IMIDACLOPRID
Questions and Answers

What is Imidacloprid? Imidacloprid (Trade name: Merit®) is a chloro-nicotintyl compound, chemically related to nicotine. It is especially useful against insect pests, such as psyllids, leafhoppers, aphids, and thrips that use their mouth to penetrate plant surfaces and draw out nutrients. Imidacloprid (Advantage®) is used as a flea treatment for dogs and cats. It is also used for the control of common soil and turf pests, such as ants, termites, and grubs. Some common agricultural crops it is registered to be used on are rice, cereal grains, corn, potatoes, some fruits and vegetables, cotton, and hops.

How does Imidacloprid work? When applied to the soil, imidacloprid is taken up by plants through their root system, i.e., systemically. When it is applied to plant surfaces, it is absorbed by foliage (leaves), where it migrates from the stem toward the tips of the foliage. When an insect draws up nutrients, it also takes in imidacloprid. Once taken up by an insect, imidacloprid interferes with nerve transmission in certain types of neurons (nerve conducting systems) this interference results in the insect's death. Insects are more susceptible to this action than are mammals. Imidacloprid may also be absorbed by insects from surface contact.

What kind of tests have been done with Imidacloprid? The U.S. Environmental Protection Agency and the California Department of Pesticide Regulation have both registered products containing imidacloprid. All required testing for these registrations has been done. This includes tests for acute (short term) and chronic (long term) administration. The acute mammalian toxicity of imidacloprid is considered moderate via the oral route of exposure, but minimally toxic via the dermal and inhalation routes of exposure. No evidence of carcinogenicity was found after lifetime exposure studies. Evidence reported for reproductive and developmental effects in offspring does not indicate a hazard exists for humans from imidacloprid. Imidacloprid is readily metabolized and excreted after it is absorbed. It does not store or build up in body tissues.

What effect can Imidacloprid have on people? No reported cases of human poisoning with imidacloprid were found in the literature. Toxicologists suggest that, based on its mechanism of action, poisoning could cause muscle weakness, cramps, and fatigue.

What effects might imidacloprid have on other animals or the environment? Imidacloprid has moderate persistence in both water and soil. Imidacloprid has an affinity to bind to soil and is generally not a high risk for contamination of ground water or movement off site from water runoff. If imidacloprid is applied to plant foliage, foraging bees can be killed. When it is applied to soil, bees are less affected because they do not draw nutrients from within treated plants. Birds can be poisoned, but require doses much higher than what is available from residues remaining after application for insects. Imidacloprid is toxic to aquatic invertebrates however, toxicity to fish is low. Affected non-target insect populations generally recover to pre-treatment levels once the target population is eliminated and eradication treatments cease.

Why use Imidacloprid? Imidacloprid is part of an overall treatment strategy to eradicate the Asian Citrus Psyllid from California. Imidacloprid a soil-applied residual systemic insecticide, combined with Cyfluthrin as a fast-acting control measure provides a long-term comprehensive effective treatment.

CYFLUTHRIN as a treatment for the Asian Citrus Psyllid
Questions and Answers

What is Cyfluthrin? Cyfluthrin (Trade name: Tempo®) is a synthetic pyrethroid pesticide. It is used indoors and outdoors for household control of common pests such as ants, cockroaches and fleas. It is used on farms for the control of psyllids, aphids and mites on various crops, including fruits, vegetables and grains.

How does Cyfluthrin work? For insects, cyfluthrin is both a contact and stomach poison. Contact with or ingestion of cyfluthrin disrupts the normal function of the insect's central nervous system. Insects die when their nervous system is no longer able to maintain essential functions such as feeding.

What kinds of tests have been done with Cyfluthrin? The U.S. Environmental Protection Agency and the California Department of Pesticide Regulation have both registered products containing cyfluthrin. All required testing for these registrations has been completed, including toxicity tests for acute (short term) and chronic (long term) administration. No evidence of carcinogenicity was found after lifetime exposure studies. No effects on reproductive functions or developmental effects in offspring were found during exposure studies. Cyfluthrin is readily metabolized and excreted in mammals after it is administered. It does not store or build up in body tissues. The acute mammalian toxicity of cyfluthrin is considered slight to moderate via the oral, dermal and inhalation routes of exposure. Some animals that were fed high levels of cyfluthrin showed some motor dysfunction characteristic of pyrethroids.

What effect can Cyfluthrin have on people? When plants are treated with cyfluthrin, a highly diluted form is used that minimizes the risk of exposure. Cyfluthrin poisoning in people is not common. Accidental or deliberate exposure to large amounts of concentrated cyfluthrin can be fatal; however, crews dilute and mix the product prior to arriving at the treatment site. Cyfluthrin can cause skin and eye irritation. Exposure symptoms can include tremors, tingling skin sensations (especially facial), weakness, and lack of muscular coordination. Allergic reactions are not known to occur with cyfluthrin exposure. No lasting effects are reported in individuals who have recovered after serious poisoning.

What effects might Cyfluthrin have on other animals or the environment? Cyfluthrin has low persistence in both water and soil and decomposes rapidly in the environment. Cyfluthrin binds easily to soil and is not susceptible to leaching into ground water or movement off site from water runoff. When applied to plant foliage, cyfluthrin adheres to plant surfaces, but is generally not absorbed into plants. Aquatic invertebrates and fish are very susceptible to cyfluthrin, so crews take special care to prevent direct or indirect contamination of surface waters. Cyfluthrin is relatively non-toxic to birds. Non-target insect populations can be adversely affected, including honeybees. Treatments for the Asian citrus psyllid are applied to citrus trees exclusively. Bees on a particular citrus tree at the time of treatment may be killed, but impacts on the overall local bee population are expected to be minimal. Crews are instructed to treat citrus trees when they are not in bloom, further reducing impact to pollinators. Non-target insect populations generally recover to pre-treatment levels once the target population is eliminated and eradication treatments cease.

Why use Cyfluthrin? Cyfluthrin is part of an overall treatment strategy to control or eradicate the Asian Citrus Psyllid in California. Cyfluthrin is a fast-acting control measure combined with a soil-applied residual systemic insecticide, Merit 2F (Imidacloprid), to provide a long-term comprehensive effective treatment.