

# Oregon OSHA – Adopted Changes With Federal OSHA Amendments for Hazard Communication in General Industry, Construction, and Shipyard Employment

Administrative Order 5-2012  
Filed and effective September 25, 2012

Text removed is in [~~brackets with line through~~].

Text added is in **bold and underlined**.

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Note: When you link to the March 26, 2012 Federal Register  
[http://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](http://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf) to view the rule changes that  
federal OSHA made, they are located toward the **end** of the document.

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## DIVISION 2 – GENERAL INDUSTRY

### Division 2/A, General

437-002-0005

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

(1) 29 CFR 1910.1, Purpose and scope; published 6/27/74, Federal Register, vol. 39, no. 125, p. 23503.

(2) 29 CFR 1910.2, Definitions; published 6/27/74, Federal Register, vol. 39, no. 125, p. 23503.

(3) 29 CFR 1910.3, Petitions for the issuance, amendment, or repeal of a standard; published 6/27/74, Federal Register, vol. 39, no. 125, p. 23503.

(4) 29 CFR 1910.4, Amendments to this part; published 6/27/74, Federal Register, vol. 39, no. 125, p. 23503.

(5) 29 CFR 1910.5, Applicability of standards; published 6/30/93, FR vol. 58, no. 124, p. 35308.

(6) 29 CFR 1910.6, Incorporation by reference; published ~~6/8/11, FR vol. 76, no. 110, p. 33590~~ **3/26/12, FR vol. 77, no. 58, p. 17574.**

(7) 29 CFR 1910.7, Definition and requirements for a Nationally Recognized Testing Laboratory; published 5/11/88, FR vol. 53, no. 91, p. 16838.

(8) 29 CFR 1910.9, Compliance duties owed to each employee; published 12/12/08, Federal Register, vol. 73, no. 240, pp. 75568-75589.

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

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

Stat. Implemented: ORS 654.001 through 654.295.

Hist: APD Admin. Order 17-1988, f. 11/10/88, ef. 11/10/88.

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

OR-OSHA Admin. Order 8-1999, f. 8/6/99, ef. 8/6/99.

OR-OSHA Admin. Order 4-2005, f. 12/14/05, ef. 12/14/05.

OR-OSHA Admin. Order 4-2007, f. 8/15/07, ef. 8/15/07.

OR-OSHA Admin. Order 7-2008, f. 5/30/08, ef. 5/30/08.

OR-OSHA Admin. Order 5-2009, f. 5/29/09, ef. 5/29/09.

OR-OSHA Admin. Order 1-2010, f. 2/19/10, ef. 2/19/10.

OR-OSHA Admin. Order 2-2010, f. 2/25/10, ef. 2/25/10.

OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

1910.6 Incorporation by reference. Changes on page 17764 of the 3/26/12 Federal Register. [http://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](http://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf)

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## Division 2/H, Hazardous Materials

### 437-002-0100

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

(1) 29 CFR 1910.101 Compressed gases (General requirements), published 3/7/96, FR vol. 61, no. 46, p. 9236.

(2) 29 CFR 1910.102 Acetylene. Repealed. Oregon OSHA Admin. Order 1-2010, f. 2/19/10, ef. 2/19/10. In Oregon, OAR 437-002-2102 applies.

(3) 29 CFR 1910.103 Hydrogen, published 12/14/07, FR vol. 72, no. 240, p. 71061.

(4) 29 CFR 1910.104 Oxygen, published 3/7/96, FR vol. 61, no. 46, p. 9237.

(5) 29 CFR 1910.105 Nitrous oxide, published 3/7/96, FR vol. 61, no. 46, p. 9237.

(6) 29 CFR 1910.106 Flammable and combustible liquids, published ~~9/13/05, FR vol. 70, no. 176, p. 53925~~ **3/26/12, FR vol. 77, no. 58, p. 17574.**

(7) 29 CFR 1910.107 Spray finishing using flammable and combustible materials, amended with AO 3-2003, removed 1910.107, and Oregon note added, f. and ef. 4/21/03.

(8) 29 CFR 1910.108 Reserved. Published 3/23/99, Federal Register, vol. 64, no. 55, p. 13909.

(9) 29 CFR 1910.109 Explosives and blasting agents, published 6/18/98, FR vol. 63, no. 117, p. 33466.

(10) 29 CFR 1910.110 Storage and handling of liquefied petroleum gases, published 12/14/07, FR vol. 72, no. 240, p. 71061.

(11) 29 CFR 1910.111 Storage and handling of anhydrous ammonia, published amended with AO 12-2001, Oregon note added, f. and ef. 10/26/01; 12/14/07, FR vol. 72, no. 240, p. 71061.

- (12) Reserved for 29 CFR 1910.112 (Reserved)
- (13) Reserved for 29 CFR 1910.113 (Reserved)
- (14) 29 CFR 1910.114 Removed. Published 3/7/96, Federal Register, vol. 61, no. 46, p. 9238.
- (15) 29 CFR 1910.115 Removed. Published 3/7/96, Federal Register, vol. 61, no. 46, p. 9238.
- (16) 29 CFR 1910.116 Removed. Published 3/7/96, Federal Register, vol. 61, no. 46, p. 9238.
- (17) 29 CFR 1910.119 Process safety management of highly hazardous chemicals, published [~~12/27/11, FR vol. 76, no. 248, p. 80735~~]**3/26/12, FR vol. 77, no. 58, p. 17574.**
- (18) 29 CFR 1910.120 Hazardous waste operations and emergency response, published [~~12/27/11, FR vol. 76, no. 248, p. 80735~~]**3/26/12, FR vol. 77, no. 58, p. 17574.**
- (19) 29 CFR 1910.121 Reserved. Published 3/23/99, Federal Register, vol. 64, no. 55, p. 13909.
- (20) 29 CFR 1910.122 Table of contents. Repealed with OR-OSHA Admin. Order 9-2007, f. and ef. 12/3/07.
- (21) 29 CFR 1910.123 Dipping and coating operations: Coverage and definitions. Repealed with OR-OSHA Admin. Order 9-2007, f. and ef. 12/3/07.
- (22) 29 CFR 1910.124 General requirements for dipping and coating operations. Repealed with OR-OSHA Admin. Order 9-2007, f. and ef. 12/3/07.
- (23) 29 CFR 1910.125 Additional requirements for dipping and coating operations that use flammable or combustible liquids. Repealed with OR-OSHA Admin. Order 9-2007, f. and ef. 12/3/07.
- (24) 29 CFR 1910.126 Additional requirements for special dipping and coating applications. Repealed with OR-OSHA Admin. Order 9-2007, f. and ef. 12/3/07.
- These standards are on file with the Oregon Occupational Safety and Health Division, Oregon Department of Consumer and Business Services, and the United States Government Printing Office.

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

Stats. Implemented: ORS 654.001 through 654.295.

- Hist: APD Admin. Order 19-1988, f. 11/17/88, ef. 11/17/88 (Hazardous Wastes – Interim).  
 APD Admin. Order 12-1989, f. 7/14/89, ef. 7/14/90 (Hazardous Wastes – Final).  
 OR-OSHA Admin. Order 22-1990, f. 9/28/90, ef. 10/1/90 (Hazwaste).  
 OR-OSHA Admin. Order 2-1992, f. 2/6/92, ef. 5/1/92 (all except Hazwaste).  
 OR-OSHA Admin. Order 3-1992, f. 2/6/92, ef. 2/6/92 (Hazwaste).  
 OR-OSHA Admin. Order 8-1992, f. 8/13/92, ef. 11/24/92 (PSM).  
 OR-OSHA Admin. Order 6-1994, f. 9/30/94, ef. 9/30/94 (PSM).  
 OR-OSHA Admin. Order 3-1995, f. 2/22/95, ef. 2/22/95 (Haz Wst/Emg Rsp).  
 OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.  
 OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.  
 OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.  
 OR-OSHA Admin. Order 8-1999, f. 8/6/99, ef. 8/6/99.  
 OR-OSHA Admin. Order 12-2001, f. 10/26/01, ef. 10/26/01.  
 OR-OSHA Admin. Order 4-2002, f. 5/30/02, ef. 5/30/02.  
 OR-OSHA Admin. Order 3-2003, f. 4/21/03, ef. 4/21/03.  
 OR-OSHA Admin. Order 4-2004, f. 9/15/04, ef. 9/15/04.  
 OR-OSHA Admin. Order 4-2005, f. 12/14/05, ef. 12/14/05.  
 OR-OSHA Admin. Order 4-2006, f. 7/24/06, ef. 7/24/06.  
 OR-OSHA Admin. Order 9-2007, f. 12/3/07, ef. 12/3/07.  
 OR-OSHA Admin. Order 7-2008, f. 5/30/08, ef. 5/30/08.  
 OR-OSHA Admin. Order 1-2010, f. 2/19/10, ef. 2/19/10.  
 OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.  
**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

1910.106 Flammable liquids. Changes on page 17766 of the 3/26/12 Federal Register.

1910.107 Spray finishing using flammable and combustible materials. \*\*In Oregon, OAR 437-002-0107 Spray Finishing, applies.\*\*

1910.119 Process safety management of highly hazardous chemicals. Changes on page 17776 of the 3/26/12 Federal Register.

1910.120 Hazardous waste operations and emergency response. Changes on page 17776 of the 3/26/12 Federal Register.

1910.123, 1910.124, 1910.125 all relating to dipping and coating. \*\*In Oregon, OAR 437-002-0122 Dipping and Coating, applies.\*\*

[http://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](http://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf)

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## 437-002-0107 Spray Finishing.

(1) Scope. This section applies to finishing materials when applied as a spray by any means in a continuous or intermittent process. This section also covers the application of powders by powder spray guns, electrostatic powder spray guns, fluidized beds, or electrostatic fluidized beds. This section also applies to any sprayed material that produces combustible deposits or residue. This section does not apply to outdoor spray application of buildings, tanks, or other similar structures, nor to small portable spraying apparatus not used repeatedly in the same location.

(2) Definitions:

(a) Aerated solid powders – Any powdered material used as a coating material fluidized within a container by passing air uniformly from below. It is common practice to fluidize such materials to form a fluidized powder bed and then dip the part to be coated into the bed in a manner similar to that used in liquid dipping. Such beds are also used as sources for powder spray operations.

(b) Approved – Approved and listed by a nationally recognized testing laboratory. Refer to §1910.7 for definition of nationally recognized testing laboratory.

(c) Electrostatic fluidized bed – A chamber holding powder coating material that is aerated from below to form an air-supported, expanded cloud of the powder. The powder is electrically charged with a charge opposite to that of the object or material being coated.

(d) Fluidized bed – A chamber holding powder coating material that is aerated from below to form an air-supported, expanded cloud of the powder. The object or material being coated is preheated, then immersed into the cloud.

(e) Infrequent and of short duration – Spray finishing that is:

(A) Less than 9 square feet surface area per job, and

(B) Uses less than 1-gallon of material in 1-day, and

(C) Intermittent spraying where enough time elapses between spraying episodes to dilute the concentration of vapors essentially to zero before spraying is resumed.

(f) Listed – See “approved.”

(g) Noncombustible materials – Materials that have a fire resistance rating of at least 1-hour.

(h) Overspray – Any sprayed material that is not deposited on the intended object.

- (i) Spray area – Any area in which potentially dangerous quantities of flammable vapors or mists, or combustible residues, dusts, or deposits are present due to the operation of spraying processes.
- (j) Spray booth – A power-ventilated structure provided to enclose or accommodate a spraying operation to confine and limit the escape of spray, vapor, and residue, and to safely conduct or direct them to an exhaust system.
- (k) Spray room – A room designed to accommodate a spraying operation. For the purposes of this rule, the term “spray booth” includes spray rooms except where specifically noted.

(3) Rules for All Spray Finishing Operations.

- (a) Conduct spray finishing in a spray booth provided with local exhaust ventilation except:
  - (A) When spraying is infrequent and of short duration; or
  - (B) When spraying is a single “air brush;” or
  - (C) The object to be sprayed is of such weight or proportion as to render it impracticable to move it into a spray booth; or
  - (D) **When only liquids with a flashpoint above 199.4 degrees F (93 degrees C) are used. This exception only applies when the liquid is not heated for use to within 30 degrees F (16.7 degrees C) of the flashpoint; or**~~When only noncombustible or Class IIIB combustible liquids are used for spraying. This exception for Class IIIB combustible liquids only applies when the liquid is not heated for use to within 30 degrees F (16.7 degrees C) of the flashpoint; or]~~
  - (E) When spray painting is conducted out-of-doors. For the purposes of this rule, out-of-doors means an area away from the main building and completely open at all times on at least two sides.
- (b) Spray finishing outside of a booth, as permitted by OAR 437-002-0107(3)(a)(A), (C), and (D) above, must be done only in a spray area that meets the following requirements:
  - (A) All light switches, fans, receptacles, overhead lights and all other sources of ignition within 20 horizontal feet and 10 vertical feet of the overspray area must be inoperative or consist of Class I, Group D, explosion-proof types as specified in the National Electrical Code, NFPA 33-2000 and ANSI C2-2002.
  - (B) All building construction including floors, walls, ceilings, beams, etc., within 20 horizontal feet and 10 vertical feet of the overspray area must consist of or be protected by noncombustible materials.
  - (C) Protect all areas within 20 feet of the overspray area with automatic sprinklers. Where automatic sprinklers are not available, use other automatic extinguishing equipment. Alternatives may be used only when authorized in writing by the local fire authority.
  - (D) Aisles leading to exits from the spray finishing area must remain clear at all times.
  - (E) Provide the spray finishing area with at least six air changes per hour of airflow.
  - (F) Follow the requirements of paragraphs (3)(c) through (3)(e).
- (c) Do not allow employees not engaged in spray finishing operations within 20 feet of the spraying and overspray area.
- (d) Employees engaged in spray finishing operations must be provided with and wear respiratory protection unless exhaust ventilation is provided and reduces employee exposure to any material in the finish or its solvent to below the limits established in OAR 437-002-0382, Oregon Rules for Air Contaminants. Follow all of the requirements of OAR 437-002-1910.134, Respiratory Protection.
- (e) Combustible Materials.
  - (A) Do not store combustible material or allow combustible material to accumulate in the spraying and overspray area unless specifically authorized in writing by the local fire authority.
  - (B) Give the spraying and overspray area daily housekeeping and maintenance while in use and keep it free of any accumulations between uses. Use only nonsparking tools for cleaning purposes.
  - (C) Combustible materials, such as paper, may be used to cover floors and walls in the spray and overspray area, but must be removed at the end of each workshift. The employer may use longer intervals only when the local fire authority has provided written approval to do so.
- (f) Spray booths.
  - (A) Construction:

- (i) Construct spray booths of substantially supported steel, concrete, or masonry.
- (ii) When the booth is only used for intermittent or low volume spraying, other substantial noncombustible material may be used.
- (iii) Design spray booths to sweep air currents toward the exhaust outlet.
- (iv) Construct spray booths with materials that have a fire resistance rating of at least 1-hour. All adjacent construction must have a fire resistance rating of at least 1-hour or as otherwise required by the Oregon Building Codes Division.
- (B) The interior surfaces of spray booths must be smooth and continuous without edges, designed to prevent residue pocketing, and designed to ease cleaning and washing.
- (C) When the floor surface of a spray booth and operators' working area is combustible, it must be covered with a noncombustible material designed to prevent pocketing of residues and ease cleaning and washing.
- (D) A spray booth should be equipped with:
  - (i) A water washing system designed to minimize dusts or residues entering exhaust ducts and to permit the recovery of overspray finishing material; or
  - (ii) Distribution or baffle plates to promote an even flow of air through the booth or cause the deposit of overspray before it enters the exhaust duct; or
  - (iii) Overspray dry filters to minimize dusts or residues entering exhaust ducts.
- (E) Where dry powders are sprayed, arrange the powder collection systems in the exhaust to capture oversprayed material.
- (F) When distribution or baffle plates are used, they must be of noncombustible material and readily removable or accessible on both sides for cleaning. Such plates will not be located in exhaust ducts.
- (G) When using conventional dry type spray booths with overspray dry filters or filter rolls:
  - (i) Inspect filter rolls to ensure proper replacement of filter media.
  - (ii) Immediately remove all discarded filter pads and filter rolls to a safe area away from the spray finishing operation. Alternatively, place them in a water-filled metal container and dispose of them at the close of the day's operation unless they remain completely submerged.
  - (iii) Do not use filters or filter rolls when spraying a material known to be highly susceptible to spontaneous heating and ignition.
  - (iv) Clean filters or filter rolls must be noncombustible or authorized by the local fire authority.
  - (v) Do not use filters and filter rolls alternately for different types of coating materials, where the combination of materials may be conducive to spontaneous ignition.
- (H) Spray booths with an open frontal area larger than 9 square feet must have a metal deflector or curtain at least 4 1/2 inches deep installed at the upper outer edge of the booth over the opening.
- (I) Where conveyors are used to carry work into or out of spray booths, the openings must be as small as practical.
- (J) Separate each spray booth from all other nonspray finishing operations by at least 3 feet, a wall, or a partition. This requirement does not apply to spray rooms.
- (K) All portions of the spray booth must be readily accessible for cleaning.
- (L) The exterior of the spray booth must have a clear space of at least 3 feet on all sides. Do not store any materials within this clear space. All construction within 3 feet of all sides of the spray booth must be noncombustible. This requirement does not apply to spray rooms.
  - (i) Exception: This requirement does not prohibit locating a spray booth closer than 3 feet to an exterior wall or roof assembly, provided that the wall or roof is constructed of a noncombustible material and the booth can be cleaned and maintained.
- (M) When spraying areas are illuminated through glass panels or other transparent materials, use only fixed lighting units as a source of illumination.
  - (i) Seal panels to effectively isolate the spraying area from the area in which the lighting unit is located.
  - (ii) Use only noncombustible material constructed or protected so that breakage will be unlikely. Arrange panels so that normal accumulations of residue on the exposed surface of the panel will not be raised to a dangerous temperature by radiation or conduction from the source of illumination.

- (N) Protect all spaces within the spray booth with automatic sprinklers acceptable to the local fire authority.
- (i) Sprinkler heads must provide water distribution throughout the entire booth.
  - (ii) When filters are used, automatic sprinklers must be on both the downstream and upstream sides of the filters.
  - (iii) Keep sprinkler heads as free of overspray deposits as possible. Clean them daily if necessary. When sprinkler heads are covered to protect them from overspray, the material and method used must be authorized by the local fire authority.
  - (iv) When automatic sprinklers are infeasible or not practical, other means of fire protection must be provided and authorized in writing by the local fire authority.
- (g) Electrical and other sources of ignition.
- (A) Do not allow open flame or spark producing equipment within 20 feet of the spray area, unless separated by a partition.
- (B) Do not place space-heating appliances, steam pipes, or hot surfaces in a spraying area where deposits of combustible residues may readily accumulate.
- (C) Ensure all electrical wiring and equipment conforms to the provisions of this paragraph and OAR 437, Division 2, Subdivision S.
- (D) Do not put any electrical equipment in the spray or overspray area unless it is specifically approved for those locations. All wiring must be in rigid conduit or in boxes or fittings that do not contain taps, splices, or terminal connections.
- (E) Electrical wiring and equipment not subject to deposits of combustible residues but located in a spraying area must be explosion-proof, approved for Class I, Group D locations, and conform to the provisions of OAR 437, Division 2, Subdivision S, for Class I, Division 1, Hazardous Locations. Electrical wiring, motors, and other equipment outside of but within 20 feet of any spraying area, and not separated by partitions, must not produce sparks under normal operating conditions and must conform to the provisions of OAR 437, Division 2, Subdivision S for Class I, Division 2, Hazardous Locations.
- (F) Electric lamps outside of any spraying area but within 20 feet, and not separated by a partition, will be totally enclosed to prevent the falling of hot particles and will be protected from physical damage by appropriate guards or by location.
- (G) Do not use portable electric lamps in any spraying area during spraying operations. If portable electric lamps are used during cleaning or repairing operations, use only the type approved for hazardous Class I locations.
- (H) Electrically ground all metal parts of spray booths and exhaust ducts. Electrically ground piping systems that convey flammable or combustible liquids or aerated solids.
- (h) Ventilation.
- (A) Provide all spraying areas with mechanical ventilation adequate to remove flammable vapors, mists, or powders to a safe location and confine and control combustible residues so that life is not endangered. Keep mechanical ventilation in operation at all times while spraying operations are being conducted and for a sufficient time afterwards to exhaust vapors from drying material and residue.
- (B) Interlock the spraying equipment with the ventilation system so that spraying operations cannot be conducted unless the ventilation system is operating.
- (C) Air velocity throughout the spray booth must be sufficient to keep airborne contaminants below 25 percent of their lower explosive limit (LEL).
- (i) Open-faced booths must maintain at least an average of 100 feet per minute (fpm) of airflow across the open face of the booth.
  - (ii) Enclosed booths must maintain at least an average of 100 fpm of airflow of cross-sectional area at the operators' position.
  - (iii) Any deviation from the above must be authorized in writing by the local fire authority.
  - (iv) Install a visible gauge, audible alarm, or pressure activated device on each spray booth to indicate or ensure that the required air velocity is maintained.

