

United States
Environmental Protection
Agency

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Office of Pollution Prevention and Toxics (7401)

EPA Chemicals in the Environment

ACRYLIC ACID

(CAS NO. 79-10-7)



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 ACRYLIC ACID, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

Acrylic acid is a colorless, corrosive liquid. It occurs naturally, being produced by several species of marine algae and in the stomach of sheep. It is produced in very large amounts (1.1 billion pounds in 1991) by four companies in the United States. US demand for acrylic acid is increasing at a rate of 4 to 5 percent per year. The largest users of acrylic acid are companies that make acrylic esters and resins, chemicals added to protective surface coatings and adhesives. The fastest growing use of acrylic acid is in the production of superabsorbent polyacrylic acid polymers. Companies also use acrylic acid to make oil treatment chemicals, detergent intermediates, and water treatment chemicals.

Exposure to acrylic acid can occur in the workplace or in the environment following releases to air, water, land, or groundwater. Acrylic acid 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 removal in expired air and in urine.

WHAT HAPPENS TO ACRYLIC ACID IN THE ENVIRONMENT?

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

HOW DOES ACRYLIC ACID AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

Effects of acrylic acid on human health and the environment depend on how much acrylic acid 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 acrylic acid vapors for short periods of time irritates the human respiratory system. Direct contact with liquid acrylic acid irritates the skin and eyes.

Human health effects associated with breathing or otherwise consuming small amounts of acrylic acid over long periods of time are not known. Laboratory studies show that repeat exposure to acrylic acid vapor damages the lining of the nose of animals. The acrylic acid industry has recently completed several animal studies in response to an EPA request for testing. Acrylic acid causes reduced birth weight in pups of animals consuming acrylic acid in drinking water. These studies report no other adverse effects on the reproductive system or on the development of the fetus of animals.

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

WHAT EPA PROGRAM OFFICES REGULATE ACRYLIC ACID, 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 ACRYLIC ACID?

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