspected interferences should be reported to the laboratory with submitted samples.

Safety Precautions (Sampling)

Attach the sampling equipment to the employees so that it will not interfere with work performance or safety.

Follow all safety procedures that apply to the work area being sampled.

Analytical Procedure

Apparatus: The following are required for analysis.

A GC equipped with an electron capture detector. For this evaluation a Tracor 222 Gas Chromatograph equipped with a Nickel 63 High Temperature Electron Capture Detector and a Linearizer was used.

A GC column capable of separating the MDA derivative from the solvent and interferences. A 6 ft X 2 mm ID glass column packed with 3% OV-101 coated on 100/120 Gas Chrom Q was used in this evaluation.

A electronic integrator or some other suitable means of measuring peak areas or heights.

Small resealable vials with Teflon-lined caps capable of holding 4 mL.

A dispenser or pipet for toluene capable of delivering 2.0 mL.

Pipets (or repipets with plastic or Teflon tips) capable of delivering 1 mL for the sodium hydroxide and buffer solutions.

A repipet capable of delivering 25 μ L HFAA.

Syringes for preparation of standards and injection of standards and samples into a GC.

Volumetric flasks and pipets to dilute the pure MDA in preparation of standards.

Disposable pipets to transfer the toluene layers after the samples are extracted.

Reagents

0.5 NaOH prepared from reagent grade NaOH.

Toluene, pesticide grade. Burdick and Jackson distilled in glass toluene was used.

Heptafluorobutyric acid anhydride (HFAA). HFAA from Pierce Chemical Company was used.

pH 7.0 phosphate buffer, prepared from 136 g potassium dihydrogen phosphate and 1 L deionized water. The pH is adjusted to 7.0 with saturated sodium hydroxide solution.

4,4' -Methylenedianiline (MDA), reagent grade.

Standard Preparation

Concentrated stock standards are prepared by diluting pure MDA with toluene. Analytical standards are prepared by injecting μL amounts of diluted stock standards into vials that contain 2.0 mL toluene.

25 μL HFAA are added to each vial and the vials are capped and shaken for 10 seconds.

After 10 min, 1 mL of buffer is added to each vial.

The vials are recapped and shaken for 10 seconds.

After allowing the layers to separate, aliquots of the toluene (upper) layers are removed with a syringe and analyzed by GC.

Analytical standard concentrations should bracket sample concentrations. Thus, if samples fall out of the range of prepared standards, additional standards must be prepared to ascertain detector response.

Sample Preparation

The sample filters are received in vials containing deionized water.

1 mL of 0.5N NaOH and 2.0 mL toluene are added to each vial.

The vials are recapped and shaken for 10 min.

After allowing the layers to separate, approximately 1 mL aliquots of the toluene (upper) layers are transferred to separate vials with clean disposable pipets.

The toluene layers are treated and analyzed.

Analysis

GC conditions

Zone temperatures:

Column - 220° C

Injector - 235° C

Detector - 335° C

Gas flows, Ar/CH₄ Column - 28 mL/min

(95/5) Purge - 40 mL/min

Injection volume: 5.0 µL

Column: 6 ft X 1/8 in ID glass, 3% OV-101 on
100/120 Gas Chrom Q

Retention time of MDA derivative: 3.5 min

Chromatogram

Peak areas or heights are measured by an integrator or other suitable means.

A calibration curve is constructed by plotting response (peak areas or heights) of standard injections versus µg of MDA per sample. Sample concentrations must be bracketed by standards.

Interferences (Analytical)

Any compound that gives an electron capture detector response and has the same general retention time as the HFAA derivative of MDA is a potential interference. Suspected interferences reported to the laboratory with submitted samples by the industrial hygienist must be considered before samples are derivatized.

GC parameters may be changed to possibly circumvent interferences.

Retention time on a single column is not considered proof of chemical identity. Analyte identity should be confirmed by GC/MS if possible.

Calculations

The analyte concentration for samples is obtained from the calibration curve in terms of µg MDA per sample. The extraction efficiency is 100%. If any MDA is found on the blank, that amount is subtracted from the sample amounts. The air concentrations are calculated using the following formulae.

$$\mu\text{g}/\text{m}^3 = (\mu\text{g MDA per sample}) (1000)/(\text{L of air sampled})$$

$$\text{ppb} = (\mu\text{g}/\text{m}^3) (24.46)/(198.3) = (\mu\text{g}/\text{m}^3)$$

(0.1233) where 24.46 is the molar volume at 25° C and 760 mm Hg

Safety Precautions (Analytical)

Avoid skin contact and inhalation of all chemicals.

Restrict the use of all chemicals to a fume hood if possible.

Wear safety glasses and a lab coat at all times while in the lab area.

