



1,2-DIBROMOETHANE

What is 1,2-DIBROMOETHANE?

1,2-Dibromoethane is a colorless liquid with a strong odor that was once used as a pesticide. In addition to being used to kill insects and other pests, 1,2-Dibromoethane was also added to gasoline. It is mostly man-made but it may be found naturally in the ocean in very small amounts. 1,2-Dibromoethane vaporizes and easily and it will mix easily with water.

Where can 1,2-Dibromoethane be found and how is it used?

Small amounts of 1,2-Dibromoethane can be found in soil near hazardous waste sites. It can also be found on agricultural fields or in areas once used for farming. While 1,2-Dibromoethane remains in groundwater and soil for a long time, it breaks down quickly in the air. Generally, environmental levels are very low. In the 1970s and early 1980s, 1,2-Dibromoethane was used to kill insects and worms on fruits, vegetables and grain crops. It was also used to protect grass on golf courses and as an additive in leaded gasoline. Most of these uses stopped in 1984.

How can people be exposed to 1,2-Dibromoethane?

You could be exposed to 1,2-Dibromoethane through:

Breathing vapors if you work where 1,2-Dibromoethane is made or used.

Drinking well water in current or historic farming areas where 1,2-Dibromoethane was used. Well water near factories or waste sites might also contain the chemical.

Touching it while bathing or swimming in contaminated water.

How does 1,2-Dibromoethane work and how can it affect my health?

Inhaling large amounts of 1,2-Dibromoethane severely irritates the mucous membranes, eyes and skin and respiratory system. People who inhale it become lightheaded, confused or sleepy. Rarely is anyone exposed to a fatal level since large amounts have a strong, sickening odor. The effects of breathing 1,2-Dibromoethane over a long time are not known. A study of workers found a high rate of deaths from tumors and diseases of the breathing system.

Long-term skin contact with 1,2-Dibromoethane leads to redness, fluid build-up, blisters and ulcers. Swallowing or eating 1,2-Dibromoethane can cause death from organ damage. The effects of drinking water containing low levels of 1,2-Dibromoethane are not known. 1,2-Dibromoethane affects sperm quality but does not lower birth rates. 1,2-Dibromoethane is named as a substance that will probably cause cancer.

In animal studies, rats died after breathing high levels of 1,2-Dibromoethane for a short time. They had liver and kidney damage when exposed to lower levels. When rats breathed air or ate food containing 1,2-Dibromoethane for short or long periods of time, they were less fertile or had abnormal sperm.

How is 1,2-Dibromoethane poisoning treated?

There is no direct antidote for 1,2-Dibromoethane poisoning. A doctor will treat the symptoms based on the type of exposure. In some cases, physicians may use atropine.



What should I do if exposed to 1,2-Dibromoethane?

If 1,2-Dibromoethane gets on your skin, remove contaminated clothing and wash thoroughly with soap and water. Get medical attention.

If you get 1,2-Dibromoethane in your eyes, flush with large amounts of water for 15 minutes. Get medical help right away.

If you breathe 1,2-Dibromoethane, move to fresh air. Get medical help right away.

If you swallow 1,2-Dibromoethane, get medical help right away.

What factors limit use or exposure to 1,2-Dibromoethane?

Workplace exposure to 1,2-Dibromoethane can be limited by engineering controls such as ventilation, protective clothing, safety glasses and breathing protection. People living near contaminated waste sites can limit exposure by avoiding contaminated soil and drinking bottled water if wells are contaminated.

Is there a medical test to show whether I've been exposed to 1,2-Dibromoethane?

There is no reliable medical test to determine 1,2-Dibromoethane exposure.

Technical information for 1,2-Dibromoethane

CAS Number: 106-93-4

Chemical Formula: $C_2H_4Br_2$

Carcinogenicity (EPA): considered "likely to be carcinogenic to humans" based on strong evidence of carcinogenicity in animals and inconclusive evidence of carcinogenicity in an exposed human population.

MCL (Drinking Water) 0.05 ppb

OSHA Standards: TWA : 20 ppm; Acceptable Ceiling Concentration: 30 ppm.

NIOSH Standards: 0.045 ppm for up to a 10-hour workday; 15 min Ceiling value: 0.13 ppm

References and Sources

Agency for Toxic Substances and Disease Registry. *Toxicological Profile for 1,2-Dibromoethane (Update)*. July, 1992.

U.S. Environmental Protection Agency (EPA), Basic Information about Ethylene dibromide in Drinking Water. <http://www.epa.gov/safewater/contaminants/basicinformation/ethylene-dibromide.html>. (Accessed 10/6/09)

11th Report on Carcinogens, 1,2-Dibromoethane, <http://ntp.nniehs.nih.gov/ntp/roc/eleventh/profiles/s059dibr.pdf> (Accessed 10/6/09)