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Methyl tert-butyl ether (MTBE) has recently been introduced as an additive used to increase the octane rating of fuels. MTBE, a petroleum-based non-renewable hydrocarbon has recently been implicated in causing health problems in Alaska and its environmental fate has not been adequately addressed. The environmental impact of MTBE is further complicated by secondary by-products formed by its vapor phase chemistry. Secondary products formed from uncombusted fuel and MTBE in the gas-phase can potentially result in the production of unknown compounds, that if released into the atmosphere unnoticed and without proper identification might cause a great concern to the air pollution in the future. To address the potential impact of the secondary by-products formed from the gas-phase reactions of MTBE, the ion-molecule reactions of MTBE and its reactive fragments have been studied by Fourier transform ion-cyclotron-resonance mass spectrometry.

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