



Oregon Administrative Rules  
Chapter 437

Division 2  
General Occupational Safety and Health

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Vinyl Chloride

Subdivision

**Z**

Administrative  
Order 3-2019



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

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

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

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

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

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

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

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

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

Cite as 1910.176(a)(1)

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

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

These rules are available in electronic and printable formats at [osha.oregon.gov](http://osha.oregon.gov).

Printed copies of these rules are available at:

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

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

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**437-002-0360 Adoption by Reference**

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

(18) 29 CFR 1910.1017 Vinyl chloride, published 5/14/19, FR vol. 84, no. 93, p. 21416.

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

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

Stats. Implemented: ORS 654.001 through 654.295.

Hist: APD Admin. Order 13-1988, f. 8/2/88, ef. 8/2/88 (Benzene).  
 APD Admin. Order 14-1988, f. 9/12/88, ef. 9/12/88 (Formaldehyde).  
 APD Admin. Order 18-1988, f. 11/17/88, ef. 11/17/88 (Ethylene Oxide).  
 APD Admin. Order 4-1989, f. 3/31/89, ef. 5/1/89 (Asbestos-Temp).  
 APD Admin. Order 6-1989, f. 4/20/89, ef. 5/1/89 (Non-Asbestiforms-Temp).  
 APD Admin. Order 9-1989, f. 7/7/89, ef. 7/7/89 (Asbestos & Non-Asbestiforms-Perm).  
 APD Admin. Order 11-1989, f. 7/14/89, ef. 8/14/89 (Lead).  
 APD Admin. Order 13-1989, f. 7/17/89, ef. 7/17/89 (Air Contaminants).  
 OR-OSHA Admin. Order 1-1990, f. 1/11/90, ef. 1/11/90 (Formaldehyde-Temp).  
 OR-OSHA Admin. Order 3-1990, f. 1/19/90, ef. 1/19/90 (Asbestos & Non-Asbestiforms-Temp).  
 OR-OSHA Admin. Order 6-1990, f. 3/2/90, ef. 3/2/90 (Formaldehyde-Perm).  
