NPTN fact sheets are designed to answer questions that are commonly asked by the general public about pesticides that are regulated by the U.S. Environmental Protection Agency (US EPA). This document is intended to be educational in nature and helpful to consumers for making decisions about pesticide use.

National Pesticide Telecommunications Network

Diazinon

The Pesticide Label: Labels provide directions for the proper use of a pesticide product. *Be sure to read the entire label before using any product.* A signal word on each product label indicates the product's short-term toxicity.

CAUTION- low toxicity **WARNING- moderate toxicity** **DANGER- high toxicity**

What is diazinon?

- Diazinon is an insecticide (kills or controls insects) first registered in the United States in 1952. Currently, over 500 registered diazinon products are on the market.
- Diazinon belongs to a class of insecticides known as organophosphates.

How does diazinon work?

- Diazinon kills insects by disrupting their normal nervous system function.
- Diazinon disrupts the nervous system by interfering with the acetylcholinesterase enzyme. This enzyme is necessary for normal nerve transmission.
- Diazinon kills by contact or ingestion.

What products contain diazinon?

- Lawn/garden granules and sprays
- Household dusts and sprays
- Agricultural sprays and granules
- Animal ear tags
- Pest strips
- Veterinary products used against fleas and ticks.

How toxic is diazinon?

Animals

- Diazinon is low to moderately toxic when fed to both male and female rats. It is only slightly toxic when fed to rabbits (1).
- Diazinon has a low toxicity when tested on the skin of rabbits (1).
- Diazinon is very highly toxic to birds, fish, and water insects (1).
- Cats are more susceptible than dogs. The signs of diazinon poisoning include behavioral changes, muscle tremors, twitching, diarrhea, salivation, breathing difficulties, and in more severe cases, paralysis and death (2).

Laboratory Testing: Before pesticides are registered by the U.S. EPA, they must undergo laboratory testing for short-term and long-term health effects. In these tests, laboratory animals are purposely fed a pesticide at high doses to cause toxic effects. These tests help scientists judge how these chemicals might affect humans, domestic animals, and wildlife in cases of overexposure. When pesticide products are used according to label directions, toxic effects are not likely to occur because the amount of pesticide that people and animals may be exposed to is low compared to the doses fed to laboratory animals.

Humans

- Diazinon has low to moderate toxicity to humans, depending on the product formulation.
- The symptoms associated with diazinon poisoning include headache, nervousness, blurred vision, weakness, nausea, cramps, diarrhea, and chest discomfort (3).
- The signs associated with diazinon poisoning include sweating, pin-point pupils, tearing, salivation, clear nasal discharge and sputum, vomiting, muscle twitching, muscle weakness, and in severe poisonings convulsions, coma, and death (3).

Effects of diazinon on human health and the environment depend on how much diazinon is present and the length and frequency of exposure. Effects also depend on the health of a person and/or certain environmental factors.

Does diazinon break down and leave the body?

Animals

- The half-life of diazinon in animals is about 12 hours (4). See **Half-life** box.
- Cows completely eliminated diazinon 2 weeks after exposure stopped (4).

Humans

- Diazinon is rapidly broken down and eliminated from the body in both the urine and feces. Diazinon has not been shown to accumulate in any tissues and almost all of the chemical is eliminated from the body in 12 days (5).

Half-life is the time required for half of the compound to degrade or be eliminated from the body.

1 half-life	**=**	**50%**	**remaining**
2 half-lives	**=**	**25%**	**remaining**
3 half-lives	**=**	**12%**	**remaining**
4 half-lives	**=**	**6%**	**remaining**
5 half-lives	**=**	**3%**	**remaining**

Remember that the amount of chemical remaining after a half-life will always depend on the amount of the chemical originally applied.

Is diazinon likely to cause cancer?

Animals

- There was no evidence of cancer in rats or mice fed large amounts of diazinon over their life time (6). See **Cancer** box.

Humans

- Animal studies provide enough data to indicate that diazinon does not increase the risk of cancer in humans (7).

Cancer: The U.S. EPA has strict guidelines that require testing of pesticides for their potential to cause cancer. These studies involve feeding laboratory animals large daily doses of the pesticide over most of the lifetime of the animal. Based on these tests, and any other available information, EPA gives the pesticide a rating for its potential to cause cancer in humans. For example, if a pesticide does not cause cancer in animal tests, then the EPA considers it unlikely the pesticide will cause cancer in humans. Testing for cancer has not been done on human subjects.

Does diazinon cause developmental or birth defects?

Animals

- Diazinon did not cause birth defects or interfere with pregnancy in rats, rabbits, and hamsters (5).
- Diazinon directly injected into the yolk sac of chicken eggs resulted in skeletal and spinal deformities in the chicks (3). *Note: This is an unlikely exposure scenario for normal diazinon applications.*

Humans

- No evidence has been found in humans that diazinon causes birth defects or interferes with pregnancy (5).

What happens to diazinon in the environment?

- Diazinon has an average soil half-life of 40 days and a foliage half-life of 4 days (8).
- Diazinon has a low potential for movement through the soil to groundwater (9).

What effect does diazinon have on wildlife?

- Diazinon is highly toxic to bees (10).
- Diazinon is very highly toxic to birds, fish, and aquatic invertebrates (1). Many commercial outdoor uses of diazinon have been canceled or restricted to licensed pesticide applicators because of its known toxicity to birds and aquatic species (10).
- Diazinon was canceled for use on golf courses and sod farms in 1988 due to high risk to birds.

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