

United States
Environmental Protection
Agency

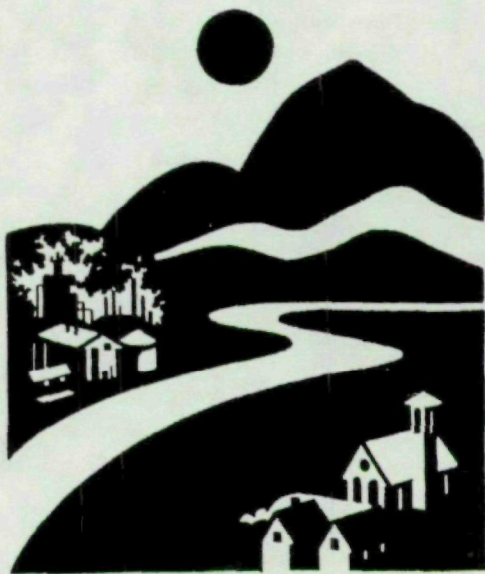
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Office of Pollution Prevention and Toxics (7401)

EPA Chemicals in the Environment

2-METHOXYETHANOL

(CAS NO. 109-86-4)



Chemicals can be released to the environment as a result of their manufacture, processing, and use. The EPA has developed information summaries on selected chemicals to describe how you might be exposed to these chemicals, how exposure to them might affect you and the environment, what happens to them in the environment, who regulates them, and whom to contact for additional information. EPA is committed to reducing environmental releases of chemicals through source reduction and other practices that reduce creation of pollutants.

WHAT IS 2-METHOXYETHANOL, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

2-Methoxyethanol (also called ethylene glycol monomethyl ether or EGME) is a colorless, flammable liquid. It does not occur naturally but is produced in large amounts (estimated not to exceed 100 million pounds per year) by three companies in the United States. US demand for EGME has declined during the late 1980s and is likely to continue to fall. The largest users of EGME are companies that add it to jet fuel as a de-icer. Currently this use of EGME is declining in the US. Companies use EGME to dissolve chemicals such as cellulose acetate, various resins used in the electronics industry, and certain dyes. Other companies use EGME to make perfume and photographic film. It can also be added to quick-drying varnishes, enamels, nail polishes, and wood stains.

Exposure to EGME can occur in

the workplace or in the environment following releases to air, water, land, or groundwater. The number of consumer products that contain 2-methoxyethanol is declining. It is unlikely that this will be a major source of exposure to EGME in the future. EGME enters the body when breathed in with contaminated air or when consumed with contaminated food or water. It is also absorbed through skin contact. 2-Methoxyethanol does not remain in the body due to its breakdown and removal in urine or in expired air.

WHAT HAPPENS TO 2-METHOXYETHANOL IN THE ENVIRONMENT?

2-Methoxyethanol evaporates when exposed to air. It dissolves completely mixed with water. Most direct releases of EGME to the environment are to air. EGME also evaporates from water and soil exposed to air. Once in air, 2-methoxyethanol breaks down to other chemicals. Because it is a liquid that does not bind well to soil, EGME that makes its way into the ground can move through the ground and enter groundwater. Plants and animals are not likely to store 2-methoxyethanol.

HOW DOES 2-METHOXYETHANOL AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

Effects of 2-methoxyethanol on human health and the environment depend on how much EGME is present and the length and frequency of exposure. Effects also depend on the health of a person or the condition

of the environment when exposure occurs.

Breathing EGME for short periods of time adversely affects the human nervous system. Effects range from dizziness to unconsciousness. EGME also adversely affects the blood, the liver, the kidneys, and the testes. Laboratory studies show that EGME causes similar effects in animals. Direct contact with liquid 2-methoxyethanol irritates the skin. Contact with EGME liquid or vapor can cause eye damage.

Human health effects associated with breathing or otherwise consuming small amounts of EGME over long periods of time are not known. Laboratory studies show that repeat exposure to small amounts of EGME adversely affects the reproductive system of animals, especially males. Exposure to small amounts of EGME also causes animals to give birth to malformed offspring. Repeat exposure to larger amounts of the 2-methoxyethanol causes adverse nervous system and blood effects in animals.

2-Methoxyethanol by itself is not likely to cause environmental harm at levels normally found in the environment. EGME can contribute to the formation of photochemical smog when it reacts with other volatile organic carbon substances in air.

WHAT EPA PROGRAM OFFICES REGULATE 2-METHOXYETHANOL, AND UNDER WHAT LAWS IS IT REGULATED?

EPA OFFICE	LAW	PHONE NUMBER
Pollution Prevention & Toxics	Toxic Substances Control Act	(202) 554-1404
	Emergency Planning and Community Right-to-Know Act (EPCRA): Regulations (§ 313)	(800) 535-0202
	Toxics Release Inventory data	(202) 260-1531
Air	Clean Air Act	(919) 541-0888

A technical support document is available from the TSCA Assistance Information Service, (202) 554-1404.

WHAT OTHER FEDERAL AGENCIES OR GROUPS CAN I CONTACT FOR INFORMATION ON 2-METHOXYETHANOL?

AGENCY/GROUP	PHONE NUMBER
American Conference of Governmental Industrial Hygienists	(513) 742-2020
Consumer Product Safety Commission	(301) 504-0994
National Institute for Environmental Health Sciences (EnviroHealth Clearinghouse)	(800) 643-4794
National Institute for Occupational Safety and Health (NIOSH)	(800) 356-4674
Occupational Safety and Health Administration	(Check your local phone book under U.S. Department of Labor)