

Oregon Department of Human Services

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TECHNICAL BULLETIN

HEALTH EFFECTS INFORMATION

Prepared by:

ENVIRONMENTAL TOXICOLOGY SECTION

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METHYL CHLORIDE

For More Information Contact:

**Environmental Toxicology Section
(971) 673-0440**

**Drinking Water Section
(971) 673-0405**

SYNONYMS

Chloromethane, monochloromethane

USES

Methyl chloride is used primarily in the manufacture of silicones, synthetic rubber, methyl cellulose and the gasoline anti-knock agent, tetraethyl lead, and as an agent in the manufacture of our chemicals. In the past it has been used as a refrigerant and low temperature solvent.

CHEMICAL AND PHYSICAL PROPERTIES

Methyl Chloride's chemical formula is CH_3Cl . It is a colorless gas with a faintly sweet odor and sweet taste and is slightly soluble in water. It occurs as a liquid in compressed gas cylinders and has very high vapor pressure.

OCCURRENCE AND SOURCES OF METHYL CHLORIDE

Non-occupational exposure sources of methyl chloride include cigarette smoke; polystyrene insulation; aerosol propellants; burning of wood, grass, coal or certain plastics. It is produced artificially from the chlorination of drinking water, swimming pools and sewage effluent due to chlorination of naturally occurring methane. It has also been identified in air and wastewater discharges of the following types of industries: paint and ink, nonferrous metals, printing and publishing, organics and plastics, pharmaceuticals, organic chemicals. Highest effluent concentrations have been from the paint and ink industry. Methyl chloride is produced naturally in the ocean by the reaction of methyl iodide with chloride ions. It is produced during the growth of some marine organisms.

ENVIRONMENTAL FATE

If released on soil, liquid methyl chloride may be rapidly lost by vaporization. It also may leach into the groundwater where it breaks down very slowly. It has very little tendency to adsorb to soil. If released into surface water it will be lost primarily by vaporization (half-life = 2.4 hours in a typical river). In the atmosphere, it disperses and is lost primarily by upward dispersion, although washout by rain may return some of it to soils & waters.

DRINKING WATER STANDARDS

The USEPA has not set a regulatory action level for methyl chloride. The current Lifetime Health Advisory is 0.003 milligrams per liter. The Lifetime Health Advisory is based on a 70-kg adult consuming 2 liters of water/day over a 70-year lifetime. Because methyl chloride is classified as a Group C carcinogen (based on limited evidence from animal studies and no evidence from human studies), an additional 10-fold safety factor has been used in the calculation of the Lifetime Health Advisory. The Health Division advises against using water containing more than 0.003 milligrams per liter of methyl chloride or for drinking for food preparation on a regular basis.

HOW TO REMOVE METHYL CHLORIDE FROM DRINKING WATER

Treatment methods which will remove methyl chloride from water include granular activated carbon (GAC) adsorption, aeration and boiling. No one treatment method is able to remove all the substances that may be present in drinking water. There are limitations, advantages and disadvantages to in-house, as well as large scale treatment systems. Before deciding on the need for water treatment, more information can be obtained from the Department of Human Service's Drinking Water Section at 971-673-0405.