

***** Technical Fact Sheet *****
METHYL TERTIARY BUTYL ETHER and OXYGENATES

Methyl Tertiary Butyl Ether (MTBE) is an ether compound that was introduced as a gasoline additive in the late 1970's. MTBE has been added to gasoline to reduce carbon monoxide and benzene emissions, improve air quality, and enhance octane. Gasoline can contain up to 15% MTBE by volume. MTBE is volatile, flammable, and colorless with a water solubility of 4% by weight and a boiling point of 55 degrees C. In 1985 it was the 44th highest volume chemical produced in the U.S. Currently, MTBE is under extensive debate as to its use with current data supporting the conclusion that MTBE is a potential human carcinogen at high doses. Studies on the health risks associated with MTBE can be found on the EPA's home page at www.epa.gov/MTBE/water.htm.

MTBE is typically detected in groundwater samples taken downgradient from gasoline contaminated sites and can be detected in wells with or without the presence of the gasoline constituents benzene, toluene, ethylbenzene, and xylenes (BTEX). Detections of MTBE have been occurring at an alarming rate in lakes, rivers, bays, and harbors due to the increasing use of gasoline operated vessels. Because MTBE is not attenuated like BTEX, and is extremely soluble in water, it travels ahead of the other gasoline constituents. Aromatics (like BTEX) can be biodegraded and will also adsorb to organic material in the soils. MTBE does not biodegrade well in the subsurface and does not adsorb onto organic matter, therefore, MTBE moves nearly at the rate of groundwater. Because MTBE does not adsorb onto soil, it is generally not detected in soil samples. Other related compounds in the oxygenate class include tert-butyl alcohol (TBA), Di-isopropyl alcohol (DIPE), tert-amyl methyl ether (TAME), and ethyl tert-butyl ether (ETBE). Depending on the source and the environmental conditions these additional parameters may also be detected.

EnviroMatrix Analytical, Inc. (EMA) performs MTBE analysis in waters by EPA Method 8260B. If you request a full EPA 8260 we will automatically report MTBE. If you request BTEX only, you must also request MTBE and/or oxygenates for us to report MTBE and /or oxygenates on your certified analytical results. The current reporting limit at EMA for MTBE is 1 ppb (parts per billion).

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