

## **CHLOROETHANE (C<sub>2</sub>H<sub>5</sub>Cl)**

*also known as Ethyl Chloride*

Chemical Abstracts Service (CAS) Number: 75-00-3

### **General Information**

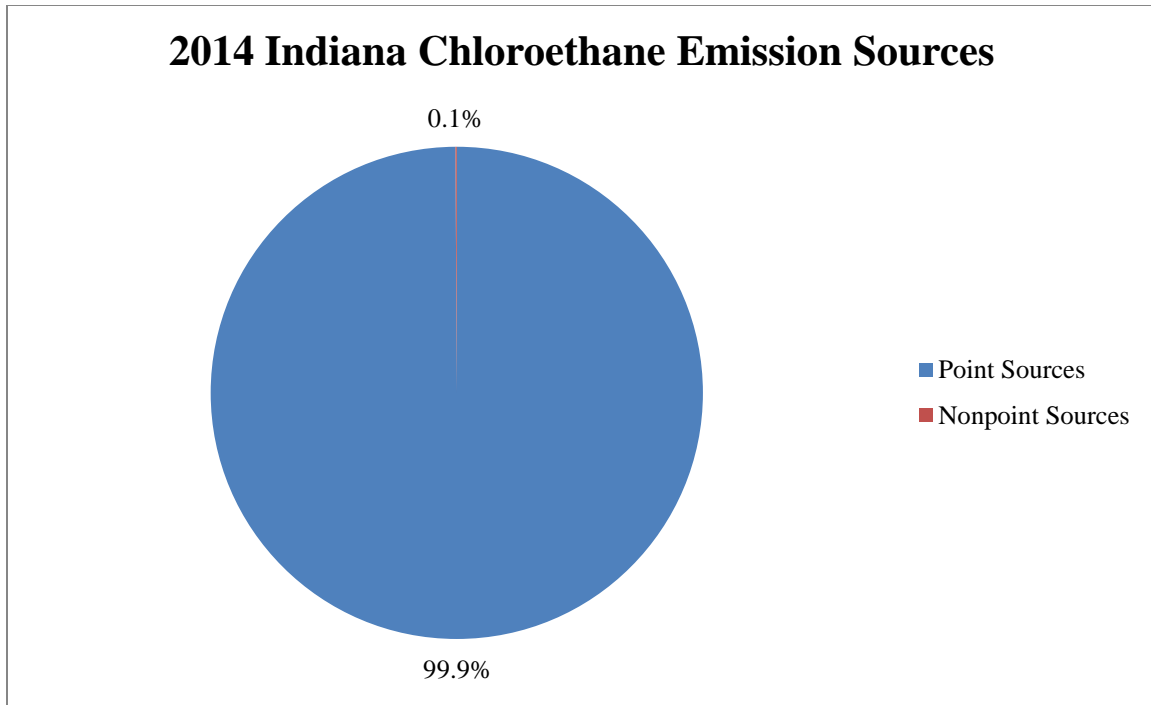
Chloroethane is a colorless gas with an ethereal odor. Acute (short-term) inhalation exposure to high levels of chloroethane in humans has resulted in temporary feelings of drunkenness, dizziness, lack of muscle coordination and unconsciousness. Accidental death has resulted from its former medical use as an anesthetic during major surgery. The chronic (long-term) health effects resulting from exposure to chloroethane in humans is not known. Some animal studies indicate effects on the lungs, liver, kidneys, and heart due to chronic exposure to chloroethane. There is no cancer risk data available for human exposure to chloroethane. U.S. EPA has not classified chloroethane for carcinogenicity.

### **Sources**

- Chloroethane is used in the production of ethyl cellulose, use as a solvent, refrigerant, and topical anesthetic, in the manufacture of dyes, chemicals, and pharmaceuticals, and as a medication to alleviate pain associated with insect burns and stings.
- In the past, chloroethane was used in the production of tetraethyl lead, an anti-knock additive to leaded gasoline.
- Sources of possible chloroethane exposure include the inhalation of contaminated air and ingestion of contaminated drinking water at very low levels.
- The general population can be exposed to chloroethane by skin contact with consumer products that contain chloroethane such as solvents and refrigerants.

### **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 chloroethane totaled 1.20 tons in the 2014 calendar year. Of this total, 99.9% was attributed to point sources with the remaining 0.1% attributed to nonpoint 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 chloroethane for the monitors analyzed from 2006-2015 was 38.8%. This detection rate is too low for IDEM to draw any conclusions about concentration trends of

chloroethane. IDEM did not perform a trend analysis for any pollutant with a detection rate less than 50%.