

**VOSH PROGRAM DIRECTIVE: 12-419H**

**ISSUED: 15 February 2018**

**Subject** Amendments to the Air Contaminants Standards in General Industry, §1910.1000

**Purpose** **CHANGE IV** transmits amendments to the Air Contaminants standards which resulted from the Final Rule on the Occupational Exposure to Beryllium, which was published on January 9, 2017 (82 FR 2470). **CHANGE III** transmits amendments to the Air Contaminants standards which resulted from the recent final rule on the Occupational Exposure to Respirable Crystalline Silica, published on March 25, 2016 (81 FR 16285). **CHANGE II** corrects typographical errors and incorrect entries in the standard. **CHANGE I** transmits to field personnel two amendments to the Air Contaminants Standard, § 1910.1000. The first amendment results from the final regulation concerning the Occupational Exposure to 1,3-Butadiene, §1910.1051 (61 FR 56746, November 4, 1997). The second amendment is a result of the final regulation concerning the Occupational Exposure to Methylene Chloride, §1910.1052 which was published in the Federal Register on January 10, 1997 (62 FR 1496).

*This Program Directive is an internal guideline, not a statutory or regulatory rule, and is intended to provide instructions to VOSH personnel regarding internal operation of the Virginia Occupational Safety and Health Program and is solely for the benefit of the program. This document is not subject to the Virginia Register Act or the Administrative Process Act; it does not have general application and is not being enforced as having the force of law.*

**Scope** This Directive applies VOSH-wide.

**Reference**

**CHANGE I:** 61 FR 56746 (04 November 1996)  
62 FR 1496 (10 January 1997)

**CHANGE II:** 62 FR 42018 (04 August 1997)

**CHANGE III:** 81 FR 16285 (25 March 2016)

**CHANGE IV:** 82 FR 2470 (09 January 2017)

**Cancellation** VOSH PD 12-419G (01 December 2016)

**Effective Date**

**CHANGE IV:** 15 May 2017

**CHANGE III:** 01 December 2016

**CHANGE II:** 15 December 1997

**CHANGE I:** 15 July 1997

C. Ray Davenport  
Commissioner

**Expiration Date**

Not Applicable

**Action**

Directors and Managers shall ensure that field personnel review and understand the standard in this Directive.

Distribution:

Commissioner of Labor and Industry  
Assistant Commissioner  
VOSH Directors and Managers  
VOSH Legal Support & OIS Staffs

Cooperative Programs Manager  
VOSH Compliance & Cooperative Programs Staffs  
OSHA Region III & OSHA Norfolk Area Offices

## I. BACKGROUND

**CHANGE IV:** On January 9, 2017, federal OSHA published its new Final Rule on the Occupational Exposure to Beryllium (82 FR 2470) because OSHA's previous permissible exposure limits (PELs) for beryllium were outdated and inadequate for protecting workers' health. In addition to providing for a new Beryllium standard, amendments were also made to the Air Contaminants standard, §1910.1000.

On February 16, 2017, the Safety and Health Codes Board adopted these revisions, with an effective date of May 15, 2017.

**CHANGE III:** On March 26, 2016, federal OSHA published its new final rule for the Occupational Exposure to Respirable Crystalline Silica (81 FR 16285). This change also impacted §1910.1000, Air Contaminants in General Industry.

On September 13, 2016, the Safety and Health Codes Board adopted these revisions with an effective date of December 1, 2016.

**CHANGE II:** Federal OSHA published revisions to the amended Air Contaminants Standard, § 1910.1000, on June 30, 1993 (58 FR 35338) in response to the Court of Appeals decision in *AFL-CIO v. OSHA*, 965 F.2d 962 (11th Circuit, 1992). These revisions corrected typographical errors and incorrect entries in Tables Z-1 and Z-3 of §1910.1000.

On September 29, 1997, the Safety and Health Codes Board adopted these revisions with an effective date of December 15, 1997.

**CHANGE I:** The basis for the first amendment to the Air Contaminants standard, § 1910.1000, was the publication of federal OSHA's new final rule on 1,3-Butadiene (BD), General Industry, § 1910.1051, on November 4, 1996. This standard reduced the permissible exposure limit (PEL) from concentrations up to 1,000 parts 1,3-Butadiene per million parts of air (1,000) as an eight-hour time-weighted average (TWA) to an 8-hour TWA of 1 ppm and a short term exposure limit (STEL) of 5 ppm for 15 minutes.

The second amendment to the Air Contaminants standard resulted from the publication of federal OSHA's final rule for the Occupational Exposure to Methylene Chloride (MC), § 1910.1052, on January 10, 1997. This amendment reduced the existing eight-hour TWA PEL from 500 parts MC per million parts (ppm) and reduced the existing short-term exposure limit from 2,000 ppm (measured over 5 minutes in any 2 hour period) to 125 ppm, measured as a 15-minute TWA.

