



## CHLOROMETHANE

### What is CHLOROMETHANE?

Chloromethane, also known as methyl chloride, is a colorless gas with a faint sweet smell. Its odor can only be noticed at potentially toxic levels. This gas catches fire easily. Chloromethane gas is heavier than air and therefore settles close to the ground, raising the risk level for exposed persons. Chloromethane is usually found in nature but can also be man-made. When grass, wood, charcoal and coal are burned, or when wood rots, chloromethane gas is released into the environment. Factories that use chloromethane can emit this gas.

### Where can chloromethane be found and how is it used?

Prior to the wide use of Freon®, chloromethane was often used as a refrigerant to keep things cold, as a foam-blowing agent, and as a pesticide or fumigant to kill pests or insects. Working refrigerators more than 30 years old may still have chloromethane in their cooling units. Therefore, such refrigerators could cause high-level exposure. Today, most chloromethane is used to make other chemicals and is found in vinyl chloride end-products. By the end of the manufacturing process, there is no or little chloromethane left behind. It is rarely found as a polluting agent in waste streams from treatment plants and factories.

### How can people be exposed to chloromethane?

Contact with liquid chloromethane is rare, but could occur in a factory accident from a broken metal container.

*You could be exposed to chloromethane through:*

**Breathing** air containing chloromethane vapor. If you live near a hazardous waste site, this is the most likely way you would be exposed.

**Drinking** water contaminated with chloromethane, although this is unlikely to occur since it exists mostly as a gas or vapor.

**Touching** liquid chloromethane, which is unlikely since chloromethane quickly turns into a gas at room temperature.

**Eye Contact** if you get chloromethane vapor into your eyes. This could happen if you work with it at your job.

### How does chloromethane work?

Chloromethane can enter your body by breathing it, or drinking water containing it. When you breathe or drink chloromethane, it enters the bloodstream fast and moves to the liver, kidneys and brain. Most chloromethane that enters the body is broken down into other products, which then leave the body in urine within a few hours or days. The chloromethane that does not change leaves your body in the air you exhale.

### How can chloromethane affect my health?

Liquid chloromethane may cause frostbite if it gets on the skin.

Animal studies showed that animals breathing air with high levels of chloromethane experienced health problems with their livers, kidneys and nervous systems. Some animals died. The animals were exposed to chloromethane levels that were one million times higher than natural levels. The same effects were noted in animals breathing low levels of chloromethane for a long period as in animals breathing high levels during a short period. Animals that breathed low levels of chloromethane over a long period grew slower and had brain damage. Some male animals had reproductive problems such as sterility or producing damaged sperm. Females that became pregnant by the exposed males lost their developing young. Male mice that breathed air containing chloromethane for two years developed tumors in their kidneys. However, female mice and male and female rats did not develop tumors. It is not known whether chloromethane can cause reproductive problems, birth defects, or cancer in humans.

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## How is chloromethane poisoning treated?

There is no treatment for chloromethane poisoning. A doctor will treat the symptoms. A person who has been exposed to chloromethane may seem drunk. They may also have symptoms that are like food poisoning. Their breath has a sweet scent.

## What should I do if exposed to chloromethane?

**If you breathe chloromethane**, get fresh air and rest. Get medical attention.

**If you get chloromethane on your skin** and feel pain similar to frostbite, wash with plenty of water. Do not remove clothes. Get medical attention.

**If you get chloromethane in your eyes**, remove contact lenses if you can do it easily. Rinse with plenty of water for several minutes. Get medical attention.

**If you get chloromethane on your clothes**, rinse clothes with plenty of water.

## What factors limit use or exposure to chloromethane?

You are most likely to be exposed to chloromethane at work. Safe work methods can limit exposure. Such safety measures include enclosing operations where chloromethane is used, providing fresh air, and venting air away from the site of chemical release. Employees should wear respirators if venting is unavailable. Employees should wear protective clothing and wash right after exposure, as well as again at the end of the work shift.

Old refrigerators should be checked for leaks. If the appliance repair worker finds leaks, the refrigerator should be discarded. Do not use chloromethane near a fire or any heated application, such as welding. Place a leaking cylinder so that no chloromethane can escape.

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

There are no medical tests that can show if you have been exposed to chloromethane.

## Technical information for chloromethane

CAS Number: 74-87-3

Chemical Formula: CH<sub>3</sub>Cl

Carcinogenicity (EPA): Not classifiable as a human carcinogen.

MCL (Drinking Water): There is no MCL for chloromethane.

OSHA Standards: 100 parts per million (ppm) of air. (207mg/m<sup>3</sup>)

NIOSH Standards: Chloromethane has been designated a potential occupational carcinogen but no numeric standard has been set.

ACGIH: 8 hr. Time Weighted Avg. (TWA): 50 ppm in air

## References and Sources

Agency for Toxic Substances and Disease Registry (ATSDR). 1998. *Toxicological profile for Chloromethane*. Atlanta: U.S. Department of Health and Human Services.

U.S. Environmental Protection Agency (EPA), Technology Transfer Network, [www.epa.gov/ttn/atw/hlthef/methylch.html](http://www.epa.gov/ttn/atw/hlthef/methylch.html) (Accessed 10/6/09)

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