

Frequently Asked Questions About

CHROMIUM

What is chromium?

Chromium (Cr) is a gray-bluish metal that is found naturally in rocks, animals, plants, soil, and volcanic dust and gas. It is an essential nutrient for humans because it promotes the metabolism of sugar, protein, and fat. Chromium combined with steel forms stainless steel, a metal that resists corrosion.

Where can chromium be found in the environment?

Chromium exists naturally on the earth's surface, but chromium levels in the atmosphere are low. Volcanoes and soil erosion are the main sources of chromium releases. Releases from these sources exceed the amount released by human activities.

Manmade activities that result in chromium releases include metal fabrication, cement production, use of asbestos-lined brakes, waste incineration, and fossil fuel combustion.

How is chromium used?

Chromium is used in rust-resistant coatings for metals, as well as in paint pigments, wood preservatives, and liquids for tanning hides.

Do electric utilities release chromium into the environment?

Yes. Small amounts of chromium are naturally present in coal and oil, which are used to generate electricity. When coal and oil are burned, ash is formed which contains most of this naturally occurring chromium. Most of the ash is captured for disposal or for recycling into commercial products. Ash disposed in a landfill or otherwise deposited on land is considered waste management and must be reported under TRI reporting requirements.

U.S. electric utilities were responsible for 5,553 tons of chromium and chromium compounds released into the environment in 2006, or about 19 percent of total industrial releases. According to the Environmental Protection Agency (EPA), industrial releases of chromium and chromium compounds into the environment totaled 29,585 tons in 2006.

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continued

How could I be exposed to chromium? Will exposure affect me?

Exposure to chromium can occur in the following ways:

- food consumption (accounts for 96 percent of daily exposure for most people),
- breathing it in the air,
- drinking water, and
- skin contact (occurs during the use of consumer products like wood preservatives, cement, cleaning products, textiles, and tanned leather).

Since chromium is naturally present in the environment, it is a natural part of our diets. In fact, very small amounts of trivalent chromium are good for human health.

However, consumption of larger amounts of chromium, particularly a form of chromium called hexavalent chromium, can be toxic and sometimes lethal. People who work in industries that use chromium can be exposed to above normal levels of chromium. The greatest exposure occurs in the following occupations: chromate production; stainless steel production; welding; chrome plating; chrome pigment production; leather tanning; painting; copy machine service and toner cartridge disposal; and production of batteries, dyes, and cement.

Breathing chromium can cause lung irritation, and prolonged exposure can cause bronchitis, pneumonia, asthma, or other respiratory problems. Exposure to large amounts of hexavalent chromium can cause lung cancer.

What do EPA and other experts say about chromium?

EPA has concluded that the chromium released from power plants readily converts to trivalent chromium, a form that does not pose a risk to human health. Utilities do not release the hexavalent form of chromium. Nonetheless, to protect safe drinking water, EPA has set a maximum level of 100 parts of chromium per billion parts (ppb) of water. EPA has said that long-term exposure below this level is not expected to cause health effects. Standards from the Occupational Safety and Health Administration regulate the amount of chromium present in workplace air.

Where can I get more information?

- Electric Power Research Institute, 3412 Hillview Ave., P.O. Box 10412, Palo Alto, California 94303; (800) 313-EPRI; <http://www.epri.com>
- U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 200 Independence Ave., S.W., Washington, D.C. 20201; (877) 696-6775; <http://www.atsdr.cdc.gov/>
- U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., N.W., Washington, D.C. 20460; (202) 260-2090; <http://www.epa.gov/>



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April 2008