

United States
Environmental Protection
Agency

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Office of Pollution Prevention and Toxics (7401)

EPA Chemicals in the Environment

CARBON DISULFIDE (CAS NO 75-15-0)



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 CARBON DISULFIDE, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

Carbon disulfide is a colorless, flammable liquid with a pleasant odor. Impure samples have a yellow color and a disagreeable odor. It occurs naturally mostly due to the action of microorganisms living in sediments found on the sea floor and in marshes. Carbon disulfide is produced in large amounts (207 million pounds in 1992) by three companies in the United States. US demand for carbon disulfide has declined in recent years and is likely to continue to fall. The largest users of carbon disulfide are chemical companies that make rayon. Companies use smaller amounts of the chemical to make agricultural fumigants, rubber chemicals, and cellulose. Companies also use carbon disulfide to clean metal surfaces. Olive oil processors use the chemical to extract olive oil.

Exposure to carbon disulfide can occur in the workplace or in the environment following releases to air, water, land, or groundwater. Carbon disulfide enters the body when breathed in with contaminated air or when consumed with contaminated food or water. It is also absorbed through skin contact. It does not remain in the body due to its breakdown and removal.

WHAT HAPPENS TO CARBON DISULFIDE IN THE ENVIRONMENT?

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

HOW DOES CARBON DISULFIDE AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

Effects of carbon disulfide on human health and the environment depend on how much carbon disulfide 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 or otherwise consuming carbon disulfide for short periods of time adversely affects the human nervous system. Effects range from dizziness and headaches, to

blurred vision and agitation, to convulsions, coma, and death. Carbon disulfide vapor also irritates the nose and the throat. Direct skin contact with liquid carbon disulfide causes chemical burns. Carbon disulfide can severely damage the eyes. These effects are not likely to occur at levels of carbon disulfide that are normally found in the environment.

Breathing or otherwise consuming small amounts of carbon disulfide over long periods of time can cause potentially permanent damage to the human nervous system. Effects range from tremors and weakness to mental impairment. Carbon disulfide can also damage the human cardiovascular system, resulting in increased blood pressure and coronary heart disease. Workers repeatedly exposed to carbon disulfide have developed gastrointestinal and immune insufficiency problems. Laboratory studies show that exposure to large amounts of carbon disulfide during pregnancy adversely affects the developing fetus of animals. Studies also show that repeated exposure to carbon disulfide causes adverse kidney effects in animals.

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

WHAT EPA PROGRAM OFFICES REGULATE CARBON DISULFIDE, 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
Water	Resource Conservation and Recovery Act / EPCRA (§ 304/311/312)	
	Clean Water Act	(202) 260-7588

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 CARBON DISULFIDE?

AGENCY/GROUP	PHONE NUMBER
Agency for Toxic Substances and Disease Registry	(404) 639-6000
American Conference of Governmental Industrial Hygienists	(513) 742-2020
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)