On April 7, 1997, the Safety and Health Codes Board adopted these amendments to the Air Contaminants standard, §1910.1000, with an effective date of July 15, 1997.

## II. SUMMARY

**CHANGE IV:** Paragraph (e) of §1910.1000, was revised as a result of the publication of the final rule for the Occupational Exposure to Beryllium (82 FR 2470) on January 9, 2017. Federal OSHA amended Table Z-1 – Limits on Air Contaminants, by revising the entry for “Beryllium and beryllium compounds (as BE)” and adding footnote 8, which refers to Table Z-2 for the exposure limits for any operations or sectors where the exposure limits in §1910.1024 are stayed or otherwise not in effect. The entry for “Beryllium and beryllium compounds (Z37.29-1970)” in Table Z-2 was revised and footnote d was added. Footnote d states that “This standard applies to any operations or sectors for which the exposure limits in the

beryllium standard, §1910.1024, are stayed or is otherwise not in effect.”

To access these amendments which appear in the Final Rule for the Occupational Exposure to Beryllium; Final Rule; and Other Related Standards, please click on the link below:

<https://www.osha.gov/sites/default/files/laws-regs/federalregister/2017-01-09.pdf>

**CHANGE III:** Paragraph (e) of §1910.1000, Air Contaminants, was revised with the publication of the final rule for the Occupational Exposure to Respirable Crystalline Silica (81 FR 16285) on March 25, 2016. This change revised entries for crystalline silica in §1910.1000, Table Z-1, to cross-reference the new Respirable Crystalline Silica Standard, §1910.1053. Additionally, a comparable revision to Table Z of §1915.1000, Shipyards, was included to cross-reference §1910.1053. Footnotes were added in §§1910.1000 and 1915.1000 to make clear that preceding PELs apply to any sectors or operations where the new PEL of 50 µg/m<sup>3</sup> is not in effect. The preceding PELs for respirable crystalline silica were retained in Table Z-3 of §1910.1000 and in Table Z of §1915.1000 and are also applicable during the time between publication of the silica rule and the dates established for compliance with the rule, as well as in the event of regulatory delay, a stay, or partial or full invalidation by the Court.

To access these amendments which appear in the Final Rule for the Occupational Exposure to Respirable Crystalline Silica, Parts 1910, 1915, and 1926; Final Rule; and Other Related Standards, please click on the link below:

<https://www.gpo.gov/fdsys/pkg/FR-2016-03-25/pdf/2016-04800.pdf>

**CHANGE II:** Typographical errors were corrected in Table Z-1, Limits for Air Contaminants, and in Table Z-3, Mineral Dusts. The corrections are as follows:

- For one group of substances, Cyanides, OSHA inadvertently omitted the “x” notation in the “skin designation” column to indicate that the substance is absorbed through the skin.
- In the entry for “1,2-Dibromo-3-chloropropane (CBCP); see 1910.1044”, the parenthetical “(CBCP)” in the “Substance” column is revised to read “(DBCP)”.
- For two substances, Endosulfan and Perlite (respirable and total dust), the entries and their corresponding PELs should be deleted.

These entries, including their respective PELs, are a carryover from the 1989 Air Contaminants Standard which was vacated by the U.S. Court of Appeals, Eleventh Circuit. The substance, Endosulfan, was not listed in the air contaminant tables when OSHA adopted the consensus standards on May 29, 1971 (36 FR 10466) and, consequently, is not currently regulated. With respect to Perlite, OSHA formerly regulated Perlite under the generic nuisance dust limits of 15 mg/m<sup>3</sup> total dust and 5mg/m<sup>3</sup> respirable fraction. Consequently, Perlite is currently regulated under the entry “particulates not otherwise regulated” which is the current nomenclature for what was formerly referred to as “nuisance dust.”

- In the entry for “2,4,6-Trinitrophenyl; see Picric acid”, the word “Trinitrophenyl” is revised to read “Trinitrophenol”.

- The exposure limit for Uranium insoluble compounds is incorrectly listed as 0.05 mg/m<sup>3</sup>. It should be listed as 0.25 mg/m<sup>3</sup>.
- The formula for the PEL for coal dust with less than 5% quartz (respirable fraction) is incorrectly listed as:

“2.4 mg/m<sup>3e</sup>”

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%SiO<sub>2</sub> +2            It should read: “2.4 mg/m<sup>3e</sup>”.

**CHANGE I:** In the first amendment, Table Z-1 of the Air Contaminants standard was amended to reflect changes resulting from the final rule for the Occupational Exposure to 1,3-Butadiene (BD), § 1910.1051. These changes include revising the Butadiene entry so that it reads as follows: “Butadiene (1,3-Butadiene); See 29 CFR 1910.1051; 29 CFR 1910.19(l).”

