



BROMOMETHANE

What is bromomethane?

Bromomethane is a colorless man-made chemical gas that does not have a distinct smell. It does not catch fire easily or burn quickly. Bromomethane is found naturally in the ocean, where it is most likely formed by algae and kelp. Other names for bromomethane include methyl bromide, mono-bromomethane, and methyl fume. Trade names include Embafume® and Terabol®.

Where can bromomethane be found and how is it used?

Bromomethane is used to kill fungi and pests such as rats and bugs. It is used to make other chemicals and to get oil out of nuts, seeds, and wool. Bromomethane is usually stored in sealed containers so it will not evaporate or leach into the soil and groundwater. When released in the environment, bromomethane breaks down into other chemicals. When it vaporizes, it takes about 11 months for half the bromomethane to break down. In groundwater, it takes about one month for half the bromomethane to break down.

How can people be exposed to bromomethane?

You could be exposed to bromomethane through:

- **Breathing** very, very low background levels in the air. You could breathe higher levels near a waste site where bromomethane is stored, in an area where it was used as a pesticide, or if you work where bromomethane is made or used.
- **Drinking** well water with bromomethane in it.
- **Touching** liquid bromomethane at work.
- **Eye contact** by getting bromomethane vapors or liquid in the eyes at work.

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

If you breathe in bromomethane, about half of it will pass through your lungs and enter your blood. Animal studies suggest that if you swallow bromomethane in water, most of it will be absorbed by your body through your stomach or intestines. Most bromomethane in your body breaks down into other chemicals which leave your body in urine or in the air you breathe out within a few days. We do not know how much bromomethane can enter through the skin, but the amount is thought to be small.

Breathing bromomethane causes headache, vomiting and weakness a few hours later. Breathing large amounts causes fluid to build up in your lungs, leading to trouble breathing, muscle tremors, seizures, kidney damage, and nerve damage. Exposure to bromomethane can be fatal, although most people are not exposed at deadly levels.

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Frequently Asked Questions

At high levels, bromomethane causes the skin to itch, as well as redness and blisters. Animal studies suggest that bromomethane does not cause birth defects at low levels of exposure but may affect reproduction at high exposure levels. It is unknown as to whether long-term exposure to low levels causes severe nervous system damage in people. Scientists do not know if bromomethane causes cancer in people.

How is bromomethane poisoning treated?

If skin is exposed to high levels of bromomethane, clothing that touched the chemical should be removed, and the skin washed with soap or mild detergent and water. In very bad cases, providers give burn care. Breathing bromomethane can damage the lungs. Medical treatment includes giving oxygen or medicine to open airways; breathing support; and giving substances to help fluids exit the body in urine. If seizures occur, medicine will be given.

What should I do if exposed to bromomethane?

- **If you get bromomethane in your eyes**, hold eyelids apart and wash eyes with lots of flowing water. Do this for at least 15 minutes. Get medical help right away.
- **If bromomethane gets on your skin or clothing**, remove clothing and shoes. Place them in closed containers and discard the containers. If clothing is not thrown away, it should be aired out and washed very well before being worn again. Wash skin very well with mild soap and lots of water for at least 15 minutes. Get medical help right away.
- **If you breathe bromomethane**, move to an area with fresh air. Keep quiet and warm. Do not use mouth-to-mouth breathing methods on stricken people. Seek medical attention right away.
- **If you swallow bromomethane**, rinse your mouth with lots of water. Drink water or milk. Get medical attention right away.

What factors limit use or exposure to bromomethane?

At work, limit exposure by following safety practices. There should be enough fresh air to limit exposure. Ventilation should be used to pull bromomethane vapor out of the air in places where exposure levels could be high. A monitor should be used to check air concentrations and oxygen levels.

Wear protective clothing such as splash-proof safety goggles. Do not wear contact lenses nor gloves or rubber boots, which can trap the liquid or vapor inside them. If breathing protection is needed, wear a compressed air respirator or a full-face canister respirator.

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Areas or buildings being treated with pest-control products containing bromomethane should be clearly marked. Entrance areas should be posted with warning signs listing the name of the chemical used and the date it was used. Emergency information should also be provided.

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

Blood and exhalation tests report bromomethane exposure but they are not very useful because most the chemical quickly exits the body. A blood test measures bromide, the product made when bromomethane breaks down in your blood or urine. The level of bromide would be higher following bromomethane exposure. This test is only useful if done within one to two days of exposure. It cannot show if any health effects will occur.

Technical information for bromomethane

CAS Number: 74-83-9

Chemical Formula: CH₃Br

Carcinogenicity (EPA): Group D, Not classifiable as to human carcinogenicity.

MCL (Drinking Water): There is no MCL for this chemical.

OSHA Standards: 20 ppm air; (80 mg/m³) [skin]

NIOSH Standards: none

ACGIH: 8 hr Time Weighted Avg. (TWA): 1 ppm (4 mg/m³)

Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 2020. *Toxicological profile for bromomethane.*

<https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=822&tid=160>

Agency for Toxic Substances and Disease Registry (ATSDR). 2020. *ToxFAQs for bromomethane.*

<https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=821&toxid=160>

Bromomethane Fact Sheet, World Health Organization,

http://www.inchem.org/documents/hsg/hsg/hsg86_e.htm

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