

Regulations (Standards - 29 CFR) Methylenedianiline - 1910.1050

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- **Part Number:** 1910
 - **Part Title:** Occupational Safety and Health Standards
 - **Subpart:** Z
 - **Subpart Title:** Toxic and Hazardous Substances
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1910.1050(a)

Scope and application.

1910.1050(a)(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.

1910.1050(a)(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.

1910.1050(a)(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.

1910.1050(a)(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.

1910.1050(a)(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).

1910.1050(a)(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 percent MDA by weight or volume.

1910.1050(a)(7)

Except as provided in paragraph (a)(8) of this section, this section does not apply to "finished articles containing MDA."

1910.1050(a)(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.

1910.1050(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 percent by weight or volume; and

[ii] Materials other than "finished articles" containing MDA in concentrations greater than 0.1 percent 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.

1910.1050(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.

1910.1050(d)

Emergency situations.

1910.1050(d)(1)

Written plan.

1910.1050(d)(1)(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.

1910.1050(d)(1)(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.

1910.1050(d)(1)(iii)

The plan shall specifically include provisions for alerting and evacuating affected employees as well as the elements prescribed in 29 CFR 1910.38 and 29 CFR 1910.39, "Emergency action plans" and "Fire prevention plans," respectively.

1910.1050(d)(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.

1910.1050(e)

Exposure monitoring.

1910.1050(e)(1)

General.

1910.1050(e)(1)(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.

1910.1050(e)(1)(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.

1910.1050(e)(1)(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.

1910.1050(e)(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.

1910.1050(e)(3)

Periodic monitoring and monitoring frequency.

1910.1050(e)(3)(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.

1910.1050(e)(3)(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.

1910.1050(e)(3)(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.

1910.1050(e)(4)

Termination of monitoring.

1910.1050(e)(4)(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.

1910.1050(e)(4)(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.

1910.1050(e)(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.

1910.1050(e)(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.

1910.1050(e)(7)

Employee notification of monitoring results.

1910.1050(e)(7)(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.

1910.1050(e)(7)(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.

1910.1050(e)(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:

1910.1050(e)(8)(i)

Determine the source of exposure;

1910.1050(e)(8)(ii)

Implement protective measures to correct the hazard; and

1910.1050(e)(8)(iii)

Maintain records of the corrective actions in accordance with paragraph (n) of this section.

1910.1050(f)

Regulated areas.

1910.1050(f)(1)

Establishment.

1910.1050(f)(1)(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.

1910.1050(f)(1)(ii)

Dermal exposures. Where employees are subject to dermal exposure to MDA the employer shall establish those work areas as regulated areas.

1910.1050(f)(2)

Demarcation. Regulated areas shall be demarcated from the rest of the workplace in a manner that minimizes the number of persons potentially exposed.

1910.1050(f)(3)

Access. Access to regulated areas shall be limited to authorized persons.

1910.1050(f)(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.

1910.1050(f)(5)

Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

1910.1050(g)

Methods of compliance.

1910.1050(g)(1)

Engineering controls and work practices.

1910.1050(g)(1)(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 paragraphs (g)(1)(ii) or (h)(1)(i) through (iv) of this section apply.

1910.1050(g)(1)(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.

1910.1050(g)(2)

Compliance program.

1910.1050(g)(2)(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.

1910.1050(g)(2)(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.

1910.1050(g)(3)

Employee rotation. Employee rotation shall not be permitted as a means of reducing exposure.

1910.1050(h)

Respiratory protection.

1910.1050(h)(1)

General. For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this paragraph. Respirators must be used during:

1910.1050(h)(1)(i)

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

1910.1050(h)(1)(ii)

Work operations for which the employer establishes that engineering and work-practice controls are not feasible.

1910.1050(h)(1)(iii)

Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the PEL.

1910.1050(h)(1)(iv)

Emergencies.

1910.1050(h)(2)

Respirator program. The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) (except (d)(1)(iii)), and (f) through (m).

1910.1050(h)(3)

Respirator selection.

