

### What is acephate?

Acephate is an organophosphate insecticide. It is used on food crops, citrus trees, as a seed treatment, on golf courses, and in commercial or institutional facilities. At one time acephate was used commonly in and around homes, but most of those uses are no longer allowed. Acephate has been registered by the U.S. EPA since 1973.



### What are some products that contain acephate?

Acephate products may be sold as powders, liquids, granules, tablets, and in water-soluble packets. About 100 products that contain acephate are currently registered.

Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to report a pesticide problem, please call 1-800-858-7378.

### How does acephate work?

Acephate can kill target insects when they touch it or eat it. When insects eat acephate, their bodies turn it into a chemical called methamidophos, which is another, stronger insecticide. Acephate is less toxic in mammals because mammal bodies do not turn it into methamidophos very well.

Acephate and methamidophos affect the nervous system, causing over-activity in the nerves, muscles, or brain. Acephate is absorbed into plants, so insects that feed on treated plants may eat acephate.



### How might I be exposed to acephate?

People can be exposed while applying acephate by breathing in the spray mist or by getting spray or granules on their skin. Lower levels of exposure can happen if people work with acephate-treated soils or plants. People may eat acephate residues on fruits or vegetables that were treated with acephate.

NPIC General Fact Sheets are designed to provide scientific information to the general public. This document is intended to promote informed decision-making. Please refer to the Technical Fact Sheet for more information.

### What are some symptoms from a brief exposure to acephate?

People exposed to acephate have had nausea, diarrhea, abdominal cramps, shaking, sweating, rapid heart rate, dizziness, and/or confusion. Symptoms usually begin within minutes or hours after exposure.

Pets might be exposed to acephate by eating granules from the ground. Dogs that ate acephate had vomiting, diarrhea, shaking, and difficulty walking and breathing. Signs of toxicity in birds include clumsiness, depression, shortness of breath, feather puffing, drooped wings, shaking, and convulsions.



### What happens to acephate when it enters the body?

Humans and animals absorb acephate into the body quickly when it is eaten, breathed in, or gets on the skin. In animal studies, acephate was absorbed into the blood and went to skin, liver, kidneys, and heart.

In humans and other mammals, about three quarters of the acephate moves through the body unchanged. Some is broken down into smaller chemicals, and a very small amount converts to methamidophos. In rats, most acephate was cleared through the urine, with small amounts cleared through the feces or exhaled breath. Acephate clears the body quickly; less than one percent of the acephate remained in rats three days after eating it.

### Is acephate likely to contribute to the development of cancer?

The EPA classifies acephate as a "possible human carcinogen." When animals were fed acephate in their diets for two years, a greater number of them had liver or adrenal gland tumors. Mice that were fed high doses of acephate all at once had DNA damage in blood cells, although the damage was repaired four days after the exposure.

### Has anyone studied non-cancer effects from long-term exposure to acephate?

When rats were fed acephate every day for generations, the animals had reduced mating success and lower survival of their offspring. No changes in nervous system development, behavior or cognitive abilities were seen in offspring in pre- and post-natal exposure studies. Acephate exposure has not been known to cause organophosphate-associated conditions such as intermediate syndrome or Organophosphate-Induced Delayed Polyneuropathy.

### Are children more sensitive to acephate than adults?

In general, [children may be more sensitive to pesticides](#) than adults. However, there are currently no studies indicating that children are more sensitive to acephate, specifically. Children may have different symptoms than adults, such as drooling, seizures, muscle weakness, lethargy, coma, and pupil constriction.

### What happens to acephate in the environment?

Small amounts of acephate can change into methamidophos in soil, plants, and insects. Both chemicals are very mobile in soil, moving with water easily. However, they break down relatively quickly. The half-life of acephate ranged from 4.5 to 32 days in soil. Acephate does not tend to off-gas from soil or water. Plants absorb acephate quickly from the soil into their roots or through their leaves, and move it to other parts of the plant.



### Can acephate affect birds, fish, or other wildlife?

Acephate is moderately toxic to birds, depending on the species. Acephate-related health effects in wild birds are reduced eggs, egg hatching, and hatchling survival, and possibly disrupted migratory patterns.

Acephate is slightly toxic to fish and amphibians. After high exposures, salamander hatchlings had decreased growth, activity, and feeding, and increased muscle and spinal column deformities. Acephate is a broad-spectrum insecticide and is highly toxic to bees and other beneficial insects.

### Where can I get more information?

For more detailed information see the [Acephate Technical Fact Sheet](#) or call the National Pesticide Information Center Monday through Friday, between 7:30 AM and 3:30 PM Pacific Time (10:30 AM to 6:30 PM Eastern Time) at 1-800-858-7378 or visit us on the web at <http://npic.orst.edu>. NPIC provides objective, science-based answers to questions about pesticides.

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