

Screening and Surveillance: A Guide to OSHA Standards

OSHA 3162-12R 2009

Occupational Safety and Health Act of 1970

“To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health.”

This publication provides a general overview of a particular standards-related topic. This publication does not alter or determine compliance responsibilities which are set forth in OSHA standards and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

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Screening and Surveillance: A Guide to OSHA Standards



U.S. Department of Labor

Occupational Safety and Health Administration

OSHA 3162-12R
2009



The Occupational Safety and Health Act requires that employers comply with safety and health standards promulgated by OSHA or by a state with an OSHA-approved state plan. This guide is a quick reference to help you locate and implement the screening and surveillance requirements of the Federal OSHA standards published in *Title 29 of the Code of Federal Regulations (29 CFR)*. This guide provides a general overview of OSHA requirements. It is not a standard or regulation, and it creates no new legal obligations. For full details of specific compliance requirements, please consult the appropriate OSHA standard in the *CFR*. You can access the medical surveillance provisions of the OSHA standards on the Internet at www.osha.gov. Additional assistance is available by telephone at 1-800-321-OSHA (6742).

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Glossary

| | |
|------------------------|---|
| BP | blood pressure |
| BUN | blood urea nitrogen |
| CBC | complete blood count |
| FEF | forced expiratory flow |
| FEV₁ | forced expiratory volume one second |
| FSH | follicle stimulating hormone |
| FVC | forced vital capacity |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| HBV | hepatitis B virus |
| LH | luteinizing hormone |
| MDA | methylenedianiline |
| PFT | pulmonary function test |
| PHS or USPHS | United States Public Health Service |
| PLHCP | physician or other licensed healthcare professional |
| PPE | personal protective equipment |
| SGOT | serum glutamic oxalacetic transaminase |
| SGPT | serum glutamic pyruvic transaminase |
| ZPP | zinc protoporphyrin |

Acrylonitrile 1910.1045(n); 1926.1145; 1915.1045*

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ¹ |
| Periodic exam | Yes – annual ¹ |
| Emergency/exposure examination and tests | Yes |
| Termination exam | Yes – if no exam within 6 months of termination |
| Examination includes special emphasis on these body systems | Respiratory, gastrointestinal ¹ , thyroid, skin, neurological (peripheral and central) |
| Work and medical history | Required for all exams ² |
| Chest x-ray | Yes |
| Pulmonary function test (PFT) | No |
| Other required tests | Fecal occult blood ¹ |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | No |

Arsenic (Inorganic) 1910.1018(n); 1926.1118; 1915.1018*

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Yes ¹ |
| Periodic exam | Yes ¹ |
| Emergency/exposure examination and tests | Yes |
| Termination exam | Yes – if no exam within 6 months of termination |
| Examination includes special emphasis on these body systems | Skin, nasal |
| Work and medical history | Required for all exams ² with focus on respiratory symptoms; includes smoking history |
| Chest x-ray | Yes |
| Pulmonary function test (PFT) | No |
| Other required tests | No |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | No |

Asbestos (General Industry)

1910.1001(I)

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ^{1,3} |
| Periodic exam | Yes – annual ¹ |
| Emergency/exposure examination and tests | No |
| Termination exam | Yes – within \pm 30 days of termination |
| Examination includes special emphasis on these body systems | Respiratory, cardiovascular, gastrointestinal |
| Work and medical history | Required for all exams ² standardized form required; see standard, Appendix D |
| Chest x-ray | Yes ¹ – B reader, board eligible/certified radiologist or physician with expertise in pneumoconioses required; see standard, Appendix E for x-ray interpretation and classification requirements |
| Pulmonary function test (PFT) | FVC, FEV ₁ |
| Other required tests | No |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician; includes informing employee of increased risk of lung cancer from combined effects of smoking and asbestos exposure |
| Medical removal plan | No |

Asbestos (Construction and Shipyards) 1926.1101(m); 1915.1001

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ^{1,3} |
| Periodic exam | Yes – annual ¹ or more frequently if determined by physician |
| Emergency/exposure examination and tests | No |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Pulmonary and gastrointestinal |
| Work and medical history | Required for all exams ² ; special emphasis on pulmonary, cardiovascular, gastrointestinal; standardized form required; see standard, Appendix D |
| Chest x-ray | Yes ¹ – B reader, board eligible/certified radiologist or physician with expertise in pneumoconioses required; see standard, Appendix E for x-ray interpretation and classification requirements |
| Pulmonary function test (PFT) | FVC, FEV ₁ |
| Other required tests | No |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician; includes informing employee of increased risk of lung cancer from combined effects of smoking and asbestos exposure |
| Medical removal plan | No |

