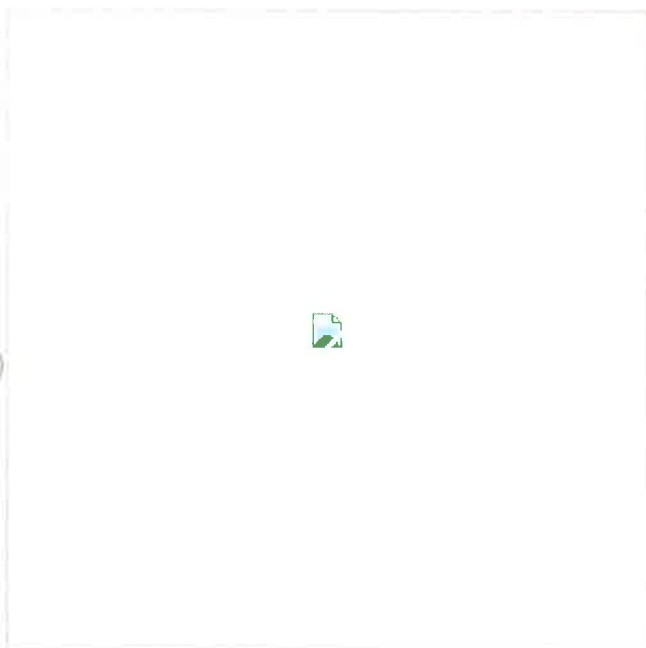


General Fact Sheet

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What is imidacloprid?

Imidacloprid is an insecticide that was made to mimic nicotine. Nicotine is naturally found in many plants, including tobacco, and is toxic to insects. Imidacloprid is used to control sucking insects, termites, some soil insects, and fleas on pets. It has been used in products sold in the United States since 1994.

What are some products that contain imidacloprid?

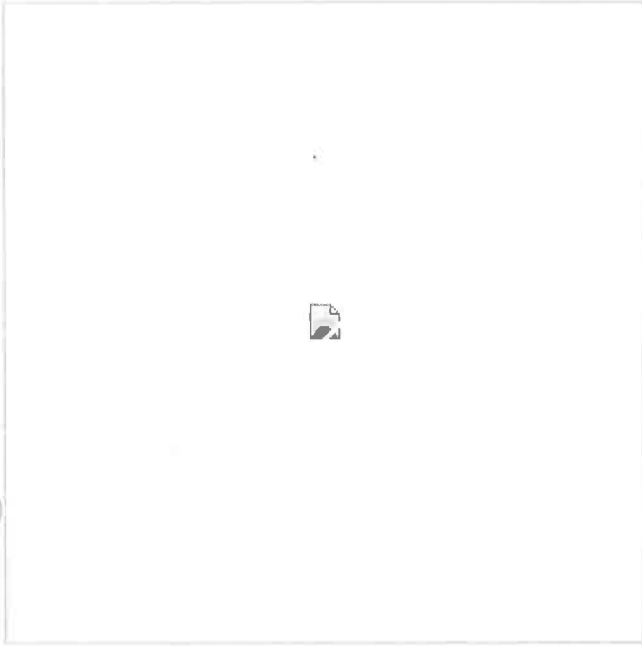
Products containing imidacloprid come in many forms, including liquids, granules, dusts, and packages that dissolve in water. Imidacloprid products may be used on crops, houses, or used in flea products for pets. There are over 400 products for sale in the United States that contain imidacloprid.

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 discuss a pesticide problem, please call 1-800-858-7378.

How does imidacloprid work?

Imidacloprid disrupts the nerve's ability to send a normal signal, and the nervous system stops working the way it should. Imidacloprid is much more toxic to insects and other invertebrates than it is to mammals and birds because it binds better to the receptors of insect nerve cells.

Imidacloprid is a systemic insecticide, which means that plants take it up from the soil or through the leaves and it spreads throughout the plant's stems, leaves, fruit, and flowers. Insects that chew or suck on the treated plants end up eating the imidacloprid as well. Once the insects eat the imidacloprid, it damages their nervous system and they eventually die.



How might I be exposed to imidacloprid?

There are four ways that people can be exposed to chemicals. Chemicals may get on the skin, get into the eyes, be inhaled, or be eaten. This can happen if someone handles a pesticide or a pet recently treated with a product and does not wash their hands before eating. You could be exposed to imidacloprid if you are applying a product to your yard, on a pet, or in another location and get the product on your skin or breathe in spray mist. Because imidacloprid is a systemic insecticide, you could be exposed to imidacloprid if you ate the fruit, leaves, or roots of plants that were grown in soil treated with imidacloprid.