- (D) Provide each spray booth with an independent exhaust duct system that discharges to the exterior of the building. A common exhaust system may be used for multiple spray booths only when identical materials are sprayed and the combined frontal area of those booths is no more than 18 square feet.
- (E) When more than one fan serves one booth, interconnect all fans so that one fan cannot operate without all fans being operated.
- (F) The fan-rotating element must be nonferrous or nonsparking or the casing must consist of or be lined with such material.
- (i) Maintain ample clearance between the fan-rotating element and the fan casing to avoid a fire by friction. Prevent contact between moving parts and the duct or fan housing by making allowance for ordinary expansion and loading.
- (ii) Mount fan blades on a shaft sufficiently heavy to maintain perfect alignment even when the blades of the fan are heavily loaded.
- (iii) All bearings must be of the self-lubricating type, or lubricated from the outside duct.
- (G) Place electric motors driving exhaust fans outside booths or ducts. See also paragraph (3)(g) of this section.
- (H) When belts and pulleys are inside the duct or booth, they must be thoroughly enclosed.
- (I) Construct exhaust ducts of substantially supported steel. Exhaust ducts without dampers are preferred; however, if dampers are installed, they must be fully opened when the ventilating system is in operation.
- (i) Protect exhaust ducts against mechanical damage and maintain a clearance of at least 18 inches from unprotected combustible construction or other combustible material.
- (ii) If combustible construction is provided with the following protection applied to all surfaces within 18 inches of the exhaust duct, clearances may be reduced to the distances indicated:
- (I) 28-gage sheet metal on 1/4-inch insulating millboard 12 inches.
- (II) 28-gage sheet metal on 1/8-inch insulating millboard spaced out 1-inch on noncombustible spacers 9 inches.
- (III) 22-gage sheet metal on 1-inch rockwool batts reinforced with wire mesh or the equivalent 3 inches.
- (J) The terminal discharge point must be at least 6 feet from any combustible exterior wall or roof. The discharge point must not discharge in the direction of any combustible construction or unprotected opening in any noncombustible exterior wall within 30 feet.
- (K) Keep air exhaust from spray operations away from makeup air or other ventilation intakes. Do not recirculate air exhausted from spray operations.
- (L) Supply clean fresh air, free of contamination from adjacent industrial exhaust systems, chimneys, stacks, or vents, to a spray booth in quantities equal to the volume of air exhausted through the spray booth.
- (M) Provide exhaust ducts with an ample number of access doors when necessary to facilitate cleaning.
- (N) Provide air intake openings to rooms containing spray finishing operations adequate for the efficient operation of exhaust fans and placed to minimize the creation of dead air pockets.
- (O) Dry freshly sprayed articles only in spaces provided with adequate ventilation to prevent the formation of explosive vapors. Drying spaces without adequate ventilation will be considered a spraying area. See also paragraph (6) of this section.

(4) Rules for Spray Finishing with Flammable [~~and Combustible~~] Liquids.

(a) These rules apply to spray finishing with [~~Class I flammable liquids, Class II combustible liquids, and Class IIIA combustible liquids~~]**flammable liquids with a flashpoint below 199.4 degrees F (93 degrees C)**. These rules only apply to [~~Class IIIB combustible~~]**liquids with a flashpoint above 199.4 degrees F (93 degrees C)** when they are heated for use to within 30 degrees F (16.7 degrees C) of their flashpoint.

(b) Flammable [~~and combustible~~] liquids – storage and handling.

- (A) Store flammable [~~or combustible liquids~~] in compliance with the requirements of OAR 437-002-1910.106.
- (B) Keep only the minimum quantity of flammable [~~or combustible~~] liquids required for operations in the vicinity of spraying operations and do not exceed a supply for one day or one shift. Bulk storage of portable containers of flammable [~~or combustible~~] liquids must be in a separate, constructed building detached from other important buildings or cut off in a standard manner.
- (C) Use only the original closed containers, approved portable tanks, approved safety cans, or a properly arranged system of piping for bringing flammable [~~or combustible~~] liquids into the spray area. Do not use open or glass containers.
- (D) Use approved pumps to withdraw flammable [~~and combustible~~] liquids from containers with a capacity of 61 gallons or more except as provided in paragraph (4)(b)(F) of this section.
- (E) Withdraw and fill containers with flammable [~~or combustible~~] liquids only in a suitable mixing room or in a spraying area when the ventilating system is in operation. Take adequate precautions to protect against spilling liquids and sources of ignition.
- (F) Containers must conform to the following requirements:
- (i) Use only closed containers to supply spray nozzles. Use metal covers to close containers that are not closed.
  - (ii) Use metal supports or wire cables to support containers that are not resting on floors.
  - (iii) When spray nozzles are supplied by gravity flow, do not use containers that exceed 10 gallons capacity.
  - (iv) Do not use air pressure in the original shipping containers to supply spray nozzles.
- (G) Containers under air pressure supplying spray nozzles must also conform to the following requirements
- (i) Use only limited capacity containers that only hold enough material for one day's operation.
  - (ii) Use only containers that are designed and approved for such use.
  - (iii) Provide containers with a visible pressure gauge.
  - (iv) Containers must be provided with a relief valve set to operate in conformance with the requirements of the Oregon Building Codes Division OAR 918-225, "Boilers and Pressure Vessels."
- (H) Pipes and hoses.
- (i) All containers or piping with an attached hose or flexible connection must have a shutoff valve at the connection. Keep such valves shut when not spraying.
  - (ii) When a pump is used to deliver the liquid used in a spray application process, use only piping, tubing, hoses, and accessories that are designed to withstand the maximum working pressure of the pump. Alternatively, provide automatic means to limit the discharge pressure of the pump to a level within the design working pressure of the piping, tubing, hoses, and accessories.
  - (iii) Inspect all pressure hose and couplings at regular intervals appropriate to this service. Test the hose and couplings with the hose extended using the "inservice maximum operating pressures." Repair or discard any hose showing material deteriorations, signs of leakage, or weakness in its' carcass or at the couplings.
  - (iv) Piping systems conveying flammable [~~or combustible~~] liquids must be of steel or other material having comparable properties of resistance to heat and physical damage. Properly bond and ground piping systems.
- (I) Use approved and listed electrically powered spray liquid heaters. Do not put heaters in spray booths or any other location subject to the accumulation of deposits or combustible residue.
- (J) If flammable [~~or combustible~~] liquids are supplied to spray nozzles by positive displacement pumps, use an approved relief valve on the pump discharge line that discharges to a pump suction or a safe detached location, or use a device provided to stop the prime mover if the discharge pressure exceeds the safe operating pressure of the system.
- (K) Whenever flammable [~~or combustible~~] liquids are transferred from one container to another, effectively bond and ground both containers to prevent discharge sparks of static electricity.
- (c) Install an adequate supply of suitable portable fire extinguishers near all spraying areas.

(d) Operations and maintenance.

(A) Immediately remove and dispose residue scrapings and debris contaminated with residue from the premises. Deposit all rags or waste impregnated with finishing material in tightly-closing metal waste cans immediately after use. Properly dispose of the contents of waste cans at least once daily or at the end of each shift.

(B) Do not leave clothing worn during spray finishing on the premises overnight unless kept in metal lockers.

(C) Only use solvents for cleaning operations with flashpoints at or above the flashpoints of material normally used. Cleaning operations must be done inside a spray booth with the ventilation system on, or an area authorized in writing by the local fire authority.

(D) Do not alternately use spray booths for different types of coating materials when the materials are incompatible with each other, unless all deposits of the first used material are removed from the booth and exhaust ducts prior to spraying with the second material.

(e) Mixing.

(A) Mix materials only in a mixing room, a spray area that meets the requirements of (3)(b), or in a spray booth. When a spray area or spray booth is used for mixing, the ventilation system must be on.

(B) Construct mixing rooms of substantially supported steel, concrete, or masonry. Use only noncombustible materials to construct mixing rooms.

(C) Design mixing rooms so that any spills remain inside the room.

(D) Provide at least 150 cubic feet per minute (CFM) of airflow in each mixing room. When the flooring of the mixing room is greater than 150 square feet, provide at least 1 CFM per square foot of flooring. The ventilation system for each mixing room must be on and operational at all times.

(E) Follow all of the provisions of paragraph (3)(g).

(F) Protect all spaces within the mixing room with automatic sprinklers acceptable to the local fire authority. Where automatic sprinklers are not available, use other automatic extinguishing equipment. Alternatives may be used only when authorized in writing by the local fire authority.

(5) Rules for Electrostatic Spray Finishing.

(a) Fixed electrostatic apparatus.

(A) Use only approved electrostatic apparatus and devices in connection with coating operations.

(B) Transformers, power packs, control apparatus, and all other electrical portions of the equipment, with the exception of high-voltage grids, electrodes, and electrostatic atomizing heads and their connections, must be located outside of the spraying area, or must otherwise conform to the requirements of paragraph (3) of this section.

(C) Adequately support electrodes and electrostatic atomizing heads in permanent locations and effectively insulate them from the ground. Electrodes and electrostatic atomizing heads which are permanently attached to their bases, supports, or reciprocators are considered to comply with this section. Use only nonporous and noncombustible insulators.

(D) Properly insulate and protect high-voltage leads to electrodes from mechanical injury or exposure to destructive chemicals. Effectively and permanently support electrostatic atomizing heads on suitable insulators and effectively guard against accidental contact or grounding. Provide an automatic means for grounding the electrode system when it is electrically de-energized for any reason. Keep all insulators clean and dry.

(E) Maintain a safe distance between goods being painted and electrodes or electrostatic atomizing heads or conductors of at least twice the sparking distance. Conspicuously post a sign indicating this safe distance near the assembly.

(F) Support goods being painted using this process on conveyors. Arrange the conveyors to maintain safe distances between the goods and the electrodes or electrostatic atomizing heads at all times. Any irregularly shaped or other goods subject to possible swinging or movement must be rigidly supported to prevent swinging or movement which would reduce the clearance to less than that specified in paragraph (5)(a)(E) of this section.

(G) Equip electrostatic apparatus with automatic controls that immediately disconnect the power supply to the high voltage transformer and signals the operator when:

- (i) Any failure occurs in the ventilation equipment.
- (ii) The conveyor carrying goods through the high voltage field stops.
- (iii) Occurrence of a ground or of an imminent ground at any point on the high voltage system.
- (iv) The safe distance required by (5)(a)(E) is not maintained.

(H) Place adequate booths, fencing, railings, or guards around the equipment to assure, either by their location or character or both, that a safe isolation of the process is maintained from plant storage or personnel. Construct such railings, fencing, and guards of conducting material that is adequately grounded.

(b) Electrostatic hand spraying equipment.

(A) This paragraph applies to any equipment that uses electrostatically charged elements for the atomization and/or, precipitation of materials for coatings on articles, or for other similar purposes in which the atomizing device is hand held and manipulated during the spraying operation.

(B) Use only approved electrostatic hand spray apparatus and devices in connection with coating operations. The high voltage circuits must be designed so it does not produce a spark of sufficient intensity to ignite any vapor-air mixtures or result in appreciable shock hazard upon coming in contact with a grounded object under all normal operating conditions. The electrostatically charged exposed elements of the handgun must be capable of being energized only by a switch which also controls the coating material supply.

(C) Locate transformers, powerpacks, control apparatus, and all other electrical portions of the equipment outside of the spraying area. This requirement does not apply to the handgun itself and its connections to the power supply.

(D) Electrically connect the handle of the spraying gun to ground by a metallic connection. Ensure that the operator in normal operating position is in intimate electrical contact with the grounded handle.

(E) Adequately ground all electrically conductive objects in the spraying area. This requirement applies to paint containers, wash cans, and any other objects or devices in the area. Prominently and permanently install a warning on the equipment regarding the necessity for this grounding feature.

(F) Maintain metallic contact between objects being painted or coated and the conveyor or other grounded support. Regularly clean hooks to ensure this contact.

(G) Areas of contact must be sharp points or knife edges where possible.

(H) Conceal points of support of the object from random spray where feasible.

(I) When objects being sprayed are supported from a conveyor, the point of attachment to the conveyor must not collect spray material during normal operation.

(J) Interlock the electrical equipment with the ventilation of the spraying area so that the equipment cannot be operated unless the ventilation fans are on.

(6) Drying, Curing, or Fusion Apparatus.

(a) Drying, curing, or fusion equipment.

(A) Equipment manufactured or modified on or before June 1, 2003, must comply with the provisions of the Standard for ovens and furnaces, NFPA No. 86A-1969 where applicable.

(B) Equipment manufactured or modified after June 1, 2003, must comply with the provisions of the Standard for Ovens and Furnaces, NFPA No. 86-1999 where applicable.

(b) Do not use a spray area for drying when such drying can increase the surface temperature of the spray area.

(c) Except as specifically provided in paragraph (6)(e) of this section, do not install an open flame heating system for drying, curing, or fusion in a spray area.

(d) Drying, curing, or fusion units may be installed adjacent to spray areas only when equipped with an interlocked ventilating system arranged to:

(A) Thoroughly ventilate the drying space before the heating system can be started;

(B) Maintain a safe atmosphere at any source of ignition;

- (C) Automatically shut down the heating system in the event of failure of the ventilating system.
- (e) Automobile refinishing spray booths or enclosures, otherwise installed and meeting the requirements of this section, may alternately be used for drying with portable electrical infrared drying apparatus that meets the following:
  - (A) Keep the interior (especially floors) of spray enclosures free of overspray deposits.
  - (B) Keep the apparatus out of the spray and overspray area while spray finishing is in progress.
  - (C) Equip the spraying apparatus, the drying apparatus, and the ventilating system of the spray enclosure with suitable interlocks arranged so:
    - (i) The spraying apparatus cannot be operated while the drying apparatus is inside the spray enclosure.
    - (ii) The spray enclosure is purged of spray vapors for at least 3 minutes before the drying apparatus is energized.
    - (iii) The ventilating system maintains a safe atmosphere within the enclosure during the drying process, and the drying apparatus will automatically shut off in the event of failure of the ventilating system.
  - (D) All electrical wiring and equipment of the drying apparatus must meet the applicable sections of OAR 437, Division 2, Subdivision S. Only equipment of a type approved for Class I, Division 2 hazardous locations will be located within 18 inches of floor level. All metallic parts of the drying apparatus will be properly electrically bonded and grounded.
  - (E) Place a warning sign on the drying apparatus indicating that ventilation must be maintained during the drying period and that spraying must not be conducted in the vicinity where spray will deposit on apparatus.

#### (7) Powder Coating.

##### (a) Ventilation.

- (A) Ensure that exhaust ventilation is sufficient to maintain the atmosphere below the lowest explosive limits for the materials being applied. Ensure that all nondeposited air-suspended powders are safely removed via exhaust ducts to the powder recovery cyclone or receptacle.
- (B) Do not release powders to the outside atmosphere.

##### (b) Operation and maintenance.

- (A) Keep all areas free of the accumulation of powder coating dusts, particularly horizontal surfaces as ledges, beams, pipes, hoods, booths, and floors.
  - (B) Clean surfaces in a manner to avoid scattering dust to other places or creating dust clouds.
  - (C) Conspicuously post "No Smoking" signs in large letters on contrasting color background at all powder coating areas and powder storage rooms.
- ##### (c) Electrostatic fluidized beds.
- (A) Use only approved electrostatic fluidized beds and associated equipment.
  - (B) Ensure that the maximum surface temperature of this equipment in the coating area does not exceed 150 degrees F.
  - (C) Use only high voltage circuits that will not produce a spark of sufficient intensity to ignite any powder-air mixtures.
  - (D) Use circuits designed to eliminate shock hazards upon coming in contact with a grounded object under normal operating conditions.
  - (E) Locate transformers, powerpacks, control apparatus, and all other electrical portions of the equipment outside of the powder coating area, with the exception of the charging electrodes and their connections to the power supply.
  - (F) Adequately ground all electrically conductive objects within the charging influence of the electrodes. The powder coating equipment must carry a prominent, permanently installed warning regarding the necessity for grounding these objects.
  - (G) Objects being coated will be maintained in contact with the conveyor or other support in order to ensure proper grounding. Regularly clean hangers to ensure effective contact and areas of contact will be sharp points or knife edges where possible.

(H) Interlock the electrical equipment with the ventilation system so the equipment cannot be operated unless the ventilation fans are in operation.

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 2-1992, f. 2/6/92, ef. 5/1/92.

OR-OSHA Admin. Order 3-2003, f. 4/21/03, ef. 4/21/03.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

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## 437-002-0118 Oregon Rules for Reinforced Plastics Manufacturing.

(1) Applicability. If a specific type of equipment, process or practice is not limited to the reinforced plastics industry, the provisions contained in other Divisions of OAR 437, Oregon Occupational Safety and Health Code, shall apply.

(2) Scope.

(a) These rules shall apply to reinforced plastics manufacturing operations, in their shop buildings (not field work) involving the use of polyester, vinylester, and other similar products in which styrene monomer is a reactive monomer for the resin. This division applies to chopper gun, gel coating, hand laminating and casting operations utilizing resin and organic peroxide catalyst.

(b) This division does not apply to:

(A) Application of flammable organic materials such as acetone, methyl ethyl ketone (MEK), either alone or mixed as flammable ~~[or combustible]~~ paints or diluents;

(B) Operations, involving polyurethane finishes or foams utilizing isocyanate catalysts;

(C) Operations involving epoxy resin compounds utilizing amine hardeners; or

(D) Cleaning of chopper guns, lines, and associated equipment in which acetone, MEK, or other flammable ~~[or combustible]~~ organic solvents are sprayed into the open air as part of the cleaning process.

(3) Definitions. The following definitions shall apply to OAR 437-002-0118:

(a) Chopper Gun – A device that feeds fiber glass rovings through a chopper and ejects them into a stream of resin and organic peroxide catalyst onto a mold surface. The resin and organic peroxide catalyst are combined and ejected from the chopper gun by either one of two systems:

(A) One nozzle ejects resin while another nozzle ejects organic peroxide catalyst towards the mold surface; or

(B) The resin and organic peroxide catalyst are fed into a single chopper gun mixing chamber ahead of the nozzle.

NOTE: By either method, the resin mixture precoats the strands of glass and the merged product is directed onto a mold surface by the operator.

