

1. What is hexavalent chromium?

Hexavalent chromium [Cr(VI)] is a toxic form of the element chromium. It is generally man-made and is rarely found in nature. Cr(VI) is widely used in pigments, metal finishing (electroplating), wood preservatives and fungicides, and as a catalyst used in chemical synthesis.

Hexavalent chromium may also be present in fumes generated during the production or welding of chrome alloys. Chromium metal is often alloyed with other metals or plated on metal and plastic substrates to improve corrosion resistance and provide protective coatings. The steel industry is a major consumer of chromium metal in the production of stainless steel.

2. How can I be exposed to Cr(VI)?

Workers can inhale airborne Cr(VI) as a dust, fume or mist while, among other things, producing chromate pigments, dyes and powders (such as chromic acid and chromium catalysts); working near chrome electroplating; performing hot work and welding on stainless steel, high chrome alloys and chrome-coated metal; and applying and removing chromate-containing paints and other surface coatings. Skin exposure can occur while handling solutions, coatings and cements containing Cr(VI).

3. How do I limit my exposure to Cr(VI)?

OSHA has required employers to use engineering and workplace controls in order to reduce and/or maintain Cr(VI) exposures to at or below the Permissible Exposure Limits (PEL) of 5µg/m³ over an 8-hour work day. Engineering controls include substitution (using a less toxic material or process that results in lower exposures), isolation (such as enclosing the source of exposure), and ventilation (such as using a local exhaust system that captures airborne Cr(VI) near its source). Workplace controls include wearing personal protective equipment, respiratory protection and appropriate job training in order to minimize exposure and maximize the effectiveness of the control.

4. How do I know if I have been exposed to Cr(VI)?

Your physician can do a urine or blood test to test for exposure to Cr(VI).

5. What are the hazards of Cr(VI)?

Workplace exposure to Cr(VI) may cause the following health effects:

- Lung cancer in workers who breathe airborne Cr(VI)
- Irritation or damage to the nose, throat and lungs (respiratory tract) if Cr(VI) is inhaled

- Irritation or damage to the eyes and skin if Cr(VI) contacts these organs

6. How often should I be seen by my physician?

An employer sponsored medical exam must be given at the following times:

- Within 30 days after initial assignment to a job involving Cr(VI) exposure, unless the worker has received an examination that meets the requirements of the standard within the last 12 months;
- Annually;
- Within 30 days after a physician's written medical opinion recommends an additional examination;
- Whenever a worker shows signs or symptoms of the adverse health effects associated with Cr(VI) exposure;
- Within 30 days after exposure during an emergency which results in an uncontrolled release of Cr(VI); or
- At the termination of employment, unless the last examination provided was less than six months prior to the date of termination.

7. What should be included in my medical exam?

Your medical exam should include:

- A medical and work history which focuses on
 - The worker's past, present and anticipated future exposure to Cr(VI)
 - Any history of respiratory system dysfunction
 - Any history of asthma, dermatitis, skin ulceration or nasal septum perforation
 - Smoking status and history
- A physical examination of the skin and respiratory tract
- Any additional tests that the examining physician considers appropriate for that worker

8. What should I do if my building has an issue with Cr(VI)?

If your building has an issue with Cr(VI), a full scale investigation should commence. This process includes conducting a building investigation, evaluation of exposed workers, risk assessment, exposure assessment and "go forward" environmental and medical surveillance programs. A response team of medical and environmental specialists can also provide preventative recommendations and training in order to limit exposures and mitigate risk.

For more information related to Cr(VI) issues, please contact us at solutions@coagencyteam.com.