A Convenient MTBE Analysis Method and its Application for Soil and Water Samples. (S11-rochette145200-Poster)

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Abstract:

Methyl tert-butyl ether (MTBE) is a fuel oxygenate and common groundwater contaminant, introduced to the environment by leaking petroleum storage tanks, urban runoff, and motorized watercraft. It is commonly measured in water by purge and trap methods. This study involved adapting a convenient headspace method for the analysis of MTBE in aqueous samples. The advantage of this headspace method is its simplicity, requiring only a gas chromatograph and automated injections. The MDL of the headspace method was calculated to be 2.0 micrograms per liter by the EPA single concentration design method, and 1.2 micrograms per liter by a Hubaux-Vos calibration approach, for mass selective detection. The Hubaux-Vos approach was favored, as it considers both a true positive and a false positive. The headspace method was applied to analysis of tap water and river samples, monitoring well samples from a gasoline service station, and aqueous extracts from soil excavated during removal of a leaking underground storage tank (LUST). The water samples, and aqueous extracts of soil from the LUST site, had MTBE concentrations ranging from 6 to 19 micrograms per liter.

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