

This fact sheet answers the most frequently asked health questions (FAQs) about diazinon. 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 is 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: Exposure to diazinon is most significant in people involved in the manufacture and professional application of this pesticide. Exposure to very high levels of diazinon has resulted in death. Some mild symptoms of exposure include headache, dizziness, weakness, feeling of anxiety, constriction of the pupils, and blurred vision. Diazinon has been found in at least 25 of the 1,678 National Priority List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is diazinon?

Diazinon is the common name of an organophosphorus pesticide used to control pest insects in soil, on ornamental plants, and on fruit and vegetable field crops. It was formerly used as the active ingredient in household and garden products used to control pests such as flies, fleas, and cockroaches. Diazinon is a synthetic chemical, it does not occur naturally in the environment.

Pure diazinon is a colorless and practically odorless oil. Preparations used in agriculture and by exterminators contain 85-90% diazinon and appear as a pale to dark-brown liquid. Diazinon preparations sold in the past for home and garden use contained 1-5% diazinon in a liquid or as solid granules.

Most diazinon used is in liquid form, but it is possible to be exposed to the solid form. Diazinon does not dissolve easily in water and does not burn easily.

What happens to diazinon when it enters the environment?

- Most environmental diazinon contamination comes from agricultural and household application to control insects, but it may also enter the environment during the manufacturing process.
- Small particles of diazinon sprayed on crops and plants may be carried away from the field or yard before falling to the ground.
- After diazinon has been applied, it may be found in the soil, surface waters, and on the surface of plants.

- Diazinon on soil and plant surfaces may be washed into surface waters by rain; diazinon can move through soil and contaminate groundwater.
- In the environment, diazinon is quickly broken down into a variety of other chemicals.
- Diazinon is not likely to build up to high or dangerous levels in animal or plant foods that you might eat.

How might I be exposed to diazinon?

- People who work in the manufacture and professional application of diazinon are likely to have the most significant exposure to this pesticide.
- Exposure may occur by contact with contaminated soils or contaminated runoff water or groundwater.
- Small amounts have been detected in foods, but the levels are far below those that might cause harmful health effects.
- Although sales of home and garden products containing diazinon ceased in the U.S. in 2004, you may be exposed if you still have such products stored at home and use them.

How can diazinon affect my health?

Most cases of unintentional diazinon poisoning in people have resulted from short exposures to very high concentrations of the material. These very high levels have occasionally resulted in death.

Diazinon affects mainly the nervous system regardless of the route of exposure. Some mild signs and symptoms of poisoning include headache, dizziness, weakness, feelings of

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anxiety, constriction of the pupils, and blurred vision. More severe symptoms include nausea and vomiting, abdominal cramps, slow pulse, diarrhea, pinpoint pupils, difficulty breathing, coma, and possibly death. These effects also occur in animals exposed to high doses of diazinon.

Damage to the pancreas has developed in some people and in laboratory animals exposed to large amounts of diazinon. Diazinon has not been shown to affect fertility in humans.

There is no evidence that long-term exposure to low levels of diazinon causes harmful effects in people.

How likely is diazinon to cause cancer?

Diazinon has not been shown to cause cancer in humans or in animals. The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC) and the EPA have not classified diazinon as to its carcinogenicity.

How can diazinon affect children?

Children can be exposed to diazinon in the same manner adults are, by eating food or drinking water that contains diazinon. Children who live and play near agricultural areas where diazinon is used may be exposed to diazinon from the air, ground, or water.

Diazinon affects the nervous system in children and adults alike. Therefore, children exposed to diazinon will likely experience the same signs and symptoms observed in exposed adults (see above). However, we do not know whether children are more susceptible than adults to diazinon toxicity.

There is no evidence that environmental exposure to diazinon causes birth defects or other developmental effects in people. In animals, exposure levels that affected the health of the pregnant mothers caused developmental effects in their newborn babies.

How can families reduce the risks of exposure to diazinon?

- Stay away from agricultural areas that have been treated with diazinon.

- During spraying operations, remain indoors or leave the area for a short time.
- Agricultural workers and exterminators who come in contact with diazinon should remove contaminated clothing and wash before coming in contact with family members.
- Always wash fruits and vegetables before consuming them.
- Make sure that any person who treats your home with pesticides is properly certified.

Is there a medical test to determine whether I've been exposed to diazinon?

The most common test for exposure to diazinon is to determine the level of an enzyme (cholinesterase) in the blood. However, this test indicates only exposure to a pesticide of this type; it does not specifically show exposure to diazinon. In addition, other chemicals and health conditions may alter the levels of this enzyme.

There are specific tests to determine the presence of diazinon or its break down products in blood, urine, and body tissues. These tests are not routinely available at your doctor's office, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The EPA has developed 1- and 10-day health advisories (maximum recommended drinking water concentrations) for adults and children of 20 micrograms per liter of water (20 µg/L).

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2006. Toxicological Profile for Diazinon (Draft for Public Comment). Atlanta, GA: U.S. Department of Public 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 and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, 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.

