

Barium (Ba)

What is Barium?

Barium is a silvery-white metal which exists in nature only in ores containing mixtures of elements. It combines with other chemicals such as sulfur or carbon and oxygen to form barium compounds.

Barium compounds are used by the oil and gas industries to make drilling muds. Drilling muds make it easier to drill through rock by keeping the drill bit lubricated. They are also used to make paint, bricks, ceramics, glass, and rubber.

Barium sulfate is sometimes used by doctors to perform medical tests and to take x-rays of the gastrointestinal tract.

Does Barium have any additional names?

No, but can be found in various compounds such as barium sulfate, barium carbonate, barium chloride, barium nitrate, and barium hydroxide.

What are the known health effects?

The health effects of the different barium compounds depend on how well the compound dissolves in water. Barium compounds that do not dissolve well are generally not harmful. Barium has been found to potentially cause gastrointestinal disturbances and muscular weakness when people are exposed to it at levels above the USEPA drinking water standards for relatively short periods of time. Some people who eat or drink amounts of barium above background levels found in food and water for a short period may experience vomiting, abdominal cramps, diarrhea, difficulties in breathing, increased or decreased blood pressure, numbness around the face, and muscle weakness. Eating or drinking very large amounts of barium compounds that easily dissolve can cause changes in heart rhythm or paralysis and possible death.

How does exposure occur?

Exposure occurs by ingesting small amounts present in food and water or breathing air containing very low levels of barium, living in areas with unusually high natural levels of barium in the drinking water, working in a job that involves barium production or use, or living or working near waste sites where barium has been disposed of.

Is this contaminant regulated?

Yes, and water supplied to Mount Laurel MUA customers is in compliance with USEPA and NJDEP requirements. The maximum concentration of Barium permitted in drinking water is 2 ppm; water supplied by the MLTMUA system has a detected maximum of 0.137 ppm.

How can I reduce exposure?

Barium in drinking water can be removed at point of use by reverse osmosis, lime softening, electro dialysis, cation exchange, and distillation.

Additional information regarding Barium, including the information referenced, can be found at:

https://www.who.int/water_sanitation_health/dwg/chemicals/barium.pdf

<https://www.atsdr.cdc.gov/toxprofiles/tp24-c1.pdf>