

Some Questions and Answers Regarding MTBE

What is MTBE and why is it in gasoline?

MTBE (methyl tertiary-butyl ether) is a volatile organic compound which had been added to gasoline as an octane booster since the phase out of lead in the late 1970s. More recently MTBE had been added to gasoline to make it burn more cleanly and reduce air emissions from vehicles. In 2005 the Vermont legislature passed a ban the sale of gasoline containing MTBE. That ban went into effect in January 2007

How does MTBE get into drinking water?

Contamination of drinking water with MTBE is most likely to be the result of a gasoline spill. Spills may be large, such as a leaking underground or above ground gasoline storage tank. Spills may be small, such as those that can occur while refueling, discarding old gasoline improperly, or leaking from vehicles. The larger the spill the greater the potential for widespread contamination of ground water, though small spills can sometimes have significant localized impacts depending on the vulnerability of nearby wells. Because of its high solubility in water and resistance to decomposition, MTBE moves rapidly in groundwater, indeed faster than do other gasoline components such as the chemicals benzene, ethylbenzene, toluene and xylene. MTBE is also more difficult to remove from water than other gasoline components.

Is MTBE showing up in drinking water a new problem?

No. MTBE contamination in Vermont's drinking water has been detected since the 1980s. The Vermont Department of Environmental Conservation has documented over 300 public and private wells contaminated with gasoline, mostly due to leaks from underground storage tanks. Almost all of these petroleum contaminated water supplies contain MTBE. In many of them MTBE is the only petroleum compound that is detected.

Is MTBE in drinking water harmful?

The potential for effects of MTBE on human health depend on how much MTBE is present in water and the length and frequency of exposure. Exposure can occur from direct consumption of water as well as by inhaling MTBE vapors released from water while bathing or cooking. However, it is unlikely that adverse health effects would occur from exposure to water containing MTBE. At water levels that would make it likely for adverse health effects to occur, people would generally find the water undesirable to drink. MTBE has an unpleasant odor and taste, and indeed some individuals can detect the presence of MTBE in water (and air) at very low levels.

MTBE has been shown capable of causing cancer, kidney, reproductive, developmental, and nervous system toxicity in laboratory animals exposed to large amounts. Vermont's current drinking water standard for MTBE of 40 parts per billion (ppb) has been set to provide large margins of safety from these toxic effects. For example, daily consumption of 2-liters of water containing 40 ppb of MTBE over a lifetime is estimated to increase a person's chance of adverse effects by no more than 1-in-a-million.