Benzene

1910.1028(i); 1926.1128; 1915.1028*

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Yes ^{1, 3, 4} |
| Periodic exam | Yes – annual ^{1, 4} |
| Emergency/exposure examination and tests | Yes ^{1, 4} – includes urinary phenol test |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Hemopoietic; add cardiopulmonary if respiratory protection used at least 30 days/year, (initially, then every 3 years) |
| Work and medical history | Required for initial and periodic exams (pre-placement exam requires special history) ² |
| Chest x-ray | No |
| Pulmonary function test (PFT) | Initially and every 3 years if respiratory protection used 30 days/year; specific tester requirements |
| Other required tests | CBC, differential, other specific blood tests; repeated as required; see standard |
| Evaluation of ability to wear a respirator | Yes – if respirators are used |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | Yes |

Bloodborne Pathogens

1910.1030(f)

Standard Requirements

| | |
|---|---|
| Pre-placement exam | No – must offer Hepatitis B (HBV) vaccine unless already immune or vaccine contraindicated |
| Periodic exam | No |
| Emergency/exposure examination and tests | Specific post-exposure monitoring for employee and source; HBV vaccine; see standard |
| Termination exam | No |
| Examination includes special emphasis on these body systems | No |
| Work and medical history | No |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | Yes – post-exposure incident; follow U.S. Public Health Service (USPHS) post-exposure protocols |
| Evaluation of ability to wear a respirator | No |
| Additional tests if deemed necessary | Yes – for post-exposure incident; follow USPHS post-exposure protocols |
| Written medical opinion | Yes – licensed healthcare professional to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by licensed healthcare professional; counseling re: HBV vaccine and post-exposure follow-up; see standard |
| Medical removal plan | No |

1,3-Butadiene

1910.1051(k); 1926.1151*

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ^{1, 3, 4} |
| Periodic exam | Yes ^{1, 4} |
| Emergency/exposure examination and tests | Yes ^{1, 4} – within 48 hours of exposure |
| Termination exam | Yes ⁴ – if 12 months have elapsed since last exam |
| Examination includes special emphasis on these body systems | Liver, spleen, lymph nodes, and skin |
| Work and medical history | Required annually and for all examinations ² ; standardized form or equivalent; includes comprehensive occupational and health history; see standard, Appendices F and C |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | Annually, CBC with differential and platelet count; also within 48 hrs. after exposure in an emergency situation and repeated monthly for 3 more months |
| Evaluation of ability to wear a respirator | Yes – if respirators are used |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician or other licensed healthcare professional to employer and employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician or other licensed healthcare professional |
| Medical removal plan | No |

Cadmium

1910.1027(I); 1926.1127; 1915.1027; 1928.1027*

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ^{1, 3, 4} |
| Periodic exam | Yes ^{1, 4} |
| Emergency/exposure examination and tests | Yes ^{1, 4} |
| Termination exam | Yes ³ – see standard for time frame and other specifics |
| Examination includes special emphasis on these body systems | Respiratory, cardiovascular (BP), urinary, and for males over 40 – prostate palpation ¹ |
| Work and medical history | Required for preplacement and periodic exams ² ; standardized form required |
| Chest x-ray | Yes |
| Pulmonary function test (PFT) | FVC, FEV ₁ |
| Other required tests | Annually ¹ , cadmium in urine, beta-2 microglobulin in urine, cadmium in blood, CBC, BUN, serum creatinine, urinalysis; see standard |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician; includes explanation of results, treatment, and diet, and discussion of decisions re: medical removal; see standard for details |
| Medical removal plan | Yes |

Carcinogens (Suspect)

1910.1003-1016(g); 1926.1103; 1915.1003-1016*

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Yes |
| Periodic exam | Yes – annual |
| Emergency/exposure examination and tests | Yes ¹ – special medical surveillance begins within 24 hours |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Exam includes determination for increased risk (e.g., treatment with steroids or cytotoxic agents, reduced immunological competence, pregnancy or cigarette smoking) |
| Work and medical history | Required for all examinations; includes family and occupational history, genetic and environmental factors |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | No |
| Evaluation of ability to wear a respirator | Yes – as specified in the Respiratory Protection standard, 1910.134(e), if respirators are used |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer |
| Employee counseling re: exam results, conditions of increased risk | No |
| Medical removal plan | No |