1910.1050(h)(3)(i)

The employer must select, and ensure that employees use, the appropriate respirator from Table 1 in this section.

TABLE 1.—RESPIRATORY PROTECTION FOR MDA

Airborne concentration of MDA or condition of use	Respirator type
a. Less than or equal to 10 × PEL	(1) Half-Mask Respirator with HEPA ¹ Cartridge. ²
b. Less than or equal to 50 × PEL	(1) Full facepiece Respirator with HEPA ¹ Cartridge or Canister. ²
c. Less than or equal to 1000 × PEL	(1) Full facepiece powered air-purifying respirator with HEPA ¹ cartridges. ²
d. Greater than 1000 × PEL or unknown concentrations.	(1) Self-contained breathing apparatus with full facepiece in positive pressure mode. (2) Full facepiece positive pressure demand supplied-air respirator with auxiliary self-contained air supply.
e. Escape	(1) Any full facepiece air-purifying respirator with HEPA ¹ cartridges. ² (2) Any positive pressure or continuous flow self-contained breathing apparatus with full facepiece or hood.
f. Firefighting	(1) Full facepiece self-contained breathing apparatus in positive pressure demand mode.

Note: Respirators assigned for higher environmental concentrations may be used at lower concentrations.

¹ High Efficiency Particulate in Air filter (HEPA) means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers or larger.

² Combination HEPA/Organic Vapor Cartridges shall be used whenever MDA in liquid form or a process requiring heat is used.

1910.1050(h)(3)(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.

1910.1050(i)

Protective work clothing and equipment.

1910.1050(i)(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:

1910.1050(i)(1)(i)

Aprons, coveralls or other full-body work clothing;

1910.1050(i)(1)(ii)

Gloves, head coverings, and foot coverings; and

1910.1050(i)(1)(iii)

Face shields, chemical goggles; or

1910.1050(i)(1)(iv)

Other appropriate protective equipment which comply with 1910.133.

1910.1050(i)(2)

Removal and storage.

1910.1050(i)(2)(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.

1910.1050(i)(2)(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.

1910.1050(i)(2)(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.

1910.1050(i)(2)(iv)

MDA-contaminated work clothing or equipment shall be placed and stored in closed containers which prevent dispersion of the MDA outside the container.

1910.1050(i)(2)(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.

1910.1050(i)(3)

Cleaning and replacement.

1910.1050(i)(3)(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.

1910.1050(i)(3)(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.

1910.1050(i)(3)(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.

1910.1050(i)(3)(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.

1910.1050(i)(3)(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.

1910.1050(i)(3)(vi)

MDA-contaminated clothing shall be transported in properly labeled, sealed, impermeable bags or containers.

1910.1050(j)

Hygiene facilities and practices.

1910.1050(j)(1)

Change rooms.

1910.1050(j)(1)(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.

1910.1050(j)(1)(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.

1910.1050(j)(2)

Showers.

1910.1050(j)(2)(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.

1910.1050(j)(2)(i)(A)

Shower facilities required by this paragraph shall comply with 1910.141(d)(3).

1910.1050(j)(2)(i)(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.

1910.1050(j)(2)(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.

1910.1050(j)(3)

Lunch facilities.

1910.1050(j)(3)(i)

Availability and construction.

1910.1050(j)(3)(i)(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.

1910.1050(j)(3)(i)(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.

1910.1050(j)(3)(i)(C)

Lunch areas may not be located in areas within the workplace where the potential for dermal exposure to MDA exists.

1910.1050(j)(3)(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.

1910.1050(j)(3)(iii)

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

1910.1050(k)

Communication of hazards to employees.

1910.1050(k)(1)

Signs and labels.

