ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

# 1,2-DIPHENYLHYDRAZINE

## CAS # 122-66-7



**This fact sheet answers the most frequently asked health questions (FAQs) about 1,2-diphenylhydrazine. 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. It's important you understand this information 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.**

**HIGHLIGHTS: 1,2-Diphenylhydrazine is a man-made chemical that was once used in fabric dyes but now is only used to make certain medicines. No harmful effects on people have been reported. Animal studies indicate that it may affect the liver, lungs, and digestive system. It has been found at 7 of the 1,177 National Priorities List sites identified by the Environmental Protection Agency (EPA).**

### What is 1,2-diphenylhydrazine?

(Pronounced 1,2-dī-fĕ-nŏl-hī′drə-zēn′)

1,2-Diphenylhydrazine is a white solid. There is no information on what it smells like or whether it will burn. It does not dissolve easily in water, but when placed in water, it rapidly breaks down into other chemicals. These include the toxic chemicals benzidine and azobenzene. It does not evaporate easily but may be released to air when attached to dust particles.

1,2-Diphenylhydrazine is a man-made chemical that was used in the past to make benzidine, which was used to make various fabric dyes. Benzidine dyes are no longer used in the United States, but may still be used in other countries. The only current use of 1,2-diphenylhydrazine in the United States is in the production of medicines to treat inflammation and a type of arthritis.

### What happens to 1,2-diphenylhydrazine when it enters the environment?

- 1,2-Diphenylhydrazine rapidly breaks down to other chemicals when released to the environment.
- Very little 1,2-diphenylhydrazine is likely to be released to the air because it does not evaporate easily; however, if released to the air, it would probably break down rapidly to other chemicals such as azobenzene.
- 1,2-Diphenylhydrazine reacts rapidly with water to form benzidine, azobenzene, and other chemicals.
- When released to soil, it will attach to soil particles but is not expected to last very long.
- It is not likely to filter through the soil to groundwater.
- There is no information about its biomagnification through the food chain, but it would not be expected to bioaccumulate because it does not persist for long in the environment.

### How might I be exposed to 1,2-diphenylhydrazine?

- Most people are not likely to be exposed to 1,2-diphenylhydrazine because of its limited use and because it doesn't last long once released to the environment.
- People who take medicines made from 1,2-diphenylhydrazine may be exposed to low levels.
- If you live near a waste site that contains 1,2-diphenylhydrazine you might be exposed if it was in dust you breathed or dirt that got on your skin.

**ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html**

- If you work in a factory where 1,2-diphenylhydrazine is made or used, you could be exposed to it by breathing dust or getting it on your skin.

## How can 1,2-diphenylhydrazine affect my health?

No harmful effects on people exposed to 1,2-diphenylhydrazine have been reported.

Animal studies indicate that ingesting large amounts of 1,2-diphenylhydrazine can cause death. Ingesting smaller amounts over a long period can cause damage to the lungs, digestive tract (stomach and intestines), and liver, and can cause death. We do not know if it can cause birth defects or affect reproduction.

## How likely is 1,2-diphenylhydrazine to cause cancer?

No studies are available on whether 1,2-diphenylhydrazine causes cancer in people. The carcinogenicity of 1,2-diphenylhydrazine has been evaluated in rats and mice in studies that showed it caused liver cancer. The EPA has determined that 1,2-diphenylhydrazine is a probable human carcinogen based on adequate evidence in animals and inadequate data in humans.

## Is there a medical test to show whether I've been exposed to 1,2-diphenylhydrazine?

There are no medical tests to determine if you have been exposed to 1,2-diphenylhydrazine.

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

The EPA recommends that levels of 1,2-diphenylhydrazine in lakes and streams should be limited to 0.041 parts per billion (0.041 ppb) to prevent possible human health effects from drinking water or eating fish contaminated with this chemical. Any release to the environment greater than 10 pounds of 1,2-diphenylhydrazine must be reported to the EPA.

The federal recommendations have been updated as of July 1999.

## Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Evaporate: To change into a vapor or a gas.

Ingest: Take food or drink into your body.

National Priorities List: A list of the nation's worst hazardous waste sites.

ppb: Parts per billion.

## References

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. Toxicological profile for 1,2-diphenylhydrazine. 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.