Chromium(VI), Hexavalent

1910.1026(k); 1926.1126(i); 1915.1026(i)

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Yes ¹ |
| Periodic exam | Yes ¹ |
| Emergency/exposure examination and tests | Yes ¹ |
| Termination exam | Yes ³ – unless last exam was less than 6 months prior to date of termination |
| Examination includes special emphasis on these body systems | Skin and respiratory tract |
| Work and medical history | Required for all exams ² ; includes past, present and anticipated future exposure; any history of respiratory system dysfunction, asthma, dermatitis, skin ulceration or nasal septum perforation; smoking status and history |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | No |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician or other licensed healthcare professional (PLHCP) to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by PLHCP |
| Medical removal plan | No |

Coke Oven Emissions

1910.1029(j)

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ¹ |
| Periodic exam | Yes ¹ |
| Emergency/exposure examination and tests | No |
| Termination exam | Yes – if no exam within 6 months of termination |
| Examination includes special emphasis on these body systems | Skin |
| Work and medical history | Required for all exams ² ; includes smoking history and presence and degree of respiratory symptoms |
| Chest x-ray | Yes |
| Pulmonary function test (PFT) | FVC, FEV ₁ |
| Other required tests | Weight, urine cytology, urinalysis for sugar, albumin, hematuria |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes – see standard, Appendix B |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician; also, employer must inform employee of possible health consequences if employee refuses any required medical exam |
| Medical removal plan | No |

Compressed Air Environments

1926.803(b)

Standard Requirements

| | |
|---------------------------|-----|
| Pre-placement exam | Yes |
|---------------------------|-----|

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| Periodic exam | Yes ¹ |
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|---|----|
| Emergency/exposure examination and tests | No |
|---|----|

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| Termination exam | No |
|-------------------------|----|

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| Examination includes special emphasis on these body systems | Not specified |
|--|---------------|

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|---------------------------------|----|
| Work and medical history | No |
|---------------------------------|----|

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|--------------------|----|
| Chest x-ray | No |
|--------------------|----|

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| Pulmonary function test (PFT) | No |
|--------------------------------------|----|

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|-----------------------------|----|
| Other required tests | No |
|-----------------------------|----|

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|---|----|
| Evaluation of ability to wear a respirator | No |
|---|----|

| | |
|---|----|
| Additional tests if deemed necessary | No |
|---|----|

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|--------------------------------|----|
| Written medical opinion | No |
|--------------------------------|----|

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|---|----|
| Employee counseling re: exam results, conditions of increased risk | No |
|---|----|

| | |
|-----------------------------|----|
| Medical removal plan | No |
|-----------------------------|----|

Cotton Dust

1910.1043(h)

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Physical exam not specified; other tests required |
| Periodic exam | Physical exam not specified; other tests required ^{1, 4} |
| Emergency/exposure examination and tests | No |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Not specified |
| Work and medical history | Medical history; standardized questionnaire required; see standard, Appendix B-1 ^{1, 2, 4} |
| Chest x-ray | No |
| Pulmonary function test (PFT) | FVC, FEV ₁ , FEV ₁ /FVC Employees with specific abnormalities are referred to specialists ^{1, 4, 5} |
| Other required tests | No |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | No |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician re: results of exam and any medical conditions requiring further examination or treatment |
| Medical removal plan | Yes – for inability to wear a respirator (6 months) |

1,2-dibromo-3-chloropropane

1910.1044(m); 1926.1144; 1915.1044*

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes |
| Periodic exam | Yes ¹ |
| Emergency/exposure examination and tests | Yes – male reproductive; repeat in 3 months |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Reproductive, genitourinary; see standard for details |
| Work and medical history | Required for all exams ² ; includes reproductive history; see standard, Appendix C |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | Sperm count, FSH, LH, Total estrogen (females); see standard, Appendix C for guidelines |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | No |

