



# OPPT Chemical Fact Sheets

## Aniline Fact Sheet (CAS No. 62-53-3)



**Chemicals can be released to the environment as a result of their manufacture, processing, and use. 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 ANILINE, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

Aniline (also called aminobenzene) is an oily, flammable liquid. It occurs naturally in some foods. It is produced in very large amounts (1 billion pounds in 1992) by seven companies in the United States. U.S. demand is likely to increase 3% to 4% per year for the next several years. The largest users of aniline are companies that make isocyanates, especially methyl diphenyl diisocyanate. Other companies use aniline to make pesticides, dyes, and rubber. Companies also use smaller amounts of aniline to make drugs, photographic chemicals, varnishes, and explosives.

Exposure to aniline can occur in the workplace or in the environment following releases to air, water, land, or groundwater. It enters the body when people breathe air or consume food or water contaminated with aniline. It can also be absorbed through skin contact. It does not remain in the body due to its breakdown and removal.

### WHAT HAPPENS TO ANILINE IN THE ENVIRONMENT?

Aniline can evaporate when exposed to air. It dissolves when mixed with water. Most releases of aniline to the U.S. environment are to underground injection sites and to air. In air, aniline breaks down to other chemicals. Sunlight also breaks down aniline in surface water and in soil. Microorganisms that live in water and in soil can also break down aniline. Because it is a liquid that does not bind well to soil, aniline that makes its way into the ground can move through the ground and enter groundwater. Plants and animals are not likely to store aniline.

## HOW DOES ANILINE AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

The effects of aniline on human health and the environment depend on how much aniline 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 aniline for short periods of time decreases the ability of blood to carry oxygen. Lack of oxygen causes effects ranging from headache and light headedness to disorientation, coma, and death. Single exposures to large amounts of aniline can also damage the spleen. Prompt and proper treatment can usually reverse the nonlethal acute effects of aniline. These effects are not likely to occur at levels of aniline that are normally found in the U.S. environment.

Workers exposed to small amounts of aniline in air over several years experience adverse blood effects. Limited evidence suggests aniline may also cause adverse reproductive effects in humans. Other human health effects associated with exposure to aniline over long periods of time are not known. Laboratory studies show that repeat exposure to large amounts of aniline in the diet over a lifetime causes cancer in animals. Aniline may likewise cause cancer in humans. Repeat exposure to large amounts of aniline in the diet also causes adverse effects on the spleen and blood of animals. Laboratory studies show that repeat exposure to small amounts of aniline in air decreases the ability of blood to carry oxygen in animals.

The aniline industry has completed aquatic toxicity studies in response to an EPA request for testing. These tests show that aniline is highly toxic to aquatic life.

## WHAT EPA OFFICES OR OTHER FEDERAL AGENCIES OR OTHER GROUPS CAN I CONTACT FOR ADDITIONAL INFORMATION ON ANILINE?

EPA OFFICE	LAW	PHONE NUMBER
Pollution Prevention & Toxics	Pollution Prevention Act	(202) 260-1023
	Emergency Planning and Community Right-to-Know Act (§ 313/Toxics Release Inventory)	(800) 535-0202
	Toxic Substances Control Act (TSCA) (§ 4, 8D)	(202) 554-1404
Air	Clean Air Act	(919) 541-0888
Solid Waste & Emergency Response	Resource Conservation and Recovery Act (RCRA)	(800) 535-0202
	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	(800) 535-0202
Water	Clean Water Act	(202) 260-7588

*For general information on reducing or eliminating industrial pollutants through technology transfer, education, and public awareness, contact the Pollution Prevention Information Clearinghouse, (202) 260-1023.*

OTHER FEDERAL AGENCIES/DEPARTMENT OR GROUPS	PHONE NUMBER
American Conference of Governmental Industrial Hygienists	(513) 742-2020
Consumer Product Safety Commission	(301) 504-0994
Food & Drug Administration	(301) 443-3170
National Institute for Occupational Safety & Health	(800) 356-4674
Occupational Safety & Health Administration	
(Check local phone book for phone number under Department of Labor)	

The Support Document for this and other OPPT Chemical Fact Sheets can be found on the Internet at:  
<http://www.epa.gov/chemfact>