



VOSH PROGRAM DIRECTIVE: 12-415B

ISSUED: December 1, 2010

SUBJECT: Occupational Exposure to Hexavalent Chromium; Revising the Notification Requirements in the Exposure Determination Provisions of the Hexavalent Chromium Standards, paragraph (d)(4)(i) of §1910.1026 for General Industry, §1915.1026 for Shipyards and §1926.1126 for Construction

A. Purpose.

CHANGE I: This directive transmits to field personnel the standard on the Occupational Exposure to Hexavalent Chromium for General Industry, §1910.1026, Shipyards, §1915.1026, and Construction, §1926.1126; and corrections. **CHANGE II:** This directive corrects errors in the regulatory text of the final rule. **CHANGE III:** This change amends paragraph (d)(4)(i) of §§1910.1026, 1915.1026 and 1926.1126 of the Hexavalent Chromium Standard to require notification to all workers of all Hexavalent Chromium exposure level monitoring results, not just exposures that exceed the PEL.

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.

B. Scope.

This directive applies to all VOSH personnel.

C. References.

CHANGE I: 71 FR 10099 (February 28, 2006).

CHANGE II: 71 FR 36008 (June 23, 2006).

CHANGE III: 75 FR 12681 (March 17, 2010).

D. Cancellation.

VOSH Program Directive 12-415A (March 1, 2007).

E. Action.

The Directors and Managers shall ensure that the changes in this directive are followed and that compliance officers are familiar with the contents of the standard as amended.

F. Effective Dates.

CHANGE I: June 15, 2006.

CHANGE II: March 21, 2007.

CHANGE III: November 15, 2010.

G. Expiration Date.

Not Applicable.

H. Background.

CHANGE I: Prior to this promulgation, OSHA's previous standards for workplace exposure to Cr(VI) were adopted in 1971 from a 1943 ANSI recommendation to control irritation and damage to nasal tissue with an equivalent PEL of 52 µg/m³. After reviewing employee exposure and the excessive risks due to the existence of market failures and that existing and alternative methods for alleviating these negative consequences have been shown to be insufficient, OSHA determined that rulemaking is necessary in this case in order to replace older existing standards with updated, clear and consistent health standards.

The basis for this regulatory action includes the December 24, 2002 decision of the U. S. Court of Appeals for the Third Circuit (*Public Citizen Health Research Group v. Chao*, 314 F.3d 143 (3rd Cir. 2002)), which ordered OSHA to proceed expeditiously with a Cr(VI) standard with a Court established schedule of promulgation deadlines including a January 18, 2006 publication of a final standard.

Although chromium can exist in a number of different valence states, Cr(VI) is the form considered to be the greatest health risk. It enters the body by inhalation, ingestion or absorption through the skin. For occupational exposure, the airways and skin are the primary routes of uptake. OSHA has concluded that excess exposure to Cr(VI) in any form poses a significant risk of material impairment to the health of workers, by causing or contributing to adverse health effects including lung cancer, nasal septum ulcerations and perforations, skin ulcerations, and allergic and irritant contact dermatitis.

On March 7, 2006, the Safety and Health Codes Board adopted federal OSHA's final rules and related amendments for the Occupational Exposure to Hexavalent Chromium. The initial effective date was May 30, 2006, other start-up dates also apply.

CHANGE II: On February 28, 2006, federal OSHA published the final rules and related amendments for the Occupational Exposure to Hexavalent Chromium. (71 FR 10099) This final rule also amended the following standards:

- Part 1910.1000, Air Contaminants;
- Part 1917.1, Scope and Applicability for Marine Terminals;
- Part 1918.1, Scope and Application for Longshoring; and
- Part 1926.55, Gases, Vapor, Fumes, Dusts and Mists

On December 6, 2006, the Safety and Health Codes Board adopted federal OSHA's corrections to the final rule for the Occupational Exposure to Hexavalent Chromium, with an effective date of March 21, 2007.

CHANGE III: On February 28, 2006, federal OSHA published a final rule for Occupational Exposure to Hexavalent Chromium (Cr(VI)) [71 FR 10099]. Public Citizen Health Research Group and other parties petitioned for review of the standard in the U.S. Court of Appeals for the Third Circuit. The court denied the petitions for review on all but one issue. The Third Circuit remanded the employee notification requirements in the standard's exposure determination provisions for further consideration. Specifically, the court directed federal OSHA to explain why it departed from the proposed rule that would require notifying workers of all hexavalent chromium exposures. Workers exposed to this toxic chemical are at greater risk for lung cancer and damage to the nose, throat and respiratory tract.

In response to the Third Circuit's decision, federal OSHA re-examined the record on the issue of whether employees should be notified of all exposure determinations. Federal OSHA confirmed that all of its other substance-specific health standards have broader notification requirements than the 2006 Cr(VI) standard. As a result of these findings, federal OSHA amended the notification requirements in the Cr(VI) standards to require employers to notify affected employees of all exposure determinations, whether above or below the PEL. This decision would make federal OSHA consistent with the language in the proposed chromium standard, as well as past practice in other substance-specific OSHA health standards.

