Taste and Odor in Drinking Water

Geosmin and MIB

Geosmin and Methyl-Isoborneol (MIB) are naturally occurring compounds that have an earthy/musty taste and odor. Geosmin and MIB do not pose a public health risk, but their presence can cause concern about the quality of drinking water. Utilities around the country may receive high numbers of customer complaints whenever levels of geosmin or MIB increase in their water supply. Geosmin and MIB are some of the most difficult compounds to remove during water treatment.

The Amador Water Agency (AWA) seasonally monitors for geosmin and MIB in the drinking water supply. Proactive sampling allows the AWA to be aware and provide additional treatment steps when we notice an increase in geosmin and MIB levels. Beginning in late spring and through late fall, during the time of year that the compounds are typically at higher levels, AWA tests for geosmin and MIB on a bi-monthly basis. This season, however, we were unable to find a certified lab to monitor these samples. Our lab partner is searching for another laboratory.

Generally, geosmin & MIB become a taste & odor issue for customers when levels are in the range of 10 nanograms per liter (ng/L, or 10 parts per trillion), but some people who are particularly sensitive may notice it at levels above 5 ng/l. To put it in simpler terms, that would equate to one-half of one cent in a billion dollars.

What are the Effects of Geosmin and MIB?

Geosmin and MIB produce a musty, earthy smell and taste in drinking water, however both compounds 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 lake and reservoir water naturally produce geosmin and MIB. An increase in this production typically happens during late summer into early fall when lake levels are low and water temperatures are warm. We know from past years that the Ione Reservoir has geosmin and MIB issues when the temperature of the water is between 21° and 25° C. Operationally, in late May, we fill the reservoir from the bottom to keep the water at a cooler temperature.

What Can be Done About Geosmin and MIB?

Geosmin and MIB cannot be removed from water using normal treatment processes; advanced treatment is required. During increased levels of geosmin or MIB, before source water enters our treatment facilities, Granular Activated Carbon is added to reduce geosmin and MIB. Adjustments to the polymer is made but it is a delicate balance and takes time to correct.

Can I do anything to my water taste better?

When Geosmin and MIB are noticeable, customers can add lemon juice and chill water in the refrigerator to improve the taste and reduce odors.