



METHYL *TERT*- BUTYL ETHER OCCURRENCE AND DEGRADATION IN WATER

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Abstract

The use of gasoline oxygenated with MTBE (methyl *tert*-butyl ether) reduced significantly air pollution (16 - 23% lower emissions of CO and 18% lower emissions of unburned hydrocarbons) but increased water pollution. There is no European or national regulations for MTBE in drinking water except for Denmark, which has set a limit value of **30 µg/ L** for MTBE. USEPA proposed a maximum concentration of **20- 40 µg/L**.

This paper is a review with 70 references on the MTBE production, use, properties and its behavior in the environment, potential health effects, occurrence in ground water/ surface water/ drinking water/ wastewater, water sample analysis, and methods to remove or degrade it in water. The conventional methods to remove volatile organic compounds (VOCs) from drinking water- air stripping and adsorption on granular active carbon (GAC) - are not effective in the case of MTBE with concentrations of 100µg/L or more. Therefore, a suitable advanced oxidation process (AOP) must be investigated and applied. The existing laboratory data on the application of nine different AOPs to the degradation and mineralization of MTBE in water are peer reviewed in this article. The most promising, both from technical and economic point of view, seem to be UV/ H₂O₂ and O₃/ H₂O₂ processes.

Keywords: gasoline additive, drinking water, MTBE analysis, monitoring, MTBE degradation.