Stat. Auth.: ORS 654.025(2) and ORS 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93.

Historical Notes for Subdivision Z

Note: Effective 11/1/93, Oregon OSHA has adopted by reference the remainder of the federal standards in Division 2Z, Toxic and Hazardous Substances. This adoption replaces seven Oregon codes which are essentially identical to federal standards with the same titles. However, Oregon's former Division 116, Carcinogens, which had grouped these substances in one code, has been replaced by 16 separate federal standards for the individual carcinogens. One carcinogen NOT regulated by federal OSHA is MOCA (4,4'-Methylene bis (2-chloro-aniline)). In Oregon, MOCA has been regulated since 1975. Therefore, Oregon OSHA will continue this regulation with Oregon-initiated rule 437-02-364. Oregon OSHA has also retained and renumbered rules from Division 116 which regulate the use of carcinogenic substances used in laboratory activities as OAR 437-02-391.

Other Oregon rules which have been retained and renumbered are for Hazard Communication, pertaining to Agriculture and subpoenas (OAR 437-02-377). Two Oregon codes will be retained in their entirety, renumbered, and redesignated as part of Division 2Z. These are Division 130, Thiram (see OAR 437-02-373), and Division 153, Pipe Labelling (see OAR 437-02-378). Two other Oregon codes have been repealed because they are no longer necessary. These are Division 140, Fumigation (of bedding), and Division 37-005, Railroad Sanitation and Drinking Water Facilities (PUC has jurisdiction over railroad employees).

This is Oregon OSHA Administrative Order 12-1993, adopted August 20, 1993, effective November 1, 1993.

Note: Federal OSHA published in the Federal Register the new respiratory protection standard. The new standard replaces respiratory protection standards that were adopted in 1971 by OSHA. The new respiratory protection text is in general industry, 29 CFR 1910.134. The text previously in 1910.134 has been redesignated as 1910.139, respiratory protection for M. tuberculosis. Four subdivisions in the construction standard have also been amended.

This new standard requires employers to establish or maintain a respiratory protection program to protect workers that wear respirators. Other provisions include requirements for program administration; work site-specific procedures; respirator selection; employee training; fit testing; medical evaluation; respirator use; and respirator cleaning, maintenance, and repair. Addressed for the first time are atmospheres that are immediately dangerous to life or health, including interior structural firefighting. The standard also simplifies and updates previous respiratory protection requirements.

This is Oregon OSHA Administrative Order 3-1998, filed and effective July 2, 1998.

Note: Federal OSHA made amendments in general industry and construction in both safety and health standards that will revise or eliminate duplicative, inconsistent, or unnecessary regulatory requirements without diminishing employee protections. Changes being made to health standards include reducing the frequency of required chest x-rays and eliminating sputum-cytology examinations for workers covered by the coke oven and inorganic arsenic standards, and changing the emergency response provisions of the vinyl chloride standard. Changes being made to OSHA safety standards include eliminating the public safety provisions of the temporary labor camp standard, eliminating unnecessary cross-references in the textile industry standards, and others.

This is Oregon OSHA Administrative Order 4-1999, adopted and effective April 30, 1999.

Note: Federal OSHA published in the January 5, 2005 Federal Register amendments to remove and revise provisions of its standards that are outdated, duplicative, unnecessary, or inconsistent, or can be clarified or simplified by being written in plain language. Most of these changes are in the health standards in general industry, construction, and shipyard employment. The December 6, 2004 Federal Register, makes a correction to a cross reference in Methylenedianiline in construction. We also repealed an Oregon-initiated rule that has effective dates that have passed a number of years ago and is no longer necessary. A non-mandatory appendix to OAR 437-002-0161, Medical and First Aid, was added. Oregon OSHA adopted all these changes to remain at least as effective as federal OSHA standards.

This is Oregon OSHA Administrative Order 1-2005, filed and effective April 12, 2005.

Note: Oregon OSHA adopted federal OSHA changes as they appear in the April 3, 2006 Federal Register. These revisions include updating references and removing obsolete effective dates and startup dates from existing rules in general industry, construction, and maritime activities. Two changes federal OSHA made that we do not include in this rulemaking are to remove effective dates in 1910.266 and 1926.1092, neither of which Oregon OSHA had adopted before.

This is Oregon OSHA Administrative Order 4-2006, filed and effective July 24, 2006.

Note: Oregon OSHA adopts the Federal OSHA changes as they appear in the August 24, 2006 Federal Register. These changes revise the existing rules on respiratory protection, adding definitions and new language that establishes assigned protection factors (APFs) and maximum use concentrations (MUCs) for respirator use. The revisions also supersede the respirator selection provisions of existing substance-specific standards with these new APFs (except for the respirator selection provisions of the 1, 3-Butadiene Standard).

