P- 44593 (Rev. 06/2014)
dhs.wisconsin.gov

# CHROMIUM FACT SHEET

**WHAT IS CHROMIUM?**

Chromium is an element existing in several different forms. Metallic chromium is mined for use in steel and other metal products. Many chromium-containing compounds are used for plating, manufacturing paints and dyes, tanning leather and preserving wood.

"Trivalent" chromium is naturally occurring and is essential for good health. The normal intake from eating foods that are high in natural chromium is 70-80 micrograms per day and is considered safe.

The less-toxic forms of chromium are used to make flooring materials, video and audio recording tapes, stainless steel, chrome-plated items and copy machine toner.

"Hexavalent" chromium can occur naturally, but can also be produced by certain industrial processes. It is the most toxic form of chromium, and has been shown to cause lung cancer when workers are exposed to high air levels for long time periods.

**HOW ARE PEOPLE EXPOSED TO CHROMIUM?**

**Breathing:** People can be exposed to chromium by breathing chromium dust or fumes. This is the route of exposure that is of greatest concern.

**Drinking/Eating**: Most human exposure to chromium through drinking and eating comes in the form of trivalent chromium found in fresh vegetables, meats, fish, and poultry.

Drinking water is not normally a major source of exposure. Plants can absorb chromium, which can then be passed to those who eat the plants.

**Touching**: Contact with contaminated soils can result in exposure to chromium. Exposure can be reduced by thorough washing of exposed skin and clothing to remove soil residues. Chromium can pass through the skin, but this is probably not a major route of exposure.

**DO STANDARDS EXIST FOR REGULATING CHROMIUM?**

**Water**: The state and federal drinking water standards for the total amount of all forms of chromium found in drinking water are set at 100 parts per billion (ppb). We suggest you stop drinking water containing more than 100 ppb of total chromium.

**Air**: No standards exist for the amount of chromium allowed in the air of homes; however, occupational standards apply to industries where exposure to chromium may occur. The Wisconsin Department of Natural Resources regulates the amount of chromium that can be released by industries.

**WILL EXPOSURE TO CHROMIUM RESULT IN HARMFUL HEALTH EFFECTS?**

In general, chemicals affect the same organ systems in all people who are exposed. A person's reaction depends on several things, including individual health, heredity, previous exposure to chemicals including medicines, and personal habits such as smoking or drinking.

It is also important to consider the length of exposure to the chemical; the amount of chemical exposure; and whether the chemical was inhaled, touched, or eaten.

The following health effects may occur immediately or shortly after exposure to high levels of chromium:

- Irritation to mouth, throat, lungs, and nose following inhalation of hexavalent chromium particles
- Skin irritation and allergic reactions
- Digestive problems, kidney damage, and liver damage after eating food or drinking water contaminated with hexavalent chromium

The following health effects can occur after several years of exposure to **hexavalent chromium**:

**Organ Systems**: Exposure to hexavalent chromium can cause liver and kidney damage.

**Cancer**: Lung cancer can develop after exposure to hexavalent chromium vapors or fumes.

**Immune System:** Animal studies show that exposure to hexavalent chromium can result in changes in immune system function.

**Reproductive Effects**: Studies in laboratory animals exposed to hexavalent chromium show damage to developing fetuses and lowered sperm production in males.

**CAN A MEDICAL TEST DETERMINE EXPOSURE TO CHROMIUM?**

When a person is regularly exposed to chromium, the chemical can be monitored by testing hair, urine, blood serum and red blood cells. Most of the chromium that enters the body is eliminated within 24 hours. Chromium does not build up in the body.

Seek medical advice if you have any symptoms that you think may be related to chemical exposure.

---

This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. It does not refer to work exposure or emergency situations.

For more information, contact:

- Your Local Health Department: http://www.dhs.wisconsin.gov/localhealth/
- Division of Public Health, Bureau of Environmental and Occupational Health, (608) 266-1120: http://www.dhs.wisconsin.gov/eh/

*Prepared by the Wisconsin Department of Health Services, Division of Public Health, with funds from the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services.*