1910.1050(k)(1)(i)

The employer shall post and maintain legible signs demarcating regulated areas and entrances or accessways to regulated areas that bear the following legend:

DANGER
MDA
MAY CAUSE CANCER
LIVER TOXIN
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
MAY BE REQUIRED TO BE WORN IN THIS AREA

1910.1050(k)(1)(ii)

The employer shall ensure that labels or other appropriate forms of warning are provided for containers of MDA within the workplace. The labels shall comply with the requirements of 29 CFR 1910.1200(f) and shall include the following legend:

1910.1050(k)(1)(ii)(A)

For Pure MDA

DANGER
CONTAINS MDA
MAY CAUSE CANCER
LIVER TOXIN

1910.1050(k)(1)(ii)(B)

For mixtures containing MDA

DANGER
CONTAINS MDA
CONTAINS MATERIALS WHICH MAY CAUSE CANCER
LIVER TOXIN

1910.1050(k)(2)

Material safety data sheets (MSDS).

1910.1050(k)(2)(i)

Employers shall obtain or develop, and shall provide access to their employees, to a material safety data sheet (MSDS) for MDA. In meeting this obligation, employers shall make appropriate use of the information found in Appendices A and B.

1910.1050(k)(2)(ii)

Employers who are manufacturers or importers shall:

1910.1050(k)(2)(ii)(A)

Comply with paragraph (k)(1)(ii) of this section appropriate, and

1910.1050(k)(2)(ii)(B)

Comply with the requirement in OSHA's Hazard Communication standard, 29 CFR 1910.1200, that they deliver to downstream employers an MSDS for MDA.

1910.1050(k)(3)

Information and training.

1910.1050(k)(3)(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.

1910.1050(k)(3)(ii)

In addition to the information required under 29 CFR 1910.1200, the employer shall:

1910.1050(k)(3)(ii)(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;

1910.1050(k)(3)(ii)(B)

Describe the medical surveillance program required under paragraph (m) of this section, and explain the information contained in Appendix C; and

1910.1050(k)(3)(ii)(C)

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

1910.1050(k)(4)

Access to training materials.

1910.1050(k)(4)(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.

1910.1050(k)(4)(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.

1910.1050(l)

Housekeeping.

1910.1050(l)(1)

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

1910.1050(l)(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.

1910.1050(l)(3)

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

1910.1050(l)(4)

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

1910.1050(l)(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.

1910.1050(l)(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.

1910.1050(m)

Medical surveillance.

1910.1050(m)(1)

General.

1910.1050(m)(1)(i)

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

1910.1050(m)(1)(i)(A)

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

1910.1050(m)(1)(i)(B)

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

1910.1050(m)(1)(i)(C)

Employees who have been exposed in an emergency situation;

1910.1050(m)(1)(i)(D)

Employees whom the employer, based on results from compliance with paragraph (e)(8), has reason to believe are being dermally exposed; and

1910.1050(m)(1)(i)(E)

Employees who show signs or symptoms of MDA exposure.

1910.1050(m)(1)(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.

1910.1050(m)(2)

Initial examinations.

1910.1050(m)(2)(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) with a medical examination including the following elements:

1910.1050(m)(2)(i)(A)

A detailed history which includes:

1910.1050(m)(2)(i)(A)(1)

Past work exposure to MDA or any other toxic substances;

1910.1050(m)(2)(i)(A)(2)

A history of drugs, alcohol, tobacco, and medication routinely taken (duration and quantity); and

1910.1050(m)(2)(i)(A)(3)

A history of dermatitis, chemical skin sensitization, or previous hepatic disease.

1910.1050(m)(2)(i)(B)

A physical examination which includes all routine physical examination parameters, skin examination, and signs of liver disease.

1910.1050(m)(2)(i)(C)

Laboratory tests including:

1910.1050(m)(2)(i)(C)(1)

Liver function tests and

1910.1050(m)(2)(i)(C)(2)

Urinalysis.

1910.1050(m)(2)(i)(D)

Additional tests as necessary in the opinion of the physician.

1910.1050(m)(2)(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.

1910.1050(m)(3)

Periodic examinations.

1910.1050(m)(3)(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:

1910.1050(m)(3)(i)(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;

1910.1050(m)(3)(i)(B)

The appropriate tests and examinations including liver function tests and skin examinations; and

1910.1050(m)(3)(i)(C)

Appropriate additional tests or examinations as deemed necessary by the physician.