Ethylene Oxide

1910.1047(i); 1926.1147*

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ¹ |
| Periodic exam | Yes – annual ¹ |
| Emergency/exposure examination and tests | Yes ¹ |
| Termination exam | Yes ¹ |
| Examination includes special emphasis on these body systems | Pulmonary, skin, neurologic, hematologic, reproductive, eyes |
| Work and medical history | Required for all exams; includes reproductive history and special emphasis on some body systems; see standard |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | CBC, white cell count with differential, hematocrit, hemoglobin, red cell count; if requested by employee, pregnancy testing and fertility testing (female/male) will be added to the exam as deemed appropriate by physician |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | No |

Formaldehyde

1910.1048(l); 1926.1148; 1915.1048*

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ^{1, 4} |
| Periodic exam | Yes ^{1, 4} |
| Emergency/exposure examination and tests | Yes ⁴ |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Evidence of irritation or sensitization of skin, respiratory system, eyes; shortness of breath |
| Work and medical history | Required for all exams ² ; questionnaire required; see standard, Appendix D |
| Chest x-ray | No |
| Pulmonary function test (PFT) | FVC, FEV ₁ , FEF should be evaluated if respiratory protection is used |
| Other required tests | No |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician; includes information on whether medical conditions were caused by past exposures or emergency exposures |
| Medical removal plan | Yes |

HAZWOPER

1910.120(f); 1926.65*

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Yes ¹ |
| Periodic exam | Yes – annually or at physician’s discretion ¹ |
| Emergency/exposure examination and tests | Yes ¹ |
| Termination exam | Yes – if no exam within 6 months of termination/reassignment |
| Examination includes special emphasis on these body systems | Determined by physician; see standard, Appendix D, reference 10 for guidelines |
| Work and medical history | Yes – with emphasis on symptoms related to handling hazardous substances and health hazards, fitness for duty and ability to wear PPE ² |
| Chest x-ray | No – unless determined by physician |
| Pulmonary function test (PFT) | No – unless determined by physician |
| Other required tests | No – unless determined by physician |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | No |

Hazardous Chemicals in Laboratories

1910.1450(g)

Standard Requirements

| | |
|---|--|
| Pre-placement exam | When required by other standards |
| Periodic exam | When required by other standards |
| Emergency/exposure examination and tests | Yes ¹ |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Not specified |
| Work and medical history | When required by other standards |
| Chest x-ray | When required by other standards |
| Pulmonary function test (PFT) | When required by other standards |
| Other required tests | When required by other standards |
| Evaluation of ability to wear a respirator | Yes – when required by other standards |
| Additional tests if deemed necessary | When required by other standards |
| Written medical opinion | Yes – physician to employer |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | No |

Lead

1910.1025(j); 1926.62*

Standard Requirements

| | |
|--|--|
| Pre-placement exam | Yes ^{1,4} except in construction industries; construction requires initial blood tests only |
| Periodic exam | Yes ^{1,4} |
| Emergency/exposure examination and tests | Yes ^{1,4} |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Teeth, gums, hematologic, gastrointestinal, renal, cardiovascular (BP), neurological; pulmonary status if respiratory protection used |
| Work and medical history | Required for all exams ² ; includes reproductive history, past lead exposure, both work/non-work, and history of specific body systems; see standard |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No – unless deemed necessary by physician |
| Other required tests | Hemoglobin, hematocrit, ZPP, BUN, serum creatinine, urinalysis with micro, blood-lead levels, peripheral smear morphology, red cell indices ^{1,5} ; if requested by employee, pregnancy testing and fertility testing (female/male) |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |

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Employee counseling re: exam results, conditions of increased risk

Yes – by physician; includes advising the employee of any medical condition, occupational or non-occupational, requiring further medical examination or treatment

Medical removal plan

Yes

Methylene Chloride

1910.1052(j); 1926.1152*

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Yes ^{1, 4} |
| Periodic exam | Yes ^{1, 4} |
| Emergency/exposure examination and tests | Yes ⁴ – see standard for specifics |
| Termination exam | Yes – if no exam within 6 months of termination |
| Examination includes special emphasis on these body systems | Lungs, cardiovascular (including BP and pulse), liver, nervous, skin; extent of exam determined by examiner based on employee's health status, work, and medical history |
| Work and medical history | Required for all exams; example of work and medical history form provided in standard, Appendix B |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No – unless deemed necessary by physician or other licensed healthcare professional |
| Other required tests | Laboratory surveillance may include tests as determined by examiner including "before and after shift tests"; see standard, Appendix B |
| Evaluation of ability to wear a respirator | Yes – as specified under the Respiratory Protection standard 1910.134(e) |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – by physician or other licensed healthcare professional to employer and employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician or other licensed healthcare professional |
| Medical removal plan | Yes |

