Chromium in Drinking Water

Chromium is an element that can occur in different ways. The most common forms are chromium-0, chromium-3 and chromium-6.

- Chromium-0, the metal chromium, is not found in the environment and is produced by industrial processes.
- Chromium-3, also known as trivalent chromium, is an essential nutrient that is important to help the body process sugar, protein and fat.
- Chromium-6, also known as hexavalent chromium, can be harmful to health.

Tap into the facts about chromium to learn if you should consider testing your drinking water to protect your health.

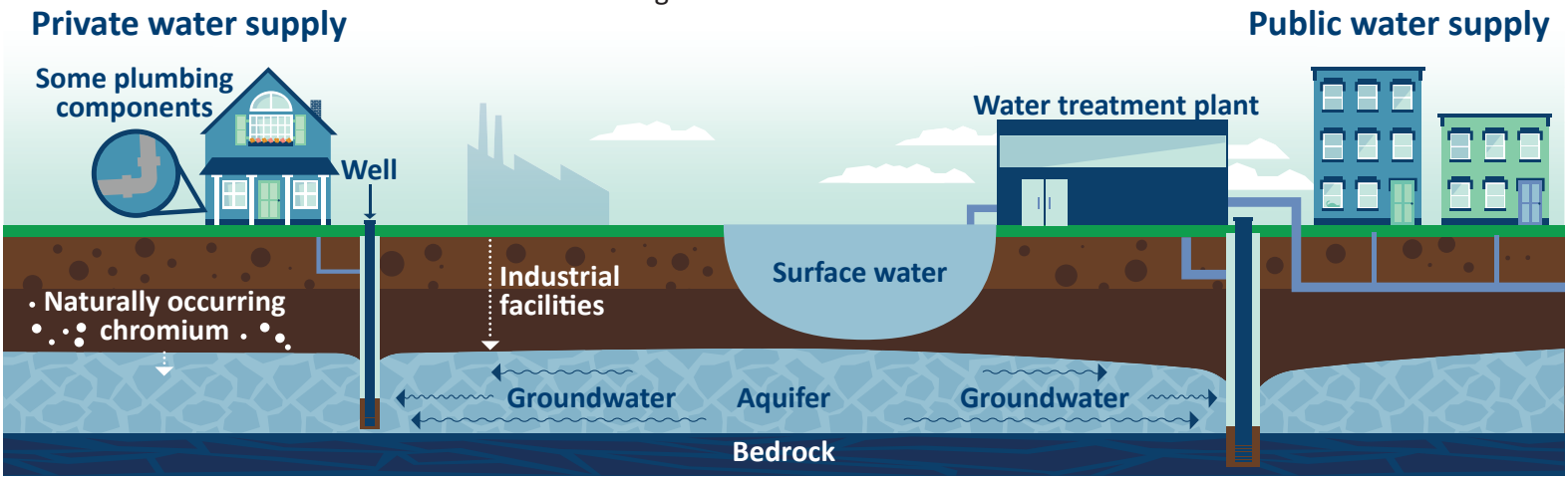
How chromium gets into drinking water

Chromium can convert back and forth between different forms in water and in the body depending on environmental conditions.

In nature. Chromium-3 is the most common and stable form. It occurs commonly in plants, animals, rocks and soil. Chromium-6 also occurs in nature, but less often. As water moves through soil and rock, chromium could dissolve into it and enter drinking water.

Manufacturing facilities. Both chromium-3 and chromium-6 are used in manufacturing. Chromium-3 is used for leather tanning and chromium-6 is used in chrome plating. Industrial activities during manufacturing could release chromium into the lakes, rivers or groundwater that become your drinking water.

Plumbing components. Chromium-0 is used to make metal alloys like stainless steel that are included in some plumbing components like pipes, fittings, fixtures and faucets. When pipes corrode, the chromium-0 could convert to chromium-6 and get into your drinking water.



How chromium in drinking water may affect your health

Most people will be exposed to small amounts of chromium-3 during their lifetime because it is commonly found in the environment and part of a healthy diet. Since chromium-6 is more harmful than chromium-3, the health effects from exposure to chromium are typically related to chromium-6.

Exposure to high amounts of chromium-6 could increase your risk of some health effects, including:

- Irritation to the nose, mouth, throat and lungs.
- Lung cancer.
- Skin irritation and allergic reactions.
- Abdominal pain and vomiting.
- Kidney or liver damage.

How to find out if chromium is in your drinking water

Step 1: Know where your water comes from.

- Learn about the different water supply types to determine where your water comes from at Eh.Michigan.gov/DW-Supply-Types.

Step 2: Contact your local health department or a certified drinking water lab to test your drinking water.

- If you are on a **public water supply**, the water coming into your home may be regularly tested for certain contaminants. You should check with your public water supply for results.
- If you have a **private residential well**, water testing is your responsibility. Your local health department may offer drinking water testing, or you can contact a certified private drinking water analysis laboratory directly. The cost for a test may vary between labs and the contaminants you choose to test for. Visit Eh.Michigan.gov/DW-Testing to learn more about your options.

Step 3: Understand a test result for chromium.

- To understand the quality of your water, compare your test results to the established drinking water value from the Environmental Protection Agency (EPA). Drinking water with **more than 0.1 mg/L of chromium** could increase your risk of health problems.
    - The test for chromium in drinking water is called "total chromium." It measures both chromium-3 and chromium-6 because they can change forms in water and in the body. The drinking water value assumes all the chromium is chromium-6 to best protect public health.

How to reduce chromium in your drinking water

Install a reverse osmosis (RO) system with a third-party certification for chromium reduction, such as **NSF/ANSI 58**.

Install a water treatment system. There are treatment systems, like ion exchange systems, available to reduce chromium in drinking water. These kinds of systems likely require special installation. You can call the Michigan Department of Health and Human Services (MDHHS) Environmental Health Bureau (EHB) for advice on selecting and installing a filter or you can call a water treatment company to assist you.

Consider testing your treated water to verify that chromium levels are reduced. Be sure to follow the system's manufacturing instructions to ensure the treatment system continues to reduce chromium levels as expected. Filters and treatment systems are made to reduce chromium, but do not guarantee that all chromium will be removed from drinking water.

Things you should not do to reduce chromium in your drinking water

Do not try to remove chromium by boiling the water. Chromium is not removed by boiling. Water evaporates during boiling, decreasing the amount of water so the same amount of chromium remains but in less water.

For More Information

Michigan Department of Health and Human Services Environmental Health Hotline
800-648-6942
Michigan.gov/CareforMiDrinkingWater

List of local health departments
Eh.Michigan.gov/MiHealthDepartment

Laboratory Services
Michigan.gov/EGLElab

Michigan Department of Environment, Great Lakes, and Energy
Michigan.gov/DrinkingWater
Michigan.gov/WaterWellConstruction

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