

US EPA ARCHIVE DOCUMENT

# Consumer Factsheet on: COPPER

[List of Contaminants](#)

As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication:  
**National Primary Drinking Water Regulations**

This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

## What is Copper and how is it used?

Copper is a metal found in natural deposits as ores containing other elements. It is widely used in household plumbing materials.

## Why is Copper being regulated?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for copper has been set at 1.3 parts per million (ppm) because EPA believes this level of protection would not cause any of the potential health problems described below.

Since copper contamination generally occurs from corrosion of household copper pipes, it cannot be directly detected or removed by the water system. Instead, EPA is requiring water systems to control the corrosiveness of their water if the level of copper at home taps exceeds an Action Level.

The Action Level for copper has also been set at 1.3 ppm because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to control this contaminant should it occur in drinking water at their customers home taps.

These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

## What are the health effects?

Short- and long-term effects: Copper is an essential nutrient, required by the body in very small amounts. However, EPA has found copper to potentially cause the following health effects when people are exposed to it at levels above the Action Level. Short periods of exposure can cause gastrointestinal disturbance, including nausea and vomiting. Use of water that exceeds the Action Level over many years could cause liver or kidney damage. People with Wilsons disease may be more sensitive than others to the effect of copper contamination and should consult their health care provide

## How much Copper is produced and released to the environment?

Copper may occur in drinking water either by contamination of the source water used by the water system, or by corrosion of copper plumbing. Corrosion of plumbing is by far the greatest cause for

concern. Copper is rarely found in source water, but copper mining and smelting operations and municipal incineration may be sources of contamination.

From 1987 to 1993, according to the Toxics Release Inventory copper compound releases to land and water totaled nearly 450 million lbs., of which nearly all was to land. These releases were primarily from copper smelting industries. The largest releases occurred in Utah. The largest direct releases to water occurred in Tennessee.

### What happens to Copper when it is released to the environment?

All water is corrosive toward copper to some degree, even water termed noncorrosive or water treated to make it less corrosive. Corrosivity toward copper is greatest in very acidic water. Many of the other factors that affect the corrosivity of water toward lead can also be expected to affect the corrosion of copper.

### How will Copper be detected in and removed from my drinking water?

The regulation for copper became effective in 1992. Between 1993 and 1995, EPA required your water supplier to collect water samples from household taps twice a year and analyze them to find out if copper is present above 1.3 ppm in more than 10 percent of all homes tested. If it is present above this level, the system must continue to monitor this contaminant twice a year.

If contaminant levels are found to be consistently above the Action level, your water supplier must take steps to reduce the amount of copper so that it is consistently below that level. The following treatment methods have been approved by EPA for controlling copper: Corrosion control.

### How will I know if Copper is in my drinking water?

If the water system fails to comply with any EPA or state treatment requirements, the system must notify the public via newspapers, radio, TV and other means. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

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### Drinking Water Standards:

MCLG: 1.3 ppm

Action level: 1.3 ppm

### Copper Releases to Water and Land, 1987 to 1993 (in pounds):

	Water	Land
<b>TOTALS</b>	<b>1,538,148</b>	<b>442,082,245</b>

	Top Ten States *	
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UT	55,350	153,501,500
NM	0	130,682,387
AZ	2,636	104,619,532
MI	19,763	11,172,897
NY	66,57	10,017,766
MT	0	8,696,153
TN	301,417	1,208,804
MO	250	1,486,000
AL	41,213	513,536
MD	78,601	270,945

	Major Industries*	
Primary copper smelting	7,591	201,214,264
Other nonferrous smelt.	4,414	11,317,048
Plastic materials	44,422	9,637,850
Blast furnaces, steel	156,982	3,229,752
Poultry slaughtering	0	1,249,750
Copper rolling, drawing	17,253	941,075
Ind. organic chems	28,936	827,356
Prepared feeds, misc.	1,038	760,094
Ind. inorganic chems	220,503	527,458

\* Water/Land totals only include facilities with releases greater than a certain amount - usually 1000 to 10,000 lbs.

## Learn more about your drinking water!

EPA strongly encourages people to learn more about their drinking water, and to support local efforts to protect and upgrade the supply of safe drinking water. Your water bill or telephone books government listings are a good starting point.

Your local water supplier can give you a list of the chemicals they test for in your water, as well as how your water is treated.

Your state Department of Health/Environment is also a valuable source of information.

For help in locating these agencies or for information on drinking water in general, call: EPAs Safe Drinking Water Hotline: (800) 426-4791.

For additional information on the uses and releases of chemicals in your state, contact the: Community Right-to-Know Hotline: (800) 424-9346.