Methylenedianiline

1910.1050(m)

Standard Requirements

| | |
|---|---|
| Pre-placement exam | Yes ^{1, 3, 4} |
| Periodic exam | Yes – annual ^{1, 4} |
| Emergency/exposure examination and tests | Yes ^{1, 4} |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Skin, hepatic |
| Work and medical history | Required for all examinations ² ; includes past work with MDA and other specific items; see standard |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | Liver function tests, urinalysis |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician |
| Medical removal plan | Yes |

Noise

1910.95(g); 1926.52[†]

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Baseline audiograms are required within 6 months of exposure at or above 85dB. Mobile test van exception, within one year of exposure at or above 85dB |
| Periodic exam | Annual audiometric testing required |
| Emergency/exposure examination and tests | No |
| Termination exam | No requirements |
| Examination includes special emphasis on these body systems | No |
| Work and medical history | No |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | Initial and annual audiometric testing ^{1, 4, 5} ; see standard re: specific qualifications for the test administrator |
| Evaluation of ability to wear a respirator | No |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | No |
| Employee counseling re: exam results, conditions of increased risk | Yes – if standard threshold shift or suspected ear pathology |
| Medical removal plan | No |

Respiratory Protection

1910.134(e); 1926.103*

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Evaluation questionnaire or exam; follow-up exam when required ⁵ |
| Periodic exam | Yes – in specific situations ⁵ |
| Emergency/exposure examination and tests | No |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Yes ⁵ – see standard, Appendix C |
| Work and medical history | Yes ² – see standard, Appendix C |
| Chest x-ray | As determined by physician or other licensed healthcare professional |
| Pulmonary function test (PFT) | As determined by physician or other licensed healthcare professional |
| Other required tests | As determined by physician or other licensed healthcare professional |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician or other licensed healthcare professional to employer and employee |
| Employee counseling re: exam results, conditions of increased risk | Yes – by physician or other licensed healthcare professional |
| Medical removal plan | No |

Vinyl Chloride

1910.1017(k); 1926.1117*

Standard Requirements

| | |
|---|--|
| Pre-placement exam | Yes ¹ |
| Periodic exam | Yes ¹ |
| Emergency/exposure examination and tests | Yes |
| Termination exam | No |
| Examination includes special emphasis on these body systems | Special attention to detecting enlargement of the liver, spleen or kidneys, or dysfunction of these organs and abnormalities in skin, connective tissue and pulmonary system; see standard, Appendix A |
| Work and medical history | Required for initial and periodic exams ² ; includes alcohol intake, history of hepatitis, exposure to hepatotoxic agents, blood transfusions, hospitalizations, and work history |
| Chest x-ray | No |
| Pulmonary function test (PFT) | No |
| Other required tests | Blood test for total bilirubin, alkaline phosphatase, SGOT, SGPT and gamma glutamyl transpeptidase |
| Evaluation of ability to wear a respirator | Yes |
| Additional tests if deemed necessary | Yes |
| Written medical opinion | Yes – physician to employer; employer to employee |
| Employee counseling re: exam results, conditions of increased risk | No |
| Medical removal plan | Yes |

Footnotes

¹ Pre-placement and periodic examinations are dependent upon specific factors cited in the standard such as airborne concentrations of the substance and/or years of exposure, biological indices, age of employee, amount of time exposed per year. In addition, some standards require periodic exams to be conducted at varying time intervals. Refer to standard for complete details.

² Standard requires medical and work history focused on special body systems, symptoms, personal habits, and/or specific family, environmental or occupational history. Refer to standard for complete details.

³ No examination required if previous examination done within specified time frame (e.g., 6 months or 12 months) and provisions of standard met. Refer to standard for details.

⁴ Additional physician review: Some standards have provisions for referring employees with abnormalities to a specialist as deemed necessary by examiner. Other standards have provisions for multiple physician review. See specific standard for details.

⁵ Standard requires specific protocol. See standard for details.

* These Maritime and Construction standards are identical to 29 CFR 1910, General Industry standards.

