

METHYL TERT-BUTYL ETHER (C₅H₁₂O)

Chemical Abstracts Service (CAS) Number: 1634-04-4

General Information

Methyl tert-butyl ether is a colorless liquid used as a gasoline additive. Acute (short-term) inhalation exposure to methyl tert-butyl ether has been linked to respiratory irritation, dizziness, and disorientation in some motorists and occupationally exposed workers. Chronic (long-term) exposure to methyl tert-butyl ether may be associated with symptoms of coughing, burning sensations in the nose and throat, headache, dizziness, and feelings of spaciness and disorientation reported by motorists and gas station attendants. U.S. EPA has not classified methyl tert-butyl ether with respect to potential carcinogenicity.

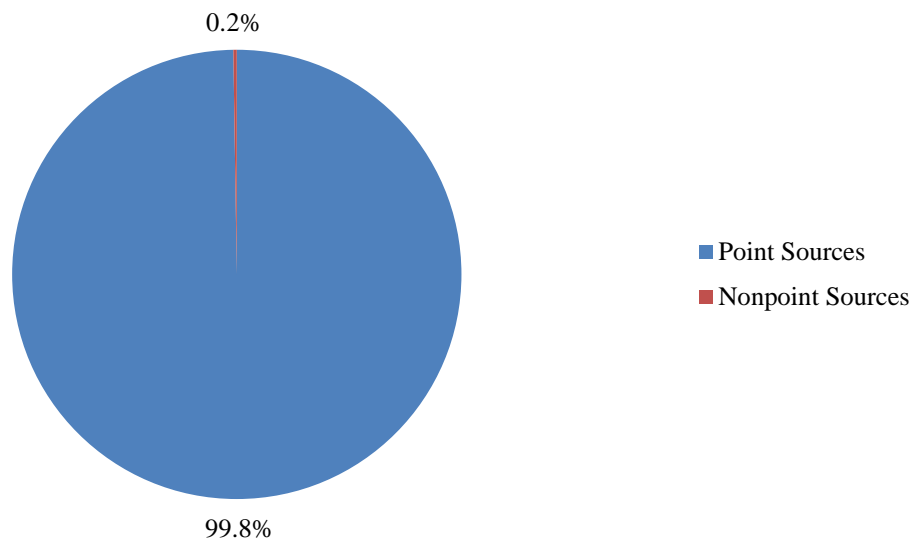
Sources

- Nearly all methyl tert-butyl ether produced in the United States is used as an additive in unleaded gasoline to increase octane levels and reduce carbon monoxide emissions.
- The general population may be exposed to methyl tert-butyl ether by breathing air contaminated with auto exhaust or gasoline fumes while refueling cars.
- Workers may be occupationally exposed via inhalation or dermal contact.

Indiana Emissions

IDEM collects HAP emissions information for the categories of point sources (large stationary sources like power plants and factories), nonpoint sources (aka area sources - smaller stationary sources like gas stations and dry cleaners), and mobile sources (vehicles, airplanes, marine vessels, etc.).* Estimated statewide emissions of methyl tert-butyl ether totaled 2.74 tons in the 2014 calendar year. Of this total, 99.8% was attributed to point sources, with the remaining 0.2% attributed to nonpoint sources.

2014 Indiana Methyl Tert-Butyl Ether Emission Sources



* For additional examples of types of emission sources, please visit IDEM's Hazardous Air Pollutants page at: <http://www.in.gov/idem/toxic/pages/hap/index.html>. For specific details on industrial sources of air toxics, please visit U.S. EPA's Toxics Release Inventory (TRI) page at: <https://www.epa.gov/toxics-release-inventory-tri-program>.

Measured Concentration Trends

Ambient air monitoring data most accurately represents a limited area near the monitor location. All monitors for air toxics sample every sixth day. The monitoring locations by themselves are not sufficient to accurately characterize air toxic concentrations throughout the entire state, however, results from the monitors will provide exposure concentrations with a great deal of confidence at the monitoring locations.

The ambient air monitoring results were analyzed using U.S. EPA recommended statistical methods. IDEM evaluated the data so that a 95% upper confidence limit of the mean (UCL) could be determined. A 95% UCL represents a value which one can be 95% confident that the true mean of the population is below that value.

To learn more about the current monitoring locations, please visit IDEM's Air Toxics Monitor Siting webpage at: <http://www.in.gov/idem/toxic/2337.htm>

Data analysis was performed for each monitor that operated for a significant portion of the analysis period. This analysis determined the detection rate, which is defined as the percentage of valid samples taken statewide that had a quantifiable concentration of the pollutant. The statewide detection rate of methyl tert-butyl ether for the monitors analyzed from 2006-2015 was 7.5%. This detection rate is too low for IDEM to draw any conclusions about concentration

trends of methyl tert-butyl ether. IDEM did not perform a trend analysis for any pollutant with a detection rate less than 50%.