

MTBE

What You Need to Know

MTBE has been in the news more and more in recent years. A chemical added to gasoline to help it burn cleaner and aid air quality, it has been showing up in water supplies as a contaminant. In fact, it reportedly has been detected in ground water at some levels in 49 states.

People are now asking several questions about MTBE, with the most obvious being “What is it?” and “Should I be concerned with it contaminating my water supply?” Being informed is always the most important step in safety issues. Here are answers to some common MTBE questions:

What does MTBE stand for? What exactly is it?

MTBE stands for methyl tertiary butyl ether. It is an organic chemical produced almost exclusively for use in gasoline. It is made of methanol and a by-product of the oil-refining process. At room temperature, it is a colorless liquid that will volatilize into the air, making it a volatile organic chemical (VOC). It is highly soluble in water.

What is MTBE used for?

MTBE, which has been around since the late 1970’s, was first used to boost octane in gasoline as lead was phased out as an “anti-engine knock” additive. Most recently it has been added to gasoline to enhance combustion, thus reducing emissions of carbon monoxide, nitrogen oxides, and other combustion by-products. This was in compliance with the federal Clean Air Act, which required the addition of oxygenates to gasoline in areas of the country with the worst ozone air pollution problems. Fuel with MTBE has also been used voluntarily in other parts of the United States. Oxygenates are fuel additives that help reduce ozone production.

How prevalent is MTBE?

About 30 percent of all gasoline in the United States contains fuel oxygenates. MTBE is the oxygenate of choice, and it is used about 80 percent of the time.

HOW is MTBE getting into the water supply?

MTBE is released into the environment via transport accidents, leaking underground and aboveground storage tanks, leaking gasoline distribution pipes, watercrafts, and simple overfilling at gas stations.

Does it mix easily with the water?

MTBE is hydrophilic, meaning it has a chemical attraction to water molecules. It is more than 30 times more soluble in water than other toxic compounds of gasoline. It doesn’t bind readily to soil particles and resists natural degradation, thus causing it to travel quickly to underground water supplies. According to

a U.S. EPA report, between 5 percent and 10 percent of drinking water supplies in areas where there is a high level of oxygenate use show at least detectable amounts of MTBE.

What happens if I’m exposed to MTBE?

There are little definitive data on the effect of ingesting MTBE, but the EPA has tentatively classified it as a potential human carcinogen. Breathing small amounts of MTBE for short periods may cause nose and throat irritation as well.

How can MTBE be detected?

Most people can detect MTBE by a strong taste and odor that is described as turpentine-like. The drinking water advisory for MTBE recommends water quality control levels of MTBE not exceed 20 to 40 parts per billion. The EPA has ruled, based on information so far, that this level of detection provides a wide margin of safety from any possible toxic effect. The National Ground Water Association recommends that well owners should get their water tested annually. Contact your water well professional for more information.

How can MTBE be removed from my water supply?

There are several remediation technologies becoming available. Your water well professional will be able to help you find a solution, or check your phone book under “water testing” or water treatment.”

Is anything being done on the national level about MTBE?

There are more than a dozen bills pending in Congress that deal with MTBE. They include banning or phasing out the use of MTBE by state or federal authorities, repealing the Clean Air Act’s oxygenate requirement, or requiring changes to current fuel storage tank requirements.

For more information on your private well water supply, visit the National Well Owners Association Web site at www.wellowner.org.

For all of your well water needs, contact:



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