

1. PUBLIC HEALTH STATEMENT

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 1177 sites on its National Priorities List (NPL). 1,2-Diphenylhydrazine has been found at 7 of these sites. However, we do not know how many of 1177 NPL sites have been evaluated for 1,2-diphenylhydrazine. As EPA evaluates more sites, the number of sites 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. More information about these two chemicals can be found in the ATSDR Toxicological Profile on Benzidine or by contacting the Agency for Toxic Substances and Disease Registry (see Section 1.8).

1,2-diphenylhydrazine is used to make fabric dyes in other countries, and to make certain medicines. There are no other major manmade or natural sources of 1,2-diphenylhydrazine. More information on these subjects can be found in Chapters 3, 4, and 5.

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

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would 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 (ppm). More information on how you could be exposed to 1,2-diphenylhydrazine can be found in Chapter 5.

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. Additional information on how 1,2-diphenylhydrazine can enter and leave your body is presented in Chapter 2.

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 your 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

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lifetime. Additional information on the health effects of 1,2-diphenylhydrazine is presented in Chapter 2.

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

Tables 1-1, 1-2, 1-3, and 1-4 show how little we know about the levels of 1,2-diphenylhydrazine that might affect your health. As is shown in Table 1-4, animals that ate food containing 1,2-diphenylhydrazine for a long time developed lung inflammation, stomach damage, and liver damage, and some died. Although the levels of exposure that cause harmful effects in humans are not known, as discussed in Section 1.2, 1,2-diphenylhydrazine is not likely to be found in food, and you are not even likely to be exposed to levels of concern if you live near a hazardous waste site. Additional information on levels of exposure associated with effects can be found in Chapter 2.

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. More information about tests for exposure and effects can be found in Chapters 2 and 6.

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

A guideline to protect human health, by limiting exposure to 1,2-diphenylhydrazine in water, has been issued by the federal government. The U.S. Environmental Protection Agency (EPA) has made recommendations to limit the concentration of 1,2-diphenylhydrazine in natural waters, such as lakes and streams. The EPA has developed regulations to limit the release of 1,2-diphenylhydrazine by industries. Any release of 1 pound or more of 1,2-diphenylhydrazine must be reported to EPA.

1.8 WHERE CAN I GET MORE INFORMATION?

If you have any more questions or concerns not covered here, please contact your State Health or Environmental Department or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road, E-29
Atlanta, Georgia 30333

This agency can also give you information on the location of the nearest occupational and environmental health clinics. Such clinics specialize in the recognizing, evaluating, and treating illnesses that result from exposure to hazardous substances.

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TABLE 1-1. Human Health Effects from Breathing 1,2-Diphenylhydrazine*

Short-term Exposure (less than or equal to 14 days)		
<u>Levels in Air</u>	<u>Length of Exposure</u>	<u>Description of Effects</u>
		The health effects resulting from short-term exposure of humans to air containing specific levels of 1,2-diphenylhydrazine are not known.
Long-term Exposure (greater than 14 days)		
<u>Levels in Air</u>	<u>Length of Exposure</u>	<u>Description of Effects</u>
		The health effects resulting from long-term exposure of humans to air containing specific levels of 1,2-diphenylhydrazine are not known.

*See Section 1.2 for a discussion of exposures encountered in daily life.

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TABLE 1-2. Animal Health Effects from Breathing 1,2-Diphenylhydrazine

Short-term Exposure (less than or equal to 14 days)		
<u>Levels in Air</u>	<u>Length of Exposure</u>	<u>Description of Effects</u>
		The health effects resulting from short-term exposure of animals to air containing specific levels of 1,2-diphenylhydrazine are not known.
Long-term Exposure (greater than 14 days)		
<u>Levels in Air</u>	<u>Length of Exposure</u>	<u>Description of Effects</u>
		The health effects resulting from long-term exposure of animals to air containing specific levels of 1,2-diphenylhydrazine are not known.

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TABLE 1-3. Human Health Effects from Eating or Drinking
1,2-Diphenylhydrazine*

Short-term Exposure (less than or equal to 14 days)		
<u>Levels in Food</u>	<u>Length of Exposure</u>	<u>Description of Effects</u>
		The health effects resulting from short-term exposure of humans to food containing specific levels of 1,2-diphenylhydrazine are not known.
<u>Levels in Water</u>		The health effects resulting from short-term exposure of humans to water containing specific levels of 1,2-diphenylhydrazine are not known.
Long-term Exposure (greater than 14 days)		
<u>Levels in Food</u>	<u>Length of Exposure</u>	<u>Description of Effects</u>
		The health effects resulting from long-term exposure of humans to food containing specific levels of 1,2-diphenylhydrazine are not known.
<u>Levels in Water</u>		The health effects resulting from long-term exposure of humans to water containing specific levels of 1,2-diphenylhydrazine are not known.

*See Section 1.2 for a discussion of exposures encountered in daily life.

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**TABLE 1-4. Animal Health Effects from Eating or Drinking
1,2-Diphenylhydrazine**

Short-term Exposure (less than or equal to 14 days)		
<u>Levels in Food</u>	<u>Length of Exposure</u>	<u>Description of Effects</u>
		The health effects resulting from short-term exposure of animals to food containing specific levels of 1,2-diphenylhydrazine are not known.
<u>Levels in Water</u>		The health effects resulting from short-term exposure of animals to water containing specific levels of 1,2-diphenylhydrazine are not known.
Long-term Exposure (greater than 14 days)		
<u>Levels in Food (ppm)</u>	<u>Length of Exposure</u>	<u>Description of Effects*</u>
40	78 weeks	Inflammation of lungs in rats.
100	78 weeks	Death and liver damage in rats.
300	78 weeks	Stomach damage in rats.
400	78 weeks	Liver damage and death in mice.
<u>Levels in Water</u>		The health effects resulting from long-term exposure of animals to water containing specific levels of 1,2-diphenylhydrazine are not known.

*These effects are listed at the lowest level at which they were first observed. They may also be seen at higher levels.