~~[(b) Combustible—Any substance having a flashpoint at or above 100 degrees F (37.8 degrees C). Combustible substances shall be divided into two classes:~~

~~(A) Class II—substances with flashpoints at or above 100 degrees F (37.8 degrees C) and below 140 degrees F (60 degrees C) except any mixture having components with flashpoints of 200 degrees F (93.3 degrees C) or higher, the volume of which make up 99 percent or more of the total volume of the mixture.~~

~~(B) Class III—substances with flashpoints at or above 140 degrees F (60 degrees C).]~~

~~[(c) Flammable—any substance having a flashpoint below 100 degrees F (37.8 degrees C). Flammable liquids shall be known as Class I liquids.]~~

**(b) Flammable liquid means any liquid having a flashpoint at or below 199.4 degrees F (93 degrees C). Flammable liquids are divided into four categories as follows:**

**(A) Category 1 shall include liquids having flashpoints below 73.4 degrees F (23 degrees C) and having a boiling point at or below 95 degrees F (35 degrees C).**

**(B) Category 2 shall include liquids having flashpoints below 73.4 degrees F (23 degrees C) and having a boiling point above 95 degrees F (35 degrees C).**

**(C) Category 3 shall include liquids having flashpoints at or above 73.4 degrees F (23 degrees C) and at or below 140 degrees F (60 degrees C). When a Category 3 liquid with a flashpoint at or above 100 degrees F (37.8 degrees C) is heated for use to within 30 degrees F (16.7 degrees C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100 degrees F (37.8 degrees C).**

**(D) Category 4 shall include liquids having flashpoints above 140 degrees F (60 degrees C) and at or below 199.4 degrees F (93 degrees C). When a Category 4 flammable liquid is heated for use to within 30 degrees F (16.7 degrees C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100 degrees F (37.8 degrees C).**

~~[(d)c] Flashpoint – The minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture shall be determined as follows:~~

~~[(A) For a liquid which has a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100 degrees F (37.8 degrees C), does not contain suspended solids, and does not have a tendency to form a surface film while under test, the procedure specified in the standard method of test for flashpoint by tag closed tester (ASTM D-56-70) shall be used.]~~

~~[(B) For a liquid which has a viscosity of 45 SUS or more at 100 degrees F (37.8 degrees C), or contains suspended solids, or has a tendency to form a surface film while under test, the standard method of test for flashpoint by Pensky-Martens Closed Tester (ASTM D-93-71) shall be used, except that the methods specified in Note 1 to Section 1.1 of ASTM D-93-71 may be used for the respective materials specified in the Note.]~~

~~[(C) For a liquid that is a mixture of compounds that have different volatilities and flashpoints, its flashpoint shall be determined by using the procedure specified in subsection (4)(a) or (4)(b) of this definition on the liquid in the form it is shipped. If the flashpoint, as determined by this test, is 100 degrees F (37.8 degrees C) or higher, an additional flashpoint determination shall be run on a sample of the liquid evaporated to 90 percent of its original volume and the lower value of the two tests shall be considered the flashpoint of the material.]~~

**(A) For a liquid which has a viscosity of less than 45 SUS at 100 degrees F (37.8 degrees C), does not contain suspended solids, and does not have a tendency to form a surface film while under test, the procedure specified in the Standard Method of Test for Flashpoint by Tag Closed Tester (ASTM D-56-70), which is incorporated by reference as specified in 1910.6, or an equivalent test method as defined in Appendix B to OAR 437-002-1910.1200 – Physical Hazard Criteria, shall be used.**

**(B) For a liquid which has a viscosity of 45 SUS or more at 100 degrees F (37.8 degrees C), or contains suspended solids, or has a tendency to form a surface film while under test, the Standard Method of Test for Flashpoint by Pensky-Martens Closed Tester (ASTM D-93-71) or an equivalent method as defined by Appendix B to OAR 437-002-1910.1200 – Physical Hazard Criteria, shall be used except that the methods specified in Note 1 to section 1.1 of ASTM D-93-71 may be used for the respective materials specified in the Note. The preceding ASTM standard is incorporated by reference as specified in OAR 437-002-1910.6.**

**(C) For a liquid that is a mixture of compounds that have different volatilities and flashpoints, its flashpoint shall be determined by using the procedures in subsection (3)(c)(A) or (3)(c)(B) of this definition on the liquid in the form it is shipped.**

**(D) Organic peroxide catalysts are excluded from any of the flashpoint determination methods specified in this section.**

([e]d) Gelcoating – A chopper gun pressure pot or similar device is used to apply the resin and organic peroxide catalyst mixture to a mold surface without glass fibers;

([f]e) Hand Laminating – Resin is mixed with organic peroxide catalyst and applied by hand with a brush, squeegee, or roller with fiber glass reinforcements.

([g]f) Hazard – A substance, process, practice or condition which could result in an injury or illness to an employee.

([h]g) Resin – A mixture of true esters dissolved in a polymerizable monomer (styrene).

([i]h) Threshold-Limit Value – Short Term Exposure Limit (TLV-STEL) – The maximum concentration to which workers can be exposed for a period of up to 15 minutes continuously without suffering from (a) irritation, (b) chronic or irreversible tissue change, or (c) narcosis of sufficient degree to increase accident proneness, impair self-rescue, or materially reduce work efficiency, provided that no more than four excursions per day are permitted, with at least 60 minutes between exposure periods, and provided that the daily TLV-TWA also is not exceeded. The STEL should be considered a maximum allowable concentration, or ceiling, not to be exceeded at any time during the 15-minute excursion period.

## GENERAL REQUIREMENTS

### (4) Permissible Exposure Limits.

(a) An employee’s exposure to any material listed in Table 1, in any 8-hour workshift of a 40-hour work week, shall not exceed the 8-hour time-weighted average limit for that material in the table.

(b) An employee’s exposure to a material listed in Table 1 shall not exceed, at any time during an 8-hour shift, the TLV-STEL level given for the material in the table, except for a time period, and up to a concentration not exceeding the maximum duration and concentration allowed in the column under “Acceptable Maximum Peak.”

(c) Employee exposure to other airborne contaminants shall be in accordance with OAR 437, Division 2, Subdivision Z, 1910.1000, Air Contaminants, and other applicable regulations.

NOTE: In the Oregon Rules for Reinforced Plastics Manufacturing, Table [OR-118-]1, Permissible Exposure Limits, in OAR 437-002-0118(4), has been revised to reflect the current limits in OAR 437-002-0382, Oregon Rules for Air Contaminants, which were adopted on 11/15/93 in lieu of 1910.1000, Air Contaminants.

TABLE [OR-118-]1

PERMISSIBLE EXPOSURE LIMITS				
Substance	8-Hour Time Weighted Average	Acceptable Ceiling Concentration	Acceptable Max. Peak Above the Acceptable Ceiling Concentration for an 8-Hour Shift	
			Concentration	Maximum Duration
Acetone	1000 ppm			
Methyl Ethyl Ketone (2-Butanone)	200 ppm			
Styrene	100 ppm	200 ppm	600	5 min. in any 3 hrs.

### (5) Methods of Compliance.

(a) To achieve compliance with OAR 437-002-0118(4), Permissible Exposure Limits, administrative or engineering controls must first be determined and implemented whenever feasible.

(b) When such controls are not feasible to achieve full compliance, protective measures as prescribed in OAR 437, Division 2/I, Personal Protective Equipment, shall be used to keep the exposure of employees to airborne contaminants within the limits prescribed in OAR 437-002-0118.

(6) Employee Information and Training. A training program shall be established and all affected employees shall be trained regarding the safe handling of materials used in the industry which shall include instruction in storage, handling large and small quantities, cleanup and disposal of spills, first aid for spills, equipment training, potential health and safety hazards, personal hygiene, personal protective measures, and the labeling system.

(7) Personal Protective Equipment.

(a) Safety glasses shall be worn at all times by personnel working in the manufacturing area of reinforced plastics plants.

(b) Face shields and safety glasses shall be worn when opening and filling pressurized catalyst injection equipment.

(c) An eyewash fountain shall be provided no more than 25 feet or 15 seconds of actual travel from a work area where MEK peroxide is being mixed or transferred.

(A) The criteria of 25 feet shall apply if the employee is working alone.

(B) The criteria of 15 seconds shall apply if other employees are close enough under normal working conditions to provide assistance and a formal training program which includes emergency first aid procedures for eye protection has been implemented.

(d) Clothing saturated or impregnated with flammable liquids, corrosive or toxic substances, irritants, or oxidizing agents, that present a health hazard to employees shall be removed and disposed of, or properly cleaned before reuse; however, clothing coated with cured resin may be worn.

(8) Warning Signs and Labels.

(a) ~~[The hazardous chemical or material identification labels shall be placed on all containers of hazardous chemicals. Labels are not required on small containers of hazardous chemicals which are scheduled for use and disposal within one workshift. Keys explaining the labeling system shall be prominently posted in the workplace. Employees shall be trained in reading the labels.]~~ **Label chemical containers in accordance with 1910.1200, Hazard Communication.**

(b) Where extreme occupational health hazards are known to exist in the workplace, the employer shall provide warning signs or other equally effective means of calling attention to such hazards at the location where the hazards exist.

(9) Housekeeping.

(a) Housekeeping shall be sufficient to keep accumulations of combustible residues to a minimum as practical.

(b) All combustible and flammable residues shall be placed in covered noncombustible containers.

(c) To prevent excessive permanent buildup of overspray and overchop, the use of paper, polyethylene film, building or roofing paper or other similar sheet material shall be permitted on side walls and floors of chopper gun and gelcoat areas.

(A) When the accumulated depth of overchop and/or gelcoat has reached an average thickness of 2 inches in the overspray area, it shall be disposed of after at least 4 hours curing.

(B) A single day's accumulation of more than an average of 2 inches shall be permitted provided it is disposed of before operations are resumed the next day.

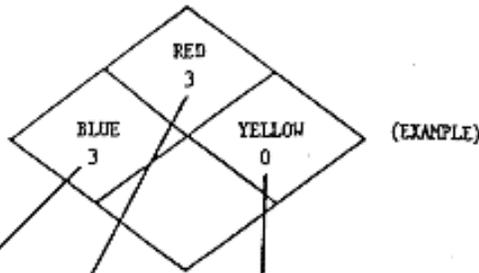
(d) Excess catalyzed resin inside a building shall be disposed of in open-topped containers provided with bar screens, large mesh wire screens, or other means, to support individual containers across its top through which surplus catalyzed resin can be poured and upon which empty containers that once held catalyzed resin can be placed to cure. The open-topped containers shall contain water at least 2

inches deep in which the resin shall be poured and permitted to cure in a safe fashion. Containers can be used until filled with setup resin and disposed of along with other nontoxic waste.

**\*\*\*Please note: The following table (TABLE OR-118-2) is proposed to be removed in its entirety.\*\*\***

[TABLE OR-118-2]

BLUE indicates HEALTH  
 RED indicates FIRE  
 YELLOW indicates REACTIVITY



BLUE	RED	YELLOW
HEALTH	FIRE	REACTIVITY
4 <u>HIGHLY TOXIC OR POISON</u> Produces death on short exposure.	4 <u>EXTREMELY FLAMMABLE</u> CLASS IA, and/or explosive when subjected to heat or flame.	4 <u>SHOCK SENSITIVE</u> Capable of detonation or explosive decomposition or reaction in the absence of confinement under normal temperatures and pressures.
3 <u>TOXIC AND/OR CORROSIVE</u> The capacity to produce personal injury through ingestion, inhalation, absorption, or destruction of skin or mucous membranes.	3 <u>FLAMMABLE</u> CLASS IB and IC  Flash point below 100°F.	7 <u>HIGHLY REACTIVE</u> Will undergo chemical change due to ordinary or elevated temperatures and pressures, or capable of detonation under confinement.
2 <u>IRRITANT OR SENSITIZER</u> Prolonged or repeated contact may produce inflammatory or allergic reaction.	2 <u>COMBUSTIBLE</u> CLASS II  Flash point 100°F to 140°F.	2 <u>MODERATELY REACTIVE</u> Will react with water with release of significant quantities of energy and/or may react with organic materials and oxidizing or reducing agents to cause excessive heat or fire.
1 <u>TEMPORARY DISCOMFORT</u> May cause discomfort which is relieved on removal from exposure.	1 <u>SLIGHTLY COMBUSTIBLE</u> CLASS III  Flash point at or above 140°F.	1 <u>SLIGHTLY REACTIVE</u> One or more constituents of material highly volatile. Composition and properties may change with time and temperature, daylight or artificial light.
0 No unusual hazard.	<u>NON-COMBUSTIBLE</u> 0 Flash point - none.	0 Normally stable.

(10) Hygiene Facilities and Practices. If acetone is used directly on the skin to clean hands, barrier or a therapeutic cream must be made available to the employee. Gloves shall be provided should any employee wish additional protection.

(11) Storage and Handling of Flammable ~~[and Combustible Materials]~~ **Liquids**.

(a) The storage and handling of acetone and other ~~[Class I and II]~~ **Category 1-3 flammable** liquids for cleanup and gun flushing shall be subject to the following requirements:

(A) ~~[Class I and II]~~ **Category 1-3 flammable** solvents shall be kept in containers that are covered during storage;

(B) Areas within the shop where acetone or other ~~[Class I]~~ **Category 1-3 flammable** solvents are transferred into containers less than 5 gallons each shall be considered Class I, Division 1 areas for a 5-foot radius around the point of transfer, and Class I Division 2, for an additional 5 feet outside of the area; and

(C) "Dirty" acetone in small individual cleanup containers of less than 5 gallons each may be handled by pouring into a larger container suitable for disposal or recycling which shall be kept covered.

(b) The following subsections shall apply to chopper gun or gelcoating areas:

(A) Areas where flammable ~~[and combustible]~~ liquids are used, shall be protected by automatic sprinklers or equivalent extinguishing systems. If a special extinguishing system including, but not limited to, those employing foam, carbon dioxide, or dry chemical~~[,]~~ is provided, approved equipment shall be used and installed in an approved manner.

(B) Exhaust fans mounted 4 feet or less, as measured from the invert (bottom) of the duct above the floor, shall have nonsparking fan blades, and

(i) A motor mounted external to the air stream in a nonexplosive atmosphere. The fan shall be driven by an interconnecting belt.

(ii) Those fans having air suction ducts 4 feet or less above the floor shall comply with subsection (11)(b)(B).

(C) Exhaust fans mounted more than 4 feet above the floor shall have nonsparking fan blades.

(D) All other electrical equipment in chopper gun or gelcoating operations must conform to the requirements of National Fire Protection Association (NFPA) 33-1989.

(c) Acetone and other ~~[Class I]~~ **Category 1-3 flammable** liquids shall be transferred only through a closed piping system from a safety can by means of a device drawing through the top or from a container or portable tank by gravity through an approved self-closing valve. The nozzle and container shall be electrically interconnected.

(d) Acetone shall be kept in covered containers when not in use.

(e) Special input and exhaust ventilation shall be provided where employees must be inside or under the item being fabricated (e.g., inside a pipe or boat hull or under a large fabricated shape) to keep air concentrations of hazardous and/or flammable ~~[or combustible]~~ materials at or below 25 percent of the lower explosive limit and employee exposure at or below the permissible exposure limit.

(f) Areas where flammable ~~[and combustible]~~ materials are handled shall either be posted with "No Smoking" signs, or smoking shall be prohibited throughout plant, manufacturing and storage areas.

(g) Storage and handling of flammable ~~[and combustible materials]~~ **liquids** not addressed in these rules shall meet the requirements of OAR 437~~[-Division 2, Subdivision H,]-~~ **002**-1910.106, Flammable ~~[and Combustible]~~ Liquids.

(12) Storage and Handling of Organic Peroxide Catalysts.

(a) Organic peroxide catalysts shall be isolated and stored in their original containers in a cool place under 100 degrees F (37.8 degrees C), away from other ~~[combustible or]~~ flammable materials and ignition sources.

(b) Organic peroxide catalyst containers shall be covered or kept closed at all times.

(c) Organic peroxide catalysts shall be brought into the area of use in no more than two consecutive days' supply.

(d) Larger than 8-pound containers of organic peroxide catalyst shall not be permitted outside designated catalyst storage areas, except for hand layup operations or for filling the catalyst reservoir of chopper gun and gelcoat equipment.

(e) When organic peroxide catalyst is being poured into the catalyst reservoir of chopper gun and gelcoat equipment, the catalyst container shall be equipped with a special curved pouring spout or other device which directs the catalyst into the reservoir without splashing.

(A) A supply of water of not less than 1-gallon shall be permanently installed on the chopper gun or gelcoat apparatus to wet down any catalyst spills which may occur due to overfilling. Catalyst spills shall be absorbed in accordance with the manufacturer's recommendations.

(B) Immediately after filling the chopper gun or gelcoat apparatus with catalyst, the empty or partially filled catalyst container shall be removed immediately before commencement of any other operation.

(13) Fire Protection. Areas where flammable [~~and combustible~~] materials are handled shall either be posted with "No Smoking" signs, or smoking shall be prohibited throughout plant, manufacturing and storage areas.

(14) Ventilation.

(a) Special input and exhaust ventilation shall be provided where employees must be inside or under the item being fabricated (e.g., inside a pipe or boat hull or under a large fabricated shape) to keep air concentrations of hazardous and/or flammable [~~or combustible~~] materials at or below 25 percent of the lower explosive limit and employee exposure at or below the permissible exposure limit.

(b) During cleanup and gun flushing with acetone or other [~~Class I and II~~]**Category 1-3 flammable** liquids, sufficient ventilation shall be provided to maintain air concentrations below 25 percent of the lower explosive limit (LEL) and employee exposure at or below the permissible exposure limit.

(c) Where acetone and [~~Class I~~]**Category 1-3 flammable** solvents are used in physical operations (e.g., mixing), there shall be a minimum ventilation rate of 1 cubic foot per minute per square foot of floor area in the immediate work area.

Stat. Auth.: ORS 654.025(2) and ORS 656.726([~~3~~]**4**).

**Stats. Implemented: ORS 654.001 through 654.295.**

Hist: OR-OSHA Admin. Order 2-1992, f. 2/6/92, ef. 5/1/92.

OR-OSHA Admin. Order 6-1994, f. 9/30/94, ef. 9/30/94.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

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## 437-002-0122 Dipping and Coating.

(1) Scope.

(a) This rule applies to all operations where an object is partially or fully immersed in a liquid, or the vapors of a liquid. Such operations include, but are not limited to, cleaning, coating, altering the surface of an object, or changing the character of an object. Examples of covered operations are paint dipping, electroplating, pickling, quenching, tanning, degreasing, stripping, cleaning, roll coating, flow coating, and curtain coating. This rule also applies to draining or drying an object that has been dipped or coated.

(b) This rule does not apply to tanks that contain only water or a molten material.

(2) Definitions.

Adjacent area: Any area within 20 feet (6.1 m) of a vapor area that is not separated from the vapor area by tight partitions.

Approved: The equipment is listed or approved by a nationally recognized testing laboratory.

Autoignition temperature: The minimum temperature required to cause self-sustained combustion, independent of any other source of heat.

~~[Combustible liquid: A liquid having a flash point of 100° F (37.8° C) or above. For purposes of this rule, combustible liquids include any liquid with a flash point above 200° F that is heated or has heated items placed in it.]~~

Dip tank: A container holding a liquid other than water and is used for dipping or coating. An object may be immersed (or partially immersed) in a dip tank or it may be suspended in a vapor coming from the tank.

Flammable liquid: A liquid having a flashpoint [~~below 100° F (37.8° C)~~]**at or below 199.4 degrees F (93 degrees C)**.

Flashpoint: The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite if tested in accordance with the [~~definition of "flashpoint" in OAR 437-002-1910.1200(c)~~]**test methods in Appendix B to OAR 437-002-1920.1200 – Physical Hazard Criteria**.

Lower flammable limit (LFL): The lowest concentration of a material that will propagate a flame. The LFL is usually expressed as a percent by volume of the material in air (or other oxidant).

Vapor area: Any space containing a dip tank, including its drain boards, associated drying or conveying equipment, and any surrounding area where the vapor concentration exceeds 25% of the LFL of the liquid in the tank.

(3) Any container used as a dip tank must be strong enough to withstand any expected load.

(4) Ventilation.

(a) Ensure airborne concentrations of materials in any vapor area do not exceed 25% of its LFL.

(b) A tank cover or material that floats on the surface of the liquid in a dip tank to replace or supplement ventilation is acceptable, as long as the airborne concentrations do not exceed 25% of the LFL or any limit established by Division 2, Subdivision Z.

(c) When mechanical ventilation is used, it must conform to design standards based on national consensus standards that meet the following:

(A) The standard specifies the safety requirements for the particular equipment;

(B) The standard is recognized in the United States as providing specifications that result in an adequate level of safety;

(C) The standard was developed by a standards development organization under a method providing for input and consideration of views of industry groups, experts, users, governmental authorities, and others having broad experience and expertise in issues related to the design and construction of the particular equipment.

(d) Nonmandatory appendix A of this section contains examples of consensus standards that meet the requirements of paragraph (4)(c) of this section.

(e) When mechanical ventilation is used, each dip tank must have an independent exhaust system unless the combination of substances being removed will not cause a fire, explosion, or chemical reaction.

(f) When mechanical ventilation is used, it must draw the flow of air into a hood or exhaust duct.

(A) Ensure each room with exhaust hoods has make-up airflow that is at least 90% of the volume of air exhausted.

(B) Ensure that make-up air does not damage exhaust hoods.

(C) When air is recirculated, it must meet the requirements of OAR 437-002-0081, "Oregon Ventilation Regulations."

(g) Inspect hoods and ventilation ductwork for corrosion or damage at least quarterly and prior to operation after a prolonged shutdown.

