



PUBLIC HEALTH STATEMENT BROMODICHLOROMETHANE

CAS#: 75-27-4

Division of Toxicology

December 1989

This Public Health Statement is the summary chapter from the Toxicological Profile for Bromodichloromethane. It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFAQs™ is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-888-422-8737.

1.1 WHAT IS BROMODICHLOROMETHANE?

Bromodichloromethane (BDCM) is a colorless, heavy, nonburnable liquid. BDCM does not usually exist as a liquid in the environment. Rather, it usually is found evaporated in air or dissolved in water.

Most BDCM in the environment is formed as a by-product when chlorine is added to drinking water to kill disease-causing organisms. Small amounts of BDCM are also made in chemical plants for use in laboratories or in making other chemicals. A very small amount (less than 1% of the amount coming from human activities) is formed by algae in the ocean.

BDCM evaporates quite easily, so most BDCM that escapes into the environment from chemical facilities, waste sites, or drinking water enters the atmosphere as a gas. BDCM is slowly broken down (about 90% in a year) by chemical reactions in the

air. Any BDCM that remains in water or soil may also be broken down slowly by bacteria.

1.2 HOW MIGHT I BE EXPOSED TO BROMODICHLOROMETHANE?

For most people, the most likely means of exposure to BDCM is by drinking chlorinated water. Usually the levels in drinking water are between 1 and 10 ppb (parts per billion). BDCM is also found in some foods and beverages such as ice cream or soft-drinks that are made using chlorinated water, but this is probably not a major source of exposure. BDCM has been found in chlorinated swimming pools, where exposure might occur by breathing the vapors or through the skin. Exposure to BDCM might also occur by breathing BDCM in the air in or near a laboratory or factory that made or used BDCM.

However, BDCM is not widely used in this country, so this is not likely for most people. Average levels of BDCM in air are usually quite low (less than 0.2 ppb). Another place where human exposure might occur is near a waste site where BDCM has been allowed to leak into water or soil. In this situation, people could be exposed by drinking the water or by getting the soil on their skin. BDCM has been found in water and soil at some waste sites (about 1% to 10% of those tested), usually at levels of 1 to 50 ppb.

1.3 HOW CAN BROMODICHLOROMETHANE ENTER AND LEAVE MY BODY?

Studies in animals show that almost all BDCM swallowed in water or food will enter the body by moving from the stomach or intestines into the

DEPARTMENT of HEALTH AND HUMAN SERVICES, Public Health Service
Agency for Toxic Substances and Disease Registry



PUBLIC HEALTH STATEMENT BROMODICHLOROMETHANE

CAS#: 75-27-4

Division of Toxicology

December 1989

blood. It is likely that BDCM would also move from the lungs into the blood if it were breathed in and would cross the skin if skin contact occurred, but this has not been studied.

Bromodichloromethane leaves the body mostly by being breathed out through the lungs. Smaller amounts leave in the urine and feces. BDCM removal is fairly rapid and complete (about 95% in 8 hours), so it does not usually build up in the body.

1.4 HOW CAN BROMODICHLOROMETHANE AFFECT MY HEALTH?

The effects of BDCM depend on how much is taken into the body. In animals, the main effect of eating or drinking large amounts of BDCM is injury to the liver and kidneys. These effects can occur within a short time after exposure. High levels can also cause effects on the brain, leading to incoordination and sleepiness. There is some evidence that BDCM can be toxic to developing fetuses, but this has not been well-studied. Studies in animals show that intake of BDCM for several years in food or water can lead to cancer of the liver, kidney and intestines. Although effects of BDCM have not been reported in humans, effects would probably occur if enough BDCM were taken into the body.

1.5 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO BROMODICHLOROMETHANE?

Methods are available to measure low levels of BDCM in human blood, breath, urine and fat, but not enough information is available to use such tests to predict if any health effects might result. Because special equipment is needed, these tests are not

usually done in doctors' offices. Because BDCM leaves the body fairly quickly, these methods are best suited to detecting recent exposures.

1.6 WHAT LEVELS OF EXPOSURE HAVE RESULTED IN HARMFUL HEALTH EFFECTS?

It is not known at what levels BDCM causes harmful health effects in people. Liver and kidney damage have occurred when animals ate food with BDCM at levels of 190 parts per million (ppm) and greater. Impaired fetal development was seen at levels of 1,000 ppm in rats.

1.7 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The EPA has set a Maximum Contaminant Level (MCL) of 0.1 parts per million (ppm) for the combination of bromodichloromethane and a group of similar compounds (called trihalomethanes) that occur in chlorinated water. The EPA recommends that levels of halomethanes in lakes and streams should be limited to 0.19 ppm to prevent possible health effects from drinking water or eating fish contaminated with this group of chemicals.

Any release to the environment greater than 5,000 pounds of bromodichloromethane must be reported to the EPA.

The federal recommendations have been updated as of July 1999.

DEPARTMENT of HEALTH AND HUMAN SERVICES, Public Health Service
Agency for Toxic Substances and Disease Registry



PUBLIC HEALTH STATEMENT BROMODICHLOROMETHANE

CAS#: 75-27-4

Division of Toxicology

December 1989

1.8 WHERE CAN I GET MORE INFORMATION?

**If you have any more questions or concerns,
please contact your community or state health or
environmental quality department or:**

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop F-32
Atlanta, GA 30333

Information line and technical assistance:

Phone: 888-422-8737
FAX: (770)-488-4178

ATSDR can also tell you the location of
occupational and environmental health clinics.
These clinics specialize in recognizing, evaluating,
and treating illnesses resulting from exposure to
hazardous substances.

To order toxicological profiles, contact:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Phone: 800-553-6847 or 703-605-6000

Reference

Agency for Toxic Substances and Disease Registry
(ATSDR). 1989. Toxicological profile for
Bromodichloromethane. Atlanta, GA: U.S.
Department of Health and Human Services, Public
Health Service.

DEPARTMENT of HEALTH AND HUMAN SERVICES, Public Health Service
Agency for Toxic Substances and Disease Registry

www.atsdr.cdc.gov/

Telephone: 1-888-422-8737

Fax: 770-488-4178

E-Mail: atsdric@cdc.gov