On August 18, 2010, the Safety and Health Codes Board adopted federal OSHA's Direct Final Rule on Revising of the Notification Requirements in the Exposure Determination Provisions of the Chromium (VI) Standards, paragraph (d)(4)(i) of §§1910.1026, 1915.1026 and 1926.1126.

I. Summary.

CHANGE I: The new standard will reduce worker exposure to hexavalent chromium, or Cr(VI), by lowering the permissible exposure limit (PEL) from 52 micrograms of Cr (VI) per cubic meter of air ($52 \mu\text{g}/\text{m}^3$) to $5 \mu\text{g}/\text{m}^3$ for all sectors. An exemption is provided for employers who can demonstrate the Cr(VI) exposures under any anticipated working conditions will not exceed $0.5 \mu\text{g}/\text{m}^3$.

Practical and Effective Requirements. The new standard requires covered industries to achieve the PEL through engineering and work practice controls to the extent that is technologically feasible. Additional provisions cover exposure determinations, respiratory protection, protective work clothing and equipment, medical surveillance and communication of hazards.

Supplemental Provision for Aerospace Painting. The new standard recognizes that, given available technology, the lowest level employers involved in aerospace painting operations of whole aircraft or large aircraft parts can reach through feasible engineering and work practice controls is $25 \mu\text{g}/\text{m}^3$. For these types of aerospace painting, OSHA requires the use of engineering and work practice controls to reduce exposures to $25 \mu\text{g}/\text{m}^3$, and allows the supplemental use of respirators to be used to achieve the PEL.

Protecting Workers Most at Risk. The new standard will focus on workers facing heightened health risks from airborne exposures. Hexavalent chromium compounds are widely used in the chemical industry as ingredients and catalysts in pigments, metal plating and chemical synthesis. Cr(VI) can also be produced when welding on stainless steel or Cr(VI)-painted surfaces. The major health effects associated with exposure to Cr(VI) include lung cancer, nasal septum ulcerations and perforations, skin ulcerations, and allergic and irritant contact dermatitis.

Reasonable Transition Time. Given the significant PEL reduction required by the new standard, OSHA is providing a reasonable transition period for employers to implement the technologies and practices needed for compliance.

OSHA has amended the existing standard which limits occupational exposure to hexavalent chromium Cr(VI) based upon its determination from the best evidence currently available that at the current permissible exposure limit (PEL) for Cr(VI), workers face a significant risk to material impairment of their health. OSHA believes that the evidence in the record for this rulemaking indicates that workers exposed to Cr(VI) are at an increased risk of developing lung cancer and also indicates that occupational exposure to Cr(VI) may result in asthma, and damage to the nasal epithelia and skin.

The final rule establishes an 8-hour time-weighted average (TWA) exposure limit of 5 micrograms of Cr(VI) per cubic meter of air (5 $\mu\text{g}/\text{m}^3$). This is a considerable reduction from the previous PEL of 1 milligram per 10 cubic meters of air (1 $\text{mg}/10\text{ m}^3$, or 100 $\mu\text{g}/\text{m}^3$) CrO_3 , which is equivalent to a limit of 52 $\mu\text{g}/\text{m}^3$ as Cr(VI).

The final standard separately regulates general industry, construction, and shipyards in order to tailor requirements to the unique circumstances found in each of these sectors. The PEL established by this rule reduces the significant risk posed to workers by occupational exposure to Cr(VI) to the maximum extent that is technologically and economically feasible. The adoption of §1910.1026 for General Industry also requires the amendment of the §1910.1000, Air Contaminants. The adoption of §1926.1126 for the Construction Industry also requires the amendment of §1926.55, Gases, Vapor, Fumes, Dusts and Mists. The adoption of §1915.1026 for Shipyard Employment is also included by reference in the amendments to §1917.1, Scope and Applicability, for Marine Terminals and §1918.1, Scope and Application for Longshoring.

CHANGE II: Federal OSHA corrected errors in Parts 1910, 1915 and 1926 of the final rule addressing occupational exposure to hexavalent chromium, or CR(VI), that appeared in 71 *Federal Register* 10099 on February 28, 2006. The following correcting amendments were made to the final rule for Chromium (VI):

In §1910.1000, Air Contaminants, Table Z-1, the entry was revised for “tert-Butyl chromate (as CrO_3)”; footnote 5 was also revised by removing the entry for “Chromic acid and chromates (as CrO_3)”; and a new footnote 6 was added. Also, in Table Z-2 of §1910.1000, footnote c was revised.

In §1915.1000 and in Appendix A of §1926.55 -- “Gases, vapors, fumes, dusts, and mists”, corrections were made to Table Z by revising the entry for “tert-Butyl chromate (as CrO_3)”, removing the entry for “Chromic acid and chromates (as CrO_3)”, and adding an entry for “Chromium (VI) compounds”.