(h) Ensure the ventilation airflow is adequate at least quarterly and prior to operation after a prolonged shutdown.

- (5) Periodically inspect all dipping and coating equipment, including covers, drains, overflow piping, and electrical and fire-extinguishing systems, and promptly correct any deficiencies.
- (6) Thoroughly clean dip tanks of solvents and vapors before permitting welding, burning, or open-flame work.
- (7) Provide mechanical ventilation or respirators (selected and used as specified in OAR 437-002-1910.134, "Respiratory Protection) to protect employees in the vapor area from exposure to toxic substances released during welding, burning, or open-flame work.
- (8) Medical, first aid, and hygiene facilities.
- (a) All employees working with or around dip tanks must know the first-aid procedures appropriate to the dipping and coating hazards to which they are exposed.
- (b) When employees work with liquids that may burn, irritate, or otherwise harm their skin:
- (A) Obtain a physician's approval before an employee with a sore, burn, or other skin lesion that requires medical attention can return to work in a vapor area.
- (B) Only a properly designated person can provide treatment for any skin abrasion, cut, rash, or open sore.
- (C) Keep appropriate first-aid supplies near dipping or coating operations.
- (D) Provide employees who work with chromic acid periodic examinations, at least annually, of their exposed body parts, especially their nostrils.
- (E) Provide locker space or other storage space to prevent contamination of employee's street clothes.
- (F) Provide at least one basin with hot water for every 10 employees who work with such liquids.
- (G) Follow the emergency eyewash and shower facilities requirements of OAR 437-002-0161, "Medical & First Aid."
- (9) Before cleaning a dip tank:
- (a) Drain the tank and open the cleanout doors ; and
- (b) Ventilate and clear any pockets where hazardous vapors may have accumulated.
- (10) Use of flammable or combustible liquids.
- (a) Use only dip tanks constructed from non-combustible materials. When drainboards are used, use only drainboards constructed from non-combustible materials.
- (b) Overflow piping.
- (A) Provide properly trapped overflow piping for dip tanks that have a capacity greater than 150 gallons (568 liters) or a surface area greater than 10 square feet (0.95 square meters).
- (B) Overflow piping must discharge to a safe location.
- (C) Overflow piping must be at least 3 inches (7.6 cm) diameter and must have sufficient capacity to prevent the tank from overflowing.
- (D) The bottom of the overflow connector must be at least 6 inches (15.2 cm) below the top of the dip tank.
- (c) Bottom Drains.
- (A) Dip tanks containing more than 500 gallons (1893 L) of liquid must have a bottom drain.
- (i) A bottom drain is not required if an automatic cover that meets the requirements of paragraph (10)(d)(C) is used.
- (ii) A bottom drain is not required if the viscosity of the liquid at normal atmospheric temperature makes this impractical.
- (B) Ensure the bottom drain will empty the dip tank in the event of a fire.
- (C) Properly trap the bottom drain.
- (D) Ensure the bottom drain has pipes that will empty the dip tank within 5 minutes.

- (E) Bottom drains must discharge to a safe location.
  - (F) Bottom drains must be capable of manual and automatic operation. Manual operation must be from a safe and accessible location.
  - (G) When gravity flow from the bottom drain is impractical, use automatic pumps.
  - (d) Fire Protection.
    - (A) Provide portable fire extinguishers that meet the requirements of OAR 437-002-0187 in every vapor area.
    - (B) Provide an automatic fire extinguishing system:
      - (i) When the capacity of the dip tank is at least 150 gallons (568 L) or the liquid surface area is 4 square feet (0.38 square meters) or more; or
      - (ii) When the capacity of a hardening or tempering tank is at least 500 gallons (1893 L) or a liquid surface area of 25 square feet (2.37 square meters) or more.
    - (C) A cover that is closed by an approved automatic device for the automatic fire-extinguishing system may be used instead of the fire extinguishing system if the cover:
      - (i) Can also be activated manually;
      - (ii) Is noncombustible or tin-clad, with the enclosing metal applied with locked joints; and
      - (iii) Is kept closed when the dip tank is not in use.
    - (D) In each vapor area and any adjacent area, ensure that:
      - (i) All electrical wiring and equipment conform to OAR 437, Division 2, Subdivision S (except as specifically permitted in paragraph (15)); and
      - (ii) There are no flames, spark-producing devices, or other surfaces that are hot enough to ignite vapors.
    - (E) Electrically bond and ground portable containers used to add liquids to dip tanks to prevent static electrical sparks or arcs.
    - (F) All vapor areas must be free of combustible debris and as free as practicable of combustible stock.
    - (G) Deposit all rags or waste impregnated with dipping or coating material in a tightly-closing metal waste can immediately after use. Use only waste cans that are approved or acceptable to the local fire authority.
    - (H) Empty all waste containers at the end of each shift.
    - (I) Prohibit smoking in all vapor areas. Post a readily visible "No Smoking" sign near each dip tank or designate the entire area as "No Smoking."
  - (e) If a conveyor system is used with a dip tank, it must automatically shut down in the event of a fire. If a ventilation system is used to meet the ventilation requirements of paragraph (4), the conveyor system must automatically shut down if the ventilation system fails.
  - (f) If a liquid is heated in a dip tank, it must be maintained below the liquid's boiling point, and it must be maintained at least 100° F (37.8° C) below the liquid's autoignition temperature.
  - (g) Ensure that a heating system that is used in a drying operation and could cause ignition:
    - (A) Is installed in accordance with NFPA 86A-1969, Standard for Ovens and Furnaces (which is incorporated by reference in §1910.6 of this part); and
    - (B) Has adequate mechanical ventilation that operates before and during the drying operation; and
    - (C) Shuts down automatically if any ventilating fan fails to maintain adequate ventilation.
- (11) Hardening or Tempering Tanks.
- (a) Ensure that hardening or tempering tanks:
    - (A) Are located as far as practicable from furnaces;
    - (B) Are on noncombustible flooring;
    - (C) Have noncombustible hoods and vents (or equivalent devices) for venting to the outside. For this purpose, treat vent ducts as flues and keep them away from combustible materials, particularly roofs.
  - (b) Equip each tank with an alarm that will sound if the temperature of the liquid comes within 50° F (10° C) of its flashpoint (the alarm set point).

(c) When practicable, provide each tank with a limit switch to shut down the conveyor supplying work to the tank.

(d) If the temperature of the liquid can exceed the alarm set point, equip the tank with a circulating cooling system.

(e) If the tank has a bottom drain, the bottom drain may be combined with the oil-circulating system.

(f) Do not use air under pressure when filling the dip tank or agitating the liquid in the dip tank.

(12) Flow Coating.

(a) Use a direct low-pressure pumping system or a 10-gallon (38 L) or smaller gravity tank to supply the paint for flow coating. In case of fire, an approved heat-actuated device must shut down the pumping system.

(b) Ensure that the piping is substantial and rigidly supported.

(13) When roll coating, roll spreading, or roll impregnating operations use a flammable or combustible liquid that has a flashpoint below 140° F (60° C), prevent sparking of static electricity by:

(a) Bonding and grounding all metallic parts (including rotating parts) and installing static collectors; or

(b) Maintaining a conductive atmosphere (for example, one with a high relative humidity) in the vapor area.

(14) Vapor degreasing tanks.

(a) Ensure that the condenser or vapor-level thermostat keeps the vapor level at least 36 inches (91 cm) or one-half the tank width, whichever is less, below the top of the vapor degreasing tank.

(b) When using gas as a fuel to heat the tank liquid, the combustion chamber must be airtight (except for the flue opening) to prevent solvent vapors from entering the air-fuel mixture.

(c) The flue must be made of corrosion-resistant material, and it must extend to the outside. Install a draft diverter if mechanical exhaust is used on the flue.

(d) Do not allow the temperature of the heating element to cause a solvent or mixture to decompose or to generate an excessive amount of vapor.

(15) Ensure that cyanide tanks have a dike or other safeguard to prevent cyanide from mixing with an acid if a dip tank fails.

(16) If a liquid is sprayed in the air over an open-surface cleaning or degreasing tank, control the spraying to the extent feasible by:

(a) Enclosing the spraying operation; and

(b) Using mechanical ventilation to provide enough inward air velocity to prevent the spray from leaving the vapor area.

(17) Electrostatic paint detearing.

(a) Use only approved electrostatic equipment in paint-detearing operations. Electrodes in such equipment must be substantial, rigidly supported, permanently located, and effectively insulated from ground by nonporous, noncombustible, clean, dry insulators.

(b) Use conveyors to support any goods being paint deteared.

(c) Do not manually handle goods being electrostatically deteared.

(d) Maintain a minimum distance of twice the sparking distance between goods being electrostatically deteared and the electrodes or conductors of the electrostatic equipment.

This minimum distance must be displayed conspicuously on a sign located near the equipment.

(e) Ensure that the electrostatic equipment has automatic controls that immediately disconnect the power supply to the high-voltage transformer and signal the operator if:

(A) Ventilation or the conveyors fail to operate;

(B) A ground (or imminent ground) occurs anywhere in the high-voltage system; or

(C) Goods being electrostatically deteared come within twice the sparking distance of the electrodes or conductors of the equipment.

(f) Use fences, rails, or guards, made of conducting material and adequately grounded, to separate paint-detearing operations from storage areas and from personnel.

(g) To protect paint-detearing operations from fire, use automatic sprinklers or an automatic fire-extinguishing system conforming to the requirements of OAR 437, Division 2, Subdivision F.

(h) To collect paint deposits, provide drip plates and screens and clean these plates and screens in a safe location.

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 9-2007, f. 12/3/07, ef. 12/3/07.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

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## Division 2/Q, Welding, Cutting and Brazing

### 437-002-0280

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

(1) 29 CFR 1910.251 Definitions, published 12/14/07, FR vol. 72, no. 240, p. 71061.

(2) 29 CFR 1910.252 General Requirements, published [9/9/09, FR vol. 74, no. 173, pp. 46350-

~~46361; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12]~~**3/26/12, FR vol. 77, no. 58, p. 17574.**

(3) 29 CFR 1910.253 Oxygen-Fuel Gas Welding and Cutting, published 12/14/07, FR vol. 72, no. 240, p. 71061.

(4) 29 CFR 1910.254 Arc Welding and Cutting, published 9/13/05, FR vol. 70, no. 176, p. 53925.

(5) 29 CFR 1910.255 Resistance Welding, published 4/11/90, Federal Register, vol. 55, no. 70, pp. 13710-13711.

These rules are on file with the Oregon Occupational Safety and Health Division, Department of Consumer and Business Services, and the United States Government Printing Office.

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 23-1990, f. 9/28/90, ef. 12/1/90.

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

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

OR-OSHA Admin. Order 4-2005, f. 12/14/05, ef. 12/14/05.

OR-OSHA Admin. Order 7-2008, f. 5/30/08, ef. 5/30/08.

OR-OSHA Admin. Order 2-2010, f. 2/25/10, ef. 2/25/10.

OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

1910.252 General requirements. Changes on page 17777 of the 3/26/12 Federal Register: [http://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](http://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf)

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437-002-0288 Health Protection and Ventilation – General.

(1) When welding or cutting operations are being performed on the following materials (Table OR-Q-1), the protective measures indicated are required unless atmospheric samples taken in the welder's breathing zone indicate that the concentration does not exceed the limits specified in Division 2/Z, OAR 437-002-0382, Oregon Rules for Air Contaminants.

(2) Nearby workers shall be afforded equivalent, effective, protection from these dangerous fumes.

**TABLE OR-Q-1**

<b>Material</b>	<b>[Labeled] Condition</b>	<b>[Labeled Condition] Protective Measures</b>
Manganese	Confined	Airline Respirator or Local Exhaust
Manganese	Space	Ventilation
Zinc	Indoors	Fume Respirator or Local Exhaust
Zinc	Confined	Ventilation
Lead	Space	Airline Respirator or Local Exhaust
Lead	Indoors or	Ventilation
Lead in Immediate Vicinity	Outdoors	Fume Respirator or Local Exhaust
Cadmium (in or coating base metals)	Confined	Ventilation
	Space	Airline Respirator or Local Exhaust
	Indoors or	Ventilation
Cadmium (in or coating base metals)	Outdoors	Fume Respirator or Local Exhaust
	Other workers	Ventilation
Cadmium (in filler metals)	Confined	Local Exhaust or Airline Respirator
Mercury	Space or	Airline Respirator or Local Exhaust
	Indoors	Ventilation
Mercury	Outdoors	
Beryllium	Confined	Fume Respirator
Manganese	Space	Local Exhaust and Airline Respirator
Beryllium	Confined	Airline Respirator or Local Exhaust
Beryllium	Space or	Ventilation
	Indoors	
Fluorine Compounds (Fluxes)	Outdoors	Approved Respirator
	Confined	Airline Respirator or Local Exhaust
	Space	Ventilation
	Confined	Airline Respirator or Local Exhaust
	Space	Ventilation
	Indoors or	Airline Respirator and Local Exhaust
	Outdoors	Ventilation
	Other Workers	Local Exhaust or Airline Respirator in Immediate Vicinity
	Indoors or	Fume Respirator or Comp. Local
	Outdoors	Exhaust Ventilation

**Stat. Auth.:** ORS 654.025(2) and ORS 656.726([3]4).

**Stats. Implemented:** ORS 654.001 through 654.295.

**Hist:** OR-OSHA Admin. Order 23-1990, f. 9/28/90, ef. 12/1/90.

OR-OSHA Admin. Order 6-1994, f. 9/30/94, ef. 9/30/94.

OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.

~~[437-002-0289 Precautionary Labels. Brazing (welding) filler metals containing zinc in significant amounts shall carry the following notice on tags, boxes or other containers:~~

~~WARNING~~

~~Contains Zinc~~

~~Poisonous Fumes May Be Formed on Heating~~

~~Do not breathe fumes. Use only with adequate ventilation such as fume collectors, exhaust ventilators or air-supplied respirators. If chest pain, cough or fever develops after use, call physician immediately.~~

~~Stat. Auth.: ORS 654.025(2) and ORS 656.726(3).~~

~~Hist: OR-OSHA Admin. Order 23-1990, f. 9/28/90, ef. 12/1/90.]~~

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## Subdivision Z – Toxic And Hazardous Substances

### 437-002-0360

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

(1) (Reserved) 29 CFR 1910.1000 Air contaminants. NOTE: 29 CFR 1910.1000 was repealed on 11/15/93 by OR-OSHA. In Oregon, OAR 437-002-0382 applies.

(2) 29 CFR 1910.1001 Asbestos, published [6/8/41, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**

(3) 29 CFR 1910.1002 Coal tar pitch volatiles, interpretation of term, published 1/21/83, Federal Register, vol. 43, p. 2768.

(4) 29 CFR 1910.1003 13 Carcinogens, published [4/27/41, FR vol. 76, no. 248, p. 80735] **3/26/12, FR vol. 77, no. 58, p. 17574.**

(5) 29 CFR 1910.1004 See §1910.1003, 13 Carcinogens.

(6) Reserved for 29 CFR 1910.1005.

(7) 29 CFR 1910.1006 See §1910.1003, 13 Carcinogens.

(8) 29 CFR 1910.1007 See §1910.1003, 13 Carcinogens.

(9) 29 CFR 1910.1008 See §1910.1003, 13 Carcinogens.

(10) 29 CFR 1910.1009 See §1910.1003, 13 Carcinogens.

(11) 29 CFR 1910.1010 See §1910.1003, 13 Carcinogens.

(12) 29 CFR 1910.1011 See §1910.1003, 13 Carcinogens.

(13) 29 CFR 1910.1012 See §1910.1003, 13 Carcinogens.

(14) 29 CFR 1910.1013 See §1910.1003, 13 Carcinogens.

(15) 29 CFR 1910.1014 See §1910.1003, 13 Carcinogens.

(16) 29 CFR 1910.1015 See §1910.1003, 13 Carcinogens.

(17) 29 CFR 1910.1016 See §1910.1003, 13 Carcinogens.

- (18) 29 CFR 1910.1017 Vinyl chloride, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (19) 29 CFR 1910.1018 Inorganic arsenic, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (20) 29 CFR 1910.1020 Access to Employee Exposure and Medical Records, published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.  
Appendix A - Sample Authorization Letter.  
Appendix B - Availability of NIOSH RTECS.
- (21) 29 CFR 1910.1025 Lead, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; 12/27/11, FR vol. 76, no. 248, p. 80735; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (22) 29 CFR 1910.1026 Chromium (VI), published [3/17/10, FR vol. 75, no. 51, pp. 12681-12686] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (23) 29 CFR 1910.1027 Cadmium, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (24) 29 CFR 1910.1028 Benzene, and Appendices A, B, C, D, and E, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (25) 29 CFR 1910.1029 Coke oven emissions, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (26) 29 CFR 1910.1030 Bloodborne pathogens, published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.
- (27) 29 CFR 1910.1043 Cotton dust, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (28) 29 CFR 1910.1044 1,2-dibromo-3-chloropropane, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (29) 29 CFR 1910.1045 Acrylonitrile, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (30) 29 CFR 1910.1047 Ethylene oxide, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (31) 29 CFR 1910.1048 Formaldehyde, and Appendices A, B, C, D and E, published [12/12/08, FR vol. 73, no. 240, pp. 75568-75589; amended with AO 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (32) 29 CFR 1910.1050 Methylenedianiline (MDA), published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (33) 29 CFR 1910.1051 1,3-Butadiene, published [6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12] **3/26/12, FR vol. 77, no. 58, p. 17574.**

(34) 29 CFR 1910.1052 Methylene Chloride, published [~~12/12/08, FR vol. 73, no. 240, pp. 75568-75589; amended with AO 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**

(NOTE: 29 CFR 1910.1101 Asbestos, was repealed by Federal Register, vol. 57, no. 110, issued 6/8/92, p. 24330.)

(35) 29 CFR 1910.1096 Ionizing radiation, published 6/20/96, FR vol. 61, no. 46, p. 31427.

(36) 29 CFR 1910.1200 Hazard communication, published [~~3/7/96, FR vol. 61, no. 46, p. 9245~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**

(37) 29 CFR 1910.1201 Retention of DOT Markings, Placards and Labels, published 7/19/94, Federal Register, vol. 59, p. 36700.

(38) 29 CFR 1910.1450 Occupational Exposure to Hazardous Chemicals in Laboratories, published [~~6/8/11, Federal Register, vol. 76, no. 110, p. 33590~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**

(39) 29 CFR 1910.1499 Removed. Published 3/7/96, Federal Register, vol. 61, no. 46, p. 9245.

(40) 29 CFR 1910.1500 Removed. Published 3/7/96, Federal Register, vol. 61, no. 46, p. 9245.

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

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

Stats. Implemented: ORS 654.001 through 654.295.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

OR-OSHA Admin. Order 6-1993, f. 5/17/93, ef. 5/17/93 (Air Contaminants-Temp).  
OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93 (remainder of 2/Z).  
OR-OSHA Admin. Order 17-1993, f. 11/15/93, ef. 11/15/93 (Air Contaminants-Perm).  
OR-OSHA Admin. Order 4-1995, f. 3/29/95, ef. 3/29/95 (Asbestos).  
OR-OSHA Admin. Order 8-1995, f. 8/25/95, ef. 8/25/95 (Asbestos).  
OR-OSHA Admin. Order 4-1996, f. 9/13/96, ef. 9/13/96 (Lead).  
OR-OSHA Admin. Order 6-1996, f. 11/29/96, ef. 11/29/96 (Asbestos).  
OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.  
OR-OSHA Admin. Order 6-1997, f. 5/2/97, ef. 5/2/97.  
OR-OSHA Admin. Order 8-1997, f. 11/14/97, ef. 11/14/97 (Methylene Chloride).  
OR-OSHA Admin. Order 1-1998, f. 2/13/98, ef. 2/13/98 (Methylene Chloride).  
OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.  
OR-OSHA Admin. Order 1-1999, f. 3/22/99, ef. 3/22/99.  
OR-OSHA Admin. Order 6-2001, f. 5/15/01, ef. 5/15/01 (Cotton Dust).  
OR-OSHA Admin. Order 10-2001, f. 9/14/01, ef. 10/18/01 (Bloodborne Pathogens).  
OR-OSHA Admin. Order 12-2001, f. 10/26/01, ef. 10/26/01 (Methylene Chloride).  
OR-OSHA Admin. Order 1-2005, f. 4/12/05, ef. 4/12/05.  
OR-OSHA Admin. Order 4-2006, f. 4/24/06, ef. 4/24/06.  
OR-OSHA Admin. Order 6-2006, f. 8/30/06, ef. 8/30/06.  
OR-OSHA Admin. Order 10-2006, f. 11/30/06, ef. 11/30/06.  
OR-OSHA Admin. Order 5-2009, f. 5/29/09, ef. 5/29/09.  
OR-OSHA Admin. Order 3-2010, f. 6/10/10, ef. 6/15/10.  
OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.  
OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12.  
OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.  
**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

1910.1001 Asbestos. Changes on page 17778 of the 3/26/12 Federal Register.

1910.1003 13 Carcinogens. Changes on page 17779 of the 3/26/12 Federal Register.