 OR-OSHA Admin. Order 7-1990, f. 3/2/90, ef. 3/2/90 (Asbestos & Non-Asbestiforms-Perm).  
 OR-OSHA Admin. Order 9-1990, f. 5/8/90, ef. 8/8/90 (Labs).  
 OR-OSHA Admin. Order 11-1990, f. 6/7/90, ef. 7/1/90 (Air Contaminants).  
 OR-OSHA Admin. Order 13-1990, f. 6/28/90, ef. 8/1/90 (Asbestos-Temp).  
 OR-OSHA Admin. Order 14-1990, f. 6/28/90, ef. 8/1/90 (Lead).  
 OR-OSHA Admin. Order 19-1990, f. 8/31/90, ef. 8/31/90 (Asbestos-Perm).  
 OR-OSHA Admin. Order 20-1990, f. 9/18/90, ef. 9/18/90 (Lead).  
 OR-OSHA Admin. Order 21-1990, f. 9/18/90, ef. 9/18/90 (Air Contaminants).  
 OR-OSHA Admin. Order 7-1991, f. 4/25/91, ef. 4/25/91 (Air Contaminants, Asbestos, Formaldehyde).  
 OR-OSHA Admin. Order 13-1991, f. 10/10/91, ef. 10/10/91 (Lead, Formaldehyde).  
 OR-OSHA Admin. Order 15-1991, f. 12/13/91, ef. 12/13/91 (Asbestos).  
 OR-OSHA Admin. Order 1-1992, f. 1/22/92, ef. 1/22/92 (Formaldehyde).  
 OR-OSHA Admin. Order 4-1992, f. 4/16/92, ef. 4/16/92 (Formaldehyde).  
 OR-OSHA Admin. Order 5-1992, f. 4/24/92, ef. 7/1/92 (Bloodborne Pathogens).  
 OR-OSHA Admin. Order 6-1992, f. 5/18/92, ef. 5/18/92 (Asbestos).  
 OR-OSHA Admin. Order 10-1992, f. 9/24/92, ef. 9/24/92 (Lead-temp).  
 OR-OSHA Admin. Order 11-1992, f. 10/9/92, ef. 10/9/92 (Asbestos).  
 OR-OSHA Admin. Order 12-1992, f. 10/13/92, ef. 10/13/92 (Formaldehyde).  
 OR-OSHA Admin. Order 15-1992, f. 12/30/92, ef. 12/30/92 (Air Contaminants, BBP, Labs).  
 OR-OSHA Admin. Order 1-1993, f. 1/22/93, ef. 1/22/93 (Cadmium, MDA).  
 OR-OSHA Admin. Order 6-1993, f. 5/17/93, ef. 5/17/93 (Air Contaminants-Temp).  
 OR-OSHA Admin. Order 12-1993, f. 8/20/93, ef. 11/1/93 (remainder of 2/Z).  
 OR-OSHA Admin. Order 17-1993, f. 11/15/93, ef. 11/15/93 (Air Contaminants-Perm).  
 OR-OSHA Admin. Order 4-1995, f. 3/29/95, ef. 3/29/95 (Asbestos).  
 OR-OSHA Admin. Order 8-1995, f. 8/25/95, ef. 8/25/95 (Asbestos).  
 OR-OSHA Admin. Order 4-1996, f. 9/13/96, ef. 9/13/96 (Lead).  
 OR-OSHA Admin. Order 6-1996, f. 11/29/96, ef. 11/29/96 (Asbestos).  
 OR-OSHA Admin. Order 4-1997, f. 4/2/97, ef. 4/2/97.  
 OR-OSHA Admin. Order 6-1997, f. 5/2/97, ef. 5/2/97.  
 OR-OSHA Admin. Order 8-1997, f. 11/14/97, ef. 11/14/97 (Methylene Chloride).  
 OR-OSHA Admin. Order 1-1998, f. 2/13/98, ef. 2/13/98 (Methylene Chloride).  
 OR-OSHA Admin. Order 3-1998, f. 7/7/98, ef. 7/7/98.  
 OR-OSHA Admin. Order 1-1999, f. 3/22/99, ef. 3/22/99.

