


## Regulations (Standards - 29 CFR) Vinyl chloride. - 1910.1017

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• <b>Part Number:</b>	1910
• <b>Part Title:</b>	Occupational Safety and Health Standards
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• <b>Subpart Title:</b>	Toxic and Hazardous Substances
• <b>Standard Number:</b>	<u>1910.1017</u>
• <b>Title:</b>	Vinyl chloride.
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1910.1017(a)

Scope and application.

1910.1017(a)(1)

This section includes requirements for the control of employee exposure to vinyl chloride (chloroethene), Chemical Abstracts Service Registry No. 75014.

1910.1017(a)(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.

1910.1017(a)(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.

1910.1017(b)

Definitions.

1910.1017(b)(1)

"Action level" means a concentration of vinyl chloride of 0.5 ppm averaged over an 8-hour work day.

1910.1017(b)(2)

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

1910.1017(b)(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.

1910.1017(b)(4)

"Director" means the Director, National Institute for Occupational Safety and Health, or any person directed by him or the Secretary of Health and Human Services to act for the Director.

[1910.1017\(b\)\(5\)](#)

"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.

[1910.1017\(b\)\(6\)](#)

"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.

[1910.1017\(b\)\(7\)](#)

"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.

1910.1017(b)(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.

1910.1017(b)(9)

"Polyvinyl chloride" means polyvinyl chloride homopolymer or copolymer before such is converted to a fabricated product.

1910.1017(b)(10)

"Vinyl chloride" means vinyl chloride monomer.

1910.1017(c)

Permissible exposure limit.

1910.1017(c)(1)

No employee may be exposed to vinyl chloride at concentrations greater than 1 ppm averaged over any 8-hour period, and

1910.1017(c)(2)

No employee may be exposed to vinyl chloride at concentrations greater than 5 ppm averaged over any period not exceeding 15 minutes.

1910.1017(c)(3)

No employee may be exposed to vinyl chloride by direct contact with liquid vinyl chloride.

1910.1017(d)

Monitoring.

1910.1017(d)(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.

1910.1017(d)(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:

1910.1017(d)(2)(i)

Must be repeated at least quarterly for any employee exposed, without regard to the use of respirators, in excess of the permissible exposure limit.

1910.1017(d)(2)(ii)

Must be repeated not less than every 6 months for any employee exposed without regard to the use of respirators, at or above the action level.

1910.1017(d)(2)(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.

1910.1017(d)(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.

1910.1017(d)(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").

1910.1017(d)(5)

Employees or their designated representatives shall be afforded reasonable opportunity to observe the monitoring and measuring required by this paragraph.

1910.1017(e)

Regulated area.

1910.1017(e)(1)

A regulated area shall be established where:

1910.1017(e)(1)(i)

Vinyl chloride or polyvinyl chloride is manufactured, reacted, repackaged, stored, handled or

used; and

1910.1017(e)(1)(ii)

Vinyl chloride concentrations are in excess of the permissible exposure limit.

1910.1017(e)(2)

Access to regulated areas shall be limited to authorized persons.

1910.1017(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:

1910.1017(f)(1)

Feasible engineering and work practice controls shall immediately be used to reduce exposures to at or below the permissible exposure limit.

1910.1017(f)(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.

1910.1017(f)(3)

Such plans must be updated at least annually.

1910.1017(g)

**Respiratory protection.**

1910.1017(g)(1)

**General.** For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this paragraph.

1910.1017(g)(2)

**Respirator program.** The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) (except (d)(1)(iii), and (d)(3)(iii)(B)(1) and (2)), and (f) through (m).

1910.1017(g)(3)

**Respirator selection.**

1910.1017(g)(3)(i)

Employers must:

1910.1017(g)(3)(i)(A)

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

1910.1017(g)(3)(i)(B)

Provide an organic vapor cartridge that has a service life of at least one hour when using a chemical cartridge respirator at vinyl chloride concentrations up to 10 ppm.

1910.1017(g)(3)(i)(C)

Select a canister that has a service life of at least four 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.

1910.1017(g)(3)(ii)

When air-purifying respirators are used:

1910.1017(g)(3)(ii)(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.

1910.1017(g)(3)(ii)(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.

1910.1017(g)(4)

Selection of respirators for vinyl chloride shall be as follows:

1910.1017(g)(5)

Where air-purifying respirators are used:

1910.1017(g)(5)(i)

Air-purifying cannisters or cartridges shall 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, and  
1910.1017(g)(5)(ii)

A continuous monitoring and alarm system shall be provided where concentrations of vinyl chloride could reasonably exceed the allowable concentrations for the devices in use. Such system shall be used to alert employees when vinyl chloride concentrations exceed the allowable concentrations for the devices in use.

1910.1017(g)(6)

Apparatus prescribed for higher concentrations may be used for any lower concentration.

[1910.1017\(h\)](#)

Hazardous operations.

1910.1017(h)(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;

1910.1017(h)(1)(i)

Respiratory protection in accordance with paragraphs (c) and (g) of this section; and

[1910.1017\(h\)\(1\)\(ii\)](#)

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.

1910.1017(h)(2)