1910.1017 Vinyl chloride. Changes on page 17779 of the 3/26/12 Federal Register.

1910.1018 Inorganic arsenic. Changes on page 17780 of the 3/26/12 Federal Register.

1910.1025 Lead. Changes on page 17780 of the 3/26/12 Federal Register.

1910.1026 Chromium (VI). Changes on page 17781 of the 3/26/12 Federal Register.

1910.1027 Cadmium. Changes on page 17781 of the 3/26/12 Federal Register.

1910.1028 Benzene. Changes on page 17782 of the 3/26/12 Federal Register.

1910.1029 Coke oven emissions. Changes on page 17782 of the 3/26/12 Federal Register.

1910.1043 Cotton dust. Changes on page 17782 of the 3/26/12 Federal Register.

1910.1044 1,2-dibromo-3-cholorpropane. Changes on page 17782 of the 3/26/12 Federal Register.

1910.1045 Acrylonitrile. Changes on page 17783 of the 3/26/12 Federal Register.

1910.1047 Ethylene oxide. Changes on page 17783 of the 3/26/12 Federal Register.

1910.1048 Formaldehyde. Changes on page 17784 of the 3/26/12 Federal Register.

1910.1050 Methylenedianiline. Changes on page 17785 of the 3/26/12 Federal Register.

1910.1051 1,3-Butadiene. Changes on page 17785 of the 3/26/12 Federal Register.

1910.1052 Methylene chloride. Changes on page 17785 of the 3/26/12 Federal Register.

1910.1200 Hazard communication. Changes on page 17786 of the 3/26/12 Federal Register.

1910.1450 Occupational exposure to hazardous chemicals in laboratories. Changes on page 17888 of the 3/26/12 Federal Register.

[http://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](http://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf)

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437-002-0364

## Oregon Rules for MOCA (4,4'-Methylene bis (2-chloroaniline))

(1) Application. This rule applies to any areas in which MOCA (4,4'-Methylene bis (2-chloroaniline)) (CAS# 101-14-4) is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to transshipment in sealed containers, except for the labeling requirements under OAR 437-002-0364(5)(b), (c), and (d).

(2) Definitions:

“Absolute filter” is one capable of retaining 99.97 percent of a monodisperse aerosol of 0.3 µm particles.

“Administrator” means the Administrator of the Oregon Occupational Safety and Health Division, or any person directed to act for the Administrator.

“Authorized employee” means an employee whose duties require them to be in the regulated area and who has been specifically assigned by the employer.

“Clean change room” means a room where employees put on clean clothing and/or protective equipment in an environment free of MOCA. The clean change room shall be contiguous to and have an entry from a shower room, when the shower room facilities are otherwise required in this rule.

“Closed system” means an operation involving MOCA where containment prevents the release of MOCA into regulated areas, non-regulated areas, or the external environment.

“Decontamination” means the inactivation of MOCA or its safe disposal.

“Disposal” means the safe removal of MOCA from the work environment.

“Emergency” means an unforeseen circumstance or set of circumstances resulting in the release of MOCA which may result in exposure to or contact with MOCA.

“External environment” means any environment external to regulated and non-regulated areas.

“Isolated system” means a fully enclosed structure other than the vessel of containment of MOCA which is impervious to the passage of MOCA and which would prevent the entry of MOCA into regulated areas, non-regulated areas, or the external environment, should leakage or spillage from the vessel of containment occur.

“Laboratory type hood” is a device enclosed on three sides and the top and bottom, designed and maintained so as to draw air inward at an average linear face velocity of 150 feet per minute with a minimum of 125 feet per minute; designed, constructed, and maintained in such a way that an operation involving MOCA within the hood does not require the insertion of any portion of any employee's body other than their hands and arms.

“Non-regulated area” means any area under the control of the employer where entry and exit is neither restricted nor controlled.

“Open-vessel system” means an operation involving MOCA in an open vessel, which is not in an isolated system, a laboratory type hood, nor in any other system affording equivalent protection against the entry of MOCA into regulated areas, non-regulated areas, or the external environment.

“Protective clothing” means clothing designed to protect an employee against contact with or exposure to MOCA.

“Regulated area” means an area where entry and exit is restricted and controlled.

(3) Requirements for areas containing MOCA.

(a) A regulated area shall be established by an employer where MOCA is manufactured, processed, used, repackaged, released, handled or stored. All such areas shall be controlled in accordance with the requirements for the following category or categories describing the operation involved:

(A) Isolated systems. Employees working with MOCA within an isolated system, such as a “glove box” shall wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.

(B) Closed system operation. Within regulated areas where MOCA is stored in sealed containers, or contained in a closed system, including piping systems, with any sample ports or openings closed while MOCA is contained within:

(i) Access shall be restricted to authorized employees only; and

(ii) Employees shall be required to wash hands, forearms, face and neck upon each exit from the regulated areas, close to the point of exit and before engaging in other activities.

(C) Open vessel system operations. Open vessel system operations as defined in OAR 437-002-0364(2) are prohibited.

(D) Transfer from a closed system, charging or discharging point operations, or otherwise opening a closed system. In operations involving "laboratory type hoods," or in locations where MOCA is contained in an otherwise "closed system," but is transferred, charged, or discharged into other normally closed containers, the provisions of this rule shall apply.

(i) Access shall be restricted to authorized employees only.

(ii) Each operation shall be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation. Exhaust air shall not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air shall be introduced in sufficient volume to maintain the correct operation of the local exhaust system.

(iii) Employees shall be provided with, and required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.

(iv) Employees engaged in MOCA handling operations must be provided and required to wear and use respiratory protection, in accordance with OAR 437, Division 2/I, Personal Protective Equipment, 1910.134, Respiratory Protection.

(v) Prior to each exit from a regulated area, employees shall be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers shall be identified, as required under OAR 437-002-0364(5)(b), (c) and (d).

(vi) Employees shall be required to wash hands, forearms, face and neck on each exit from the regulated area, close to the point of exit, and before engaging in other activities.

(vii) Employees shall be required to shower after the last exit of the day.

(viii) Drinking fountains are prohibited in the regulated area.

(E) Maintenance and decontamination activities. In cleanup of leaks or spills, maintenance or repair operations on contaminated systems or equipment, or any operations involving work in an area where direct contact with MOCA could result, each authorized employee entering that area shall:

(i) Be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood in accordance with OAR 437, Division 2/I, Personal Protective Equipment;

(ii) Be decontaminated before removing the protective garments and hood; and

(iii) Be required to shower upon removing the protective garments and hood.

(F) Premixed solutions. Where MOCA is present only in a single solution at a temperature not exceeding 220° F, the establishment of a regulated area is not required; however:

(i) Only authorized employees shall be permitted to handle such materials;

(ii) Each day employees shall be provided with and required to wear a clean change of protective clothing (smocks, coveralls, or long-sleeved shirts and pants), gloves, and other protective garments and equipment necessary to prevent contact with the solution in the process used;

(iii) Employees shall be required to remove and leave protective clothing and equipment when leaving the work area at the end of the work day, or at any time solution is spilled on such clothing or equipment. Used clothing and equipment shall be placed in impervious containers for purposes of decontamination or disposal. The contents of such impervious containers shall be identified, as required under OAR 437-002-0364(5)(b), (c) and (d).

- (iv) Employees shall be required to wash hands and face after removing such clothing and equipment and before engaging in other activities;
- (v) Employees assigned to work covered by OAR 437-002-0364(3)(a)(F) shall be deemed to be working in regulated areas for the purposes of OAR 437-002-0364(4)(a); (b)(A), (B); (c)(C), (D), and 437-002-0364(5) through (7).
- (vi) Work areas where solution may be spilled shall be:
  - (I) Covered daily or after any spill with a clean covering; or
  - (II) Cleaned thoroughly daily and after any spill.

(4) General Regulated Area Requirements:

(a) Emergencies. In an emergency, immediate measures including, but not limited to, the requirements of sections (A), (B), (C), (D), and (E) below shall be implemented:

(A) The potentially affected area shall be evacuated as soon as the emergency has been determined.

(B) Hazardous conditions created by the emergency shall be eliminated and the potentially affected area shall be decontaminated prior to the resumption of normal operations.

(C) Special medical surveillance by a physician shall be instituted within 24 hours, for employees present in the potentially affected area at the time of the emergency. A report of the medical surveillance and any treatment shall be included in the incident report, in accordance with OAR 437-002-0364(6)(b).

(D) Where an employee has a known contact with MOCA, such employee shall be required to shower as soon as possible, unless contra-indicated by physical injuries.

(E) An incident report on the emergency shall be reported as provided in OAR 437-002-0364(6)(b).

(F) Emergency deluge showers and eyewash fountains supplied with running potable water shall be located near, within sight of, and on the same level with locations where a direct exposure to MOCA would be most likely as a result of equipment failure, or improper work practice.

(b) Hygiene Facilities and Practices.

(A) Storage or consumption of food, storage or use of containers of beverages, storage or application of cosmetics, smoking, storage of smoking materials, tobacco products or other products for chewing, or the chewing of such products, are prohibited in regulated areas.

(B) Where employees are required by OAR 437-002-0364 to wash, washing facilities shall be provided in accordance with OAR 437, Division 2/J, 1910.141, Sanitation.

(C) Where employees are required by OAR 437-002-0364 to shower, shower facilities shall be provided in accordance with OAR 437, Division 2/J, 1910.141 Sanitation.

(D) Where employees wear protective clothing and equipment clean change rooms shall be provided in accordance with OAR 437, Division 2/J, 1910.141, Sanitation, for the number of such employees required to change clothes.

(E) Where toilets are in regulated areas, such toilets shall be in a separate room.

(c) Contamination Control.

(A) Regulated areas, except for outdoor systems, shall be maintained under pressure negative with respect to non-regulated areas. Local exhaust ventilation may be used to satisfy this requirement. Clean make-up air in equal volume shall replace air removed.

(B) Any equipment, materials, or other item taken into or removed from a regulated area shall be done so in a manner that does not cause contamination in non-regulated areas or the external environment.

(C) Decontamination procedures shall be established and implemented to remove MOCA from the surfaces of materials, equipment, and the decontamination facility.

(D) Dry sweeping and dry mopping is prohibited.

(5) Signs, Information and Training.

(a) Signs.

(A) Entrances to regulated areas shall be posted with signs bearing the legend:

~~[CANCER-SUSPECT AGENT~~

AUTHORIZED PERSONNEL ONLY]

**DANGER**

**MOCA**

**(4,4'-METHYLENE BIS (2-CHLOROANILINE))**

**MAY CAUSE CANCER**

**AUTHORIZED PERSONNEL ONLY**

(B) Entrances to regulated areas containing operations covered in OAR 437-002-0364 (3)(a)(E), shall be posted with signs bearing the legend:

~~[CANCER-SUSPECT AGENT~~

~~EXPOSED IN THIS AREA~~

~~IMPERVIOUS SUIT INCLUDING~~

~~GLOVES, BOOTS, AND AIR-SUPPLIED~~

~~HOOD REQUIRED AT ALL TIMES~~

~~AUTHORIZED PERSONNEL ONLY]~~

**DANGER**

**MOCA**

**(4,4'-METHYLENE BIS (2-CHLOROANILINE))**

**MAY CAUSE CANCER**

**WEAR RESPIRATORY PROTECTION AND**

**PROTECTIVE CLOTHING IN THIS AREA**

**AUTHORIZED PERSONNEL ONLY**

(C) Appropriate signs and instructions shall be posted at the entrance to, and exit from, regulated areas, informing employees of the procedures that must be followed in entering and leaving a regulated area.

(b) Container Contents Identification.

(A) ~~Provide impervious c[C]ontainers [of a carcinogen and containers]as required under OAR 437-002-0364(3)(a)(D) (v), and 437-002-0391(5)(b), (c) and (d), which are accessible only to, and handled only by, authorized employees, or by other employees trained in accordance with OAR 437-002-0364 (5)(e) may have contents identification limited to a generic or proprietary name, or other proprietary identification, of MOCA and percent.]~~

**(i) Ensure only authorized employees have access to and handle containers.**

**(ii) Containers must display the following warning:**

**DANGER**

**CONTENTS CONTAMINATED with MOCA**

**(4,4'-METHYLENE BIS (2-CHLOROANILINE))**

**MAY CAUSE CANCER**

~~[(B) Containers of MOCA and containers required under OAR 437-002-0364(3)(a)(D)(v), and 437-002-0391(5)(b), (c) and (d), which are accessible to, or handled by employees other than authorized employees or employees trained in accordance with OAR 437-002-0364(5)(e) shall have contents identification which includes the full chemical name and Chemical Abstracts Service Registry Number as listed in OAR 437-002-0364(1).~~

~~(C) Containers shall have the warning words "CANCER-SUSPECT AGENT" displayed immediately under or adjacent to the contents identification.~~

~~(D) Containers which have MOCA contents with corrosive or irritating properties shall have label statements warning of such hazards, noting, if appropriate, particularly sensitive or affected portions of the body.]~~

**(B) Label all primary and secondary containers of MOCA in accordance with OAR 437-002-1910.1200.**

(c) Lettering.

**(A)** Lettering on signs and instructions required by OAR 437-002-0364(5)(a)[~~and (b)~~] shall be a minimum letter height of 2 inches.

**(B)** Labels on containers required under ~~[this division]~~ **OAR 437-002-0364(5)(b)(A)(ii)** shall not be less than 1/2 the size of the largest lettering on the package, and not less than 8 point type in any instance; provided that no such required lettering need be more than 1 inch in height.

(d) Prohibited Statements. No statement shall appear on or near any required sign, label, or instruction which contradicts or detracts from the effect of any required warning, information or instruction.

(e) Training and Indoctrination.

(A) Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program including, but not necessarily limited to:

(i) The nature of the carcinogenic hazards of MOCA including local and systemic toxicity;

(ii) The specific nature of the operation involving MOCA which could result in exposure;

(iii) The purpose for and application of the medical surveillance program, including, as appropriate, methods of self-examination;

(iv) The purpose for and application of decontamination practices and purposes;

(v) The purpose for and significance of emergency practices and procedures;

(vi) The employee's specific role in emergency procedures;

(vii) Specific information to aid the employee in recognition and evaluation of conditions and situations which may result in the release of MOCA;

(viii) The purpose for and application of specific first aid procedures and practices; and

(ix) A review of OAR 437-002-0364 at the employee's first training and indoctrination program and annually thereafter.

(B) Specific emergency procedures shall be prescribed, and posted, and employees shall be familiarized with their terms, and rehearsed in their application.

(C) All materials relating to the program shall be provided upon request to authorized representatives of the Administrator.

(6) Reports.

(a) Reserved.

(b) Incidents. Incidents which result in the release of MOCA into any area where employees may be potentially exposed shall be reported in accordance with this rule.

(A) A report of the occurrence of the incident and the facts obtainable at that time, including a report of any medical treatment of affected employees, shall be made within 24 hours to the Administrator.

(B) A written report shall be filed with the Administrator within 15 calendar days thereafter, and shall include:

(i) A description of the area involved, and the extent of known and possible employee exposure and area contamination; and

(ii) A report of any medical treatment of affected employees, and any medical surveillance program implemented; and

(iii) An analysis of the circumstances of the incident, and measures taken or to be taken, with specific completion dates, to avoid further similar releases.

(7) Medical Surveillance. At no cost to the employee, a program of medical surveillance shall be established and implemented for employees considered for assignment to enter regulated areas, and for authorized employees.

(a) Examinations:

(A) Before an employee is assigned to enter a regulated area, a pre-assignment physical examination by a physician shall be provided. The examination shall include the personal history of the employee, family and occupational background, including genetic and environmental factors.

(B) Authorized employees shall be provided periodic physical examinations, not less often than annually, following the pre-assignment examination.

(C) In all physical examinations, the examining physician shall consider whether there exist conditions of increased risk, including reduced immunological competence, those undergoing treatment with steroids or cytotoxic agents, pregnancy and cigarette smoking.

(b) Records:

(A) Employers of employees examined pursuant to this rule shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be maintained for the duration of the employee's employment. The employer shall comply with the requirements concerning transfer of records set forth in Division 2/Z, 1910.1020(h).

(B) Records required by this rule shall be provided upon request to employees, designated representatives, and the Administrator in accordance with OAR 437, Division 2/Z, 1910.1020, Access to Employee Exposure and Medical Records.

(C) Any physician who conducts a medical examination required by this rule shall furnish to the employer a statement of the employee's suitability for employment in the specific exposure.

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93.

OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

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#### 437-002-0361 Oregon-Initiated Rule.

~~(1) The requirements in these rules which pertain only to or are triggered by the excursion limit shall become effective 60 days after the adoption of these rules, except for the excursion limit provisions in 1910.1047(a)(2), (d), (f)(2), (g)(3), and (j), which shall become effective 142 days after adoption of these rules.~~

~~(2) Compliance with the requirements of this section which pertain only to or are triggered by the excursion limit shall be by 180 days (6 months) following the adoption of these rules, except for compliance with the excursion limit provisions of 1910.1047(a)(2), (d), (f)(2), (g)(3), and (j) of this section which shall be effective 210 days (7 months) after the adoption of these rules, and implementation of engineering controls specified for compliance with the excursion limit, which shall be 9 months after the adoption of these rules.~~

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

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

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[NOTE: The following Oregon-initiated rules have been retained, renumbered as 437-002-0377, and slightly amended from former Division 155, Hazard Communication, to cover Subpoenas and HazCom for Agriculture, which are not covered by 1910.1200.]

#### 437-002-0377 Additional Oregon Rules for Hazard Communication.

(1) ~~[Subpoenas, Citations, Penalties.~~

~~(a)]~~In addition to the provisions of 1910.1200(i)(11), the Oregon Occupational Safety and Health Division shall have the authority under ORS Chapter 654 to issue a subpoena or any protective orders.

(2) Agency actions under ORS Chapter 654 and these rules may be enforced by the issuance of additional citations and penalties pursuant to ORS 654.071(4), ORS 654.086(1)(d), or ORS 654.086(3). The Oregon Occupational Safety and Health Division may refer the matter to the Circuit Court in the county in which the proceedings are pending for enforcement of the sub- poena.

~~[(2) Hazard Communication for Agriculture.~~

~~(a) Definitions.~~

~~Agricultural employer means any person engaged in agricultural production or agricultural services (Standard Industrial Classification (SIC) Manual), Division A, Agriculture, Major Groups 01, 02 and 07) who has one or more employees; or any sole proprietor or member of a partnership who elects workers' compensation coverage as a subject worker pursuant to ORS 656.128.~~

~~Hand-labor operations means agricultural operations performed by hand or with hand tools, and other activities or operations performed in conjunction with hand-labor in the field. Some examples of "hand-labor operation" are the hand-cultivation, hand-weeding, hand-planting, and hand-harvesting of vegetables, nuts, fruits, seedlings or other crops, including mushrooms, and the hand-packing of produce into containers, whether done on the ground, on a moving machine, or in a temporary packing shed located in the field.~~

~~(b) Employee Training and Information.~~

~~(A) Agricultural employers shall provide all of their employees, or assure that the employees have been provided, with the brochure, "Safe Practices When Working Around Hazardous Agricultural Chemicals", developed by the Oregon Occupational Safety and Health Division. The brochure shall contain information on proper personal hygiene, protective safety equipment, general safety rules, proper work clothing, employee rights with respect to ORS Chapter 654 and common symptoms of exposure to hazardous chemicals.~~

~~(B) For employees performing hand-labor operations, provision of the brochure, information regarding the location and availability of Material Safety Data Sheets, and providing employee access to Material Safety Data Sheet information for the residual hazardous chemicals which they may reasonably be expected to contact, will be considered to meet the training and information requirements of 1910.1200.~~

~~(c) Material Safety Data Sheets. Upon request by an employee performing hand-labor operations, Material Safety Data Sheet information shall be made readily accessible for the residual hazardous chemicals which employees may reasonably be expected to contact.~~

~~(d) Employees who mix, load, apply, or otherwise handle hazardous chemicals shall be provided with all information and training required by 1910.1200.]~~

Stat. Auth.: ORS 654.025(2) and 656.726([3]4).