CHANGE III: This federal Direct Final Rule (DFR) amends paragraph (d)(4)(i) of the Chromium (VI) standards (29 CFR 1910.1026 – General Industry, 29 CFR 1915.1026 – shipyard employment, and 29 CFR 1926.1126 – Construction). The current final rule established an 8-hour time-weighted average (TWA) exposure limit of 5 micrograms of Cr(VI) per cubic meter of air (5 $\mu\text{g}/\text{m}^3$) for all sectors. In subparagraph (i) of paragraph (d)(4) of the current final rule -- Exposure notification of determination results -- employers are required to notify workers only of exposures that *exceed* the permissible exposure limit (PEL).

The revision to subparagraph (i) of paragraph (d)(4), now requires employers to notify workers of *all* hexavalent chromium exposure level monitoring results, not just exposures that exceed the PEL. This requirement mirrors similar provisions in federal OSHA's other substance-specific health standards including, but not limited to:

lead (29 CFR 1910.1025(d)(8)(i));
arsenic, 29 CFR 1910.1018(e)(5)(i);
methylenedianiline (29 CFR 1910.1050(e)(7)(i));
butadiene, 29 CFR 1910.1051(d)(7)(i); and
methylene chloride (29 CFR 1910.1052(d)(5)(i)).

Courtney M. Malveaux
Commissioner

Attachments: CHANGE I: None. 71 FR 10099 (February 29, 2006), please refer to:
http://www.osha.gov/FedReg_osa_pdf/FED20060228.pdf

CHANGE II: None. 71 FR 36008 (March 15, 2007), please refer to:
http://www.osha.gov/FedReg_osa_pdf/FED20060623.pdf

CHANGE III: 75 FR 12681 (March 17, 2010) or refer to:
http://www.osha.gov/FedReg_osa_pdf/FED20100317.pdf

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**Occupational Exposure to Hexavalent Chromium, §1910.1026; Final Rule
Occupational Exposure to Hexavalent Chromium, §1915.1026; Final Rule
Occupational Exposure to Hexavalent Chromium, §1926.1126; Final Rule
Air Contaminants, §1910.1000; Final Rule
Scope and Applicability for Marine Terminals, §1917.1; Final Rule
Scope and Application for Longshoring, §1918.1; Final Rule,
Gases, Vapor, Fumes, Dusts and Mists, §1926.55; Final Rule**

As Adopted by the
Safety and Health Codes Board

Date: March 7, 2006



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: June 15, 2006

Occupational Exposure to Hexavalent Chromium, §1910.1026
Occupational Exposure to Hexavalent Chromium, §1915.1026
Occupational Exposure to Hexavalent Chromium, §1926.1126
Air Contaminants, §1910.1000
Scope and Applicability for Marine Terminals, §1917.1
Scope and Application for Longshoring, §1918.1; and
Gases, Vapor, Fumes, Dusts and Mists, §1926.55

When the regulations, as set forth in the final rules for the Occupational Exposure to Hexavalent Chromium, §1910.1026 for General Industry, §1915.1026 for Shipyards and §1926.1126 for Construction, with associated amended standards for the following: §§1910.1000, 1917.1, 1918.1, and 1926.55, 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

November 27, 2006

November 27, 2006

May 30, 2007

May 30, 2007

May 31, 2010

May 31, 2010

**Occupational Exposure to Hexavalent Chromium for
Parts 1910, 1915 and 1926; Corrections**

As Adopted by the
Safety and Health Codes Board

Date: December 6, 2006



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: March 21, 2007

Occupational Exposure to Hexavalent Chromium for:

- 16 VAC 25-90-1910.1000, Air Contaminants
- 16 VAC 25-100-1915.1000, Air Contaminants
- 16 VAC 25-175-1926.55, Gases, vapors, fumes, dusts, and mists

When the regulations, as set forth in the correcting amendments to the final rule for Occupational Exposure to Hexavalent Chromium, §§ 1910.1000, 1915.1000 and 1926.55, 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

June 23, 2006

March 21, 2007

Revising the Notification Requirements in the Exposure Determination Provisions of the Hexavalent Chromium Standards, paragraph (d)(4)(i) of §§1910.1026, 1915.1026 and 1926.1126; Direct Final Rule

As Adopted by the
Safety and Health Codes Board

Date: August 18, 2010



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: November 15, 2010

16 VAC 25-90-1910.1026, Chromium (VI), §1910.1026
16 VAC 25-100-1915.1026, Chromium (VI), §1915.1026
16 VAC 25-175-1915.1126, Chromium (VI), §1926.1126

When the regulations, as set forth in the Direct Final Rule for Revising the Notification Requirements in the Exposure Determination Provisions of the Hexavalent Chromium Standards, paragraph (d)(4)(i) of 16 VAC 25-90-1910.1026 for General Industry, 16 VAC 25-100-1915.1026 for Shipyards and 16 VAC 25-175-1926.1126 for Construction, 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

June 15, 2010

November 15, 2010