



## CADMIUM

### What is CADMIUM?

Cadmium is a soft, bluish-white metallic element that occurs naturally in the earth's crust. It is often found as a mineral combined with other elements like oxygen, chlorine and/or sulfur.

### Where can cadmium be found and how is it used?

Soil, rocks, coal and fertilizers contain cadmium. Most of the cadmium used in the United States is removed when other metals such as zinc, lead and copper are processed. Cadmium is used in some nickel-cadmium storage batteries, pigments, metal coatings, dental amalgams and plastics.

Cadmium can enter the air from mining, industry, burning coal and household wastes. Cadmium can travel long distances through the air before settling on the ground or water. It enters water and soil from waste disposal, or if spills or leaks occur at hazardous waste sites. It binds to soil. Some forms dissolve in water.

### How can people be exposed to cadmium?

*You could be exposed to cadmium through:*

**Breathing** air that has cadmium particles or dust in it. This could happen if you work where batteries are made. It may also take place where metals are processed, soldered or welded. If you smoke cigarettes, you are exposed to cadmium. People who live near waste sites might breathe air with cadmium in it.

**Drinking** water that has been in contact with cadmium.

**Eating** food with cadmium in it. Only a small amount of cadmium in food enters the body. The lowest levels of cadmium in food are in fruits and drinks. The highest levels are in leafy vegetables and potatoes.

### How does cadmium work?

Cadmium enters your body through eating, drinking or breathing. Some cadmium stays in your body, some is breathed out, and some leaves the body as waste. If you do not eat foods containing enough iron or other nutrients, more cadmium may remain in your body. Most of the cadmium in your body is stored in your kidney and liver. It can stay there for many years. Your body can change cadmium to a harmless form. However, too much cadmium can make it difficult for your liver and kidneys to process it, and that leads to dangerous health effects.

### How can cadmium affect my health?

Breathing high levels of cadmium can cause death and severe lung damage. Eating food or drinking water with very high levels can hurt the stomach, causing vomiting or diarrhea. Long-term exposure to lower levels of cadmium may cause kidney disease. Other long-term effects are lung damage and fragile bones. Animals given cadmium in food or water had high blood pressure, iron-poor blood, liver disease, and nerve or brain damage. It is not known if humans will get these diseases from cadmium. Cadmium may cause cancer.

### How is cadmium poisoning treated?

Several antidotes may be used. An antidote is a substance taken to stop the effects of a poison. You may also be treated for the general symptoms of poisoning.



## What should I do if exposed to cadmium?

**If you inhale cadmium**, immediately move to fresh air. Seek medical help.

**If you eat cadmium**, wash your mouth out with water. Use ipecac syrup or some other means to make you vomit. Ipecac syrup, found in most drug stores, should be in each medicine cabinet in case of emergencies.

**If you touch cadmium**, wash with soap and water for at least 15 minutes.

**If cadmium gets in your eyes**, wash your eyes with clean water for at least 15 minutes.

## What factors limit use or exposure to cadmium?

Look around your home for items that might contain cadmium. Examples are batteries or garden products. This could also include products used for welding, glazing or other hobbies. You can prevent exposure by making sure that you and your family members do not swallow anything that contains cadmium. You can prevent breathing cadmium by not burning anything that has cadmium in it. If you work with cadmium, follow safety rules. Use a mask, face shield or goggles. Your work area should have an eye wash fountain and quick-drench system. Be careful not to bring cadmium home in dust that might be on your clothes, skin, hair or tools. A balanced diet can reduce the amount of cadmium taken into the body from food and drink.

## Is there a medical test to show whether I was exposed to cadmium?

Tests are available that can show cadmium in blood, urine, hair or nails.

## Technical information for cadmium

CAS Number: 7440-43-9

Chemical Formula: Cd

Carcinogenicity (EPA): B1–Probable human carcinogen.

MCL (Drinking Water): 5 parts per billion (ppb)

OSHA Standards: 5 micrograms Cadmium per cubic meter ( $5 \mu\text{g}/\text{m}^3$ ) as Cadmium fumes and  $5 \mu\text{g}$  Cadmium/ $\text{m}^3$  as Cadmium dust.

NIOSH: No NIOSH standard was found.

## References and Sources

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