**Stats. Implemented: ORS 654.001 through 654.295.**

Hist: WCB Admin. Order, Safety 6-1984, f. 6/25/84, ef. 11/25/85.

APD Admin. Order 1-1988, f. 2/8/88 ef. 2/8/88.

OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

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## 437-002-0378 Oregon Rules for Pipe Labelling.

(1) Scope and Application. This division shall apply to all piping systems containing hazardous substances or that use asbestos as a pipe insulation material in buildings, structures and workplaces. This division does not apply to buried piping.

(2) Definitions.

Hazardous substances: any substance which is a physical or health hazard.

Health Hazard: [a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosive sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes or mucous membranes.] **A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to OAR 437-002-1910.1200 - Health Hazard Criteria.**

Physical Hazard: [a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, or oxidizer, pyrophoric, unstable (reactive) or water-reactive.] **A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. See Appendix B to OAR 437-002-1910.1200 – Physical Hazard Criteria.**

Piping system: includes pipes, single or multiple, of any kind and, in addition, valves and pipe coverings.

Pipes: conduits for the transport of gases, liquids, semiliquids or fine particulate dusts.

(3) Purpose. The purpose of this division is to prescribe minimum labelling requirements for all piping systems which contain hazardous substances, transport substances in a hazardous state, or which use asbestos as a pipe insulation material.

(4) Labelling.

(a) Pipes and piping systems which contain hazardous substances or transport substances in a hazardous state shall be labelled in accordance with subsections (A), (B), (C) and (D) or otherwise identified in accordance with subsection (c) of this rule:

(A) Positive identification of the hazardous contents of a piping system shall be by lettered labels. The label shall give the name of the contents in full or abbreviated form.

(B) Contents shall be identified by labelling with sufficient detail to identify the hazard.

(C) Label wording shall be brief, informative and simple.

(D) Labelling shall be accomplished by stencilling, the use of tape, adhesives, markers or approved alternative means.

(b) Pipes or piping systems which use asbestos as a pipe insulation material shall be labelled in accordance with subsection (b)(A), or otherwise identified in accordance with subsection (c) below:

(A) The label for pipe insulation containing asbestos shall include the following:

~~[DANGER  
CONTAINS ASBESTOS FIBER  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD]~~

**DANGER**  
**CONTAINS ASBESTOS FIBERS**  
**MAY CAUSE CANCER**  
**CAUSES DAMAGE TO LUNGS**  
**DO NOT BREATHE DUST**  
**AVOID CREATING DUST**

(c) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual pipes, as long as the alternative method identifies the pipe(s) to which it is applicable and conveys the information required by this rule. The written materials shall be readily accessible to the employees in their work areas during each shift. (OAR 437, Division 2/Z, Hazard Communication, 1910.1200.)

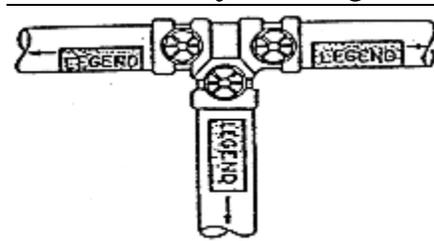
(5) Location of Labelling.

(a) Labelling shall be applied where confusion may occur, such as close to valves or flanges and adjacent to changes in direction, branches and where pipes pass through walls, floors or ceilings.

(b) Labelling shall be applied, at a minimum, at the beginning and end of continuous pipe runs.

(c) For asbestos insulation, labelling shall be at a minimum, on unobstructed continuous pipe runs, every 75 feet.

**Illustration 1**  
**Location of Labelling**



(6) Visibility.

(a) Where pipes are located above or below the normal line of vision, the lettering shall be placed below or above the horizontal centerline of the pipe.

(b) Where pipes are inaccessible and/or at a distance which precludes clear identification of the letters on labelling, alternatives to the labelling which meet all other requirements of this rule may be used (i.e., schematics posted on walls in work areas).

Stat. Auth: ORS 654.025(2) and 656.726([3]4).

**Stats. Implemented: ORS 654.001 through 654.295.**

Hist: WCD Admin. Order, Safety 8-1986, f. 9/4/86, ef. 10/1/87.

OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

Appendix A for Pipe Labelling  
(Non-Mandatory)

Table 1  
Classification of Hazards of Materials and Suggestions of Colors

Classification	Color Field**	Color of Letters For Legends
Materials Inherently Dangerous		
Flammable or Explosive	Yellow	Black
Chemically Active or Toxic	Yellow	Black
Extreme Temperatures or Pressures	Yellow	Black
Radioactive	Yellow	Magenta

Materials of Inherently Low Hazard

Liquid or Liquid Admixture	Green	White
Gas or Gaseous Admixture	Blue	White

\*\* Alternatives to the colors suggested by Table 1 may be acceptable if they meet all other requirements of this appendix and are used consistently on all pipes in a given location.

- (1) Color may be displayed on the piping by any physical means, but when it is used it shall be in combination with labels.
- (2) Color may be used in continuous, total length, or in intermittent displays.

Types and Sizes of Letters

- (1) Contrast shall be provided between color field and letters for readability.
- (2) Use of letters of block lettering in sizes 1/2 inch (13 mm) and larger, is recommended. (Table 2)

Table 2  
Types and Styles of Letters

Outside Diameter of Pipe or Covering		Length of Color Field		Size of Letters	
in.	mm.	in.	mm.	in.	mm.
3/4 to 1-1/4	19 to 32	8	200	1/2	13
1-1/2 to 2	38 to 51	8	200	3/4	19
2-1/2 to 6	64 to 150	12	300	1-1/4	32
8 to 10	200 to 250	24	600	2-1/2	64
over 10	over 250	32	800	3-1/2	89

- (3) For identification of materials in pipes less than 3/4 inch (19 mm.) in diameter, and for value and fitting identification, the use of a legible tag is recommended.

**Stat. Auth:** ORS 654.025(2) and 656.726(~~3~~4).

**Stats. Implemented:** ORS 654.001 through 654.295.

**Hist:** WCD Admin. Order, Safety 8-1986, f. 9/4/86, ef. 10/1/87.

OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93.

OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.

### 437-002-0391 Additional Oregon Rules for Carcinogens in Laboratories.

(1) Definitions.

“Absolute filter” is one capable of retaining 99.97 percent of a monodisperse aerosol of 0.3 µm particles.

For the purposes of OAR 437-002-0391, “carcinogen” is defined as the substances regulated by 29 CFR 1910.1003, 1910.1004, 1910.1006, 1910.1007, 1910.1008, 1910.1009, 1910.1010, 1910.1011, 1910.1012, 1910.1013, 1910.1014, 1910.1015, 1910.1016 and OAR 437-002-0364.

(2) Laboratory activities. The requirements of this section shall apply to research and quality control activities involving the use of a carcinogen.

(a) Mechanical pipetting aids shall be used for all pipetting procedures.

(b) Experiments, procedures and equipment which could produce aerosols shall be confined to laboratory-type hoods or glove boxes.

(c) Surfaces on which a carcinogen is handled shall be protected from contamination.

(d) Contaminated wastes and animal carcasses shall be collected in impervious containers which are closed and decontaminated prior to removal from the work area. Such wastes and carcasses shall be incinerated in such a manner that no carcinogenic products are released.

(e) All other forms of a carcinogen shall be inactivated prior to disposal.

(f) Laboratory vacuum systems shall be protected with disposable absolute filters. Exhaust systems containing such filters shall be provided with suitable ports or openings to enable determination of

whether the filter in its operating location, does meet the efficiency requirements defined in OAR 437-002-0391(1). Determination of filter efficiency shall be by measurement, with a forward light scattering photometer, of passage of a polydisperse dioctyl phthalate aerosol.

(g) Employees engaged in animal support activities shall be:

(A) Provided with, and required to wear, a complete protective clothing change, clean each day, including coveralls or pants and shirt, foot covers, head covers, gloves, and appropriate respiratory protective equipment or devices; and

(B) ~~[Prior to each exit from a regulated area, employees shall be r]~~**Required to remove and leave protective clothing and equipment at the point of exit prior to each exit from a regulated area and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers ~~[shall be identified as required under OAR 437-002-0364(5)(b), (c) and (d)-]~~**must display the following****

**warning:**

**DANGER**

**CONTAMINATED**

**MAY CAUSE CANCER**

(C) Required to wash hands, forearms, face and neck upon each exit from the regulated area close to the point of exit, and before engaging in other activities; and

(D) Required to shower after the last exit of the day.

(h) Employees, other than those engaged only in animal support activities, each day shall be:

(A) Provided with and required to wear a clean change of appropriate laboratory clothing, such as a solid front gown, surgical scrub suit, or full buttoned laboratory coat.

(B) ~~[Prior to each exit from a regulated area, employees shall be r]~~**Required to remove and leave protective clothing and equipment at the point of exit prior to each exit from a regulated area and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers **must display the following warning:**~~[shall be identified as required under OAR 437-002-0364(5)(b), (c) and (d)-]~~**

**DANGER**

**CONTAMINATED**

**MAY CAUSE CANCER**

(C) Required to wash hands, forearms, face and neck upon each exit from the regulated area close to the point of exit, and before engaging in other activities.

(i) Air pressure in laboratory areas and animal rooms where a carcinogen is handled and bio- assay studies are performed shall be negative in relation to the pressure in surrounding areas. Exhaust air shall not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated.

(j) There shall be no connection between regulated areas and any other areas through the ventilation system.

(k) A current inventory of carcinogens shall be maintained.

(l) Ventilated apparatus such as laboratory type hoods, shall be tested at least semi-annually or immediately after ventilation modification or maintenance operations, by personnel fully qualified to certify correct containment and operation.

Stat. Auth.: ORS 654.025(2) and 656.726([3]4).

**Stats. Implemented: ORS 654.001 through 654.295.**

Hist: WCB Admin. Order, Safety 3-1975, f. 10/6/75, f. 10/6/75, ef. 11/1/75.

OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93.

**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

## DIVISION 3, CONSTRUCTION

437-003-0001

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

(1) Subdivision A – GENERAL

- (a) 29 CFR 1926.1 Purpose and Scope, published 4/6/79, FR vol. 44, p. 20940.
- (b) 29 CFR 1926.2 Variances from safety and health standards, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.3 Inspections – right of entry, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.4 Rules of practice for administrative adjudications for enforcement of safety and health standards, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.6 Incorporation by reference, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.

(2) Subdivision B – GENERAL INTERPRETATIONS

- (a) 29 CFR 1926.10 Scope of subpart, published 4/6/79, FR vol. 44, p. 20940.
- (b) 29 CFR 1926.11 Coverage under section 103 of the act distinguished, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.12 Reorganization plan No. 14 of 1950, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.13 Interpretation of statutory terms, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.14 Federal contracts for ‘mixed’ types of performance, published 4/6/79, FR vol. 44, p. 20940.
- (f) 29 CFR 1926.15 Relationship to the service contract act; Walsh-Healey Public Contracts Act, published 4/6/79, FR vol. 44, p. 20940.

- (g) 29 CFR 1926.16 Rules of construction, published 4/6/79, FR vol. 44, p. 20940.

(3) Subdivision C – GENERAL SAFETY AND HEALTH PROVISIONS

- (a) 29 CFR 1926.20 General safety and health provisions, published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.
  - (b) 29 CFR 1926.21 Safety training and education, published 4/6/79, FR vol. 44, p. 20940.
  - (c) 29 CFR 1926.22 Recording and reporting of injuries (Reserved)
  - (d) 29 CFR 1926.23 First aid and medical attention, published 4/6/79, FR vol. 44, p. 20940.
  - (e) 29 CFR 1926.24 Fire protection and prevention, published 4/6/79, FR vol. 44, p. 20940.
  - (f) 29 CFR 1926.25 Housekeeping, published 4/6/79, FR vol. 44, p. 20940.
  - (g) 29 CFR 1926.26 Illumination, published 4/6/79, FR vol. 44, p. 20940.
  - (h) 29 CFR 1926.27 Sanitation, published 4/6/79, FR vol. 44, p. 20940.
  - (i) 29 CFR 1926.28 Personal protective equipment, published 4/6/79, FR vol. 44, p. 20940.
  - (j) 29 CFR 1926.29 Acceptable certifications, published 4/6/79, FR vol. 44, p. 20940.
  - (k) 29 CFR 1926.30 Shipbuilding and ship repairing, published 3/7/96, FR vol. 61, no. 46, p. 9249.
  - (l) 29 CFR 1926.31 (Reserved).
  - (m) 29 CFR 1926.32 Definitions, published 6/30/93, FR vol. 58, no. 124, p. 35078.
  - (n) 29 CFR 1926.33 Access to employee exposure and medical records, published 6/20/96, FR vol. 61, no. 46, p. 31427.
  - (o) 29 CFR 1926.34 Means of egress, published 6/30/93, Federal Register, vol. 58, no. 124, p. 35083.
- (4) Subdivision D – OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROLS
- (a) 29 CFR 1926.50 Medical services and first aid, published 12/27/11, FR vol. 76, no. 248, p. 80735.
  - (b) 29 CFR 1926.51 Sanitation, published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.
  - (c) 29 CFR 1926.52 Occupational noise exposure, published 4/6/79, FR vol. 44, p. 20940.
  - (d) 29 CFR 1926.53 Ionizing radiation, published 4/6/79, FR vol. 44, p. 20940.
  - (e) 29 CFR 1926.54 Nonionizing radiation, published 4/6/79, FR vol. 44, p. 20940.

- (f) 29 CFR 1926.55 Gases, vapors, fumes, dusts, and mists, published 1/10/97, FR vol. 62, no. 7, p. 1619.
- (g) 29 CFR 1926.56 Illumination, published 4/6/79, FR vol. 44, p. 20940.
- (h) 29 CFR 1926.57 Ventilation, published 1/8/98, FR vol. 63, no. 5, p. 1295.
- (i) 29 CFR 1926.58 Reserved, §1926.58, Asbestos, tremolite, anthophyllite and actinolite is redesignated as §1926.1101, Asbestos, and §1926.58 is reserved (8/10/94, FR vol. 59, no. 153, pp. 41131-62).
- (j) 29 CFR 1926.59 Hazard Communication, published 6/20/96, FR vol. 61, p. 31427; **amended with Oregon OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**
- (k) 29 CFR 1926.60 Methylenedianiline (MDA), published [~~6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (l) 29 CFR 1926.61 Retention of DOT markings, placards and labels, published 6/20/96, FR vol. 61, p. 31427.
- (m) 29 CFR 1926.62 Lead, published [~~6/8/11, Federal Register, no. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12; 12/27/11, FR vol. 76, no. 248, p. 80735; amended with OR-OSHA Admin. Order 1-2012, f. and ef. 4/10/12~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- NOTE: Cadmium has been redesignated as §1926.1127.
- (n) 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response  
NOTE: Division 2/H, 1910.120, Hazardous Waste Operations and Emergency Response, applies to Construction.
- (5) Subdivision E – PERSONAL PROTECTIVE AND LIFE SAVING EQUIPMENT
- (a) 29 CFR 1926.95 Criteria for personal protective equipment, published 11/15/07, FR vol. 72, no. 220, p. 64342.
- (b) 29 CFR 1926.100 Head protection, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.101 Hearing protection, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.102 Eye and face protection, published 6/30/93, FR vol. 58, no. 124, p. 35160.
- (e) 29 CFR 1926.103 Respiratory protection, published 1/8/98, FR vol. 63, no. 5, p. 1297.
- NOTE: 29 CFR 1926.104 Removed, 8/9/94, FR vol. 59, no. 152, p. 40729.
- (f) 29 CFR 1926.105 Reserved, 8/9/94, FR vol. 59, no. 152, p. 40729.
- (g) 29 CFR 1926.106 Working over or near water, published 4/6/79, FR vol. 44, p. 20940.
- (h) 29 CFR 1926.107 Definitions applicable to this subpart, published 8/9/94, FR vol. 59, no. 152, p. 40729.
- (6) Subdivision F – FIRE PROTECTION AND PREVENTION
- (a) 29 CFR 1926.150 Fire protection, published 4/6/79, FR vol. 44, p. 20940.
- (b) 29 CFR 1926.151 Fire prevention, published 7/11/86, FR vol. 51, p. 25318.
- (c) 29 CFR 1926.152 Flammable and combustible liquids, published [~~6/30/93, FR vol. 58, no. 124, p. 35162~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (d) 29 CFR 1926.153 Liquefied petroleum gas (LP-Gas), published 6/30/93, FR vol. 58, no. 124, p. 35170.
- (e) 29 CFR 1926.154 Temporary heating devices, published 4/6/79, FR vol. 44, p. 20940.
- (f) 29 CFR 1926.155 Definitions applicable to this subpart, published [~~4/6/79, FR vol. 44, p. 20940~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**
- (7) Subdivision G – SIGNS, SIGNALS, AND BARRICADES
- (a) 29 CFR 1926.200 Accident prevention signs and tags, published 6/30/93, FR vol. 58, no. 124, p. 35173; amended with OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.
- (b) 29 CFR 1926.201 Signaling, REPEALED with OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.
- (c) 29 CFR 1926.202 Barricades, REPEALED with OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.

