

1,2-DICHLOROPROPANE (C₃H₆Cl₂)

also known as Propylene Dichloride

Chemical Abstracts Service (CAS) Number: 78-87-5

General Information

1,2-Dichloropropane is a colorless liquid which evaporates quickly at room temperature. 1,2-Dichloropropane has a chloroform-like odor and an odor threshold of 0.25 parts per million. Acute (short-term) exposure of humans to very high levels of 1,2-dichloropropane from inhalation and oral exposure results in effects on the gastrointestinal system, blood, liver, kidneys, and central nervous system. Additional effects noted in humans, from inhalation exposure only, are effects on the lung (chest discomfort, shortness of breath, and cough) and the eyes (conjunctival hemorrhages). No studies are available regarding carcinogenic effects in humans from inhalation or oral exposure to 1,2-dichloropropane. An increased incidence of mammary gland tumors in female rats and liver tumors in male and female mice were reported in studies in which 1,2-dichloropropane was given by gavage. U.S. EPA has provisionally classified 1,2-dichloropropane as a Group B2, probable human carcinogen.

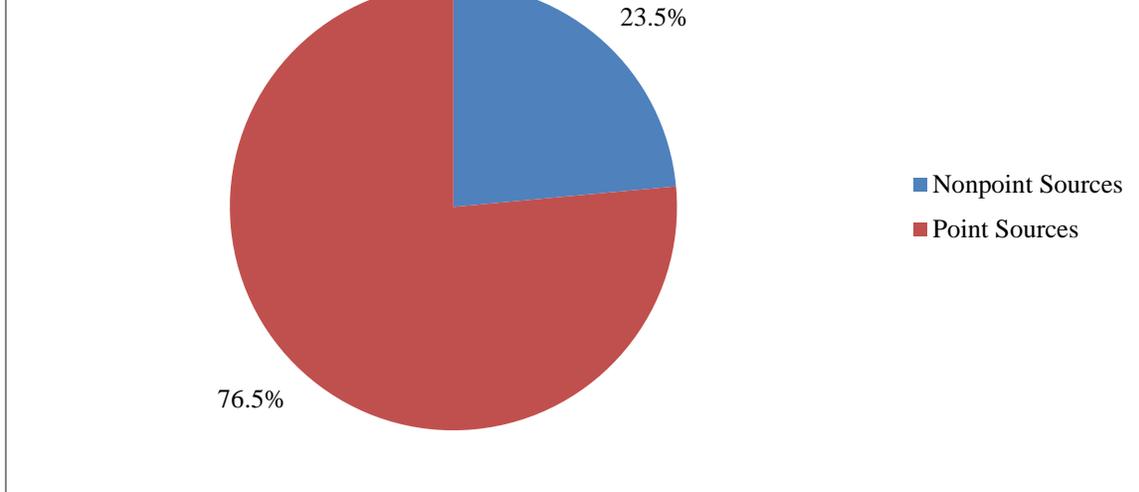
Sources

- 1,2-Dichloropropane is used as a chemical intermediate in the production of chlorinated organic chemicals, as an industrial solvent, in ion exchange manufacture, in toluene diisocyanate production, in photographic film manufacture, for paper coating, and for petroleum catalyst regeneration.
- 1,2-Dichloropropane was used in the past as a soil fumigant for a variety of crops. This use has been discontinued, and pesticide formulations containing 1,2-dichloropropane are no longer available in the United States.
- 1,2-Dichloropropane has been detected in both ambient air and groundwater supplies.
- Occupational exposure to 1,2-dichloropropane may occur during its production, during its use in chemical reactions or as an industrial solvent, or from evaporation from wastewater that contains the chemical.

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 1,2-dichloropropane totaled 0.16 tons in the 2014 calendar year. Of this total, 76.5% were attributed to point sources, and the remaining 23.5% to nonpoint sources. No emissions were attributed to mobile sources.

2014 Indiana 1,2-Dichloropropane 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 the majority of 2015 and each historical 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 1,2-dichloropropane for the monitors analyzed from 2006-2015 was 13.7%. This detection rate

is too low for IDEM to draw any conclusions about concentration trends of 1,2-dichloropropane. IDEM did not perform a trend analysis for any pollutant with a detection rate less than 50%.