

Geosmin and MIB

Geosmin and Methyl-Isoborneol (MIB) are naturally occurring compounds that have a very strong, earthy taste and odor. Geosmin can be detected by human noses at very low levels. These compounds are generally present in drinking water, however not at noticeable levels.

Generally, Geosmin becomes an aesthetic issue for customers when levels are in the range of 20-30 nanograms (one millionth of a milligram) per liter, but some people who are particularly sensitive may notice it at levels above 10.

What are the Effects of Geosmin and MIB?

Geosmin and MIB produce a musty, earthy smell and taste in drinking water, however are not harmful at levels present in drinking water.

What Causes Increased Levels of Geosmin and MIB?

Some kinds of algae and bacteria present in dams naturally produce Geosmin and MIB. Increased concentrations of these microorganisms can cause an increase in Geosmin and MIB concentrations above the taste and odor threshold.

What Can be Done About Geosmin and MIB?

Geosmin and MIB cannot be removed from water using normal treatment processes.

Customers can add lemon juice and chill water with increased geosmin and MIB levels to improve the taste.

While the taste and odor can be unpleasant, Geosmin is not toxic or harmful. The water remains safe to drink. On-going testing continues to show an absence of harmful bacteria and other pathogens in the water.

Effects

The human nose is extremely sensitive to geosmin and is able to detect it at concentrations as low as 5 parts per trillion.

Geosmin is responsible for the muddy smell in many commercially important freshwater fish such as carp and catfish. Geosmin combines with 2-methylisoborneol, which concentrates in the fatty skin and dark muscle tissues. Geosmin breaks down in acid conditions; hence, vinegar and other acidic ingredients are used in fish recipes to help reduce the muddy flavor.

The smell after a rainstorm is also attributed to geosmin. (The smell before the rain is ozone.)