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TECHNICAL BULLETIN

HEALTH EFFECTS INFORMATION

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ENVIRONMENTAL TOXICOLOGY SECTION
Office of Environmental Public Health
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(1,1 - DCA)
1,1-Dichloroethane

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1,1-DICHLOROETHANE

1,1-dichloroethane, also called "ethylidene chloride", is a man-made organic solvent. It does not occur naturally, but is manufactured for industrial uses. Because of similarity in names, it is important to not confuse this chemical with dichloroethene or with 1,2-dichloroethane.

OCCURRENCE AND SOURCES OF 1,1-DICHLOROETHANE IN WATER SUPPLIES

In the Pacific Northwest it is uncommon to find 1,1-DCA in drinking water or surface water. It is assumed that its presence, when found, is due to inadvertent spilling or inappropriate disposal of wastes containing industrial solvents. Some solvents are able to travel long distances through soil and to enter wells and/or surface water. The behavior of 1,1-DCA in soil is not well understood at this time.

HEALTH EFFECTS OF DRINKING 1,1-DCA-CONTAMINATED WATER

The main adverse effects from exposure to 1,1-DCA have been observed in industrial workers who handle the solvent and/or work where high concentrations of vapor exist in the air. Under these circumstances, exposed persons may experience skin and eye irritation, breathing difficulty and drowsiness. Exposure to high vapor levels (100 mg/m³ or greater in air) for extended periods (usually occupationally) can result in injury to the liver, kidneys and central nervous system.

The toxic effects of 1,1-DCA if ingested in food or beverage are not nearly so well understood. Based on feeding studies using animals, researchers have tried to establish minimum safe exposure levels for human beings. These studies try to account for and prevent injury from high-level exposure; and from long-term, low-level exposure as well as long-term cancer risk.

The U.S. Environmental Protection Agency has concluded that there is insufficient data available to establish a maximum contaminant level for drinking water. The state of California has established a drinking water limit for 1,1-DCA of 20 ug/L (0.02 mg/L.)

REMOVING 1,1-DICHLOROETHANE FROM DRINKING WATER

Exposing water which contains 1,1-DCA to air will allow the solvent to evaporate. Evaporation is greatly increased by aeration and by heating of the water. Activated charcoal filtration would probably be adequate to remove small amounts of 1,1-DCA from drinking water.

For more information on 1,1-DCA contact the Drinking Water Section of the Department of Human Services at (971) 673-0405.