† 1926.52 requires an effective and continued hearing conservation program. OSHA has interpreted this to include audiograms when feasible. See Letter of Interpretation dated August 4, 1992.

OSHA Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, and training and education.

Safety and Health Management System Guidelines

Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health management system forms the basis of good worker protection, can save time and money, increase productivity and reduce employee injuries, illnesses and related workers' compensation costs.

To assist employers and workers in developing effective safety and health management systems, OSHA published recommended Safety and Health Program Management Guidelines (54 *Federal Register* (16): 3904-3916, January 26, 1989). These voluntary guidelines can be applied to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management system:

- Management leadership and worker involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health management system. The *Federal Register* notice is available online at www.osha.gov.

State Programs

The *Occupational Safety and Health Act of 1970* (OSH Act) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. Twenty-five states, Puerto Rico and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) em-

ployment; Connecticut, Illinois, New Jersey, New York and the Virgin Islands cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal OSHA standards.

Consultation Services

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff. For more information concerning consultation assistance, see OSHA's website at www.osha.gov.

Strategic Partnership Program

OSHA's Strategic Partnership Program helps encourage, assist and recognize the efforts of partners to eliminate serious workplace hazards and achieve a high level of worker safety and health. Most strategic partnerships seek to have a broad impact by building cooperative relationships with groups of employers and workers. These partnerships are voluntary relationships between OSHA, employers, worker representatives, and others (e.g., trade unions, trade and professional associations, universities, and other government agencies).

For more information on this and other agency programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov.

OSHA Training and Education

OSHA area offices offer a variety of information services, such as technical advice, publications, audiovisual aids and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for Federal and state compliance officers, state consultants, Federal agency personnel, and private sector employers, workers and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers are colleges, universities and nonprofit organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually.

For more information on grants, training and education, contact the OSHA Training Institute, Directorate of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL 60005, (847) 297-4810, or see Training on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA regional office listed at the end of this publication.

Information Available Electronically

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include electronic tools, such as Safety and Health Topics, eTools, Expert Advisors; regulations, directives and publications; videos and other information for employers and workers. OSHA's software programs and eTools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

OSHA Publications

OSHA has an extensive publications program. For a listing of free items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210; telephone (202) 693-1888 or fax to (202) 693-2498.

Contacting OSHA

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321-OSHA or contact your nearest OSHA Regional or Area office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Written correspondence can be mailed to the nearest OSHA Regional or Area Office listed at the end of this publication or to OSHA's national office at: U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.

By visiting OSHA's website at www.osha.gov, you can also:

- File a complaint online,
- Submit general inquiries about workplace safety and health electronically, and
- Find more information about OSHA and occupational safety and health.

OSHA Regional Offices

Region I

(CT*, ME, MA, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565-9860

Region II

(NJ*, NY*, PR*, VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337-2378

Region III

(DE, DC, MD*, PA, VA*, WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861-4900

Region IV

(AL, FL, GA, KY*, MS, NC*, SC*, TN*)
61 Forsyth Street, SW, Room 6T50
Atlanta, GA 30303
(404) 562-2300

Region V

(IL*, IN*, MI*, MN*, OH, WI)
230 South Dearborn Street
Room 3244
Chicago, IL 60604
(312) 353-2220

Region VI

(AR, LA, NM*, OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
(972) 850-4145

Region VII

(IA*, KS, MO, NE)
Two Pershing Square
2300 Main Street, Suite 1010
Kansas City, MO 64108-2416
(816) 283-8745

Region VIII

(CO, MT, ND, SD, UT*, WY*)

1999 Broadway, Suite 1690

PO Box 46550

Denver, CO 80202-5716

(720) 264-6550

Region IX

(AZ*, CA*, HI*, NV*, and American Samoa,
Guam and the Northern Mariana Islands)

90 7th Street, Suite 18-100

San Francisco, CA 94103

(415) 625-2547

Region X

(AK*, ID, OR*, WA*)

1111 Third Avenue, Suite 715

Seattle, WA 98101-3212

(206) 553-5930

* These states and territories operate their own OSHA-approved job safety and health programs and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, New Jersey, New York and Virgin Islands plans cover public employees only. States with approved programs must have standards that are identical to, or at least as effective as, the Federal OSHA standards.

Note: To get contact information for OSHA Area Offices, OSHA-approved State Plans and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at 1-800-321-OSHA.

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