Federal OSHA developed the final APFs after thoroughly reviewing the available literature, including chamber-simulation studies and workplace protection factor studies, comments submitted to the records, and hearing testimony. The final APFs provide employers with critical information to use when selecting respirators for employees exposed to atmospheric contaminants found in general industry, construction, shipyards, longshoring, and marine terminal workplaces. Oregon OSHA also adopted these changes into Division 4, Agriculture. Proper respirator selection using APFs is an important component of an effective respiratory protection program. Accordingly, federal OSHA concludes that the final APFs are necessary to protect employees who must use respirators to protect them from airborne contaminants.

This is Oregon OSHA Administrative Order 10-2006, filed and effective November 30, 2006.

Note: In this rulemaking, Oregon OSHA is amending its standards to add language clarifying that the personal protective equipment (PPE) and training requirements impose a compliance duty to each and every employee covered by the standards and that noncompliance may expose the employer to liability on a per-employee basis. The amendments consist of new paragraphs added to the introductory sections of the affected rules and changes to the language of some existing respirator and training requirements.

These federal OSHA changes are in general industry, construction, and maritime, and were published in the December 12, 2008 Federal Register.

This is Oregon OSHA Administrative Order 5-2009, filed and effective May 29, 2009.

Note: Oregon OSHA adopted changes to rules in general industry, construction, agriculture, and maritime. Federal OSHA published a number of rule changes in these industries in the June 8, 2011 Federal Register. This is Phase III of the Standards Improvement Project (SIP III), the third in a series of rulemaking by federal OSHA to improve and streamline the standards. This removes or revises individual requirements within rules that are confusing, outdated, duplicative, or inconsistent. Oregon OSHA adopted the majority of the federal changes that include: - personal protective equipment- remove requirements that employers prepare and maintain written training certification records. - Respiratory protection- revise requirements for breathing-gas containers. -Material handling/Slings- revise standards in general industry, construction, and maritime standards. - Commercial diving operations- Division 2/T, remove two obsolete recordkeeping requirements. - General industry and construction- remove requirements in numerous standards for employers to transfer specific records to the National Institute for Occupational Safety and Health (NIOSH). - Lead- amend trigger levels in general industry and construction.

In connection with rule changes in the SIP III rulemaking process, Oregon OSHA adopted additional changes to the subdivisions and rules opened during this rulemaking activity. We also made reference changes to underground installations in Division 3/P. Oregon OSHA repealed all of Division 2/I rules with the exception of 1910.134 respiratory protection, 1910.137 electrical protective equipment, 437-002-0138 additional Oregon rule for electrical protective equipment, 437-002-0139 working underway on water, and 437-002-1139, working over or in water. To replace them, we adopted new Oregon initiated rule 437-002-0134 personal protective equipment, that includes sections covering scope/application, hazard assessment, equipment, training, payment, fall protection, clothing, high visibility garments, eye, head, foot, let, hand and skin protection. The change in format simplifies the existing text while making little change to the overall rule requirements with the following exceptions: - modifies the hazard assessment requirement to clarify that employers must identify hazards to the entire body, including the torso and extremities, when performing the assessment. The assessment is currently limited to head, hands, eyes, and face and foot protection. - Change the fall protection component criteria to align with the systems criteria found in 1926.502 of the construction standards. The training requirement in this rule would also cover those parts not previously covered, such as fall protection.

As a logical extension of the federal OSHA SIP III changes to 1910.1003, we amended the Oregon rules for MOCA at Division 2/Z, 437-002-0364. The requirements for respiratory protection are updated and the requirements for transfer of records is simplified. Most transfer of medical records to NIOSH is eliminated with the SIP III rulemaking. The employer is required to follow the requirements of the respiratory protection rule and select appropriate respirators based on the selection criteria in 1910.134(d). (The type of respirator to use is no longer specified). We will also remove and reserve 437-002-0364(6)(a) which had a reporting requirement end date of December 1974.

This is Oregon OSHA Administrative Order 4-2011, filed and effective December 8, 2011.

Note: Oregon OSHA adopted changes to rules in general industry and construction. Federal OSHA published a number of rule changes in these industries in the June 8, 2011 Federal Register. This is Phase II of the Standards Improvement Project (SIP III), the third in a series of rulemaking by federal OSHA to improve and streamline the standards. This removes or revises individual requirements within rules that are confusing, outdated, duplicative, or inconsistent.

In connection with rule changes in the SIP III rulemaking process, Oregon OSHA adopted additional changes to the subdivisions and rules opened during this rulemaking activity.