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

## 1910.1017 Vinyl Chloride

### (a) Scope and application.

- (1) This section includes requirements for the control of employee exposure to vinyl chloride (chloroethene), Chemical Abstracts Service Registry No. 75014.
- (2) This section applies to the manufacture, reaction, packaging, repackaging, storage, handling or use of vinyl chloride or polyvinyl chloride, but does not apply to the handling or use of fabricated products made of polyvinyl chloride.
- (3) This section applies to the transportation of vinyl chloride or polyvinyl chloride except to the extent that the Department of Transportation may regulate the hazards covered by this section.

### (b) Definitions.

- (1) **Action level** means a concentration of vinyl chloride of 0.5 ppm averaged over an 8-hour work day.
- (2) **Assistant Secretary** means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or his designee.
- (3) **Authorized person** means any person specifically authorized by the employer whose duties require him to enter a regulated area or any person entering such an area as a designated representative of employees for the purpose of exercising an opportunity to observe monitoring and measuring procedures.
- (4) **Director** means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or his designee.
- (5) **Emergency** means any occurrence such as, but not limited to, equipment failure, or operation of a relief device which is likely to, or does, result in massive release of vinyl chloride.

- (6) **Fabricated product** means a product made wholly or partly from polyvinyl chloride, and which does not require further processing at temperatures, and for times, sufficient to cause mass melting of the polyvinyl chloride resulting in the release of vinyl chloride.
  - (7) **Hazardous operation** means any operation, procedure, or activity where a release of either vinyl chloride liquid or gas might be expected as a consequence of the operation or because of an accident in the operation, which would result in an employee exposure in excess of the permissible exposure limit.
  - (8) **OSHA Area Director** means the Director for the Occupational Safety and Health Administration Area Office having jurisdiction over the geographic area in which the employer's establishment is located.
  - (9) **Polyvinyl chloride** means polyvinyl chloride homopolymer or copolymer before such is converted to a fabricated product.
  - (10) **Vinyl chloride** means vinyl chloride monomer.
- (c) Permissible exposure limit.
- (1) No employee may be exposed to vinyl chloride at concentrations greater than 1 ppm averaged over any 8-hour period, and
  - (2) No employee may be exposed to vinyl chloride at concentrations greater than 5 ppm averaged over any period not exceeding 15 minutes.
  - (3) No employee may be exposed to vinyl chloride by direct contact with liquid vinyl chloride.
- (d) Monitoring.
- (1) A program of initial monitoring and measurement shall be undertaken in each establishment to determine if there is any employee exposed, without regard to the use of respirators, in excess of the action level.
  - (2) Where a determination conducted under paragraph (d)(1) of this section shows any employee exposures, without regard to the use of respirators, in excess of the action level, a program for determining exposures for each such employee shall be established. Such a program:
    - (i) Must be repeated at least quarterly for any employee is exposed, without regard to the use of respirators, in excess of the permissible exposure limit.

- (ii) Must be repeated not less than every 6 months for any employee is exposed, without regard to the use of respirators, in excess of the action level.
    - (iii) May be discontinued for any employee only when at least two consecutive monitoring determinations, made not less than 5 working days apart, show exposures for that employee at or below the action level.
  - (3) Whenever there has been a production, process or control change which may result in an increase in the release of vinyl chloride, or the employer has any other reason to suspect that any employee may be exposed in excess of the action level, a determination of employee exposure under paragraph (d)(1) of this section shall be performed.
  - (4) The method of monitoring and measurement shall have an accuracy (with a confidence level of 95 percent) of not less than plus or minus 50 percent from 0.25 through 0.5 ppm, plus or minus 35 percent from over 0.5 ppm through 1.0 ppm, and plus or minus 25 percent over 1.0 ppm. (Methods meeting these accuracy requirements are available in the "NIOSH Manual of Analytical Methods").
  - (5) Employees or their designated representatives shall be afforded reasonable opportunity to observe the monitoring and measuring required by this paragraph.
- (e) Regulated area.
- (1) A regulated area shall be established where:
    - (i) Vinyl chloride or polyvinyl chloride is manufactured, reacted, repackaged, stored, handled or used; and
    - (ii) Vinyl chloride concentrations are in excess of the permissible exposure limit.
  - (2) Access to regulated areas shall be limited to authorized persons.
- (f) Methods of compliance. Employee exposures to vinyl chloride shall be controlled to at or below the permissible exposure limit provided in paragraph (c) of this section by engineering, work practice, and personal protective controls as follows:
- (1) Feasible engineering and work practice controls shall immediately be used to reduce exposures to at or below the permissible exposure limit.



- (2) Wherever feasible engineering and work practice controls which can be instituted immediately are not sufficient to reduce exposures to at or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest practicable level, and shall be supplemented by respiratory protection in accordance with paragraph (g) of this section. A program shall be established and implemented to reduce exposures to at or below the permissible exposure limit, or to the greatest extent feasible, solely by means of engineering and work practice controls, as soon as feasible.
- (3) Written plans for such a program shall be developed and furnished upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director. Such plans must be updated at least annually.

(g) Respiratory protection.

- (1) General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph.

Oregon OSHA repealed 1910.1017(g)(2). In Oregon, OAR 437-002-1017 applies.

### **437-002-1017 Vinyl Chloride Respiratory Protection Program**

*The employer must implement a respiratory protection program in accordance with Division 2/I, 1910.134(b) through (d) (except (d)(1)(iii), and (d)(3)(iii)(B)(1) and (2)), and (e) through (m) and (o), which covers each employee required by Division 2/Z, 1910.1017, Vinyl Chloride, to use a respirator.*

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

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

#### 1910.1017(g)(3) Respirator selection.

(i) Employers must:

- (A) Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.