- (d) 29 CFR 1926.203 Definitions applicable to this subpart, published 4/6/79, FR vol. 44, p. 20940; amended with OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03.
- (8) Subdivision H – MATERIALS HANDLING, STORAGE, USE AND DISPOSAL
- (a) 29 CFR 1926.250 General requirements for storage, published 6/30/93, FR vol. 58, no. 124, p. 35173.
- (b) 29 CFR 1926.251 Rigging equipment for material handling, published 6/8/11, Federal Register, vol. 74, no. 110, p. 33590.
- (c) 29 CFR 1926.252 Disposal of waste materials, published 4/6/79, FR vol. 44, p. 20940.
- (9) Subdivision I – TOOLS – HAND AND POWER
- (a) 29 CFR 1926.300 General requirements, published 3/7/96, FR vol. 61, no. 46, p. 9250.
- (b) 29 CFR 1926.301 Hand tools, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.302 Power operated hand tools, published 6/30/93, FR vol. 58, no. 124, p. 35175.
- (d) 29 CFR 1926.303 Abrasive wheels and tools, published 6/30/93, FR vol. 58, no. 124, p. 35175.
- (e) 29 CFR 1926.304 Woodworking tools, published 3/7/96, FR vol. 61, no. 46, p. 9251.
- (f) 29 CFR 1926.305 Jacks - lever and ratchet, screw, and hydraulic, published Federal Register vol. 58, no. 124, p. 35176.
- (10) Subdivision J – WELDING AND CUTTING
- (a) 29 CFR 1926.350 Gas welding and cutting, published 6/30/93, FR vol. 58, no. 124, p. 35179.
- (b) 29 CFR 1926.351 Arc welding and cutting, published 7/11/86, FR vol. 51, p. 25318.
- (c) 29 CFR 1926.352 Fire prevention, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.353 Ventilation and protection in welding, cutting, and heating, published 6/30/93, FR vol. 58, no. 124, p. 35179.
- (e) 29 CFR 1926.354 Welding, cutting, and heating in way of preservative coatings, published 4/6/79, FR vol. 44, p. 20940.
- (11) Subdivision K – ELECTRICAL
- (a) 29 CFR 1926.400 Introduction, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (b) 29 CFR 1926.401 (Reserved)
- (c) 29 CFR 1926.402 Applicability, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (d) 29 CFR 1926.403 General requirements, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (e) 29 CFR 1926.404 Wiring design and protection, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335; amended with AO 5-2002, repeal (b)(1), f. 6/28/02, ef. 10/1/03.
- (f) 29 CFR 1926.405 Wiring methods, components, and equipment for general use, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (g) 29 CFR 1926.406 Specific purpose equipment and installations, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (h) 29 CFR 1926.407 Hazardous (classified) locations, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (i) 29 CFR 1926.408 Special systems, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (j) 29 CFR 1926.409 (Reserved)
- (k) 29 CFR 1926.415 (Reserved)
- (l) 29 CFR 1926.416 General requirements, published 8/12/96, FR vol. 61, no. 156, p. 41738.
- (m) 29 CFR 1926.417 Lockout and tagging of circuits, published 8/12/96, FR vol. 61, no. 156, p. 41739.
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- (q) 29 CFR 1926.432 Environmental deterioration of equipment, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
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- (u) 29 CFR 1926.449 Definitions applicable to this subpart, published 7/11/86, FR vol. 51, no. 133, pp. 25294-25335.
- (12) Subdivision L – SCAFFOLDING
- (a) 29 CFR 1926.450 Scope, application and definitions applicable to this subpart, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (b) 29 CFR 1926.451 General requirements, published 11/25/96, FR vol. 61, no. 228, p. 59831.
- (c) 29 CFR 1926.452 Additional requirements applicable to specific types of scaffolds, published 8/30/96, FR vol. 61, no. 170, p. 46113.
- (d) 29 CFR 1926.453 Aerial lifts, published 11/25/96, FR vol. 61, no. 228, p. 59832.
- (e) 29 CFR 1926.454 Training, published 8/30/96, FR vol. 61, no. 170, p. 46117.
- (f) Appendix A to Subpart L Scaffold Specifications, published 8/30/96, FR vol. 61, no. 170, p. 46117.
- (g) Appendix B to Subpart L Criteria for determining the feasibility of providing safe access and fall protection for scaffold erectors and dismantlers (Reserved), published 8/30/96, FR vol. 61, no. 170, p. 46122.
- (h) Appendix C to Subpart L List of National Consensus Standards, published 8/30/96, FR vol. 61, no. 170, p. 46122.
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- (j) Appendix E to Subpart L Drawing and illustrations, published 11/25/96, FR vol. 61, no. 228, p. 59832.
- (13) Subdivision M – FALL PROTECTION
- (a) 29 CFR 1926.500 Scope, application, and definitions applicable to this subpart, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (b) 29 CFR 1926.501 Duty to have fall protection, published 8/9/94, FR vol. 59, no. 152, p. 40732-40733; amended with AO 6-2002, f. and ef. 7/19/02.
- (c) 29 CFR 1926.502 Fall protection systems criteria and practices, published 8/9/94, FR vol. 59, no. 152, p. 40733-40738; amended with AO 6-2002, f. and ef. 7/19/02.
- (d) 29 CFR 1926.503 Training requirements. REPEALED with AO 6-2002, f. and ef. 7/19/02, replaced with OI.
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- (f) Appendix B to Subpart M Guardrail Systems, published 8/9/94, FR vol. 59, no. 152, p. 40743.
- (g) Appendix C to Subpart M Personal Fall Arrest Systems, published 8/9/94, FR vol. 59, no. 152, p. 40743-40746.
- (h) Appendix D to Subpart M Positioning Device Systems, published 8/9/94, FR vol. 59, no. 152, p. 40746.
- (14) Subdivision N – HELICOPTERS, HOISTS, ELEVATORS, AND CONVEYORS
- (a) 29 CFR 1926.550 (Reserved).
- (b) 29 CFR 1926.551 Helicopters, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.552 Material hoists, personnel hoists, and elevators, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.553 Base-mounted drum hoist, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (e) 29 CFR 1926.554 Overhead hoists, published 4/6/79, FR vol. 44, p. 20940.
- (f) 29 CFR 1926.555 Conveyors, published 4/6/79, FR vol. 44, p. 20940.
- (15) Subdivision O – MOTOR VEHICLES, MECHANIZED EQUIPMENT, AND MARINE OPERATIONS
- (a) 29 CFR 1926.600 Equipment, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (b) 29 CFR 1926.601 Motor vehicles, REPEALED by OR-OSHA Admin. Order 6-2007, f. 9/26/07, ef. 9/26/07.

- (c) 29 CFR 1926.602 Material handling equipment, published 12/1/98, FR vol. 63, no. 230, p. 66274; amended by AO 7-2003, f. 12/5/03, ef. 12/5/03.
- (d) 29 CFR 1926.603 Pile driving equipment, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.604 Site clearing, published 7/22/77, FR vol. 42, p. 37674.
- (f) 29 CFR 1926.605 Marine operations and equipment, published 4/6/79, FR vol. 44, p. 20940.
- (g) 29 CFR 1926.606 Definitions applicable to this subpart, published 4/6/79, FR vol. 44, p. 20940.
- (16) Subdivision P – EXCAVATIONS
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  - (b) 29 CFR 1926.651 General requirements, published 8/9/94, FR vol. 59, no. 152, p. 40730.
  - (c) 29 CFR 1926.652 Requirements for protective systems, published 10/31/89, FR vol. 54, no. 209, pp. 45961-45962.
  - (d) Appendices A-F to Subdivision P, Excavations, published 10/31/89, FR vol. 54, no. 209, pp. 45962-45991.
- (17) Subdivision Q – CONCRETE AND MASONRY CONSTRUCTION
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  - (b) 29 CFR 1926.701 General requirements, published 8/9/94, FR vol. 59, no. 152, p. 40730.
  - (c) 29 CFR 1926.702 Requirements for equipment and tools, published 6/16/88, FR vol. 53, p. 22612.
  - (d) 29 CFR 1926.703 Requirements for cast-in-place concrete, published 6/16/88, FR vol. 53, p. 22612.
  - (e) 29 CFR 1926.704 Requirements for precast concrete, published 10/5/89, FR vol. 54, no. 192, p. 41088.
  - (f) 29 CFR 1926.705 Requirements for lift-slab construction operations, published 10/18/90, FR vol. 55, no. 202, p. 42326.
  - (g) Appendix A to 1926.705 Lift-slab operations, published 10/18/90, FR vol. 55, no. 202, p. 42326.
  - (h) 29 CFR 1926.706 Requirements for masonry construction, published 6/16/88, FR vol. 53, p. 22612; amended with OR-OSHA Admin. Order 1-2003, f. 1/30/03, ef. 4/30/03.
- (18) Subdivision R – STEEL ERECTION
  - (a) 29 CFR 1926.750 Scope, published 7/17/01, FR vol. 66, no. 137, p. 37137.
  - (b) 29 CFR 1926.751 Definitions, published 7/17/01, FR vol. 66, no. 137, p. 37137; amended with AO 6-2002, f. and ef. 7/19/02; amended with AO 8-2003, f. 12/30/03, ef. 1/1/04.
  - (c) 29 CFR 1926.752 Site layout, site-specific erection plan and construction sequence, published 7/17/01, FR vol. 66, no. 137, p. 37137.
  - (d) 29 CFR 1926.753 Hoisting and rigging, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
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  - (i) 29 CFR 1926.758 Systems-engineered metal buildings, published 7/17/01, FR vol. 66, no. 137, p. 37137.
  - (j) 29 CFR 1926.759 Falling object protection, published 7/17/01, FR vol. 66, no. 137, p. 37137.
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  - (l) 29 CFR 1926.761 Training, published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.
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  - (n) Appendix B to Subpart R Reserved.

- (o) Appendix C to Subpart R Illustrations of bridging terminus points: Nonmandatory Guidelines for Complying with §1926.757(a)(10) and §1926.757(c)(5), published 7/17/01, FR vol. 66, no. 137, p. 37137.
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- (q) Appendix E to Subpart R Training: Nonmandatory Guidelines for Complying with §1926.761, published 7/17/01, FR vol. 66, no. 137, p. 37137.
- (r) Appendix F to Subpart R Perimeter columns: Nonmandatory Guidelines for Complying with §1926.756(e) to Protect the Unprotected Side or Edge of a Walking/Working Surface, published 7/17/01, FR vol. 66, no. 137, p. 37137.
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- (19) Subdivision S – UNDERGROUND CONSTRUCTION, CAISSONS, COFFERDAMS, AND COMPRESSED AIR
- (a) 29 CFR 1926.800 Tunnels and shafts, published 8/9/10, FR vol. 75, no. 152, pp.47906-48177.
- (b) 29 CFR 1926.801 Caissons, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.802 Cofferdams, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.803 Compressed air, published 7/11/86, FR vol. 51, p. 25318.
- (e) 29 CFR 1926.804 Definitions applicable to this subpart, published 4/6/79, FR vol. 44, p. 20940.
- (f) Appendix A to Subpart S Decompression Tables, published 4/6/79, FR vol. 44, p. 20940.
- (20) Subdivision T – DEMOLITION
- (a) 29 CFR 1926.850 Preparatory operations, published 4/6/79, FR vol. 44, p. 20940.
- (b) 29 CFR 1926.851 Stairs, passageways, and ladders, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.852 Chutes, published 4/6/79, FR vol. 44, p. 20940.
- (d) 29 CFR 1926.853 Removal of materials through floor openings, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.854 Removal of walls, masonry sections, and chimneys, published 4/6/79, FR vol. 44, p. 20940.
- (f) 29 CFR 1926.855 Manual removal of floors, published 4/6/79, FR vol. 44, p. 20940.
- (g) 29 CFR 1926.856 Removal of walls, floors, and materials with equipment, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (h) 29 CFR 1926.857 Storage, published 4/6/79, FR vol. 44, p. 20940.
- (i) 29 CFR 1926.858 Removal of steel construction, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (j) 29 CFR 1926.859 Mechanical demolition, published 4/6/79, FR vol. 44, p. 20940.
- (k) 29 CFR 1926.860 Selective demolition by explosives, published 4/6/79, FR vol. 44, p. 20940.
- (21) Subdivision U – BLASTING AND USE OF EXPLOSIVES
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- (b) 29 CFR 1926.901 Blaster qualifications, published 4/6/79, FR vol. 44, p. 20940.
- (c) 29 CFR 1926.902 Surface transportation of explosives, published 6/30/93, FR vol. 58, no. 124, p. 35311.
- (d) 29 CFR 1926.903 Underground transportation of explosives, published 4/6/79, FR vol. 44, p. 20940.
- (e) 29 CFR 1926.904 Storage of explosives and blasting agents, published 6/30/93, FR vol. 58, no. 124, p. 35311.
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- (g) 29 CFR 1926.906 Initiation of explosive charges – electric blasting, published 6/18/98, FR vol. 63, no. 117, p. 33469.
  - (h) 29 CFR 1926.907 Use of safety fuse, published 4/6/79, FR vol. 44, p. 20940.
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  - (j) 29 CFR 1926.909 Firing the blast, published 4/6/79, FR vol. 44, p. 20940.
  - (k) 29 CFR 1926.910 Inspection after blasting, published 4/6/79, FR vol. 44, p. 20940.
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  - (o) 29 CFR 1926.914 Definitions applicable to this subpart, published 6/30/93, FR vol. 58, no. 124, p. 35184, 35311.
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- (a) 29 CFR 1926.950 General requirements, published 4/6/79, FR vol. 44, p. 20940.
  - (b) 29 CFR 1926.951 Tools and protective equipment, published 8/9/94, FR vol. 59, no. 152, p. 40730.
  - (c) 29 CFR 1926.952 Mechanical equipment, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
  - (d) 29 CFR 1926.953 Material handling, published 4/6/79, FR vol. 44, p. 20940.
  - (e) 29 CFR 1926.954 Grounding for protection of employees, published 4/6/79, FR vol. 44, p. 20940.
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- (23) Subdivision W – ROLLOVER PROTECTIVE STRUCTURES: OVERHEAD PROTECTION
- (a) 29 CFR 1926.1000 Rollover protective structures (ROPS) for material handling equipment, published 4/6/79, FR vol. 44, p. 20940.
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- (25) Subdivision Z – TOXIC AND HAZARDOUS SUBSTANCES

- (a) 29 CFR 1926.1101 Asbestos, published [~~6/8/11, Federal Register, vol. 76, no. 110, p. 33590; amended with OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12~~] **3/26/12, FR vol. 77, no. 58, p. 17574.**
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- (d) 29 CFR 1926.1152 Methylene Chloride, published 12/18/97, FR vol. 62, no. 243, p. 66275.
- (26) Subdivision AA – (Reserved)
- (27) Subdivision BB – (Reserved)
- (28) Subdivision CC – Cranes and Derricks in Construction
- (a) 29 CFR 1926.1400 Scope, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (b) 29 CFR 1926.1401 Definitions, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (c) 29 CFR 1926.1402 Ground conditions, published 8/9/10, FR vol. 75, no. 152. Pp. 47906-48177.
- (d) 29 CFR 1926.1403 Assembly/Disassembly – selection of manufacturer or employer procedures, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
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- (g) 29 CFR 1926.1406 Assembly/Disassembly – employer procedures – general requirements, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (h) 29 CFR 1926.1407 Power line safety (up to 350 kV) – assembly and disassembly, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
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- (m) 29 CFR 1926.1412 Inspections, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
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- (u) 29 CFR 1926.1420 Signals – radio, telephone or other electronic transmission of signals, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- (v) 29 CFR 1926.1421 Signals – voice signals – additional requirements, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
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- (x) 29 CFR 1926.1423 Fall protection, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
  - (y) 29 CFR 1926.1424 Work area control, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
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  - (mm) 29 CFR 1926.1438 Overhead & gantry cranes, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
  - (nn) 29 CFR 1926.1439 Dedicated pile drivers, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
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  - (ss) Appendix B to Subdivision CC of 1926 – Assembly/Disassembly – Sample Procedures for Minimizing the Risk of Unintended Dangerous Boom Movement, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
  - (tt) Appendix C to Subdivision CC of 1926 – Operator Certification – Written Examination – Technical Knowledge Criteria, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
  - (29) Subdivision DD – Cranes and Derricks Used in Demolition and Underground Construction, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
  - (a) 29 CFR 1926.1500 Scope, published 8/9/10, FR vol. 75, no. 152, pp.47906-48177.
  - (b) 29 CFR 1926.1501 Cranes and Derricks, published 8/9/10, FR vol. 75, no. 152, pp. 47906-48177.
- These standards are available at the Oregon Occupational Safety and Health Division, Oregon Department of Consumer and Business Services, and the United States Government Printing Office.

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: APD Admin. Order 5-1989, f. 3/31/89, ef. 5/1/89 (temp).

APD Admin. Order 8-1989, f. 7/7/89, ef. 7/7/89 (perm).

APD Admin. Order 14-1989, f. 7/20/89, ef. 8/1/89 (temp).

APD Admin. Order 15-1989, f. 9/13/89, ef. 9/13/89 (perm).

APD Admin. Order 16-1989 (temp), f. 9/13/89, ef. 9/13/89.  
OR-OSHA Admin. Order 2-1989, f. 10/17/89, ef. 10/17/89.  
OR-OSHA Admin. Order 3-1990, f. 1/19/90, ef. 1/19/90 (temp).  
OR-OSHA Admin. Order 7-1990, f. 3/2/90, ef. 3/2/90 (perm).  
OR-OSHA Admin. Order 8-1990, f. 3/30/90, ef. 3/30/90.  
OR-OSHA Admin. Order 13-1990, f. 6/28/90, ef. 8/1/90 (temp).  
OR-OSHA Admin. Order 19-1990, f. 8/31/90, ef. 8/31/90 (perm).  
OR-OSHA Admin. Order 27-1990, f. 12/12/90, ef. 2/1/91.  
OR-OSHA Admin. Order 6-1991, f. 3/18/91, ef. 4/15/91.  
OR-OSHA Admin. Order 7-1991, f. 4/25/91, ef. 4/25/91.  
OR-OSHA Admin. Order 15-1991, f. 12/13/91, ef. 12/13/91.  
OR-OSHA Admin. Order 16-1991, f. 12/16/91, ef. 1/1/92.  
OR-OSHA Admin. Order 6-1992, f. 5/18/92, ef. 5/18/92.  
OR-OSHA Admin. Order 11-1992, f. 10/9/92, ef. 10/9/92.  
OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93.  
OR-OSHA Admin. Order 16-1993, f. 11/1/93, ef. 11/1/93 (Lead).  
OR-OSHA Admin. Order 1-1994, f. 4/27/94, ef. 4/27/94.  
OR-OSHA Admin. Order 4-1994, f. 8/4/94, ef. 8/4/94 (HazCom).  
OR-OSHA Admin. Order 6-1994, f. 9/30/94, ef. 9/30/94.  
OR-OSHA Admin. Order 1-1995, f. 1/19/95, ef. 1/19/95 (DOT markings, placards & labels).  
OR-OSHA Admin. Order 3-1995, f. 2/22/95, ef. 2/22/95 (Haz Waste).  
OR-OSHA Admin. Order 4-1995, f. 3/29/95, ef. 3/29/95 (Asbestos).  
OR-OSHA Admin. Order 5-1995, f. 4/6/95, ef. 4/6/95 (HazCom).  
OR-OSHA Admin. Order 6-1995, f. 4/18/95, ef. 6/1/95 (Fall Protection).  
OR-OSHA Admin. Order 8-1995, f. 8/25/95, ef. 8/25/95 (Asbestos).  
OR-OSHA Admin. Order 5-1996, f. 11/29/96, ef. 11/29/96.  
OR-OSHA Admin. Order 6-1996, f. 11/29/96, ef. 11/29/96.  
OR-OSHA Admin. Order 2-1997, f. 3/12/97, ef. 3/12/97.  
OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.  
OR-OSHA Admin. Order 6-1997, f. 5/2/97, ef. 5/2/97.  
OR-OSHA Admin. Order 7-1997, f. 9/15/97, e. 9/15/97 (Fall Protection).  
OR-OSHA Admin. Order 8-1997, f. 11/14/97, e. 11/14/97 (Methylene Chloride).  
OR-OSHA Admin. Order 1-1998, f. 2/13/98, e. 2/13/98 (Methylene Chloride).  
OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98 (Respiratory Protection).  
OR-OSHA Admin. Order 6-1998, f. 10/15/98, ef. 10/15/98 (Slings 3/H).  
OR-OSHA Admin. Order 7-1998, f. 12/28/98, ef. 12/28/98 (Asbestos).  
OR-OSHA Admin. Order 1-1999, f. 3/22/99, e. 3/22/99 (Methylene Chloride).  
OR-OSHA Admin. Order 4-1999, f. 4/30/99, ef. 4/30/99.  
OR-OSHA Admin. Order 6-1999, f. 5/26/99, ef. 5/26/99.  
OR-OSHA Admin. Order 3-2000, f. 2/8/00, ef. 2/8/00.  
OR-OSHA Admin. Order 3-2001, f. 2/5/01, ef. 2/5/01 (Fall Protection/Oregon Exceptions).  
OR-OSHA Admin. Order 3-2002, f. 4/15/02, ef. 4/18/02 (Steel Erection).  
OR-OSHA Admin. Order 5-2002, f. 6/28/02, ef. 10/1/03 (GFCI 3/K).  
OR-OSHA Admin. Order 6-2002, f. 7/19/02, ef. 7/19/02 (Fall Protection/Steel Erection).  
OR-OSHA Admin. Order 1-2003, f. 1/30/03, ef. 4/30/03 (3/Q Masonry Wall Bracing).  
OR-OSHA Admin. Order 2-2003, f. 1/30/03, ef. 1/30/03 (3/G).  
OR-OSHA Admin. Order 7-2003, f. 12/5/03, ef. 12/5/03 (3/O).  
OR-OSHA Admin. Order 8-2003, f. 12/30/03, ef. 1/1/04 (3/R).  
OR-OSHA Admin. Order 1-2005, f. 4/12/05, ef. 4/12/05 (3/D and 3/Z).  
OR-OSHA Admin. Order 2-2006, f. 4/28/06, ef. 4/28/06 (3/R).  
OR-OSHA Admin. Order 4-2006, f. 7/24/06, ef. 7/24/06.