We adopted new Oregon-initiated rules in Divisions 2/Z, 3/D, and 3/Z that replace the respiratory protection program paragraphs in the 1910 and 1926 substance specific rules referencing 1910.134 respiratory protection. The new rules expand the 1910.134 reference to include paragraphs (e) medical evaluation, and (o) appendices. Also, notes are added following each of these new rules to clarify that these requirements are in addition to other medical evaluation and respiratory protection related requirements in each rule. In most standards, that change in the requirement for a respirator medical evaluation (1910.134(e)) is a change in timing. Employers in many instances are already required to provide respirator medical evaluations based on contaminant exposure and required use of a respirator. Employers subject to the substance specific rules would be required to provide a respirator medical evaluation to determine the employee's ability to wear a respirator without adverse health effects before the employee is fit tested or required to use a respirator in the workplace. By adding section (o) of 1910.134, the new rules specify that all the Appendices to 1910.134 apply, providing approved procedures and respirator protocols to employers. These include Appendix A, fit testing procedures, Appendix B-1, user seal check procedures; Appendix B-2, respirator cleaning procedures; Appendix C, OSHA respirator medical evaluation questionnaire; and Appendix D, information for employees using respirators when not required under the standard.

This is Oregon OSHA Administrative Order 5-2011, filed December 8, 2011 and effective July 1, 2012.

Note: This rulemaking is to keep Oregon OSHA in harmony with recent changes to federal OSHA's standards. Federal OSHA published in the December 27, 2011 Federal Register corrections of typographical errors and non-substantive technical amendments to a number of standards in general industry, construction, and shipyard employment. The technical amendments include updating or revising cross-references. These revisions do not affect the substantive requirements or coverage of those standards, do not modify or revoke existing rights or obligations, and do not establish new rights or obligations. Oregon OSHA adopts these corrections and amendments to the standards Oregon has adopted previously to reflect federal OSHA's changes. We are also making rule reference changes in a number of standards to reflect the newly adopted OAR 437-002-0134, personal protective equipment.

This is Oregon OSHA Administrative Order 1-2012, filed and effective April 10, 2012.

Note: Federal OSHA modified its Hazard Communication Standard (HCS) to conform to the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS). OSHA determined that the modifications will significantly reduce costs and burdens while also improving the quality and consistency of information provided to employers and employees regarding chemical hazards and associated protective measures. OSHA concluded this improved information will enhance the effectiveness of the HCS in ensuring that employees are apprised of the chemical hazards to which they may be exposure, and in reducing the incidence of chemical-related occupational illnesses and injuries.

The modifications to the standard include revised criteria for classification of chemical hazards; revised labelling provisions that include requirements for use of standardized signal words, pictograms, hazard statements, and precautionary statements; a specified format for safety data sheets; and related revisions to definition of terms used in the standard, and requirements for employee training on labels and safety data sheets. OSHA and Oregon OSHA are also modifying provisions of other standards, including standards for flammable and combustible liquids, spray finishing, reinforced plastics, dipping and coating, welding, cutting, and brazing, hazardous waste operations and emergency response, process safety management, pipe labelling, and most substance specific health standards, to ensure consistency with the modified HCS requirements. The consequences of these modifications will be to improve safety, to facilitate global harmonization of standards, and to produce hundreds of millions of dollars in annual savings nationally.

This rulemaking also repeals three Oregon-initiated rules: OAR 437-002-0289, Precautionary Labels, general requirements in Division 2/Q; 437-002-0361, regarding certain compliance dates for the ethylene oxide rule in Division 2/Z; and 437-003-0035, additional rules in hazard communication in Division 3/D. All three rules repealed are obsolete and unnecessary. The text of 1926.59 Hazard Communication in Division 3/D is repealed and a note added to refer the reader to 1910.1200 Hazard Communication in Division 2/Z (same as federal OSHA).

This is Oregon OSHA Administrative Order 5-2012, filed and effective September 25, 2012.

Note: Oregon OSHA is adopting changes to their administrative (recordkeeping), general industry, and construction standards, and updating references in the maritime activity standards in response to federal OSHA's adoption of final rules published in the May 14, 2019 Federal Register. This is Phase IV of federal OSHA's Standards Improvement Project (SIP-IV), the fourth in a series of rulemakings to improve and streamline workplace safety and health standards. Oregon's response removes or revises rules or requirements within our corresponding rules that are outdated, duplicative, or inconsistent. This rulemaking is anticipated to reduce regulatory burden and compliance costs while maintaining or enhancing worker safety and health as well as worker privacy protections.

In Division 2Z, Coke Oven Emissions, Oregon OSHA updated medical surveillance and examination terminology and removed requirements for employers to keep record of employee's social security numbers while doing recordkeeping.

This is Oregon OSHA Administrative Order 3-2019, filed and effective October 29, 2019.