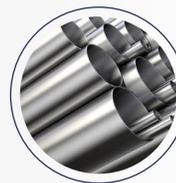


Hexavalent Chromium Facts



What is hexavalent chromium?

Hexavalent chromium (Cr⁶) is a form of the element chromium, which is one of the most abundant chemical elements found in the earth's crust. It occurs naturally in rocks and other minerals.



How is it used?

To create pigments and prevent corrosion in dyes, paints, primers, inks, and plastics. It is also used in the production of stainless steel, leather tanning, and wood preservation.

Why can hexavalent chromium be found in water?

There are two potential sources of hexavalent chromium in drinking water – natural sources such as rocks, minerals, and other geology, and localized industrial runoff. No matter the source of hexavalent chromium, the human body naturally detoxifies low levels of Cr⁶ into trivalent chromium (Cr³). Cr³ is a micronutrient that is essential for metabolism.

The Agency for Toxic Substances and Disease Registry (ATSDR) states that average levels of hexavalent chromium in groundwater in the U.S. are between 1 ppb and 5 ppb. A United States Environmental Protection Agency (EPA) sampling program indicates the average Cr⁶ concentration in drinking water is 0.79 ppb.

What does part per billion mean?

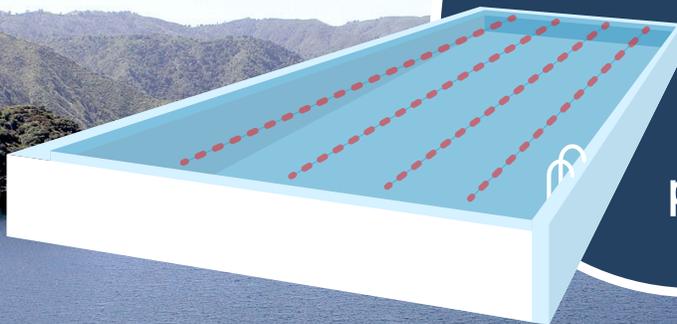
A part per billion (1 ppb) is about a drop of water in an Olympic size swimming pool.

1 ppb =



~1 drop

in an
olympic-
sized
pool

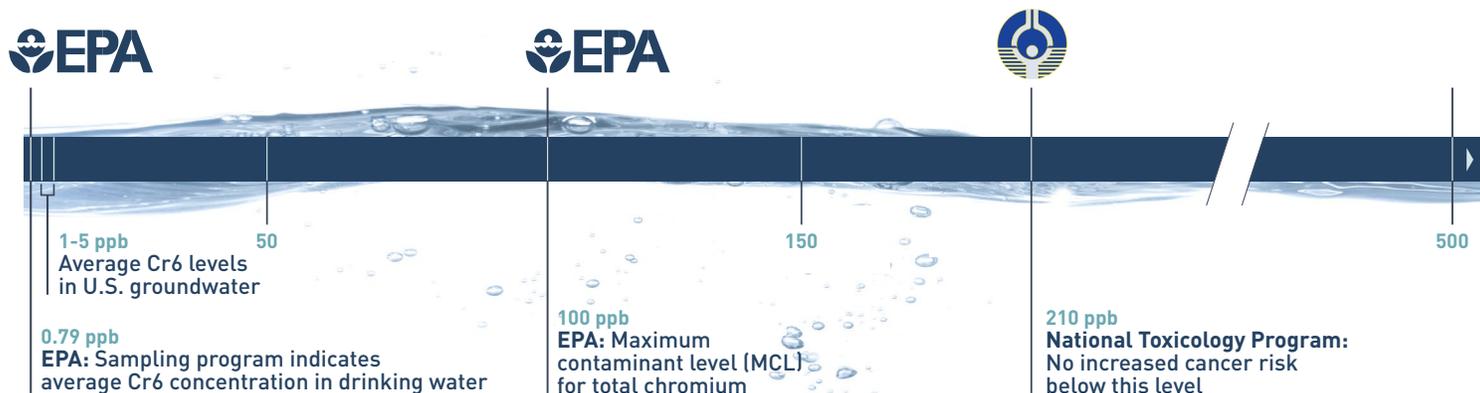


What does science say about safe Cr6 levels?

How is chromium in water monitored?

Water systems are required to monitor and report to the public and EPA the levels of total chromium in drinking water and to issue an alert whenever the drinking water standard is exceeded.

To protect human health, regulatory agencies have set drinking water standards for chromium since 1946. The EPA currently has in place a maximum contaminant level (MCL) of 100 parts per billion (ppb) total chromium based on the assumption of 100 percent hexavalent chromium in the water. Total chromium is composed of both trivalent and hexavalent forms of chromium.



Key studies about hexavalent chromium (Cr6) and water:

There is a significant body of evidence on Cr₆ and drinking water that includes findings from the National Toxicology Program (NTP) and the largest mode of action (MOA) study of hexavalent chromium on record.



The biological events leading to tumor formation in mice exposed to Cr₆ occurred at levels far greater than levels found in drinking water.



No toxicity or tumor formation was observed in mice or rats exposed to concentrations of hexavalent chromium in drinking water at EPA's current MCL of 100 ppb.



The MOA research indicates that Cr₆ is not a mutagen and drinking water containing less than or equal to 100 ppb total chromium would not be expected to cause cancer in humans.



NTP determined the detoxified form of Cr₆ – trivalent chromium – does not cause cancer in the same laboratory animals used to test Cr₆ even at high levels of exposure.

Protecting human health

EPA states drinking water levels less than or equal to a MCL of 100 ppb total chromium are protective of human health and that all water utilities currently meet this regulatory standard, ensuring safe drinking water for communities across the U.S.

