



www.natureswayresources.com

JOHN'S CORNER:

MINERALS - The Elements and What They Do (Part 27)

by John Ferguson

35) Bromine (Br) - The name comes from the Greek word *bromos* which means stench. We use the name Bromine when this element exists as the molecule Br_2 (two atoms of Bromine bonded to each other) and Bromide when a bromine atom is combined with something else (ex. potassium bromide, KBr). Bromine is very reactive and dangerous while bromide is relatively safe.

Bromine is in group 17 on the periodic table and is one of the halogens that is related to iodine, and along with iodine is in the same column on the periodic table as chlorine and fluorine.

Bromine is found in igneous rocks at 3-5 ppm, shale at 4 ppm, sandstone at 1 ppm, in limestone and fresh water at 0.2 ppm, seawater at 65 ppm and in most soils around 5 ppm while coal can have 9-160 ppm. Marine plants have 740 ppm and land plants about 15 ppm. Marine animals have 60-1,000 ppm of bromine while land animals only have 6 ppm.

Bromine is one of only two elements that is a liquid at room temperature. Bromine is very corrosive and in its gas form, attacks the eyes and lungs if breathed. Only 100 mg is a fatal dose for humans while bromide requires over 3,000 mg to promote a response and much more before it becomes toxic.

Bromine is found in all living creatures from microbes to humans. Small amounts of bromine have been found in many natural springs associated with healing properties.

Bromine, its salts, and other compounds are used for dyes, disinfection, pharmaceuticals, agricultural chemicals, and fire extinguishers. The natural dye used to color the royal purple robes and togas worn during biblical times contained bromine atoms.



www.natureswayresources.com

Bromide was once used to make flame-retardants but as a persistent chemical with hormone disrupting properties in the environment, it has been phased out. Bromine is used in pesticides, plastics, bakery goods, soda medications, hot tub, and swimming pool treatments. In all of these uses, the bromide compounds are hormone disruptors.

For years methyl bromide (bromomethane, CH_3Br) was used as a soil fumigant as it killed almost all soil life from nematodes to bacteria and fungi. This dangerous chemical was phased out since it contributed to the destruction of the ozone layer that protects all life on Earth.

Another former use for bromine was ethylene dibromide combined with lead, which was used as an anti-knock ingredient in gasoline.

It was found that the process of ozonising water to sterilize it, converts any bromide in the water to bromate (BrO_3^-) which is a carcinogen. Brominated vegetable oil (BVO) is added to citrus drinks and many soft drinks to help suspend the flavorings.

Bromine is used in helping cells in multi cellular animals stick together. They stabilize cellular support structures called basement membranes. Insect studies found those insects low in bromine that 80% of the eggs failed to live. June 5, 2014 Journal Cell, Science News, July 12, 2004, p. 15.

Other studies have shown that mammals require bromine to form brominated amino acids that are used in various metabolic processes.

Bromine compounds are very common in our environment and problems occur due to its similarity with iodine. Iodine is crucial for proper thyroid function. With dropping levels of iodine in our food supply and increasing levels of bromine compounds, the body is replacing iodine with bromine preventing our thyroids from functioning properly.

One study found that 20% of all hospital admissions for "acute paranoid schizophrenia" were a result of consuming bromine containing products. Too much bromine can cause skin rashes, severe acne, loss of appetite, abdominal pain, fatigue, metallic taste, and cardiac arrhythmias.



www.natureswayresources.com

For more information on health issues:

<http://articles.mercola.com/sites/articles/archive/2009/09/05/another-poison-hiding-in-your-environment.aspx>

Gardening and Landscaping Problems Associated with Selenium (Se)

When greenhouses are fumigated with methyl bromide plants can hyper-accumulate this element. Greenhouse grown lettuce has been found with levels of bromine up to 0.1 % of their weight.

Bromine is found in all plant tissues, however, we do not know if it is essential to plant growth and health. Marine plants can concentrate bromine to over 1,000 times of that in seawater. Some plants are sensitive to bromine (potatoes, spinach, sugar beets, onions, carnations, and chrysanthemum). Other plants can accumulate bromine to over 2,000 ppm without harm (carrots, tobacco, tomato, celery, and melons).

Since bromine is chemically similar to chlorine, it is believed that it can substitute for some of the chlorine requirements of plants.

Symptoms of bromine toxicity resemble excess salt effects, with chlorosis followed by leaf tip necrosis as the most common symptoms.

Sources: Igneous rock dusts from basalt and granite, seaweeds