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Antimony, Barium, and Beryllium

Antimony

- Antimony is a bluish-white metallic element which is rare in nature. Antimony is used in the fire retardant, plastic, semiconductor, rubber, textile, paint, and glass industries. Potential sources of contamination in drinking water include petroleum refinery discharge, fire retardants, ceramics, electronics, and solder.
- The US Environmental Protection Agency (USEPA) has set a drinking water standard of 0.006 mg/L for antimony in public drinking water supplies. These regulations do not apply to private water supplies but the health implications are the same for private well owners.
- 100 mg of antimony has been shown to be acutely lethal. It would take over 400 gallons of antimony contaminated water at 10 times the USEPA standard to kill someone immediately. The more likely type of health effect from antimony comes from low dosages over a long period of time or “chronic” effects. Health effects from antimony include increased risk of cancer, increase in blood cholesterol, and a decrease in blood sugar.
- Treatment of water for antimony can be accomplished with reverse osmosis.

51	2
	8
	18
Sb	18
	5
Antimony	
121.760	

Barium

- Barium is a silvery-white metallic element found abundantly in nature in limestone and sandstone. Barium is used in the manufacture of paint, paper, ceramics, glass, special cement, X-ray diagnostic work, oil well drilling fluids, rubber, linoleum, and rat poison. Potential sources of contamination in drinking water include discharge of drilling wastes, discharge from metal refineries, and erosion of natural deposits.
- The USEPA has set a drinking water standard of 2.0 mg/L for barium in public drinking water supplies. These regulations do not apply to private water supplies but the health implications are the same for private well owners.
- The lethal dose of barium is approximately 550 mg. It would take over 7 gallons of barium contaminated water at 10 times the EPA standard to kill someone immediately. The more likely type of health effect from barium comes from low dosages over a long period of time or “chronic” effects. Increased blood pressure is the primary health effect from barium.
- Treatment of water for barium can be accomplished with ion exchange, reverse osmosis, or distillation.

56	2
	8
	18
Ba	18
	8
Barium	2
137.327	

Beryllium

- Beryllium is a steel gray alkaline earth metal found in many minerals. Beryllium is used to increase the strength of several metals, in nuclear reactors, aircraft, and space technology. Potential sources of contamination in drinking water include discharge from metal refineries, coal combustion, electrical, aerospace, and defense industries.
- The USEPA has set a drinking water standard of 0.004 mg/L for beryllium in public drinking water supplies. These regulations do not apply to private water supplies but the health implications are the same for private well owners.
- Beryllium is not readily absorbed by the digestive tract and is excreted rapidly. Intestinal lesions are the primary health effect from beryllium at high concentrations.
- Treatment of water for beryllium can be accomplished with activated alumina, ion exchange, or reverse osmosis.

4	2
	2
Be	
Beryllium	
9.012182	

Additional Resources:

Water Quality Interpretation Tool

<http://region8water.colostate.edu/wqtool/index.cfm>

Handbook of Drinking Water Quality; John DeZuane; 1997

USEPA Maximum Contaminant Levels and Fact Sheets

<http://www.epa.gov/safewater/mcl.html>

Water Quality Interpretation Tool

<http://region8water.colostate.edu/wqtool/index.cfm>