Consumer Factsheet on: 1,2-DICHLOROETHANE

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

This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

What is 1,2-DCA and how is it used?

1,2-Dichloroethane (1,2-DCA) is a colorless, oily, organic liquid with a sweet, chloroform-like odor. The greatest use of 1,2-dichloroethane is in making chemicals involved in plastics, rubber and synthetic textile fibers. Other uses include: as a solvent for resins and fats, photography, photocopying, cosmetics, drugs; and as a fumigant for grains and orchards.

The list of trade names given below may help you find out whether you are using this chemical at home or work.

Trade Names and Synonyms:

1,2-Ethylene dichloride
Glycol dichloride
Freon 150
Borer sol
Brocide
Destruxol borer-sol
Dichlor-mulsion
Dutch oil
Granosan

Why is 1,2-DCA being Regulated?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for 1,2-dichloroethane has been set at zero because EPA believes this level of protection would not cause any of the potential health problems described below.

Based on this MCLG, EPA has set an enforceable standard called a Maximum Contaminant Level (MCL). MCLs are set as close to the MCLGs as possible, considering the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

The MCL has been set at 5 parts per billion (ppb) because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to remove this contaminant should it occur in drinking water.

These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

What are the Health Effects?

Short-term: EPA has found 1,2-dichloroethane to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: central nervous system disorders, and adverse lung, kidney, liver circulatory and gastrointestinal effects.

Long-term: 1,2-Dichloroethane has the potential to cause the following effects from a lifetime exposure at levels above the MCL: cancer.

How much 1,2-DCA is produced and released to the environment?

Production of 1,2-dichloroethane was 18 billion lbs. in 1993. It is released in waste water, spills, and/or improper disposal primarily from its use as a cleaning solvent, in making other organics, and in pesticides.

From 1987 to 1993, according to the Toxics Release Inventory, releases to water and land totalled over 455,000 lbs. These releases were primarily from facilities which make industrial organic chemicals, alkalis and chlorine. The largest releases occurred in New Jersey and Louisiana.

What happens to 1,2-DCA when it is released to the environment?

While releases to water or soil will evaporate quickly, 1,2-dichloroethane will also leach into groundwater rapidly where it is likely to persist for a very long time. There is little degradation by microbes. 1,2-Dichloroethane is not expected to accumulate in fish.

How will 1,2-DCA be Detected in and Removed from My Drinking Water?

The regulation for 1,2-dichloroethane became effective in 1989. Between 1993 and 1995, EPA required your water supplier to collect water samples every 3 months for one year and analyze them to find out if 1,2-dichloroethane is present above 0.5 ppb. If it is present above this level, the system must continue to monitor this contaminant.

If contaminant levels are found to be consistently above the MCL, your water supplier must take steps to reduce the amount of 1,2-dichloroethane so that it is consistently below that level. The following treatment methods have been approved by EPA for removing 1,2-dichloroethane: Granular activated charcoal in combination with Packed Tower Aeration.

How will I know if 1,2-DCA is in my drinking water?

If the levels of 1,2-dichloroethane exceed the MCL, 5 ppb, the system must notify the public via newspapers, radio, TV and other means. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

Drinking Water Standards:

Mclg: zero

Mcl: 5 ppb

1,2-DCA Releases to Water and Land, 1987 to 1993 (in pounds):

	Water	Land
TOTALS (in pounds)	**433,056**	**22,616**
Top Six States*		

NJ	192,700	231	
LA	136,508	2,292	
TX	36,459	7,028	
MO	6,786	8,730	
NY	11,330	0	
KY	10,309	0	
Major Industries			
Industrial organics		211,146	363
Alkalies, chlorine		120,283	3,254
Cyclic crudes, intermed.		32,945	119
Agricultural chemicals		11,918	8,980
Industrial gases		15,497	0
Plastics materials, resins		6,908	6,895
Photographic equip.		11,566	0
Other Chemicals		8,179	0
Pharmaceuticals		7,525	521
Petroleum refining		1,730	1,479

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

Learn more about your drinking water!

EPA strongly encourages people to learn more about their drinking water, and to support local efforts to protect and upgrade the supply of safe drinking water. Your water bill or telephone books government listings are a good starting point.

Your local water supplier can give you a list of the chemicals they test for in your water, as well as how your water is treated.

Your state Department of Health/Environment is also a valuable source of information.

For help in locating these agencies or for information on drinking water in general, call: EPAs Safe Drinking Water Hotline: (800) 426-4791.

For additional information on the uses and releases of chemicals in your state, contact the: Community Right-to-Know Hotline: (800) 424-9346.