

This fact sheet answers the most frequently asked health questions (FAQs) about dichlorvos. 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. 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.

**HIGHLIGHTS:** Dichlorvos is an insecticide which is used to control insects primarily in storage areas and barns. It can affect the nervous system where it may cause nausea and vomiting, restlessness, sweating, and muscle tremors at high levels. Dichlorvos been found in at least 3 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

## What is dichlorvos?

(Pronounced dī-klôr' vŏs)

Dichlorvos is an insecticide that is a dense colorless liquid. It has a sweetish smell and readily mixes with water. Dichlorvos used in pest control is diluted with other chemicals and used as a spray. It can also be incorporated into plastic that slowly releases the chemical.

Dichlorvos is used for insect control in food storage areas, green houses, and barns, and control of insects on livestock. It is not generally used on outdoor crops. Dichlorvos is sometimes used for insect control in workplaces and in the home. Veterinarians use it to control parasites on pets.

## What happens to dichlorvos when it enters the environment?

- Dichlorvos enters the environment during its manufacture and use, from landfills, and from accidental spills during transport and leaks from storage containers.
- It evaporates easily into the air, where it is broken down into less harmful chemicals.
- It will dissolve in water, where microorganisms can break it down.

- It takes about 24–36 hours for half of the chemical to be broken down in water.
- Dichlorvos does not appear to accumulate in plants, fish, or animals.

## How might I be exposed to dichlorvos?

- The general population is not likely to be exposed to dichlorvos.
- It has been found on some fruits, vegetables, and grain, but washing and processing destroys the dichlorvos.
- People who live near a hazardous waste site containing dichlorvos could be exposed by breathing contaminated air or touching contaminated soil.
- Workers who manufacture the chemical or use it are likely to be exposed.
- People whose homes have been sprayed with dichlorvos could be exposed by breathing contaminated air or touching surfaces where dichlorvos was applied.

## How can dichlorvos affect my health?

The major effect of dichlorvos is on the nervous system. Studies on people who were exposed to dichlorvos by breathing air in the workplace containing low levels of dichlorvos have not shown any harmful effects. Animal studies have shown

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that breathing high levels can cause nervous system effects.

Ingesting large doses may cause nausea and vomiting, restlessness, sweating, and muscle tremors, while very large doses may cause coma, inability to breathe, and death. Animal studies have also shown effects on the nervous system when animals drank water or ate food containing dichlorvos.

It is not known whether dichlorvos can affect reproduction or cause birth defects in people.

Animal studies have not reported effects on reproduction or birth defects when animals were exposed to dichlorvos.

### How likely is dichlorvos to cause cancer?

It is not known whether dichlorvos causes cancer in people. A study in rats and mice reported that rats had an increase in cancer of the pancreas and in leukemia, and female mice had an increase in stomach cancer after they were fed dichlorvos for 2 years.

The Department of Health and Human Services (DHHS) has determined that dichlorvos may reasonably be anticipated to be a carcinogen. The International Agency for Research on Cancer (IARC) has determined that dichlorvos is possibly carcinogenic to humans. The EPA has determined that dichlorvos is a probable human carcinogen.

### Is there a medical test to show whether I've been exposed to dichlorvos?

There is a general test that can be used to determine if you have been exposed to a group of insecticides, including dichlorvos. This test measures the activity of an enzyme called acetylcholinesterase in the blood. However, it does not specifically show exposure to dichlorvos.

Specific tests are available to identify dichlorvos or its

breakdown products in your urine. These tests aren't available at most doctors' offices, but can be done at special laboratories that have the right equipment.

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

The EPA requires that spills or accidental releases into the environment of 10 pounds or more of dichlorvos be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) has set a permissible exposure limit of 1 milligram dichlorvos per cubic meter of air (1 mg/m<sup>3</sup>) for an 8-hour workday, 40 hour workweek.

### Glossary

Carcinogen: A substance with the ability to cause cancer.

CAS: Chemical Abstracts Service.

Ingest: To eat or drink something.

Insecticide: A substance that kills insects.

Leukemia: Cancer of the blood-forming organs.

Milligram (mg): One thousandth of a gram.

### References

This ToxFAQs information is taken from the 1997 Toxicological Profile for Dichlorvos produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

**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.

