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Agency

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Office of Pollution Prevention and Toxics (7401)

EPA Chemicals in the Environment

CYCLOHEXANE

(CAS NO. 110-82-7)

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 CYCLOHEXANE, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

Cyclohexane is a colorless, flammable liquid. It occurs naturally in petroleum crude oil, in volcanic gases, and in cigarette smoke. It is produced in large amounts (an estimated 338 million gallons in 1992) by four companies in the United States. US demand for cyclohexane is likely to increase at a rate of 2% to 2.5% per year. The largest users of cyclohexane are chemical companies that make adipic acid and caprolactam, chemicals used to make nylon. Chemical companies also use cyclohexane to make benzene, cyclohexanone, and nitrocyclohexane. Cyclohexane can be added to lacquers and resins, paint and varnish removers, and fungicides. It is also used as a fuel for camp stoves.

Exposure to cyclohexane 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 cyclohexane or when they smoke cigarettes. Cyclohexane 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. Cyclohexane is not likely to remain in the body due to its breakdown and removal in exhaled air and in urine.

WHAT HAPPENS TO CYCLOHEXANE IN THE ENVIRONMENT?

Cyclohexane evaporates when exposed to air. It dissolves when mixed with water. Most direct releases of cyclohexane to the environment are to air. Cyclohexane also evaporates from water and soil exposed to air. Once in air, cyclohexane breaks down to other chemicals. Because it is a liquid that does not bind well to soil, cyclohexane that makes its way into the ground can move through the ground and enter groundwater. Plants and animals living in environments contaminated with cyclohexane can store small amounts of the chemical.

HOW DOES CYCLOHEXANE AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

Effects of cyclohexane on human health and the environment depend on how much cyclohexane 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 large amounts of cyclohexane for short periods of time adversely affects the human nervous system. Effects range from headaches to anesthesia, tremors, and convulsions. Contact with cyclohexane liquid or vapor can damage the eyes. These effects are not likely to occur at levels of cyclohexane that are normally found in the environment.

Human health effects associated with breathing or otherwise consuming smaller amounts of cyclohexane over long periods of time are not known. Information about cyclohexane's potential to cause cancer, developmental effects, or reproductive effects either does not exist or is not adequate. Studies show that repeat exposure to large amounts of cyclohexane in air causes nervous system effects, eye damage, and respiratory effects in animals. The cyclohexane industry is now studying how its chemical affects the reproductive system and the development of the fetus of animals.

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

What EPA program offices regulate Cyclohexane, 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) Resource Conservation and Recovery Act / EPCRA (§ 304/311/312)	(800) 535-0202
Water	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 Cyclohexane?

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)