DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health

Frequently Asked Questions

CHLOROFORM

What is CHLOROFORM?

Chloroform is a man-made by-product formed when chlorine is used to disinfect water. Chloroform is also used in industrial processes. It is a colorless liquid with a pleasant, non-irritating smell and a slightly sweet taste. It is nonflammable.

Where can chloroform be found and how is it used?

Low levels of chloroform are found in the air and in coastal waters, inland rivers, lakes and groundwater. Levels can be higher in industrial areas as well as in the air above swimming pools containing chlorine.

Chloroform is used as a solvent, a substance that helps other substances dissolve. Also, it is used in the building, paper and board industries, and in pesticide and film production. It is used as a solvent for lacquers, floor polishes, resins, adhesives, alkaloids, fats, oils and rubber. Chloroform is used in making Fluorocarbon-22, a refrigerant.

Until the mid-1900s, chloroform was used as an anesthetic to reduce pain during medical procedures. Today, it is not used in this way due to its harmful effects.

How can people be exposed to chloroform?

Most people are exposed to chloroform in food, drinking water and indoor air.

You could be exposed to chloroform through:

Breathing air with chloroform for a short time causes headache, fatigue and dizziness. Breathing air with chloroform for a long period damages the brain, liver and kidneys. It may cause cancer.

Drinking water with chloroform over a long period damages the liver and kidneys. It may cause cancer.

Eating food with chloroform in it over a long period damages the liver and kidneys. It may cause cancer.

Touching liquid chloroform causes sores and skin irritation. It may cause cancer.

How does chloroform work and how can it affect my health?

Exposure to chloroform is harmful. Chloroform damages the liver, causing hepatitis, and it can also harm the kidneys, brain, heart and bone marrow. Respiratory injuries from chloroform exposure include respiratory depression, pneumonitis and pulmonary edema. Chloroform, which is toxic to the central nervous system, can cause a person to become unconsciousness and even be fatal at high doses. It has not been found to harm a fetus.

How is chloroform poisoning treated?

Persons exposed to chloroform should be removed from the source of exposure. Contact medical personnel immediately for advice on further treatment.

What should I do if exposed to chloroform?

Anyone who may have been exposed to high levels of chloroform should be removed from the source of exposure immediately. Clothing that has come into contact with chloroform should be removed and discarded. Skin and eyes contaminated with chloroform should be flushed with clean water. Seek medical attention immediately.

What factors limit use or exposure to chloroform?

Most of the population is exposed to very low levels of chloroform every day in the air, food and water we take in every day. Exposure to higher levels of chloroform is very unlikely for anyone outside industries using or manufacturing chloroform.

Is there a medical test to show whether I've been exposed to chloroform?

Tests can determine the level of chloroform in blood, tissue and the air you exhale. These tests must be done a short time after exposure because chloroform leaves the body quickly.

Technical information for chloroform

CAS Number: 67-66-3

Chemical Formula: $CHCl_3$

Carcinogenicity (EPA): B2 – Probable human carcinogen.

MCL (Drinking Water): 0.07 mg/L (Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health.)

OSHA Standards: 50 ppm (9.78 mg/m^3) (ceiling limit not to be exceeded at any time)

NIOSH Standards: 2 ppm (9.78 mg/m^3). (limited to 60-minute exposure)

ACGIH: 10 ppm, 8 hr Time Weighted Avg (TWA)

References and Sources

IARC Monograph on the Evaluation of Carcinogenic Risks to Humans, Vol. 73, World Health Organization, 2001.

National Library of Medicine (1998). *Toxic Chemical Release Inventory 1987 & 1996* (TRI87 & TRI96), Bethesda, MD

World Health Organization, (1994). *Chloroform (Environmental Health Criteria 163),* Geneva, International Programme on Chemical Safety.