

United States
Environmental Protection
Agency

EPA 749-F-94-007
December 1994

Office of Pollution Prevention and Toxics (7401)

**EPA Chemicals in the
Environment
Repository Material
Permanent Collection**

1-BUTANOL

(CAS NO. 71-36-3)



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 1-BUTANOL, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

1-Butanol (also called butyl alcohol) is a flammable liquid. It occurs naturally in certain fruits, dried beans, cheese, nuts, and fried bacon. It is produced in very large amounts (1.3 billion pounds in 1992) by five companies in the United States. US demand is likely to grow at a rate of 2% to 3% per year. The largest users of 1-butanol are companies that make butyl acrylate, methacrylate, and other related chemicals. Companies also add 1-butanol to plastics, hydraulic fluids, and detergent formulations. Drug companies use 1-butanol as an extractant and as an additive in certain medicines.

Exposure to 1-butanol can occur in the workplace or in the environment

following releases to air, water, land, or groundwater. Exposure can also occur when people use products that contain 1-butanol or when they eat certain foods. 1-Butanol enters the body when breathed in with contaminated air or when consumed with contaminated food or water. It can also be absorbed through skin contact. It does not remain in the body due to its breakdown and removal.

WHAT HAPPENS TO 1-BUTANOL IN THE ENVIRONMENT?

1-Butanol evaporates when exposed to air. It dissolves when mixed with water. Most direct releases of 1-butanol to the environment are to air or to underground sites. 1-Butanol also evaporates from water and soil exposed to air. Once in air, it breaks down to other chemicals. Microorganisms that live in water and in soil can also break down 1-butanol. Because it is a liquid that does not bind well to soil, 1-butanol that makes its way into the ground can move through the ground and enter groundwater. Plants and animals are not likely to store 1-butanol.

HOW DOES 1-BUTANOL AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

Effects of 1-butanol on human health and the environment depend on how much 1-butanol 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 1-butanol for short periods of time causes headaches in humans. Direct contact with liquid 1-butanol irritates the skin. Contact with 1-butanol liquid or vapor irritates the eyes, the nose, and the throat. These effects are not likely to occur at levels of 1-butanol that are normally found in the environment.

Human health effects associated with breathing or otherwise consuming small amounts of 1-butanol over long periods of time are not known. Workers repeatedly exposed to 1-butanol have developed adverse eye effects and hearing loss. Laboratory studies show that repeat exposure to 1-butanol adversely affects the thyroid, the blood, the lungs, the intestine, the liver, the kidneys, and the nervous system of animals.

1-Butanol by itself is not likely to cause environmental harm at levels normally found in the environment. 1-Butanol can contribute to the formation of photochemical smog when it reacts with other volatile organic carbon substances in air.

WHAT EPA PROGRAM OFFICES REGULATE 1-BUTANOL, 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
Solid Waste & Emergency Response	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)	(800) 535-0202
	Resource Conservation and Recovery Act / EPCRA (§ 304/311/312)	

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 1-BUTANOL?

AGENCY/GROUP	PHONE NUMBER
American Conference of Governmental Industrial Hygienists	(513) 742-2020
Consumer Product Safety Commission	(301) 504-0994
Food and Drug Administration	(301) 443-3170
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)