In the second amendment, the entire entry for Methylene Chloride (Z37.23-1969) was removed from Table Z-2 of the Air Contaminants standard and replaced with the following entry in the substance column: “Methylene chloride: see § 1910.1052.”



**Air Contaminants in General Industry, §1910.1000; Amendment**

As Adopted by the

Safety and Health Codes Board

Date: February 16, 2017



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: May 15, 2017

16VAC25-90-1910.1000, Air Contaminants, §1910.1000

When the regulations, as set forth in federal OSHA's Amendment to Air Contaminants in General Industry, §1910.1000, are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

Federal Terms

VOSH Equivalent

29 CFR

VOSH Standard

Assistant Secretary

Commissioner of Labor and Industry

Agency

Department

March 10, 2017

May 15, 2017



**PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS**

**Subpart Z—[Amended]**

- 2. In § 1910.1000, paragraph (e):
- a. Amend Table Z-1—Limits on Air Contaminants, by revising the entry for “Beryllium and beryllium compounds (as Be)” and adding footnote 8.
- b. Amend Table Z-2 by revising the entry for “Beryllium and beryllium compounds (Z37.29-1970)”; and adding footnote d.

The revisions read as follows:

**§ 1910.1000 Air contaminants.**

\* \* \* \* \*

**Amendments to Standards**

For the reasons set forth in the preamble, Chapter XVII of Title 29, parts

**TABLE Z-1—LIMITS FOR AIR CONTAMINANTS**

Substance	CAS No. (c)	ppm (a) <sup>1</sup>	mg/m <sup>3</sup> (b) <sup>1</sup>	Skin designation
Beryllium and beryllium compounds (as Be); see 1910.1024 <sup>8</sup>	7440-41-7			

<sup>8</sup> See Table Z-2 for the exposure limits for any operations or sectors where the exposure limits in § 1910.1024 are stayed or otherwise not in effect.

**TABLE Z-2**

Substance	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling average concentration for an 8-hr shift	
			Concentration	Maximum duration
Beryllium and beryllium compounds (Z37.29-1970) <sup>d</sup>	2 µg/m <sup>3</sup>	5 µg/m <sup>3</sup>	25 µg/m <sup>3</sup>	30 minutes.

TABLE Z-2—Continued

Substance	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling average concentration for an 8-hr shift	
			Concentration	Maximum duration
*	*	*	*	*
*	*	*	*	*

\* This standard applies to any operations or sectors for which the exposure limits in the beryllium standard, § 1910.1024, are stayed or is otherwise not in effect.

**Air Contaminants in General Industry, §1910.1000; Amendment**

As Adopted by the  
Safety and Health Codes Board

Date: September 13, 2016



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: December 1, 2016

16VAC25-90-1910.1000, Air Contaminants, §1910.1000

When the regulations, as set forth in the Amendments to Final Rule on the Occupational Exposure to Crystalline Silica, Parts 1910, 1915, and 1926 and Other Related Standards, are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

**Federal Terms**

**VOSH Equivalent**

OSHA

VOSH

Federal Agency

State Agency

Agency

Department

Regional Administrator

Assistant Commissioner

Area Director

Regional Director  
VOSH Program Director

Regional Solicitor

Attorney General or VOSH  
Division of Legal Support (DLS)

Office of Statistics

VOSH Research and Analysis

29 CFR

VOSH Standard

Compliance Safety and Health Officer (CSHO)

CSHO

**Federal Effective Dates**

**VOSH Effective Dates**

*June 23, 2016*

*December 1, 2016*

**Amendments to Standards**

For the reasons set forth in the preamble, 29 CFR parts 1910, 1915, and 1926, of the Code of Federal Regulations are amended as follows:

**PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS**

**Subpart Z—[Amended]**

- 2. In § 1910.1000, paragraph (e):
  - a. Amend Table Z-1—Limits on Air Contaminants by:

- i. Revising the entries for “Silica, crystalline cristobalite, respirable dust”; “Silica, crystalline quartz, respirable dust”; Silica, crystalline tripoli (as quartz), respirable dust”; and “Silica, crystalline tridymite, respirable dust”; and

- ii. Adding footnote 7.

- b. Amend Table Z-3—Mineral Dusts by:

- i. Revising the entries for “Silica: Crystalline Quartz (Respirable)”, “Silica: Crystalline Cristobalite”, and “Silica: Crystalline Tridymite”;

- ii. Removing entries in columns 1, 2, and 3 for “Silica: Crystalline Quartz (Total Dust)” and

- iii. Adding footnote f.

