1,1-DICHLOROETHANE (C$_2$H$_4$Cl$_2$)

also known as Ethylidene Dichloride
Chemical Abstracts Service (CAS) Number: 75-34-3
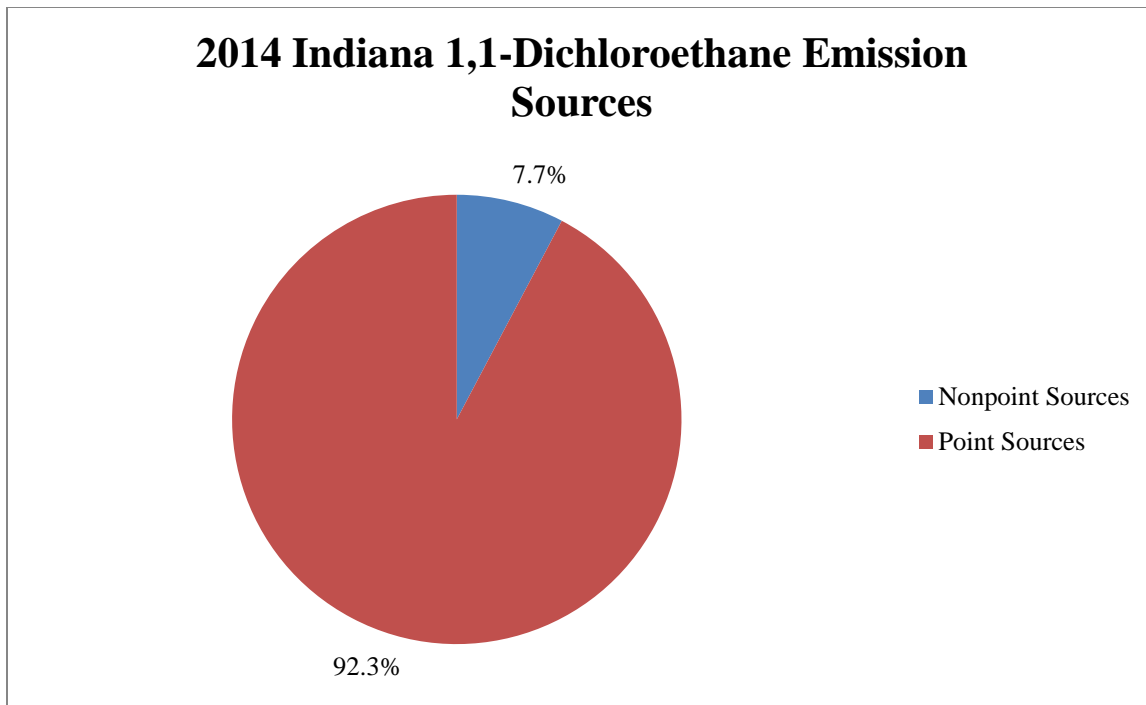
General Information

1,1-Dichloroethane is a colorless oily liquid which is very volatile. 1,1-Dichloroethane has an odor similar to ether; the odor threshold is 120 parts per million. Acute inhalation exposure to high levels of 1,1-dichloroethane results in CNS depression and a cardio stimulatory effect, resulting in cardiac arrhythmias. Acute dermal exposure to 1,1-dichloroethane can cause skin burns, scaliness, or rashes. U.S. EPA has classified 1,1-dichloroethane as a Group C, possible human carcinogen.

Sources

- 1,1-Dichloroethane is primarily used as an intermediate in the manufacture of other chemicals such as vinyl chloride and 1,1,1-trichloroethane, and to manufacture high vacuum rubber.
- 1,1-Dichloroethane has limited use as a solvent for plastics, oils, and fats.
- 1,1-Dichloroethane has been detected in ambient air samples and in drinking water supplies.
- Occupational exposure to 1,1-dichloroethane may occur for those workers in the rubber and plastic, chemical, electrical equipment and supply, medical and other health services, and oil and gas industries.

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 1,1-dichloroethane totaled 0.42 tons in the 2014 calendar year. Of this total, 92.3% were attributed to point sources and 7.7% were attributed to nonpoint sources.

2014 Indiana 1,1-Dichloroethane Emission Sources

7.7%

■ Nonpoint Sources
■ Point Sources

92.3%

* 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 1,1-dichloroethane for the monitors analyzed from 2006-2015 was 5.9%. This detection rate is too low for IDEM to draw any conclusions about concentration

trends of 1,1-dichloroethane. IDEM did not perform a trend analysis for any pollutant with a detection rate less than 50%.