



Fact Sheet: MTBE

Everyday Exposures

Methyl tertiary-butyl ether is a man-made chemical, used since 1979 almost exclusively as a fuel additive in motor gasoline.¹ It's one of a group of chemicals known as "oxygenates." Oxygenates allow the release of more oxygen in gasoline, which makes it burn more efficiently.² According to the Environmental Protection Agency, over 200,000 barrels of MTBE per day are used in the U.S.³ MTBE is a very volatile chemical at room temperature and is highly flammable. It also dissolves easily in water. The United States Geological Survey has reported MTBE to be in water at roughly five times greater concentrations in regions where MBTE is used as a gasoline additive than in regions where it is not.⁴

Threat to the Environment & Drinking Water

There is the risk that MTBE will leak into the environment wherever gasoline is stored or transported, such as from leaking fuel storage tanks, pipelines, refueling spills, and car accidents.⁵ Once freed from a sealed container, MTBE disperses into the environment quickly because of its ability to evaporate from open containers and surface water. Thus, it is commonly found as a vapor in the air.⁶

Because MTBE dissolves easily in water and does not readily bond with soil, finding MTBE in public water systems and private drinking wells is not uncommon. MTBE does not degrade easily in the environment and is resistant to microbial decomposition,⁷ and thus it is difficult and costly to remove from ground water.⁸

Effects on Human Health

MTBE makes drinking water taste very offensive and gives off an unpleasant odor.⁹ MTBE exposure can cause nausea, nose and throat irritation, digestive tract irritation, liver and kidney damage, and nervous system effects including mental confusion.^{10 11} While, MTBE's full effects on human health have not been extensively studied, EPA reports link MTBE exposure to cancer in lab animals¹² and so classify MTBE as a potential carcinogen.¹³

Vermont Takes Action

In 2007, a law took effect banning the use, storage or sale of gas with amounts of MTBE greater than 0.5 percent by volume.¹⁴ This made Vermont the 22nd state to ban the use of MTBE.

Santa Monica Drinking Water Contaminated

In 1996, two of the drinking water supplies in the city of Santa Monica were contaminated with MTBE at levels as high as 610 ppb. (The EPA considers concentrations in the 20-40 ppb range safe.) As an emergency response, about 50 percent of the city's drinking water supply was temporarily shut down and the city began purchasing replacement water. According to the EPA, this was the first incident of MTBE contaminating a public drinking water supply.

<http://www.epa.gov/MTBE/faq.htm>

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- ¹ Methyl Tertiary Butyl Ether (MTBE) Overview. U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/MTBE/faq.htm>
- ² Methyl Tertiary-Butyl Ether (MTBE). California Water Science Center. U.S. Geological Survey. Available online at: <http://ca.water.usgs.gov/mtbe/>
- ³ Methyl Tertiary Butyl Ether (MTBE) Overview. U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/MTBE/faq.htm>
- ⁴ Drinking Water and MTBE: A Guide for Private Well Owners. US EPA Office of Ground Water and Drinking Water. Available online at: <http://www.uwex.edu/farmandhome/wqpaap/pdf/mtbe.pdf>
- ⁵ Methyl Tertiary Butyl Ether (MTBE) Overview. U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/MTBE/faq.htm>
- ⁶ ToxFAQs™ for Methyl *tert*-Butyl Ether (MTBE). Agency for Toxic Substances and Disease Registry. Department of Health and Human Services. September 1997. Available online at: <http://www.atsdr.cdc.gov/tfacts91.html>
- ⁷ Methyl Tertiary-Butyl Ether (MTBE). California Water Science Center. U.S. Geological Survey. Available online at: <http://ca.water.usgs.gov/mtbe/>
- ⁸ Methyl Tertiary Butyl Ether (MTBE) Overview. U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/MTBE/faq.htm>
- ⁹ Methyl Tertiary Butyl Ether (MTBE) Overview. U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/MTBE/faq.htm>
- ¹⁰ ToxFAQs™ for Methyl *tert*-Butyl Ether (MTBE). Agency for Toxic Substances and Disease Registry. Department of Health and Human Services. September 1997. Available online at: <http://www.atsdr.cdc.gov/tfacts91.html>
- ¹¹ ToxFAQs™ for Methyl *tert*-Butyl Ether (MTBE). Agency for Toxic Substances and Disease Registry. Department of Health and Human Services. September 1997. Available online at: <http://www.atsdr.cdc.gov/tfacts91.html>
- ¹² Methyl Tertiary Butyl Ether (MTBE) Overview. U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/MTBE/faq.htm>
- ¹³ Methyl Tertiary Butyl Ether (MTBE) Overview. U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/MTBE/faq.htm>
- ¹⁴ Vermont moves forward with MTBE ban. Ethanol Producer Magazine. April 2005 issue. Available online at: http://ethanolproducer.com/article.jsp?article_id=550