

## **METHYL BROMIDE (CH<sub>3</sub>Br)**

*also known as Bromomethane*

Chemical Abstracts Service (CAS) Number: 74-83-9

### **General Information**

Methyl bromide occurs as a colorless, highly volatile, and highly toxic gas that is slightly soluble in water. Acute (short-term) inhalation of methyl bromide by humans may result in severe lung injuries. Acute and chronic (long-term) inhalation of methyl bromide can lead to neurological effects in humans. Neurological effects, including lethargy, forelimb twitching, tremors, and paralysis, have also been observed in animal studies. Cancer studies have not established a link between exposure to methyl bromide and increased risk of cancer. U.S. EPA has classified methyl bromide as a Group D, not classifiable as to human carcinogenicity, based on inadequate human and animal data.

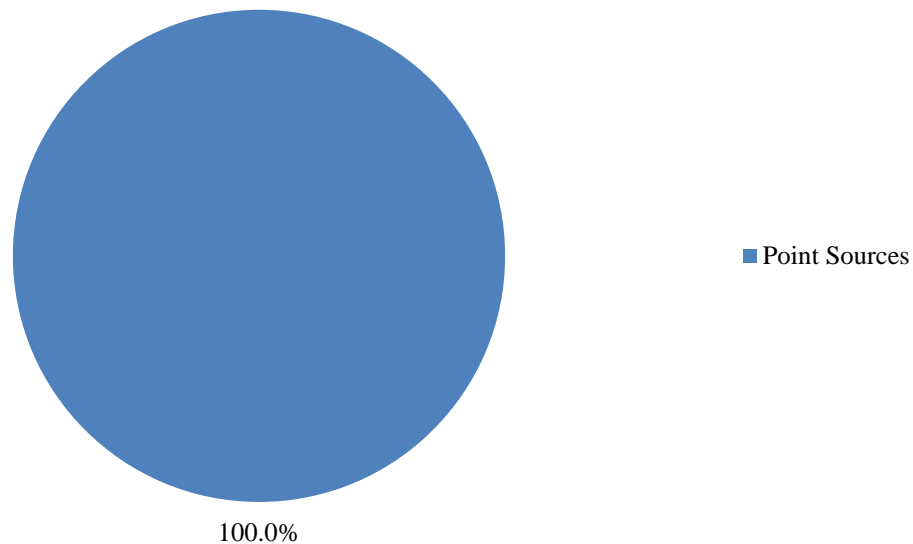
### **Sources**

- The primary use of methyl bromide is as a fumigant in soil to control fungi, nematodes, and weeds; in space fumigation of food commodities like grain; and in storage facilities to control insects and rodents.
- Methyl bromide is usually found at low levels in the air, but industrial areas may have higher levels because of releases from chemical factories.
- Workers who fumigate homes and fields may be exposed to high levels of methyl bromide if proper safety precautions are not followed.
- Trace amounts of methyl bromide have been detected in drinking water.
- Some methyl bromide is formed naturally by algae or kelp in the ocean.

### **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 bromide totaled 4.89 tons in the 2014 calendar year. All emissions were attributed to point sources.

## 2014 Indiana Methyl Bromide 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 for the monitors analyzed from 2006-2015 was 36.4%. This detection

rate is too low for IDEM to draw any conclusions about concentration trends of methyl bromide. IDEM did not perform a trend analysis for any pollutant with a detection rate less than 50%.