1910.1050(m)(3)(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.

1910.1050(m)(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.

1910.1050(m)(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.

1910.1050(m)(6)

Multiple physician review mechanism.

1910.1050(m)(6)(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:

1910.1050(m)(6)(i)(A)

To review any findings, determinations, or recommendations of the initial physician; and

1910.1050(m)(6)(i)(B)

To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

1910.1050(m)(6)(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:

1910.1050(m)(6)(ii)(A)

The employee informing the employer that he or she intends to seek a second medical opinion, and

1910.1050(m)(6)(ii)(B)

The employee initiating steps to make an appointment with a second physician.

1910.1050(m)(6)(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.

1910.1050(m)(6)(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;

1910.1050(m)(6)(iv)(A)

To review any findings, determinations, or recommendations of the prior physicians; and

1910.1050(m)(6)(iv)(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.

1910.1050(m)(6)(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.

1910.1050(m)(7)

Information provided to the examining and consulting physicians.

1910.1050(m)(7)(i)

The employer shall provide the following information to the examining physician:

1910.1050(m)(7)(i)(A)

A copy of this regulation and its appendices;

1910.1050(m)(7)(i)(B)

A description of the affected employee's duties as they relate to the employee's potential exposure to MDA;

1910.1050(m)(7)(i)(C)

The employee's current actual or representative MDA exposure level;

1910.1050(m)(7)(i)(D)

A description of any personal protective equipment used or to be used; and

1910.1050(m)(7)(i)(E)

Information from previous employment-related medical examinations of the affected employee.

1910.1050(m)(7)(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.

1910.1050(m)(8)

Physician's written opinion.

1910.1050(m)(8)(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:

1910.1050(m)(8)(i)(A)

The occupationally-pertinent results of the medical examination and tests;

1910.1050(m)(8)(i)(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;

1910.1050(m)(8)(i)(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

1910.1050(m)(8)(i)(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.

1910.1050(m)(8)(ii)

The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposures.

1910.1050(m)(9)

Medical removal.

1910.1050(m)(9)(i)

Temporary medical removal of an employee.

1910.1050(m)(9)(i)(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:

1910.1050(m)(9)(i)(A)(1)

When the employee exhibits signs and/or symptoms indicative of acute exposure to MDA; or

1910.1050(m)(9)(i)(A)(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.

1910.1050(m)(9)(i)(B)

Temporary removal due to a final medical determination.

1910.1050(m)(9)(i)(B)(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.

1910.1050(m)(9)(i)(B)(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.

1910.1050(m)(9)(i)(B)(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.

1910.1050(m)(9)(ii)

Return of the employee to former job status.

1910.1050(m)(9)(ii)(A)

The employer shall return an employee to his or her former job status:

1910.1050(m)(9)(ii)(A)(1)

When the employee no longer shows signs or symptoms of exposure to MDA, or upon the advice of the physician.

1910.1050(m)(9)(ii)(A)(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.

1910.1050(m)(9)(ii)(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.

1910.1050(m)(9)(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.

1910.1050(m)(9)(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:

1910.1050(m)(9)(iv)(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.

1910.1050(m)(9)(iv)(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.

1910.1050(m)(9)(iv)(B)(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

1910.1050(m)(9)(iv)(B)(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.

1910.1050(m)(9)(v)

Medical removal protection benefits.

1910.1050(m)(9)(v)(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.

1910.1050(m)(9)(v)(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.

1910.1050(m)(9)(v)(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.

1910.1050(m)(9)(v)(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.

1910.1050(m)(9)(v)(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.

1910.1050(m)(9)(v)(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:

1910.1050(m)(9)(v)(F)(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;

1910.1050(m)(9)(v)(F)(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;

1910.1050(m)(9)(v)(F)(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

1910.1050(m)(9)(v)(F)(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.

1910.1050(m)(9)(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.

1910.1050(n)

Recordkeeping.

1910.1050(n)(1)

Monitoring data for exempted employers.

1910.1050(n)(1)(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.