- (B) Provide an organic vapor cartridge that has a service life of at least 1-hour when using a chemical cartridge respirator at vinyl chloride concentrations up to 10 ppm.
  - (C) Select a canister that has a service life of at least 4 hours when using a powered air-purifying respirator having a hood, helmet, or full or half facepiece, or a gas mask with a front- or back-mounted canister, at vinyl chloride concentrations up to 25 ppm.
- (ii) When air-purifying respirators are used:
- (A) Air-purifying canisters or cartridges must be replaced prior to the expiration of their service life or the end of the shift in which they are first used, whichever occurs first.
  - (B) A continuous-monitoring and alarm system must be provided when concentrations of vinyl chloride could reasonably exceed the allowable concentrations for the devices in use. Such a system must be used to alert employees when vinyl chloride concentrations exceed the allowable concentrations for the devices in use.
- (h) Hazardous operations.
- (1) Employees engaged in hazardous operations, including entry of vessels to clean polyvinyl chloride residue from vessel walls, shall be provided and required to wear and use;
    - (i) Respiratory protection in accordance with paragraphs (c) and (g) of this section; and
    - (ii) Protective garments to prevent skin contact with liquid vinyl chloride or with polyvinyl chloride residue from vessel walls. The protective garments shall be selected for the operation and its possible exposure conditions.
  - (2) Protective garments shall be provided clean and dry for each use.
- (i) Emergency situations. A written operational plan for emergency situations shall be developed for each facility storing, handling, or otherwise using vinyl chloride as a liquid or compressed gas. Appropriate portions of the plan shall be implemented in the event of an emergency. The plan shall specifically provide that:
- (1) Employees engaged in hazardous operations or correcting situations of existing hazardous releases shall be equipped as required in paragraph (h) of this section;

- (2) Other employees not so equipped shall evacuate the area and not return until conditions are controlled by the methods required in paragraph (f) of this section and the emergency is abated.
- (j) Training. Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use.
- (1) The program shall include:
- (i) The nature of the health hazard from chronic exposure to vinyl chloride including specifically the carcinogenic hazard;
  - (ii) The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and necessary protective steps;
  - (iii) The purpose for, proper use, and limitations of respiratory protective devices;
  - (iv) The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps;
  - (v) The purpose for and a description of the monitoring program;
  - (vi) The purpose for, and a description of, the medical surveillance program;
  - (vii) Emergency procedures;
  - (viii) Specific information to aid the employee in recognition of conditions which may result in the release of vinyl chloride; and
  - (ix) A review of this standard at the employee's first training and indoctrination program, and annually thereafter.
- (2) All materials relating to the program shall be provided upon request to the Assistant Secretary and the Director.
- (k) Medical surveillance. A program of medical surveillance shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The program shall provide each such employee with an opportunity for examinations and tests in accordance with this paragraph. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.
- (1) At the time of initial assignment, or upon institution of medical surveillance;

- (i) A general physical examination shall be performed, with specific attention to detecting enlargement of liver, spleen or kidneys, or dysfunction in these organs, and for abnormalities in skin, connective tissues and the pulmonary system (See Appendix A).
- (ii) A medical history shall be taken, including the following topics:
  - (A) Alcohol intake;
  - (B) Past history of hepatitis;
  - (C) Work history and past exposure to potential hepatotoxic agents, including drugs and chemicals;
  - (D) Past history of blood transfusions; and
  - (E) Past history of hospitalizations.
- (iii) A serum specimen shall be obtained and determinations made of:
  - (A) Total bilirubin;
  - (B) Alkaline phosphatase;
  - (C) Serum glutamic oxalacetic transaminase (SGOT);
  - (D) Serum glutamic pyruvic transaminase (SGPT); and
  - (E) Gamma glutamyl transpeptidase.
- (2) Examinations must be provided in accordance with this paragraph at least annually.
- (3) Each employee exposed to an emergency shall be afforded appropriate medical surveillance.
- (4) A statement of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining physician promptly after any examination. A copy of the physician's statement shall be provided each employee.
- (5) If any employee's health would be materially impaired by continued exposure, such employee shall be withdrawn from possible contact with vinyl chloride.
- (6) Laboratory analyses for all biological specimens included in medical examinations shall be performed by accredited laboratories.

