



1,2-DICHLOROPROPANE

FACT SHEET ON A DRINKING WATER CHEMICAL CONTAMINANT

GENERAL INFORMATION

Synonyms:

- 1,2-DCP; Propylene Dichloride

Chemical Description:

- A volatile synthetic compound with no natural sources

Properties:

- A clear, colorless, flammable liquid with a chloroform-like odor
- Low vapor pressure
- Highly soluble in water

Production and Use:

- Used as:
 - component of soil fumigants (insecticides)
 - solvent for oils and fats
 - an intermediate in chemical manufacturing
 - in dry cleaning and degreasing operations

ENVIRONMENTAL PROFILE

Occurrence:

- A low-level contaminant of both ground and surface waters due to its use as a soil fumigant
- A contaminant in urban air at low levels, and has been reported as a contaminant in fish
- May enter wells near sites where it has been used as a soil fumigant

Releases:

- Major releases to the environment are mainly to soil and air due its use as a soil fumigant

Environmental Fate:

- **Released to soil:** persistent in soil; will volatilize rapidly to air (major removal mechanism); mobile in soils and will migrate to ground water, especially in sandy soils; resistant to biodegradation; will chemically degrade slowly

- **Released to surface water:** will volatilize rapidly to air (major removal mechanism); chemically stable in water; resistant to biodegradation
- **Released to the atmosphere:** will chemically degrade moderately rapidly; subject to wash-out by rain

HEALTH EFFECTS

Humans:

- No adequate information available on the toxicity of 1,2-DCP in humans

Experimental Animals:

- Both short-term and long-term, high-dose studies indicate that it causes detrimental effects upon functions of the liver, kidney, adrenal glands, bladder, and gastrointestinal and respiratory tracts
- High fetotoxic and teratogenic potential
- High mutagenic potential
- High carcinogenic potential

REGULATORY PROFILE

Existing Standards:

- **Clean Air Act (CAA):** Not regulated
- **Clean Water Act (CWA):**
No criteria established
- **Resource Conservation and Recovery Act (RCRA):**
Hazardous waste
- **Superfund (CERCLA):**
 - Hazardous substance
 - **SARA:** Toxic chemical
- **Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA):**
Registered
- **Toxic Substances Control Act (TSCA):**
Regulated

HEALTH INFORMATION

Maximum Contaminant Level Goals (MCLG):

- Non-enforceable levels based solely on an evaluation of possible health risks and exposure, and taking into consideration a margin for public safety
- Set at zero mg/L to protect against cancer

**MCLG for 1,2-DCP = Zero mg/L
(effective July 1992)**

Maximum Contaminant Levels (MCL):

- Legally enforceable levels for contaminants in public drinking water supplies
- Based on health risks associated with the contaminants, analytical methods for their assay, and water treatment feasibility and practicality aspects
- Exceedance of the MCL in drinking water may result in adverse effects which will depend upon the contaminant concentration in water, amount of water/contaminant ingested, length of exposure, and other biological parameters

**MCL for 1,2-DCP = 0.005 mg/L
(effective July 1992)**

EPA Health Advisories (HA):

- **Short-term HAs:** Provide acceptable concentrations of contaminants in water for up to 10 day exposures, primarily to evaluate the public health risk resulting from an accidental spill or an emergency contamination situation
- **Longer-term HAs:** Provide guidance for persistent water contamination situations to cover a period of up to 7 years
- **Lifetime HAs:** Derived in the same way as an MCLG

Health Advisories:

Short-term HA for a child = 0.09 mg/L

Longer-term HA for a child =

Not recommended

Longer-term HA for an adult =

Not recommended

Lifetime HA = Not recommended

ANALYTICAL METHODS

- Purge and Trap Gas Chromatography:
EPA Method 502.1
EPA Method 503.1

- Purge and Trap Column Gas Chromatography with Photoionization and Electrolytic Conductivity Detectors in Series:
EPA Method 502.2
- Purged Column Gas Chromatography/Mass Spectrometry:
EPA Method 524.1
- Capillary Column Gas Chromatography/Mass Spectrometry:
EPA Method 524.2

WATER TREATMENT

Permanent Treatment:

- **Best Available Technology (BAT):**
 - Granular Activated Carbon
 - Packed Tower Aeration

SHORT-TERM HAZARD ELIMINATION

- If the drinking water standards are exceeded, install BAT or use an alternative drinking water supply such as bottled water

ADDITIONAL HELP

- State or county health officials can indicate a certified laboratory for testing
- Experts in the state Department of Environmental Protection or Natural Resources may also be of help
- The EPA has toll-free numbers for further information on drinking water quality, treatment technologies, for obtaining Health Advisories, and for other regulatory information
- EPA Hotlines are available Monday through Friday
 - **Safe Drinking Water:** 800-426-4791
 - **National Pesticides:** 800-858-7378
 - **Superfund/RCRA:** 800-424-9346
- For information on the Clean Water Act, call (202) 260-7301
- For information on the Toxic Substances Control Act, call (202) 554-1404
- For information on the Clean Air Act, call (919) 541-2777