



# PUBLIC HEALTH STATEMENT

## PYRIDINE

### CAS#: 110-86-1

Division of Toxicology

September 1992

This Public Health Statement is the summary chapter from the Toxicological Profile for Pyridine. It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFAQs™, is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-888-422-8737.

This Statement was prepared to give you information about pyridine and to emphasize the human health effects that may result from exposure to it. The Environmental Protection Agency (EPA) has identified 1,177 sites on its National Priorities List (NPL). Pyridine has been found at 4 of these sites. However, we do not know how many of the 1,177 NPL sites have been evaluated for pyridine. As EPA evaluates more sites, the number of sites at which pyridine is found may change. This information is important for you to know because pyridine may cause harmful health effects and because these sites are potential or actual sources of human exposure to pyridine.

When a chemical is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment as a chemical emission. This emission, which is also called a release, does not always lead to exposure. You can be exposed to a chemical only when you come into contact with the chemical. You may be exposed to it in the environment by breathing, eating, or drinking substances containing the

chemical or from skin contact with it. If you are exposed to a hazardous chemical such as pyridine, several factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. These factors include the dose (how much), the duration (how long), the route or pathway by which you are exposed (breathing, eating, drinking, or skin contact), the other chemicals to which you are exposed, and your individual characteristics such as age, sex, nutritional status, family traits, life style, and state of health.

### 1.1 WHAT IS PYRIDINE?

Pyridine is a flammable colorless liquid with an unpleasant smell. It can be made from crude coal tar or from other chemicals. Pyridine is used as a solvent and to make many different products such as medicines, vitamins, food flavorings, pesticides, paints, dyes, rubber products, adhesives, and waterproofing for fabrics. Pyridine can also be formed from the breakdown of many natural materials in the environment. Many of the foods that you eat have flavors that are the result of complex compounds that contain pyridine.

Liquid pyridine evaporates into the air very easily. If pyridine is released to the air, it may take several months to years until it breaks down into other compounds. Pyridine also mixes very easily with water. If it is released to water or soil, it may break down in a few days to few months.

### 1.2 HOW MIGHT I BE EXPOSED TO PYRIDINE?

Pyridine and pyridine-containing compounds are

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present throughout the environment at very low levels. Pyridine has been found in the air inside and around factories that produce it or use it to make other products. You could be exposed to pyridine if you work in one of these factories or if you live or work near a hazardous waste site that releases it to the surrounding air. Pyridine is also released into the air from burning cigarettes and from hot coffee.

Pyridine is not usually found in rivers or other natural waters. It has been found in wells in an industrial area in Wyoming. The levels of pyridine in the well water were as high as 53 parts of pyridine in 1 billion parts of water (53 ppb). Pyridine is not usually found in the soil near hazardous waste sites or in industrial areas. Pyridine has been found in drinking water samples taken around hazardous waste sites and industrial areas. However, we do not know the levels. It is also found in certain foods such as fried chicken, cheese, and fried bacon. Although the levels in these foods are not known, they are probably very low and are not expected to result in any health effects. The level of pyridine in some frozen mango (a tropical fruit) was reported to be 1 part of pyridine per million parts of mango (1 ppm). You could be exposed to small amounts of pyridine if you eat these foods or drink water containing pyridine.

### 1.3 HOW CAN PYRIDINE ENTER AND LEAVE MY BODY?

Pyridine can enter your body when you breathe in air, drink water, or eat food that contains this chemical, or by skin contact with the chemical. When it enters your body by mouth, more than half

of it is absorbed. Within 1 day, most of what was absorbed leaves your body in urine as pyridine itself or its breakdown products. We do not know what happens to the rest of it. There is also no

information about what happens to pyridine that is breathed in or gets on your skin.

### 1.4 HOW CAN PYRIDINE AFFECT MY HEALTH?

Very few studies have been conducted to determine the possible effects of pyridine exposure on human health. From case reports on humans and studies in animals, we think the most important health concern for humans exposed to pyridine will be damage to the liver. Other health concerns for humans may be neurological effects, renal effects, and irritation of the skin and eye. We do not know whether pyridine can cause cancer, birth defects, or problems with reproduction.

### 1.5 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO PYRIDINE?

Tests can be used to find out whether you have been recently exposed to pyridine. These tests measure levels of pyridine in urine and blood. They use special equipment and are done in special laboratories, so they are not usually available in a doctor's office. The levels of pyridine in urine or blood cannot be used, however, to find out how much pyridine you were exposed to or whether specific harmful effects will occur.

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### 1.6 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The federal government has set certain regulations and guidelines to help protect people from the possible health effects of pyridine in the environment. The EPA has not set limits on the amount of pyridine that may be present in drinking water. The Occupational Safety and Health Administration (OSHA) has set an average air exposure level of 5 ppm for an 8-hour day, 40-hour work week. The National Institute for Occupational Safety and Health (NIOSH) has set 3,600 ppm in air as the level that is immediately dangerous to life and health (IDLH). The American Conference of Governmental Industrial Hygienists (ACGIH), which is a special nongovernment group set up to protect workers, also recommends 5 ppm for an 8-hour day.

### 1.7 WHERE CAN I GET MORE INFORMATION?

If you have any more questions or concerns, please contact your community or state health or environmental quality department or:

Agency for Toxic Substances and Disease Registry  
Division of Toxicology  
1600 Clifton Road NE, Mailstop F-32  
Atlanta, GA 30333

#### Information line and technical assistance:

Phone: 888-422-8737  
FAX: (770)-488-4178

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses resulting from exposure to hazardous substances.

#### To order toxicological profiles, contact:

National Technical Information Service  
5285 Port Royal Road  
Springfield, VA 22161  
Phone: 800-553-6847 or 703-605-6000

#### Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. Toxicological profile for pyridine. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

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