

Hexavalent Chromium

Hexavalent chromium [Cr(VI)] is one of the valence states (+6) of the element chromium. It is usually produced by an industrial process. Cr(VI) is known to cause cancer. In addition, it targets the respiratory system, kidneys, liver, skin and eyes.

Who is exposed to Cr(VI) ?

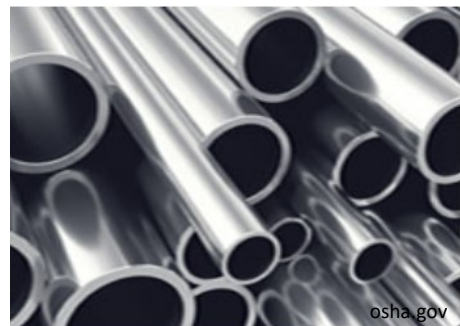
Many workers in a variety of occupations are potentially exposed to Cr(VI) in the United States. Workplace exposures occur mainly in the following areas:

- Welding and other types of "hot work" on stainless steel and other metals that contain chromium
- Use of pigments, spray paints and coatings
- Operating chrome plating baths

How employees can be exposed to Cr(VI)

Employees can inhale airborne Cr(VI) as a dust, fume or mist while:

- producing chromate pigments and powders; chromic acid; chromium catalysts, dyes, and coatings.
- working near chrome electroplating.
- welding and hotworking stainless steel, high chrome alloys and chrome-coated metal.
- applying and removing chromate-containing paints and other surface coatings. Skin exposure can occur during direct handling of Cr(VI) - containing solutions, coatings, and cements.



Steps to protect employees from health hazards caused by Cr(VI)

- Limit eight-hour time-weighted average (TWA) Cr (VI) exposure in the workplace to 5 micrograms (µg) or less per cubic meter (m³) of air.
- Perform periodic monitoring at least every 6 months if initial monitoring shows employee exposure at or above the action level (TWA 2.5 µg/ m³ of air).
- Provide appropriate personal protective clothing and equipment.
- Implement good personal hygiene and housekeeping practices.
- Prohibit employee rotation as a method to achieve compliance with the exposure limit (PEL).
- Provide respiratory protection.
- Make available medical examinations to employees within 30 days of initial assignment, annually, to those exposed in an emergency situation, to those who experience signs or symptoms of adverse health effects associated with hexavalent chromium exposure, to those who are or may be exposed at or above the action level for 30 or more days a year, and at termination of employment.

The Cr(VI) standards do not apply:

- Exposures that occur in the application of pesticides.
- Exposures to Portland cement.
- Where the employer has objective data demonstrating that Cr(VI) concentrations cannot exceed 0.5 µg/ m³ TWA of air as under any expected conditions of use.

For more complete information visit:



For more information, please contact HIOSH at:
dlir.hiosh.ct@hawaii.gov or 808-586-9100

**CONSULTATION
& TRAINING**
(808) 586-9100
<http://labor.hawaii.gov/hiosh>