



# PUBLIC HEALTH STATEMENT

## 1,2-DIPHENYLHYDRAZINE

CAS#: 122-66-7

Division of Toxicology

December 1990

This Public Health Statement is the summary chapter from the Toxicological Profile for 1,2-Diphenylhydrazine. 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 1,2-diphenylhydrazine 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). 1,2-Diphenylhydrazine has been found at seven of these sites. However, we do not know how many of the 1,177 NPL sites have been evaluated for 1,2-diphenylhydrazine. As EPA evaluates more sites, the number of site at which 1,2-diphenylhydrazine is found may change. The information is important for you because 1,2-diphenylhydrazine may cause harmful health effects and because these sites are potential or actual sources of human exposure to 1,2-diphenylhydrazine.

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 substance such as 1,2-diphenylhydrazine 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 1,2-DIPHENYLHYDRAZINE?

1,2-Diphenylhydrazine is a white solid. It dissolves only slightly in water and does not change into a gas unless it is heated to very high temperatures. It sticks to soil and can be carried into the air along with windblown dust. Once in water or exposed to air it is changed into other chemicals within minutes. These chemicals include the toxic chemicals azobenzene and benzidine.

1,2-Diphenylhydrazine is used to make fabric dyes in other countries, and to make certain medicines. There are no other major anthropogenic or natural sources of 1,2-diphenylhydrazine.

### 1.2 HOW MIGHT I BE EXPOSED TO 1,2-DIPHENYLHYDRAZINE?

1,2-Diphenylhydrazine does not dissolve in water easily and reacts quickly when present in water. Therefore, it is extremely unlikely that you would

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be exposed to it by drinking water. Also, 1,2-diphenylhydrazine does not change to a gas at normal outside temperatures. Therefore, it is extremely unlikely that you would be exposed to it by breathing air even if you live near a hazardous waste site. Because 1,2-diphenylhydrazine may stick to soil, it is possible that you could breathe in dust coated with 1,2-diphenylhydrazine if you entered a hazardous waste site in which it had been recently spilled on the ground. It is also possible that children playing at this hazardous waste site could be exposed by eating dirt or smearing dirt on their skin. It would have to be a site in which the 1,2-diphenylhydrazine was recently spilled on the ground, since once exposed to air, 1,2-diphenylhydrazine changes into other substances within minutes.

You also could be exposed to 1,2-diphenylhydrazine if you work in an industry in which it is used. For example, while working, you could be exposed to dust containing 1,2-diphenylhydrazine when it is moved from one place to another. It has not been found in food or in air or natural soils. If 1,2-diphenylhydrazine exists at all in lakes or streams, it is probably at levels that are less than 1 part 1,2-diphenylhydrazine in 1,000,000 parts water (1 ppm).

### 1.3 HOW CAN 1,2-DIPHENYLHYDRAZINE ENTER AND LEAVE MY BODY?

If you were to breathe in dust coated with 1,2-diphenylhydrazine you would probably breathe out most of it within a few minutes; however, some of it might enter your body. Also, if you were to eat dust or dirt coated with 1,2-diphenylhydrazine, some of it might enter your body. However, we do not know how much or how long it would take for the 1,2-

diphenylhydrazine that you breathe in or eat to enter your body. It is not known if 1,2-diphenylhydrazine would enter your body if you were to spill it on your skin or if you were to get dirt coated with it on your skin. Some, maybe most of 1,2-diphenylhydrazine that enters your body leaves your body in the urine. It is not known how long it takes for 1,2-diphenylhydrazine to leave the body in the urine.

### 1.4 HOW CAN 1,2-DIPHENYLHYDRAZINE AFFECT MY HEALTH?

It is not known if 1,2-diphenylhydrazine would affect your health if you were to breathe it in or eat it. The health effects of 1,2-diphenylhydrazine in humans have not been studied. Animals die if they swallow large amounts of 1,2-diphenylhydrazine and develop liver disease if they eat small amounts of 1,2-diphenylhydrazine for more than a year. Therefore, it is possible that if you were to eat large amounts of 1,2-diphenylhydrazine for a long time you might experience liver damage or die.

It is not known whether 1,2-diphenylhydrazine would harm you if you were to spill it on you skin. It is not known if 1,2-diphenylhydrazine causes birth defects or affects fertility. It is not known if 1,2-diphenylhydrazine causes cancer in humans; however, it has been shown to cause cancer in rats and mice that have eaten it in food for most of their lifetime. Therefore, the U.S. Environmental Protection Agency (EPA) has determined 1,2-diphenylhydrazine to be a probable human carcinogen.

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### 1.5 WHAT LEVELS OF EXPOSURE HAVE RESULTED IN HARMFUL HEALTH EFFECTS?

It is not known what levels of 1,2-diphenylhydrazine result in harmful health effects in people or animals.

### 1.6 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO 1,2-DIPHENYLHYDRAZINE?

There is no test to determine if you have been exposed to 1,2-diphenylhydrazine.

### 1.7 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE 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.

### 1.8 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). 1990. Toxicological profile for 1,2-diphenylhydrazine. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

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