

Frequently Asked Questions and Answers Regarding the Hexavalent Chromium Cr(VI) Standard

Welding...Painting...Plating

Are your workers exposed to Hexavalent Chromium?



On February 28, 2006 the Occupational Safety and Health Administration (OSHA) published the final Hexavalent Chromium Cr(VI) Standard. The new permissible exposure limit (PEL) for Cr(VI) is 5 µg/m³ (micrograms per cubic meter) as an eight-hour time-weighted average (TWA). There are three standards for different industries — General Industry, Construction and Shipyards. The respiratory protection requirements for the three standards are similar. The standard requires the respiratory protection program, including respirator selection, to follow OSHA 1910.134 requirements. For a complete copy of the standard please refer to OSHA's website at www.osha.gov.

What is hexavalent chromium?

Hexavalent Chromium Cr(VI) is a metal particle that can occur naturally in rocks but is most commonly produced by industrial process. It has the ability to gain electrons from other elements (a strong oxidizer) which means it can react easily with other elements. Because of its ability to react with other elements it can produce hard coatings, which is why it is used in paints for cars, boats and airplanes.

What type of contaminant is hexavalent chromium?

Hexavalent Chromium Cr(VI) is a metal particle. It can be filtered with an N95 filter or an R or P95 filter if oil mist is present.

What Cr(VI) exposures are covered in the standard?

Cr(VI) exposures from any source are covered except exposures from

- Portland cement
- Application of regulated pesticides such as treatment of wood with pesticides. Exposures resulting from sawing or sanding treated wood are covered by the standard
- Where employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 5 µg/m³ as an eight-hour TWA under any expected conditions of use

What are the main industries affected?

The primary industries affected, according to OSHA, are Stainless Steel Fabrication, Heavy Duty Coatings and Paints (Automobiles, Train Cars, Airplanes, Boats, Ships), electroplating and producers of chrome based pigments.

Q&A
Questions and Answers

FAQ's Regarding the Hexavalent Chromium Cr(VI) Standard *(continued)*

What are the main applications affected?

Welding (especially on stainless steel), spraying heavy duty coatings and paints, and chrome plating.

When must I be in compliance?

Employers of 20 or more employees must be in compliance by November 27, 2006. Employers of 19 or less employees must be in compliance by May 30, 2007. Engineering Controls, if they are determined feasible and/or necessary, must be in place by May 31, 2010. Until engineering controls are in place, respiratory protection must be used to help reduce exposure.

How does this impact me?

Employers must reassess their respirator program taking into consideration the lower exposure limit. More employers may have to provide respiratory protection to employees and assess the feasibility of engineering controls (such as ventilation).

If they have not done so already, employers in the affected industries should make an exposure determination to establish whether or not the new standard and its requirements apply and, if so, implement the necessary steps for compliance, including selection of proper respirators.

How do I make an exposure determination?

The standard permits exposure determinations to be done either through monitoring or by estimating exposures using any combination of air sampling, historical monitoring data and objective data. If historical or objective data are used, it must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices and environmental conditions in the customer's current operations.

How do I monitor for Cr(VI)?

Monitoring is accomplished with a pump and filter — not a badge type monitor. Refer to NIOSH Methods 7604 (by ion chromatography) and 7600 (by visible absorption spectrophotometry) or OSHA Method ID-215 (noted in the hexavalent chromium standard). Consult an American Industrial Hygiene Association (AIHA) accredited laboratory for assistance on selection of the appropriate sampling and analytical method. To contact an AIHA accredited laboratory or an Industrial Hygienist to do the monitoring for you, go to www.aiha.org and select **Consultants** or **Laboratories**.

When are respirators required?

Respirators are required in the following situations when exposure levels exceed the PEL:

- While engineering and work practice controls are being developed
- During maintenance and repair activities for which engineering and work practice controls are not feasible
- When all feasible engineering and work practice controls are implemented and are still not sufficient to reduce exposures to or below the PEL
- When employees are exposed above the PEL for fewer than 30 days per year and the employer has not elected to implement engineering and work practice controls
- Emergencies

FAQ's Regarding the Hexavalent Chromium Cr(VI) Standard *(continued)*

Which respirator should I use?

Respirators should be chosen by the employer based on workplace conditions and contaminant levels.

In other words:

- N95 filters may be used where no oil aerosols are present
- R or P95 filters may be used where oil aerosols are present
- Filtering facepiece respirators, elastomeric half facepiece respirators and full facepiece respirators, when qualitatively fit tested, may be used up to 10 x PEL with appropriate filters
- Full facepiece respirators may be used up to 50 x PEL when they are quantitatively fit tested and are equipped with appropriate filters
- Loose fitting facepieces may be used up to 25 x PEL
- Tight fitting full facepieces, hoods and helmets with supplied air or powered air purifying respirator may be used up to 1000 x PEL

I have not had a respiratory protection program in the past. What information do I need get started?

The standard requires the respiratory protection program, including respirator selection, to follow OSHA 1910.134 requirements.

3M provides many resources and training materials such as:

- “Administrative Respiratory Protection Program” – basic program requirements (Fax On Demand 1-800-646-1655, enter document #2018)
- “3M Respirator Selection Guide” (www.3M.com/OccSafety)
- “On Line Fit Test Kit Training” (contact your 3M OHESD sales specialist)
- “On Line Medical Evaluation” (www.respexam.com)
- “Mail-In Medical Evaluation” (www.respexam.com)
- “Respiratory Protection eTraining” (www.respexam.com)
- “Select Software” and “Service Life Software” (www.3M.com/OccSafety)
- 3M Respirator fitting instructions (www.3M.com/OccSafety)

What if I have additional questions?

Contact your local 3M Sales Representative, the 3M Occupational Health and Environmental Safety Division (OH&ESD) Technical Hotline at 1-800-243-4630 or www.3M.com/OccSafety.

Q&A

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Cr(VI)

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