- (7) If the examining physician determines that alternative medical examinations to those required by paragraph (k)(1) of this section will provide at least equal assurance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of paragraph (k)(1) of this section, if the employer obtains a statement from the examining physician setting forth the alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director.
- (l) Communication of hazards.
- (1) Hazard communication—general.
- (i) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (1910.1200) for vinyl chloride and polyvinyl chloride.
- (ii) In classifying the hazards of vinyl chloride at least the following hazards are to be addressed: Cancer; central nervous system effects; liver effects; blood effects; and flammability.
- (iii) Employers shall include vinyl chloride in the hazard communication program established to comply with the HCS (1910.1200). Employers shall ensure that each employee has access to labels on containers of vinyl chloride and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (j) of this section.
- (2) Signs.
- (i) The employer shall post entrances to regulated areas with legible signs bearing the legend:

DANGER

VINYL CHLORIDE

MAY CAUSE CANCER

AUTHORIZED PERSONNEL ONLY

- (ii) The employer shall post signs at areas containing hazardous operations or where emergencies currently exist. The signs shall be legible and bear the legend:

DANGER

VINYL CHLORIDE

**MAY CAUSE CANCER****WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA****AUTHORIZED PERSONNEL ONLY**

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

**CANCER-SUSPECT AGENT AREA**

**AUTHORIZED PERSONNEL ONLY**

- (iv) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (l)(2)(ii) of this section:

**CANCER-SUSPECT AGENT IN THIS AREA**

**PROTECTIVE EQUIPMENT REQUIRED**

**AUTHORIZED PERSONNEL ONLY**

(3) Labels.

- (i) In addition to the other requirements in this paragraph (l), the employer shall ensure that labels for containers of polyvinyl chloride resin waste from reactors or other waste contaminated with vinyl chloride are legible and include the following information:

**CONTAMINATED WITH VINYL CHLORIDE**

**MAY CAUSE CANCER**

- (ii) Prior to June 1, 2015, employers may include the following information on labels of containers of polyvinyl chloride resin waste from reactors or other waste contaminated with vinyl chloride in lieu of the labeling requirements in paragraphs (l)(3)(i) of this section:

**CONTAMINATED WITH VINYL CHLORIDE**

**CANCER-SUSPECT AGENT**

- (4) Prior to June 1, 2015, employers may include the following information for containers of polyvinyl chloride in lieu of the labeling requirements in paragraphs (l)(1)(i) of this section:

**POLYVINYL CHLORIDE (OR TRADE NAME)**

**Contains**

**VINYL CHLORIDE**

**VINYL CHLORIDE IS A CANCER-SUSPECT AGENT**

(5)

- (i) Prior to June 1, 2015, employers may include either the following information in either paragraph (l)(5)(i) or (l)(5)(ii) of this section on containers of vinyl chloride in lieu of the labeling requirements in paragraph (l)(1)(i) of this section:

VINYL CHLORIDE  
EXTREMELY FLAMMABLE GAS UNDER PRESSURE  
CANCER-SUSPECT AGENT

- (ii) In accordance with 49 CFR Parts 170-189, with the additional legend applied near the label or placard:

CANCER-SUSPECT AGENT

- (6) 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.

(m) Records.

- (1) All records maintained in accordance with this section shall include the name of each employee where relevant.
- (2) Records of required monitoring and measuring and medical records shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020(a) through (e) and (g) through (i). These records shall be provided upon request to the Director. Authorized personnel rosters shall also be provided upon request to the Assistant Secretary and the Director.

