

1,1,1-TRICHLOROETHANE (CH₃CCl₃)

also known as Methyl Chloroform

Chemical Abstracts Service (CAS) Number: 71-55-6

General Information

1,1,1-Trichloroethane is a colorless, nonflammable liquid that is insoluble in water. Acute (short-term) inhalation exposure to 1,1,1-trichloroethane in humans results in hypotension, mild hepatic effects, and central nervous system depression. Cardiac arrhythmia and respiratory arrest may result from the depression of the central nervous system. Chronic (long-term) exposure to low levels of 1,1,1-trichloroethane has not resulted in adverse effects in most studies. Some liver damage and neurological effects have been observed in rodents chronically exposed to 1,1,1-trichloroethane by inhalation. U.S. EPA has classified 1,1,1-trichloroethane as a Group D, not classifiable as to human carcinogenicity, based on no reported human data and inadequate animal data.

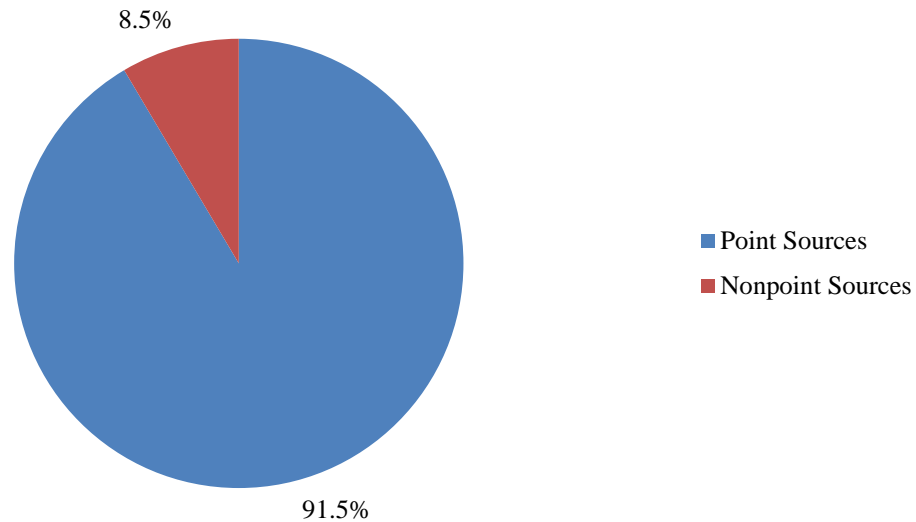
Sources

- 1,1,1-Trichloroethane is used as a solvent and degreasing agent in industry. It is an ingredient in consumer products such as household cleaners, glues, and aerosol sprays.
- 1,1,1-Trichloroethane is also used as a chemical intermediate in the production of vinylidene chloride. It was formerly used as a food and grain fumigant.
- Occupational exposure to 1,1,1-trichloroethane can occur during the use of metal degreasing agents, paints, glues, and cleaning products.
- Individuals are more likely to be exposed to 1,1,1-trichloroethane indoors rather than outdoors because of its widespread use in home and office products. Exposure may also occur by the sniffing of glue or typewriter correction fluid.

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 1,1,1-trichloroethane totaled 0.7 tons in the 2014 calendar year. Of this total, 91.5% was attributed to point sources, and the remaining 8.5% was attributed to nonpoint sources.

2014 Indiana 1,1,1-Trichloroethane 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 1,1,1-trichloroethane for the monitors analyzed from 2006-2015 was 16.8%. This detection rate is too low for IDEM to draw any conclusions about concentration

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