Consumer Factsheet on: ANTIMONY

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 Antimony and how is it used?

Antimony is a metal found in natural deposits as ores containing other elements. The most widely used antimony compound is antimony trioxide, used as a flame retardant. It is also found in batteries, pigments, and ceramics/glass.

Why is Antimony 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 antimony has been set at 6 parts per billion (ppb) because EPA believes this level of protection would not cause any of the potential health problems described below.

Based on this MCLG, EPA has set an enforceable standard called a Maximum Contaminant Level (MCL). MCLs are set as close to the MCLGs as possible, considering the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

The MCL has also been set at 6 ppb because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to remove this contaminant should it occur in drinking water.

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-term: EPA has found antimony to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: nausea, vomiting and diarrhea.

Long-term: Antimony has the potential to cause the following effects from a lifetime exposure at levels above the MCL: AND/OR- Antimony is a (known/potential drinking water) human carcinogen. OR- No reliable data are available concerning health effects from long-term exposure to antimony in drinking water.

How much Antimony is produced and released to the environment?

In 1984, 64.5 million lbs. antimony ore was mined and refined. Production of the most commonly used antimony compound, the trioxide, increased during the 1980s to about 31 million lbs, reported in 1985. Industrial dust, auto exhaust and home heating oil are the main sources in urban air.

From 1987 to 1993, according to the Toxics Release Inventory antimony and antimony compound releases to land and water totaled over 12 million lbs. These releases were primarily from copper and lead smelting and refining industries. The largest releases occurred in Arizona and Montana. The greatest releases to water occurred in Washington and Louisiana.

What happens to Antimony when it is released to the environment?

Little is known about antimonys fate once released to soil. Some studies indicate that antimony is highly mobile in soils, while others conclude that it strongly adsorbs to soil. In water, it usually adheres to sediments. Most antimony compounds show little or no tendency to accumulate in aquatic life.

How will Antimony be Detected in and Removed from My Drinking Water?

The regulation for antimony became effective in 1994. Between 1993 and 1995, EPA required your water supplier to collect water samples every 3 months for one year and analyze them to find out if antimony is present above 6 ppb. If it is present above this level, the system must continue to monitor this contaminant.

If contaminant levels are found to be consistently above the MCL, your water supplier must take steps to reduce the amount of antimony so that it is consistently below that level. The following treatment methods have been approved by EPA for removing antimony: Coagulation/Filtration, Reverse Osmosis.

How will I know if Antimony is in my drinking water?

If the levels of antimony exceed the MCL, 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.

Drinking Water Standards:

MCLG: 6 ppb

MCL: 6 ppb

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

	Water	Land
TOTALS	**330,064**	**12,003,373**

Top Ten States *		
AZ	505	7,074,128
MT	0	2,338,697
TX	24,817	840,392

LA	55,414	344,762
WI	1,445	392,000
MO	784	188,266
WA	63,220	99,915
ID	2,600	140,250
TN	687	108,325
AL	27,536	69,503

Major Industries*		
Copper smelting, refining	505	7,074,128
Other nonferrous smelt.	17,015	2,383,947
Sec. nonferrous smelt.	1,459	803,398
Misc Indust. Organics	18,424	581,465
Porcelain plumb. fixtures	1,445	392,000
Petroleum refining	111,527	202,251
Misc Inorganic chems.	4,962	140,250
Plastics, resins	20	60,372
Storage batteries	0	45,952
Synthetic fibers	26,803	12,535

* 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.