

Geosmin and 2-methylisoborneol explained

Earthy, musty taste and odour



Why your water sometimes tastes or smells different

You may not notice, but every water supply has its own taste and odour due to its composition. This is why you can sometimes taste and smell a difference when you travel to a different part of the country. Some people are more sensitive to taste and odour than others.

Occasional earthy tasting water

Some customers describe this as smelling stale or pond like and if you experience this with your water supply, it can often be due to a harmless, naturally occurring organic compound called geosmin and 2-methylisoborneol (MIB), which can seasonally be found in some raw water sources.



Geosmin and MIB

Geosmin and MIB are associated with the breakdown of algae and other micro-organisms in the raw water sources. They have an earthy/musty taste and odour. Geosmin is also present in some foods such as beetroot, spinach, and mushrooms. Both compounds contribute to the strong scent in the air when it rains after a dry spell of weather or when soil is disturbed.



Geosmin and MIB can be detected by some people even at incredibly low concentrations. The threshold for human detection is approximately 15 parts per trillion (ppt) or nanogrammes per litre. However, variations in customers' perception of taste or odour, means some people may detect these compounds at concentrations as low as 5 ppt in drinking water which is equivalent to 1 teaspoonful in 200 Olympic swimming pools!

The smell is more easily detected in the shower or when water is heated for hot drinks as heating releases the compounds into the atmosphere as steam.

Water quality

Although the taste and odour can be unpleasant, geosmin and MIB are not harmful to health and the drinking water is safe to use as normal. The water supply is rigorously tested in our laboratories where we can confirm that it is wholesome.



How long will the taste and odour last?

Geosmin and MIB can be present in raw water at varying levels throughout the year but concentrations can significantly increase during the warmer months. It can be difficult to predict how long these levels remain elevated.

What we are doing to help improve taste and odour

Scottish Water carry out frequent sampling at our water treatment works and on our network. Some of our sites have permanent treatment processes in place to assist in the removal of geosmin and MIB, however warm weather can contribute to significant increases in raw water geosmin and MIB which makes it difficult to control. Geosmin and MIB are difficult to remove from raw water using conventional water treatment methods. In areas where geosmin and MIB causes issues, we may further optimise the treatment process to reduce levels further to minimise any impact on customers. We continue to work with research providers to better understand the sources of geosmin and MIB, how these may change in response to climate change and to explore potential mitigation options.

What you can do about it

Chilling the water, adding ice cubes, a slice of lemon, or a few drops of lemon juice may help reduce the odour and taste produced by geosmin and MIB.

Other causes of earthy musty taste and odour

If you experience an earthy musty taste or odour in your water supply and it isn't as a result of geosmin or MIB in the raw water source, it may be due to long lengths of pipework within large buildings. If you are unsure of the source, please contact us and we can investigate further.

We want to make it easy to contact us – here's how:

We always have someone here to take your call, you can write to us or alternatively you can contact us through our website.

Alternative formats of this leaflet can be made available free of charge. For information on Braille, large print, audio and a variety of languages, please contact us.

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