OR-OSHA Admin. Order 5-2006, f. 8/7/06, ef. 1/1/07.  
OR-OSHA Admin. Order 6-2006, f. 8/30/06, ef. 8/30/06.  
OR-OSHA Admin. Order 10-2006, f. 11/30/06, ef. 11/30/06.  
OR-OSHA Admin. Order 6-2007, f. 9/26/07, ef. 9/26/07 (3/O).  
OR-OSHA Admin. Order 5-2008, f. 5/1/08, ef. 5/15/08 (PPE).  
OR-OSHA Admin. Order 5-2009, f. 5/29/09, ef. 5/29/09.  
OR-OSHA Admin. Order 3-2010, f. 6/10/10, ef. 6/15/10.  
OR-OSHA Admin. Order 1-2011, f. 2/9/11, ef. 2/9/11.  
OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.  
OR-OSHA Admin. Order 5-2011, f. 12/8/11, ef. 7/1/12.  
OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.  
**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

1926.59 Hazard Communication. \*\*With this rulemaking, Oregon OSHA is removing the text from 1926.59 and replacing it with a note referring the reader to 1910.1200 Hazard Communication. The requirements for construction work is identical to the general industry standard.\*\*

1926.60 Methylenedianiline. Changes on page 17889 of the 3/26/12 Federal Register.

1926.62 Lead. Changes on page 17890 of the 3/26/12 Federal Register.

1926.65 Hazardous waste operations and emergency response. \*\*Division 2/H, 1910.120 applies to construction. Oregon OSHA did not adopt 1926.65.\*\*

1926.152 Flammable liquids. Changes on page 17891 of the 3/26/12 Federal Register.

1926.155 Definitions applicable to this subpart. Changes on page 17894 of the 3/26/12 Federal Register.

1926.1101 Asbestos. Changes on page 17895 of the 3/26/12 Federal Register.

1926.1126 Chromium (VI). Changes on page 17895 of the 3/26/12 Federal Register.

1926.1127 Cadmium. Changes on page 17895 of the 3/26/12 Federal Register.

[http://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](http://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf)

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~~437-003-0035 Additional Rules. In addition to and not in lieu of administrative and legal actions outlined in 29 CFR 1926.59(i)(11), the State of Oregon may take the following actions:~~

~~(1) Issue subpoenas or any protective orders;~~

~~(2) Issue additional citations and penalties pursuant to ORS 654.071(4), ORS 654.086(1)(d), ORS 654.086(3) or OAR 437, Division 1; or~~

~~(3) Refer the matter to the circuit court in the county in which the proceedings are pending for enforcement of the subpoena.~~

~~Stat. Auth.: ORS 654.025(2) and 656.726(3).~~

~~Hist.: APD Admin. Order 8-1989, f. 7/7/89, ef. 7/7/89.~~

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## DIVISION 5, MARITIME ACTIVITIES

### PART 1915 – OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR SHIPYARD EMPLOYMENT

#### 437-005-0001

**Adoption by Reference.** In addition to, and not in lieu of, any other safety and health codes contained in OAR Chapter 437, the Department adopts by reference the following federal regulations printed as part of the Code of Federal Regulations, 29 CFR 1915, in the Federal Register:

(1) Subdivision A

(a) 29 CFR 1915.1. Purpose and authority, published 4/20/82, Federal Register (FR) vol. 47, p. 16984.

(b) 29 CFR 1915.2. Scope and application, published 4/20/82, FR vol. 47, p. 16984.

(c) 29 CFR 1915.3. Responsibility, published 4/20/82, FR vol. 47, p. 16984.

(d) 29 CFR 1915.4. Definitions, published 7/3/02, FR vol. 67, no. 128, p. 44541.

(e) 29 CFR 1915.5. Incorporation by reference, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.

(f) 29 CFR 1915.6. Commercial diving operations, published 4/20/82, FR vol. 47, p. 16984.

(g) 29 CFR 1915.7. Competent person, published 7/25/94, FR vol. 59, p. 37856.

(h) 29 CFR 1915.9. Compliance duties owed to each employee, published 12/12/08, FR vol. 73, no. 240, pp. 75568-75589.

(2) Subdivision B

(a) 29 CFR 1915.11. Scope, application and definitions applicable to this Subpart, published 7/25/94, FR vol. 59, p. 37857.

(b) 29 CFR 1915.12. Precautions before entering confined and enclosed spaces and other dangerous atmospheres, published 3/16/95, FR vol. 60, no. 51, p. 14218.

(c) 29 CFR 1915.13. Cleaning and other cold work, published 7/25/94, FR vol. 59, p. 37859.

(d) 29 CFR 1915.14. Hot work, published 7/3/02, FR vol. 67, no. 128, p. 44541.

(e) 29 CFR 1915.15. Maintenance of safe conditions, published 7/3/02, FR vol. 67, no. 128, p. 44541.

(f) 29 CFR 1915.16. Warning signs and labels, published 7/25/94, FR vol. 59, p. 37861.

Appendix A to Subpart B published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.

Appendix B to Subpart B published 7/25/94, FR vol. 59, p. 37816.

(3) Subdivision C

(a) 29 CFR 1915.31. Scope & application of subdivision, published 4/20/82, FR vol. 47, p. 16984.

(b) 29 CFR 1915.32. Toxic cleaning solvents, published 5/24/96, FR vol. 61, no. 102, p. 26351.

(c) 29 CFR 1915.33. Chemical paint & preservative remover, published 5/24/96, FR vol. 61, no. 102, p. 26351.

(d) 29 CFR 1915.34. Mechanical paint removers, published 5/24/96, FR vol. 61, no. 102, p. 26351.

- (e) 29 CFR 1915.35. Painting, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- (f) 29 CFR 1915.36. Flammable liquids, published 4/20/82, FR vol. 47, p. 16984.
- (4) Subdivision D
  - (a) 29 CFR 1915.51. Ventilation & protection in welding, cutting and heating, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (b) 29 CFR 1915.52. Fire prevention. REMOVED 9/15/04, FR vol. 69, p. 55667.
  - (c) 29 CFR 1915.53. Welding, cutting and heating of hollow metal containers & structure not covered by 1915.12, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (d) 29 CFR 1915.55. Gas welding & cutting, published 4/20/82, FR vol. 47, p. 16984.
  - (e) 29 CFR 1915.56. Arc welding and cutting, published 4/20/82, FR vol. 47, p. 16984.
  - (f) 29 CFR 1915.57. Uses of fissionable material in ship repairing and shipbuilding, published 4/20/82, FR vol. 47, p. 16984.
- (5) Subdivision E
  - (a) 29 CFR 1915.71. Scaffolds or staging, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (b) 29 CFR 1915.72. Ladders, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (c) 29 CFR 1915.73. Guarding of deck openings and edges, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (d) 29 CFR 1915.74. Access to vessels, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (e) 29 CFR 1915.75. Access to and guarding of dry docks and marine railways, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (f) 29 CFR 1915.76. Access to cargo spaces and confined spaces, published 4/20/82, FR vol. 47, p. 16984.
  - (g) 29 CFR 1915.77. Working surfaces, published amended 7/3/02, FR vol. 67, no. 128, p. 44541.
- (6) Subdivision F
  - (a) 29 CFR 1915.80 Scope, application, definitions and effective dates, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (b) 29 CFR 1915.81 Housekeeping, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (c) 29 CFR 1915.82 Lighting, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (d) 29 CFR 1915.83 Utilities, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (e) 29 CFR 1915.84 Working alone, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (f) 29 CFR 1915.85 Vessel radar and communication systems, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (g) 29 CFR 1915.86 Lifeboats, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (h) 29 CFR 1915.87 Medical services and first aid, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (i) 29 CFR 1915.88 Sanitation, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (j) 29 CFR 1915.89 Control of hazardous energy (lockout/tagout), published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (k) 29 CFR 1915.90 Safety color code for marking physical hazards, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (l) 29 CFR 1915.91. Accident prevention signs and tags, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (m) 29 CFR 1915.92. Retention of DOT markings, placards, and labels, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (n) 29 CFR 1915.93. Motor vehicle safety equipment, operation, and maintenance, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (o) 29 CFR 1915.94. Servicing of multi-piece and single-piece rim wheels, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
- (7) Subdivision G
  - (a) 29 CFR 1915.111. Inspection, published 4/20/ 82, FR vol. 47, p. 16984.

- (b) 29 CFR 1915.112. Ropes, chains and slings, published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.
- (c) 29 CFR 1915.113. Shackles and hooks, published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.
- (d) 29 CFR 1915.114. Chain falls and pull-lifts, published 4/20/82, FR vol. 47, p. 16984.
- (e) 29 CFR 1915.115. Hoisting and hauling equipment, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- (f) 29 CFR 1915.116. Use of gear, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- (g) 29 CFR 1915.117. Qualifications of operators, published 4/20/82, FR vol. 47, p. 16984.
- (h) 29 CFR 1915.118. Tables, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- (8) Subdivision H
  - (a) 29 CFR 1915.131. General precautions, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (b) 29 CFR 1915.132. Portable electric tools, published 4/20/82, FR vol. 47, p. 16984.
  - (c) 29 CFR 1915.133. Hand tools, published 4/20/ 82, FR vol. 47, p. 16984.
  - (d) 29 CFR 1915.134. Abrasive wheels, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (e) 29 CFR 1915.135. Powder actuated fastening tools, published 5/24/96, FR vol. 61, no. 102, p. 26351.
  - (f) 29 CFR 1915.136. Internal combustion engines other than ship's equipment, published 4/20/82, FR vol. 47, p. 16984.
- (9) Subdivision I
  - (a) 29 CFR 1915.151. Scope, application and definitions, published 5/24/96, FR vol. 61, no. 102, p. 26352.
  - (b) 29 CFR 1915.152. General requirements, published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.
  - (c) 29 CFR 1915.153. Eye and face protection, published 9/9/09, FR vol. 74, no. 173, pp. 46350-46361.
  - (d) 29 CFR 1915.154. Respiratory protection, published 5/24/96, FR vol. 61, no. 102, p. 26354.
  - (e) 29 CFR 1915.155. Head protection, published 9/9/09, FR vol. 74, no. 173, pp. 46350-46361.
  - (f) 29 CFR 1915.156. Foot protection, published 9/9/09, FR vol. 74, no. 173, pp. 46350-46361.
  - (g) 29 CFR 1915.157. Hand and body protection, published 5/24/96, FR vol. 61, no. 102, p. 26354.
  - (h) 29 CFR 1915.158. Lifesaving equipment, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (i) 29 CFR 1915.159. Personal fall arrest systems (PFAS), published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (j) 29 CFR 1915.160. Positioning device systems, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- Appendix A to Subpart I, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- Appendix B to Subpart I, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- (10) Subdivision J
  - (a) 29 CFR 1915.161. Scope and application of subdivision, published 4/20/ 82, FR vol. 47, p. 16984.
  - (b) 29 CFR 1915.162. Ship's boilers, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (c) 29 CFR 1915.163. Ship's piping systems, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (d) 29 CFR 1915.164. Ship's propulsion machinery, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
  - (e) 29 CFR 1915.165. Ship's decking machinery, published 7/3/02, FR vol. 67, no. 128, p. 44541.
- (11) Subdivision K
  - (a) 29 CFR 1915.171. Scope and application of subdivision, published 4/20/ 82, FR vol. 47, p. 16984.
  - (b) 29 CFR 1915.172. Portable air receiver and other unfired pressure vessels, published 7/3/02, FR vol. 67, no. 128, p. 44541.
  - (c) 29 CFR 1915.173. Drums and containers, published 4/20/82, FR vol. 47, p. 16984.
- (12) Subdivision L
  - (a) 29 CFR 1915.181. Electrical circuits and distribution boards, published 5/2/11, Federal Register vol. 76, no. 84, p. 24576.
- (13) Subdivisions M-O (Reserved)

(14) Subdivision P

- (a) 29 CFR 1915.501. General provisions, published 9/15/04, FR vol. 69, p. 55667.
  - (b) 29 CFR 1915.502. Fire safety plan, published 9/15/04, FR vol. 69, p. 55667.
  - (c) 29 CFR 1915.503. Precautions for hot work, published 9/15/04, FR vol. 69, p. 55667.
  - (d) 29 CFR 1915.504. Fire watches, published 9/15/04, FR vol. 69, p. 55667.
  - (e) 29 CFR 1915.505. Fire response, published 10/17/06, FR vol. 71, no. 200, p. 60843.
  - (f) 29 CFR 1915.506. Hazards of fixed extinguishing systems on board vessels and vessel sections, published 9/15/04, FR vol. 69, p. 55667.
  - (g) 29 CFR 1915.507. Land-side fire protection systems, published 10/17/06, FR vol. 71, no. 200, p. 60843.
  - (h) 29 CFR 1915.508. Training, published 9/15/04, FR vol. 69, p. 55667.
  - (i) 29 CFR 1915.509. Definitions applicable to this subpart, published 9/15/04, FR vol. 69, p. 55667.
- Appendix A to Subpart P, published 9/15/04, FR vol. 69, p. 55667.

(15) Subdivision Q-Y (Reserved)

(16) Subdivision Z

- (a) 29 CFR 1915.1000, Air Contaminants, published 12/27/11, FR vol. 76, no. 248, p. 80735.
  - (b) 29 CFR 1915.1001, Asbestos, published ~~[6/8/11, Federal Register, vol. 76, no. 110, p. 33590]~~  
**3/26/12, FR vol. 77, no. 58, p. 17574.**
- Appendix A to 1915.1001, published 6/29/95, FR vol. 60, p. 33972.  
Appendix B to 1915.1001, published 6/29/95, FR vol. 60, p. 33972.  
Appendix C to 1915.1001, published 6/8/11, Federal Register, vol. 76, no. 110, p. 33590.  
Appendix D to 1915.1001, published 8/10/94, FR vol. 59, p. 40964.  
Appendix E to 1915.1001, published 6/29/95, FR vol. 60, p. 33972.  
Appendix F to 1915.1001, published 6/29/95, FR vol. 60, p. 33972.  
Appendix G to 1915.1001, published 8/10/94, FR vol. 59, p. 40964.  
Appendix H to 1915.1001, published 6/29/95, FR vol. 60, p. 33972.  
Appendix I to 1915.1001, published 8/10/94, FR vol. 59, p. 40964.  
Appendix J to 1915.1001, published 8/10/94, FR vol. 59, p. 40964.  
Appendix K to 1915.1001, published 6/29/95, FR vol. 60, p. 33972.  
Appendix L to 1915.1001, published 8/23/96, FR vol. 61, p. 43454.
- (c) 29 CFR 1915.1002. Coal tar pitch volatiles; interpretation of term, published 6/20/96, FR vol. 61, p. 31427.
  - (d) 29 CFR 1915.1003. 13 Carcinogens (4-Nitrobiphenyl, etc.), published 6/20/96, FR vol. 61, p. 31427.
  - (e) 29 CFR 1915.1004. alpha-Naphthylamine, published 6/20/96, FR vol. 61, p. 31427.
  - (f) 29 CFR 1915.1005. (Reserved)
  - (g) 29 CFR 1915.1006. Methyl chloromethyl ether, published 6/20/96, FR vol. 61, p. 31427.
  - (h) 29 CFR 1915.1007. 3,3'-Dichlorobenzidene (and its salts), published 6/20/96, FR vol. 61, p. 31427.
  - (i) 29 CFR 1915.1008. bis-Chloromethyl ether, published 6/20/96, FR vol. 61, p. 31427.
  - (j) 29 CFR 1915.1009. beta-Naphthylamine, published 6/20/96, FR vol. 61, p. 31427.
  - (k) 29 CFR 1915.1010. Benzidine, published 6/20/96, FR vol. 61, p. 31427.
  - (l) 29 CFR 1915.1011. 4-Aminodiphenyl, published 6/20/96, FR vol. 61, p. 31427.
  - (m) 29 CFR 1915.1012. Ethyleneimine, published 6/20/96, FR vol. 61, p. 31427.
  - (n) 29 CFR 1915.1013. beta-Propiolactone, published 6/20/96, FR vol. 61, p. 31427.
  - (o) 29 CFR 1915.1014. 2-Acetylaminofluorene, published 6/20/96, FR vol. 61, p. 31427.
  - (p) 29 CFR 1915.1015. 4-Dimethylaminoazobenzene, published 6/20/96, FR vol. 61, p. 31427.
  - (q) 29 CFR 1915.1016. N-Nitrosodimethylamine, published 6/20/96, FR vol. 61, p. 31427.
  - (r) 29 CFR 1915.1017. Vinyl chloride, published 6/20/96, FR vol. 61, p. 31427.
  - (s) 29 CFR 1915.1018. Inorganic arsenic, published 6/20/96, FR vol. 61, p. 31427.
  - (t) 29 CFR 1915.1020 Access to employee exposure and medical records, published 6/20/96, FR vol. 61, p. 31427.
  - (u) 29 CFR 1915.1025. Lead, published 6/20/96, FR vol. 61, p. 31427.

(v) 29 CFR 1915.1026 Chromium (VI), published [~~3/17/10, FR vol. 75, no. 51, pp. 12681-12686~~]  
**3/26/12, FR vol. 77, no. 58, p. 17574.**

(w) 29 CFR 1915.1027. Cadmium, published 6/20/96, FR vol. 61, p. 31427.

(x) 29 CFR 1915.1028. Benzene, published 6/20/96, FR vol. 61, p. 31427.

(y) 29 CFR 1915.1030. Bloodborne pathogens, published 6/20/96, FR vol. 61, p. 31427.

(z) 29 CFR 1915.1044. 1,2 dibromo-3-chloropropane, published 6/20/96, FR vol. 61, p. 31427.

(aa) 29 CFR 1915.1045. Acrylonitrile, published 6/20/96, FR vol. 61, p. 31427.

(bb) 29 CFR 1915.1047. Ethylene oxide, published 6/20/96, FR vol. 61, p. 31427.

(cc) 29 CFR 1915.1048. Formaldehyde, published 6/20/96, FR vol. 61, p. 31427.

(dd) 29 CFR 1915.1050. Methylenedianiline, published 6/20/96, FR vol. 61, p. 31427.

(ee) 29 CFR 1915.1052 Methylene Chloride, published 1/10/97, Federal Register, vol. 62, no. 7, p. 1619.

(ff) 29 CFR 1915.1120 Access to employee exposure and medical records has been redesignated to §1915.1020.

(Note: 29 CFR 1915.99, Hazard Communication was redesignated as 1915.1200 on 7/1/93, FR vol. 58, no. 125, p. 35514.)

(gg) 29 CFR 1915.1200. Hazard communication, published 6/20/96, FR vol. 61, p. 31427.

(hh) 29 CFR 1915.1450. Occupational exposure to hazardous chemicals in laboratories, published 6/20/96, FR vol. 61, p. 31427.

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

Stats. Implemented: ORS 654.001 to 654.295.

Hist: OR-OSHA Admin. Order 9-1992, f. 9/24/92, ef. 11/1/92.

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

OR-OSHA Admin. Order 19-1993, f. 12/29/93, ef. 12/29/93.

OR-OSHA Admin. Order 4-1994, f. 8/4/94, ef. 8/4/94.

OR-OSHA Admin. Order 1-1995, f. 1/19/95, ef. 1/19/95.

OR-OSHA Admin. Order 2-1995, f. 1/25/95, ef. 1/25/95.

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

OR-OSHA Admin. Order 5-1995, f. 4/6/95, ef. 4/6/95.

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

OR-OSHA Admin. Order 5-1996, f. 11/29/96, ef. 18/29/96.

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

OR-OSHA Admin. Order 3-1997, f. 3/28/97, ef. 3/28/97.

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

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

OR-OSHA Admin. Order 7-1998, f. 12/28/98, ef. 12/28/98.

OR-OSHA Admin. Order 4-2001, f. 2/5/01, ef. 2/5/01.

OR-OSHA Admin. Order 4-2003, f. 5/6/03, ef. 5/6/03.

OR-OSHA Admin. Order 8-2004, f. 12/30/04, ef. 12/30/04.

OR-OSHA Admin. Order 1-2005, f. 4/12/05, ef. 4/12/05.

OR-OSHA Admin. Order 4-2006, f. 7/24/06, ef. 7/24/06.

OR-OSHA Admin. Order 6-2006, f. 8/30/06, ef. 8/30/06.

OR-OSHA Admin. Order 10-2006, f. 11/30/06, ef. 11/30/06.

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OR-OSHA Admin. Order 2-2010, f. 2/25/10, ef. 2/25/10.

OR-OSHA Admin. Order 3-2010, f. 6/10/10, ef. 6/15/10.

OR-OSHA Admin. Order 3-2011, f. 11/1/11, ef. 11/1/11.

OR-OSHA Admin. Order 4-2011, f. 12/8/11, ef. 12/8/11.

OR-OSHA Admin. Order 1-2012, f. 4/10/12, ef. 4/10/12.  
**OR-OSHA Admin. Order 5-2012, f. 9/25/12, ef. 9/25/12.**

1915.1001 Asbestos. Changes on page 17888 of the 3/26/12 Federal Register.

1915. 1026 Chromium (VI). Changes on page 17889 of the 3/26/12 Federal Register.

[http://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](http://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf)