

This fact sheet answers the most frequently asked health questions (FAQs) about pyridine. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. 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.

**SUMMARY:** Everyone is exposed to very low levels of pyridine in air, water, and food. Workers who make or use the chemical may be exposed to higher levels of it. Studies in people and animals suggest that pyridine may damage the liver. This chemical has been found in at least 11 of 1,416 National Priorities List sites identified by the Environmental Protection Agency.

## What is pyridine?

(Pronounced pīr'ī-dēn')

Pyridine is a colorless liquid with an unpleasant smell. It can be made from crude coal tar or from other chemicals.

Pyridine is used to dissolve other substances. It is also used to make many different products such as medicines, vitamins, food flavorings, paints, dyes, rubber products, adhesives, insecticides, and herbicides. Pyridine can also be formed from the breakdown of many natural materials in the environment.

## What happens to pyridine when it enters the environment?

- Pyridine is primarily released to the environment from industries that make and use this chemical.
- Pyridine evaporates into the air very easily.
- In the air, it may take several months or years until it breaks down into other compounds.
- Pyridine is very soluble in water.
- In water or soil, it may be broken down in a few days to a few months by microscopic organisms.
- Pyridine sticks to soil particles.
- Pyridine probably doesn't build up in plants or animals.

## How might I be exposed to pyridine?

- Everyone is exposed to very low levels of pyridine in air, water, and food.
- Workers may be exposed in industries that make pyridine or use it to make other products by breathing it in air or by touching it.
- People may breathe pyridine when it is released into the air from burning cigarettes and from hot coffee.
- People who live near hazardous waste sites or landfills where pyridine exists may be exposed to it by breathing contaminated air or by drinking contaminated water.

## How can pyridine affect my health?

Very little information is available on the health effects of pyridine. Animal studies and some limited case reports in people have noted liver damage from exposure to pyridine.

Two patients with epilepsy had damage to the liver and kidneys after ingesting some pyridine. We do not know if the pyridine caused these effects because the patients were taking several other medications at the same time. Harmful effects to the liver were also seen in rats and mice that were given pyridine for three months.

Headaches, giddiness, a desire to sleep, quickening of the pulse, and rapid breathing occurred in adults who

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breathed an unknown amount of pyridine for an unknown length of time.

Mild skin irritation and eye irritation were seen in rabbits when pyridine was placed on their skin or in their eyes.

We do not know whether pyridine affects the ability of men and women to have children or whether it causes birth defects.

### How likely is pyridine to cause cancer?

The Department of Health and Human Services, the International Agency for Research on Cancer, and the Environmental Protection Agency (EPA) have not classified pyridine as to its human carcinogenicity.

No studies are available in people or animals on the carcinogenic effects of pyridine.

### Is there a medical test to show whether I've been exposed to pyridine?

There are medical tests available to measure levels of pyridine in urine and blood. However, these tests are not usually performed in most doctors' offices because special equipment is needed to conduct them.

These tests can't tell how much pyridine you were exposed to or if harmful health effects will occur from the exposure to pyridine.

### Has the federal government made recommendations to protect human health?

The EPA requires that discharges or accidental spills into the environment of 1,000 pounds or more of pyridine be

reported.

The Food and Drug Administration (FDA) allows pyridine to be used as a flavoring agent in the preparation of foods.

The Occupational Safety and Health Administration (OSHA) has set an occupational exposure limit of 5 parts of pyridine per million parts of workplace air (5 ppm) for an 8-hour workday over a 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental and Industrial Hygienists (ACGIH) have established the same guidelines as OSHA for pyridine exposure levels in the workplace.

NIOSH has recommended that 1,000 ppm be considered immediately dangerous to life and health. This is the exposure level of a chemical that is likely to cause permanent health problems or death.

### Glossary

Carcinogenicity: Ability to cause cancer.

Evaporate: To change into a vapor or a gas.

Herbicide: A chemical that kills weeds and other plants.

Ingesting: Taking food or drink into your body.

Insecticide: A chemical used to kill insects.

ppm: Parts per million.

### References

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.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