1910.1050(n)(1)(ii)

This record shall include at least the following information:

1910.1050(n)(1)(ii)(A)

The product qualifying for exemption;

1910.1050(n)(1)(ii)(B)

The source of the monitoring data (e.g., was monitoring performed by the employer or a private contractor);

1910.1050(n)(1)(ii)(C)

The testing protocol, results of testing, and/or analysis of the material for the release of MDA;

1910.1050(n)(1)(ii)(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

1910.1050(n)(1)(ii)(E)

Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

1910.1050(n)(1)(iii)

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

1910.1050(n)(2)

Objective data for exempted employers.

1910.1050(n)(2)(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.

1910.1050(n)(2)(ii)

This record shall include at least the following information:

1910.1050(n)(2)(ii)(A)

The product qualifying for exemption;

1910.1050(n)(2)(ii)(B)

The source of the objective data;

1910.1050(n)(2)(ii)(C)

The testing protocol, results of testing, and/or analysis of the material for the release of MDA;

1910.1050(n)(2)(ii)(D)

A description of the operation exempted and how the data support the exemption; and

1910.1050(n)(2)(ii)(E)

Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

1910.1050(n)(2)(iii)

The employer shall maintain this record for the duration of the employer's reliance upon such

objective data.

1910.1050(n)(3)

Exposure measurements.

1910.1050(n)(3)(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.

1910.1050(n)(3)(ii)

This record shall include:

1910.1050(n)(3)(ii)(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;

1910.1050(n)(3)(ii)(B)

Identification of the sampling and analytical methods used;

1910.1050(n)(3)(ii)(C)

A description of the type of respiratory protective devices worn, if any; and

1910.1050(n)(3)(ii)(D)

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

1910.1050(n)(3)(iii)

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

1910.1050(n)(4)

Medical surveillance.

1910.1050(n)(4)(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.

1910.1050(n)(4)(ii)

This record shall include:

1910.1050(n)(4)(ii)(A)

The name, social security number and description of the duties of the employee;

1910.1050(n)(4)(ii)(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;

1910.1050(n)(4)(ii)(C)

Results of any airborne exposure monitoring done for that employee and the representative exposure levels supplied to the physician; and

1910.1050(n)(4)(ii)(D)

Any employee medical complaints related to exposure to MDA;

1910.1050(n)(4)(iii)

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

1910.1050(n)(4)(iii)(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;

1910.1050(n)(4)(iii)(B)

A copy of the information provided to the physician as required by any paragraphs in the regulatory text;

1910.1050(n)(4)(iii)(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;

1910.1050(n)(4)(iii)(D)

A copy of the employee's medical and work history related to exposure to MDA; and

1910.1050(n)(4)(iv)

The employer shall maintain this record for at least the duration of employment plus 30 years, in accordance with 29 CFR 1910.1020.

1910.1050(n)(5)

Medical removals.

1910.1050(n)(5)(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.

1910.1050(n)(5)(ii)

Each record shall include:

1910.1050(n)(5)(ii)(A)

The name and social security number of the employee;

1910.1050(n)(5)(ii)(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;

1910.1050(n)(5)(ii)(C)

A brief explanation of how each removal was or is being accomplished; and

1910.1050(n)(5)(ii)(D)

A statement with respect to each removal indicating the reason for the removal.

1910.1050(n)(5)(iii)

The employer shall maintain each medical removal record for at least the duration of an employee's employment plus 30 years.

1910.1050(n)(6)

Availability.

1910.1050(n)(6)(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.

1910.1050(n)(6)(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)-(e) and (g)-(i).

1910.1050(n)(6)(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.

1910.1050(n)(7)

Transfer of records.

1910.1050(n)(7)(i)

The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

1910.1050(n)(7)(ii)

If the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director, at least 90 days prior to disposal, and transmit the records to the Director if so requested by the Director within that period.

1910.1050(o)

Observation of monitoring.

1910.1050(o)(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.

1910.1050(o)(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.

1910.1050(p)

[Reserved]

1910.1050(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.

 [Next Standard \(1910.1050 App A\)](#)