The revisions and addition read as follows:

§ 1910.1000 Air contaminants.  
\* \* \* \* \*

The revisions and addition read as follows:

§ 1910.1000 Air contaminants.  
\* \* \* \* \*

**TABLE Z-1—LIMITS FOR AIR CONTAMINANTS**

Substance	CAS No. (c)	ppm(a) <sup>1</sup>	mg/m <sup>3</sup> (b) <sup>1</sup>	Skin designation
Silica, crystalline, respirable dust				
Cristobalite; see 1910.1053 <sup>7</sup>	14464-46-1			
Quartz; see 1910.1053 <sup>7</sup>	14808-60-7			
Tripoli (as quartz); see 1910.1053 <sup>7</sup>	1317-95-9			
Tridymite; see 1910.1053 <sup>7</sup>	15468-32-3			

<sup>1</sup> The PELs are 8-hour TWAs unless otherwise noted; a (C) designation denotes a ceiling limit. They are to be determined from breathing-zone air samples.

(a) Parts of vapor or gas per million parts of contaminated air by volume at 25 °C and 760 torr.

(b) Milligrams of substance per cubic meter of air. When entry is in this column only, the value is exact; when listed with a ppm entry, it is approximate.

(c) The CAS number is for information only. Enforcement is based on the substance name. For an entry covering more than one metal compound, measured as the metal, the CAS number for the metal is given—not CAS numbers for the individual compounds.

(d) The final benzene standard in 1910.1028 applies to all occupational exposures to benzene except in some circumstances the distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures; for the excepted subsegments, the benzene limits in Table Z-2 apply. See 1910.1028 for specific circumstances.

(e) This 8-hour TWA applies to respirable dust as measured by a vertical elutriator cotton dust sampler or equivalent instrument. The time-weighted average applies to the cotton waste processing operations of waste recycling (sorting, blending, cleaning and willowing) and garnetting. See also 1910.1043 for cotton dust limits applicable to other sectors.

(f) All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.

<sup>3</sup> See Table Z-3.

<sup>7</sup> See Table Z-3 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1053 is stayed or is otherwise not in effect.

**TABLE Z-3—MINERAL DUSTS**

Substance	mppcf <sup>a</sup>	mg/m <sup>3</sup>
Silica:		
Crystalline		

TABLE Z-3—MINERAL DUSTS—Continued

Substance	mppcf <sup>a</sup>	mg/m <sup>3</sup>
Quartz (Respirable) <sup>f</sup> .....	250 <sup>b</sup>	10 mg/m <sup>3</sup> <sup>g</sup>
	%SiO <sub>2</sub> +5	% SiO <sub>2</sub> +2
Cristobalite: Use 1/2 the value calculated from the count or mass formulae for quartz <sup>f</sup>	.....	.....
Tridymite: Use 1/2 the value calculated from the formulae for quartz <sup>f</sup> .....	.....	.....
* .....	*	*
* .....	*	*

<sup>a</sup> Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques.  
<sup>b</sup> The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.  
<sup>g</sup> Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics:

Aerodynamic diameter (unit density sphere)	Percent passing selector
2 .....	90
2.5 .....	75
3.5 .....	50
5.0 .....	25
10 .....	0

The measurements under this note refer to the use of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figure corresponding to that of 2.4 mg/m<sup>3</sup> in the table for coal dust is 4.5 mg/m<sup>3</sup><sup>k</sup>.  
<sup>f</sup> This standard applies to any operations or sectors for which the respirable crystalline silica standard, 1910.1053, is stayed or is otherwise not in effect.

**AIR CONTAMINANTS STANDARD, § 1910.000; AMENDMENTS**

As Adopted by the  
Safety and Health Codes Board

Date: September 29, 1997



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: December 15, 1997

16VAC25-90-1910.1000, Amendment to Air Contaminants, General Industry, § 1910.1000

When the regulations, as set forth in the amendments to the Air Contaminants standard, § 1910.1000, are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

Federal Terms

VOSH Equivalent

29 CFR

VOSH Standard

Assistant Secretary

Commissioner of Labor and Industry

Agency

Department

September 3, 1997

December 15, 1997



**AIR CONTAMINANTS STANDARD, § 1910.000; AMENDMENTS**

As Adopted by the  
Safety and Health Codes Board

Date: April 7, 1997



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: July 15, 1997

16VAC25-90-1910.1000, Amendment to Air Contaminants, General Industry, § 1910.1000

When the regulations, as set forth in the amendments to the Air Contaminants standard, § 1910.1000, are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

Federal Terms

VOSH Equivalent

29 CFR

VOSH Standard

Assistant Secretary

Commissioner of Labor and Industry

Agency

Department

February 3, 1997

July 15, 1997

April 10, 1997

July 15, 1997