This fact sheet was created in 2000; some of the information may be out-of-date. NPIC is not planning to update this fact sheet. More pesticide fact sheets are available here. Please call NPIC with any questions you have about pesticides at 800-858-7378, Monday through Friday, 8:00 am to 12:00 pm PST.

NPIC General 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 pesticides.

Captan

(General Fact Sheet)

For less general information, please refer to the Technical Fact Sheet.

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.* Signal words, listed below, are found on the front of each product label and indicate the product's potential hazard.

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

What is captan?

- Captan is a fungicide, meaning it is a chemical that is used to control fungus (1).
- Products containing captan carry **Signal Words** of Caution, Warning, or Danger depending on formulation (2). See the **Laboratory Testing** box.

Laboratory Testing: Before pesticides are registered by the U.S. EPA, they must undergo laboratory testing for short-term (acute) and long-term (chronic) health effects. Laboratory animals are purposely fed high enough 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 the label directions, toxic effects are not likely to occur because the amount of pesticide that people and pets may be exposed to is low compared to the doses fed to laboratory animals.

How is captan used?

- Captan is used on a variety of agricultural and greenhouse food/feed crops, indoor non-food uses, seed treatments, and ornamental plant sites (1).
- Captan is formulated as an emulsifiable concentrate, flowable concentrate, ready-to-use liquid, liquid soluble concentrate, solid, water dispersible granules, wettable powder, and dust (1).

What are some products that contain captan?

- Orthocide
- Merpan
- Vondcaptan
- Many captan products simply have "Captan" in their name.

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

How does captan work?

- Captan blocks the ability of fungus to produce energy (1, 3).

How toxic is captan?

- Captan is low in toxicity if eaten by rats or mice (1,4). See the **Exposure** box.
- Captan applied to the skin of rabbits and guinea pigs causes moderate to no irritation to their skin and was low in toxicity (1, 3). See the **Toxicity Category** box.
- Captan is low in toxicity if breathed in by rats or mice (1, 4).
- Captan is highly toxic to the eyes, and permanently damages the eyes of rabbits (1).
- Cattle and sheep are particularly sensitive to captan if they eat large amounts (4).

Toxicity Category

	High Toxicity (*Danger*)	**Moderate Toxicity (*Warning*)**	**Low Toxicity (*Caution*)**	**Very Low Toxicity (*Caution*)**
Oral LD50	Less than 50 mg/kg	50 - 500 mg/kg	500 - 5000 mg/kg	Greater than 5000 mg/kg
Dermal LD50	Less than 200 mg/kg	200 - 2000 mg/kg	2000 - 5000 mg/kg	Greater than 5000 mg/kg
Inhalation LC50 - 4hr	Less than 0.05 mg/l	0.05 - 0.5 mg/l	0.5 - 2 mg/l	Greater than 2 mg/l
Eye Effects	Corrosive	Irritation persisting for 7 days	Irritation reversible within 7 days	Minimal effects, gone within 24 hrs
Skin Effects	Corrosive	Severe irritation at 72 hours	Moderate irritation at 72 hours	Mild or slight irritation

U.S. Environmental Protection Agency, Office of Pesticide Programs, Label Review Manual, Chapter 7: Precautionary Labeling
http://www.epa.gov/oppfod01/labeling/lrm/chap-07.htm

- Rats and mice fed large amounts of captan have decreased immune function (5).

Signs of Toxicity - Animals

- Some signs of captan poisoning include hypothermia, depression, diarrhea, weight loss, loss of appetite, and increased thirst (6).

Signs of Toxicity - Humans

- People who mixed captan products or worked in fields where captan had been applied reported eye and skin irritation. However, researchers could not determine whether these symptoms were from exposure to captan or other pesticides used in the fields (1).
- A few human volunteers reported skin irritation and allergic reactions after captan was applied to their backs (7).

Does captan cause cancer?

Animals

- Rats and mice that were fed large amounts of captan over extended periods of time developed various types of tumors (1). See box on **Cancer**.

Humans

- U.S. EPA classifies captan as B2, a probable human carcinogen. (1).

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 is not done on human subjects.

Does captan cause reproductive problems or birth defects?

Animals

- Researchers fed captan to pregnant rats, hamsters, dogs, and monkeys. Only when they fed the animals enough captan to poison the mother were there birth defects in their offspring (4).
- Pregnant rabbits fed large amounts of captan sometimes have spontaneous abortions and deformed offspring (1).

- Over one-generation the parents or pups of rats or monkeys fed captan in large quantities show no effects. Rats fed captan over three generations show a decrease in the weight of parents and offspring. (1).

Humans

- No data was found on the ability of captan to cause reproductive problems or birth defects in humans.

Are there other effects of long-term exposure to captan?

- Rats fed large amounts of captan over several weeks or years do not grow as quickly as rats that don't eat captan. They had no changes in their blood chemistry or organ sizes (4).

- Dogs fed large amounts captan for 48 weeks have smaller livers and kidneys than dogs that don't eat it (4).

Does captan break down and leave the body?

Animals

- Rats fed captan eliminate most of it in their urine and feces within one day. They eliminate the rest of the captan from their bodies within the next 2 days (4).

- Captan leaves animals through their breath, urine, and feces (4).

Humans

- When human volunteers ate captan, most of it left through their urine in the first day. The rest of the captan was eliminated by the third day (8).

What happens to captan outdoors?

- The half-life of captan in soil ranges from less than 1 to 10 days (1, 9). See **Half-life** box.

- Captan's half-life on plants ranges from 3 to 13 days (1).

- The half-life of captan is less than one day in water (1).

- Captan is stationary to slightly mobile in various soils (1).

- Captan was detected in 4 out of 1828 samples taken as a part of a national groundwater survey (1).

Half-life: the time required for half of the compound to degrade.

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

The amount of chemical remaining after a half-life will always depend on the amount of the chemical present initially.

Does captan affect wildlife?

- Captan is practically non-toxic to slightly toxic to birds (1, 3).
- Captan is highly to very highly toxic to fish (1).
- Captan is moderately toxic to freshwater and saltwater creatures such as shrimp and crab (1).
- Captan can inhibit the growth of algae (1).
- Captan is relatively non-toxic to honey bees (1).

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