(i) Monitoring and measuring records shall:

- (A) State the date of such monitoring and measuring and the concentrations determined and identify the instruments and methods used;
- (B) Include any additional information necessary to determine individual employee exposures where such exposures are determined by means other than individual monitoring of employees; and
- (C) Be maintained for not less than 30 years.

(ii) [Reserved]

- (iii) Medical records shall be maintained for the duration of the employment of each employee plus 20 years, or 30 years, whichever is longer.

- (n) Employee notification of monitoring results. The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results and the steps being taken to reduce exposures within the permissible exposure limit either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

[39 FR 35896, Oct. 4, 1974; 39 FR 41848, Dec. 3, 1974; as amended at 40 FR 13211, Mar. 25, 1975; 43 FR 49751, Oct. 24, 1978; 45 FR 35282, May 23, 1980; 54 FR 24334, Jun. 7, 1989; 58 FR 35310, Jun. 10, 1993; 61 FR 5508, Feb. 13, 1996; 63 FR 1286, Jan. 8, 1998; 70 FR 1111, Jan. 5, 2005; 71 FR 16672, Apr. 3, 2006; 71 FR 50183, Aug. 24, 2006; 73 FR 75585, Dec. 12, 2008; 76 FR 35590, Jun. 17, 2011; 77 FR 17574, Mar. 26, 2012; 84 FR 21416, May 14, 2019.]

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



## Appendix A to 1910.1017 Supplementary Medical Information

When required tests under paragraph (k)(1) of this section show abnormalities, the tests should be repeated as soon as practicable, preferably within 3 to 4 weeks. If tests remain abnormal, consideration should be given to withdrawal of the employee from contact with vinyl chloride, while a more comprehensive examination is made.

Additional tests which may be useful:

- A. For kidney dysfunction: urine examination for albumin, red blood cells, and exfoliative abnormal cells.
- B. Pulmonary system: Forced vital capacity, Forced expiratory volume at 1 second, and chest roentgenogram (posterior-anterior, 14 X 17 inches).
- C. Additional serum tests: Lactic acid dehydrogenase, lactic acid dehydrogenase isoenzyme, protein determination, and protein electrophoresis.
- D. For a more comprehensive examination on repeated abnormal serum tests: Hepatitis B antigen, and liver scanning.

[39 FR 35896, Oct. 4, 1974; 39 FR 41848, Dec. 3, 1974, as amended at 40 FR 13211, Mar. 25, 1975. Redesignated at 40 FR 23072, May 28, 1975 and amended at 43 FR 49751, Oct. 24, 1978; 45 FR 35282, May 23, 1980; 54 FR 24334, June 7, 1989; 58 FR 35310, June 30, 1993; 61 FR 5508, Feb. 13, 1996; 63 FR 1286, Jan. 8, 1998]

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

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 3-1998, f. 7/7/98, ef. 7/7/98.



## Historical Notes for Subdivision Z

**Note:** Effective 11/1/1993, Oregon OSHA has adopted by reference the remainder of the federal standards in Division 2/Z, Toxic and Hazardous Substances. This adoption replaces seven Oregon codes which are essentially identical to federal standards with the same titles. However, Oregon's former Div. 116, Carcinogens, which has grouped these substances in one code, has been replaced by 16 separate federal standards for the individual carcinogens. One carcinogen NOT regulated by federal OSHA is MOCA. In Oregon, MOCA has been regulated since 1975. Therefore, Oregon OSHA will continue this regulation with Oregon-initiated rule 437-02-364. Oregon OSHA has also retained and renumbered rules from Div. 116 which regulate the use of carcinogenic substances used in laboratory activities as OAR 437-02-391.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

In Division 2Z, Vinyl Chloride, Oregon OSHA removed requirements for employers to keep record of employee's social security numbers while doing recordkeeping.

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