

US EPA ARCHIVE DOCUMENT

# Technical Factsheet on: 1,2-DICHLOROPROPANE

## [List of Contaminants](#)

As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication:  
**National Primary Drinking Water Regulations**

### Drinking Water Standards

MCLG: zero mg/L  
MCL: 0.005 mg/L  
HAL(child): 10-day: 0.09 mg/L

### Health Effects Summary

Acute: EPA has found short-term exposures to 1,2-dichloropropane at levels above the MCL to potentially impair the functions of the liver, kidneys, adrenal glands, bladder, and the gastrointestinal and respiratory tracts.

Drinking water levels which are considered "safe" for short-term exposures: For a 10-kg (22 lb.) child consuming 1 liter of water per day: a ten-day exposure to 0.09 mg/L.

Chronic: Long-term exposures to 1,2-dichloropropane at levels above the MCL have been found to potentially affect the liver, kidneys, bladder, gastrointestinal tract and the respiratory tract.

Cancer: There is some evidence that 1,2-dichloropropane may have the potential to cause cancer from a lifetime exposure at levels above the MCL.

### Usage Patterns

Production of 1,2-dichloropropane has decreased greatly since a 1980 report of 77 million lbs. Dow Chemical, the only listed producer, discontinued its production in 1991.

The greatest use of 1,2-dichloropropane is as a chemical intermediate in the production of carbon tetrachloride and perchloroethylene, lead scavenger for antiknock fluids, solvent.

Other uses have included: ion exchange resin manufacture, paper coating, scouring, spotting, metal degreasing agent, soil fumigant for nematodes, and insecticide for stored grain.

### Release Patterns

1,2-Dichloropropane may be released into the atmosphere or in wastewater during its production or use as an intermediate in chemical manufacture. There were also significant releases during its former use as a soil fumigant. It may also be released as leachate from municipal landfills.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, 1,2-dichloropropane releases to land and water totalled nearly 104,000 lbs., of which over 98,000 lbs was released to water. These releases were primarily from chemical industries which use it as an intermediate in producing other chlorinated compounds. The largest releases occurred in New York.

### Environmental Fate

If injected into soil 1,2-dichloropropane will be primarily lost by volatilization. 1,2-Dichloropropane has been detected in groundwater where its fate is unknown.

If released to surface water, 1,2-dichloropropane will be lost by volatilization with half-lives ranging from approximately 6 hr for a river to 10 days for a lake.

Adsorption to soil and bioconcentration in fish will not be significant.

In air it will react with photochemically generated hydroxyl radicals (half-life >23 days) and be washed out by rain. Therefore, there will be ample time for dispersal as is evidenced by its presence in ambient air.

Human exposure is primarily due to inhalation. Occupation exposure, both dermal and via inhalation, will occur during and after its application as a soil fumigant as well as during its production and other uses.

### **Chemical/Physical Properties**

CAS Number: 78-87-5

Color/ Form/Odor: Colorless liquid with a chloroform-like odor

M.P.: -100.4 C B.P.: 96.4 C

Octanol/Water Partition (Kow): Log Kow = 2.28

Vapor Pressure: 50 mm Hg at 25 C

Density/Spec. Grav.: 1.16 at 25 C

Solubility: 26 percent by weight in water at 25 C; moderately soluble in water

Soil sorption coefficient: Koc = 47 in silt loam; very high mobility in soil

Odor/Taste Thresholds: Odor in air not noticeable at 15 to 23 ppm

Bioconcentration Factor: Log BCF is less than 1 in fish; not expected to bioconcentrate in aquatic organisms.

Henry's Law Coefficient: 0.0021 atm-cu m/mole; highly volatile

Trade Names/Synonyms: Propylene dichloride; major component of Nematox, Vidden D, and Dowfume EB-5

### **Other Regulatory Information**

Monitoring:

-- For Ground/Surface Water Sources:

Initial Frequency- 4 quarterly samples every 3 years

Repeat Frequency- Annually after 1 year of no detection

-- Triggers - Return to Initial Freq. if detect at > 0.0005 mg/L

## Analysis

**Reference Source**  
EPA 600/4-88-039

**Method Numbers**  
502.2; 524.2

**Treatment/Best Available Technologies:** Granular Activated Charcoal and Packed Tower Aeration

### Toxic Release Inventory - Releases to Water and Land, 1987 to 1993 (in pounds):

	<b>Water</b>	<b>Land</b>
<b>TOTALS (in pounds)</b>	<b>98,504</b>	<b>5,470</b>
<b>Top Five States</b>		
NY	30,000	3,205
LA	25,586	260
VA	14,629	250
TX	12,290	1,206
NJ	10,463	0
<b>Major Industries</b>		
Alkalies, chlorine	37,297	1,216
Photographic equip.	30,000	3,205
Gum, wood chemicals	14,629	250
Plastics, resins	10,463	0
Misc. Indust. Organics	4,793	250

\* Water/Land totals only include facilities with releases greater than a certain amount - usually 1000 to 10,000 lbs.

### For Additional Information:

EPA can provide further regulatory or other general information:  
EPA Safe Drinking Water Hotline - 800/426-4791

Other sources of toxicological and environmental fate data include:  
Toxic Substance Control Act Information Line - 202/554-1404  
Toxics Release Inventory, National Library of Medicine - 301/496-6531  
Agency for Toxic Substances and Disease Registry - 404/639-6000