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

Farm workers reported skin or eye irritation, dizziness, breathlessness, confusion, or vomiting after they were exposed to pesticides containing imidacloprid. Pet owners have sometimes had skin irritation after they applied flea control products containing imidacloprid to their pets. Animals have vomited or drooled a lot after oral exposure to imidacloprid. If animals swallow enough imidacloprid, they may have trouble walking, develop tremors, and seem overly tired. Sometimes animals have skin reactions to pet products containing imidacloprid.

What happens to imidacloprid when it enters the body?

Imidacloprid does not go through skin easily but it can cross the lining of the stomach and especially the intestine when it is eaten. Once it gets into the body, imidacloprid moves through the bloodstream to the whole body. Imidacloprid is broken down in the liver and then removed from the body in feces and urine. Rats that were fed imidacloprid excreted 90% of the dose in 24 hours.

Is imidacloprid likely to contribute to the development of cancer?

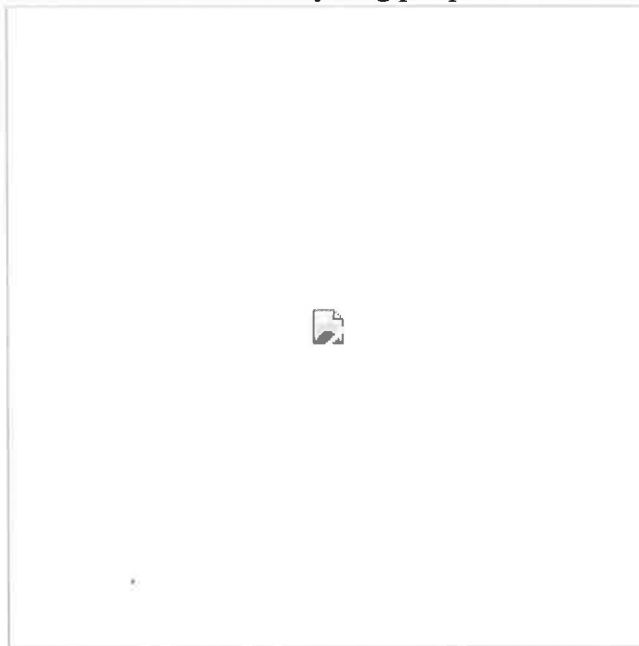
The United States Environmental Protection Agency (U.S. EPA) decided that there is no evidence that imidacloprid causes cancer based on animal studies. The International Agency for Research on Cancer (IARC) has not classified imidacloprid for its potential to cause cancer.

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

Scientists fed imidacloprid to mother rats and rabbits during their pregnancies. The exposure caused reproductive effects including reduced bone growth in the babies. The doses that caused the problems in the pups were toxic to the mothers. No data were found on developmental or reproductive effects of imidacloprid in people.

Are children more sensitive to imidacloprid than adults?

Children are generally more likely to be exposed to pesticides, and may be more susceptible than adults because they spend more time in contact with the ground, their bodies break down chemicals differently, and their skin is thinner. However, there is no specific information on whether young people or animals are more at risk from



exposure to imidacloprid than adults.

What happens to imidacloprid in the environment?

Imidacloprid can last for months or years in soil. The residues become more tightly bound to the soil with time. Imidacloprid is broken down rapidly by water and sunlight. The pH and temperature of water affect the speed of the imidacloprid breakdown process. Imidacloprid may leach from soil into groundwater under some conditions. Imidacloprid is broken down into a number of other chemicals depending on which bonds in the molecule are

broken.

Can imidacloprid affect birds, fish, or other wildlife?

Imidacloprid is not very toxic to birds and slightly toxic to fish, although this varies by species. Imidacloprid is very toxic to honeybees and other beneficial insects. The role, if any, of imidacloprid in Colony Collapse Disorder is not yet clear. Scientists have shown that plants grown in treated soil may have imidacloprid residues in their nectar and pollen at levels that are below those shown to cause effects on bees in laboratory experiments.

Other beneficial animals may also be affected. Green lacewings did not avoid nectar of plants grown in soil treated with imidacloprid. The lacewings that fed from the treated plants had lower survival than lacewings that had not fed from treated plants. Ladybugs that ate aphids from plants grown in treated soil also showed reduced survival and reproduction.

Scientists are actively studying the effects of imidacloprid on bees and other invertebrates. As they finish their studies, new information will be coming out that will help define the risks to these animals.

Where can I get more information?

For more detailed information see the [Imidacloprid Technical Fact Sheet](#) or call the National Pesticide Information Center, Monday - Friday, between 8:00am - 12:00pm Pacific Time (11:00am - 3:00pm 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.

Date Reviewed: May 2010



NPIC 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 (U.S. EPA). This document is intended to be educational in nature and helpful to consumers for making decisions about pesticide use.

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