# METHOPRENE

## GENERAL FACT SHEET

### What is methoprene?

Methoprene is used against insects. It comes in two different forms called s-methoprene and r-methoprene, and s-methoprene is the one that behaves like an important hormone in insects. It can be used against fleas, flies, moths, beetles, and other insects. Methoprene was first registered for use in the United States in 1975 and s-methoprene was later registered in 1985.

### What are some products that contain methoprene?

Methoprene is available in over 500 pesticide products, most of which contain s-methoprene. It is commonly added to insecticide products because it affects the insects that survive exposure to the other pesticides. It comes in several formulations including dusts, granules, ready-to-use liquids, pressurized sprays, and in flea collars. Methoprene is commonly found in flea treatments for dogs and cats, in cattle feed to control flies, and in mosquito control products. It is also used in insect baits, and home insect sprays.

Always follow label instructions and take steps to minimize 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 discuss a pesticide problem, please call 1-800-858-7378.

### How does methoprene work?

Methoprene is an insect growth regulator. By acting like an insect hormone, it interferes with insect growth and development. It can prevent normal molting, egg-laying, egg-hatching, and development from the immature phase (i.e. caterpillar) to the adult phase (i.e. moth). This prevents the insects from reproducing.

### How might I be exposed to methoprene?

You can be exposed to methoprene by eating it, getting it on your skin, or by breathing it in. Methoprene is allowed to be used on a wide variety of foods, including stored grains, corn, mushrooms, peanuts, cattle, and cereals. You may also be exposed to methoprene when applying products in your home or on your pets.

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### What are some signs and symptoms from a brief exposure to methoprene?

Methoprene can cause slight irritation if it gets into a person's eyes or lungs. If you touch it, methoprene can cause mild or moderate skin irritation. However, in several studies where methoprene was applied to the skin of laboratory animals, no effects or irritation were noted.

In one study with very high doses (10 g/kg), dogs that were fed methoprene showed signs like vomiting, dilated pupils, changes in behavior, breathing, and body movements. When researchers cut the dose in half (5 g/kg), the dogs had no observable signs or symptoms. See the fact sheet on Pets and Pesticide Use for more information.

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

Methoprene is rapidly broken down in the body and excreted. In studies with rats that were fed methoprene, they found methoprene in the urine, feces, and breath. Three quarters of the dose was eliminated within 5 days. Small amounts of methoprene can be stored in the body. Researchers found most of the stored residues in the blood, liver, kidney and lungs.

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

Based on long-term studies in animals, methoprene is not expected to contribute to the development of cancer.

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

Yes. In some studies where pregnant laboratory animals were fed high doses of methoprene in their diets for several weeks, the animals gained less weight, and fewer pups were born. However, no effects on the fetus were observed in other studies with similar or lower doses.

No studies could be found that evaluated methoprene's potential to cause endocrine disruption in humans. However, in studies where young mice were dosed with methoprene for several days, no estrogenic effects were observed.

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

While, children may be especially sensitive to pesticides compared to adults, there are currently no studies showing that children have increased sensitivity specifically to methoprene.

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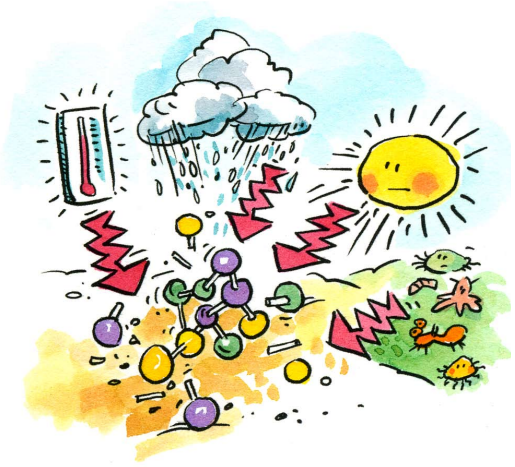
### What happens to methoprene in the environment?

Sunlight and micro-organisms break down methoprene rapidly in soil, water, and on plants. In soil, about half of the original amount is gone within 10-14 days. In water, it takes 1-28 days for methoprene residue to break down by half, depending on the availability of sunlight. When methoprene is formulated in a briquette, pellet, or granule, the release is slowed. Methoprene's full breakdown when released as a briquette has been reported up to 18 months.



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

Methoprene is moderately toxic to some fish (rainbow trout), and highly toxic to others. In three studies on bluegill sunfish, the results were different in each case, ranging from moderate to very high toxicity. Methoprene can accumulate in fish tissues. It is moderately toxic to crustaceans such as shrimp, lobsters and crayfish, and very highly toxic to freshwater invertebrates.

Methoprene is relatively non-toxic to birds. It also appears to be low in toxicity to adult bees, although bee larvae may be more sensitive.

### Where can I get more information?

For more detailed information about methoprene please visit the list of referenced resources or call the National Pesticide Information Center, between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time), Monday - Friday, 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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