

d₂p insecticide technology

Making Plastic Smarter



Insecticide plastic masterbatches used to control pests in agricultural, horticultural, forestry, home and golf course applications.



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CHLORPYRIFOS

SYMPHONY'S 91101 PLASTIC MASTERBATCH:

ACTIVE SUBSTANCE: Chlorpyrifos [chemical name: O,O-diethyl O-3,5,6-trichloropyridin-2-yl phosphorothioate] is a colourless crystalline organophosphate insecticide. It acts on the nervous system of insects by inhibiting acetylcholinesterase.

CHLORPYRIFOS IS: clear to slightly white and odourless. It is a broad spectrum performance insecticide acaricide, miticide and adult mosquitocide masterbatch controlling pests in agricultural, horticultural, forestry and golf course applications.

Facts:

- 2-3% of masterbatch by weight in finished product is enough to provide the required protection.
- **INNOVATIVE:** The active substance, an effective anti-cholinesterase organophosphorus insecticide. The insecticide acts by contact, ingestion and inhalation simultaneously.
- High effectiveness against: Coleoptera, Diptera, Homoptera and Lepidoptera in soil or on foliage in a wide range of crops. Examples: Thysanoptera (tripses), Lepidoptera larvae (worms), Diptera (leafminer flies), Coleoptera (weevils) and other insects and mites.
- Used to control foliage and soil-borne insect pests on a variety of food and feed crops offering improved operator and environmental safety.
- Pests controlled include biting and sucking insects such as aphids and caterpillars, stem boring larvae such as wheat bulb fly, orange wheat blossom midge and fruit fly, as well as soil feeding larvae such as leatherjackets and cutworms.

- Robust: Will provide minimum 12 weeks activity when incorporated at 1% addition rate.
- Crops with the most intense of active substance use are cotton, corn, almonds, and fruit trees including oranges, bananas and apples.

Characteristics	91101 – Anti-Insect
MB composition	An anti-cholinesterase organophosphate insecticide finely dispersed into a polymeric matrix of polyethylene
MB Colour	Clear to slightly white
Mechanism in finished product	Slow release of active substance for the control of <i>Coleoptera</i> , <i>Diptera</i> , <i>Homoptera</i> and <i>Lepidoptera</i> in soil or on foliage in a wide range of crops, e.g. thrips, flat mite and banana bunch moth complex
Applications	Flexible plastic film in agricultural, horticultural and forestry applications
Addition Rate	Most applications at 2 – 3% by weight
Odour	Odourless
Stability	It is stable in air (non-volatile) and is not sensitive to UV radiation

DELTAMETHRIN

SYMPHONY'S 91121 PLASTIC MASTERBATCH:

ACTIVE SUBSTANCE: Deltamethrin is a broad-spectrum insecticide in the chemical class of ester pyrethroids. It is effective against insects via ingestion and direct contact.

DELTAMETHRIN IS: an odourless crystalline, non-corrosive, colourless or white to light beige coloured. It is not susceptible to photo-oxidation has a low potential to volatilize (no air pollution) not considered toxic to plants when formulated products are used according to recommended directions, has very low water solubility.

Facts:

- Registered for use on various crops including cotton, corn, cereals, soybeans, and vegetables for pests such as mites, ants, weevils, and beetles. It has been registered for use on areas such as golf courses, ornamental gardens, lawns, outdoor perimeter treatments, indoors as spot and crack and crevice treatments, and pet collars.
- Deltamethrin products are among the most popular and widely used insecticides in the world and have become very popular with pest control operators and individuals.
- This material is a member of one of the safest classes of pesticides: synthetic pyrethroids. There are many uses for deltamethrin, ranging from agricultural uses to home pest control.
- Deltamethrin has been instrumental in preventing the spread of diseases carried by tick-infested prairie dogs, rodents and other burrowing animals.
- It is helpful in eliminating and preventing a wide variety of household pests, especially spiders, fleas, ticks, carpenter ants, carpenter bees, cockroaches and bed bugs. Deltamethrin is also one of the primary ingredients in ant chalk.

- Malaria control: Deltamethrin plays key role in controlling malaria vectors, and is used in the manufacture of long-lasting insecticidal mosquito nets. It is used as one of a battery of pyrethroid insecticides in control of malarial vectors, particularly *Anopheles gambiae*.

Characteristics	91121 – Anti-Insect
MB composition	Is a broad spectrum insecticide in the chemical class of ester pyrethroids finely dispersed into a polymeric matrix of polyethylene
MB Colour	Colourless or white to light beige
Mechanism in finished product	It is effective against insects via ingestion and direct contact
Applications	Flexible plastic film or netting in agricultural, horticultural, forestry and home pest control applications
Addition Rate	Most applications at 2 – 3% by weight
Odour	Odourless
Stability	Stable, no air pollution, non volatile and is not considered toxic to plants but very effective against insects

*The disclaimer below applies to the products: Chlorpyrifos, Bifenthrin and Deltamethrin.

Supplies of d₂p are conditional upon regulatory approval for the purposes concerned in the country or countries concerned.

The information provided is general information. For specific applications please consult Symphony's Technical Department.

BIFENTHRIN

SYMPHONY'S 91111 PLASTIC MASTERBATCH:

ACTIVE SUBSTANCE: [Bifenthrin] is a type I, non-cyano pyrethroid insecticide with isomeric enrichment and acts against insects by influencing its nerve system.

BIFENTHRIN IS: a white, waxy solid with a faint sweet smell it has a low potential to volatilize = good as it will not contaminate water and air is considered non-toxic to plants. It is very toxic to many insects.

Facts:

- Bifenthrin is often used against red imported fire ants.
- It is also effective against aphids, worms, ants, gnats, moths, beetles, grasshoppers, mites, midges, spiders, ticks, yellow jackets, maggots, thrips, caterpillars, flies and fleas.
- It is mostly used in orchards, nurseries and homes.
- In the agricultural sector, it is used in great amounts on certain crops, like corn.
- About 70% of all hops and raspberries cultured in the United States are treated with bifenthrin.
- Products containing bifenthrin are used on cereals, cotton, corn, alfalfa, hay, grass seed, some fruits, ornamentals, and vegetables.
- Mosquitoes: Bifenthrin is an effective pesticide to use against malaria and filariasis vector mosquitoes.
- Bifenthrin is still effective when there is a resistance for other pyrethroids.

- Mosquito nets and indoor walls can be treated with bifenthrin. When this is done the nets keep more mosquitoes away. At this moment bifenthrin is an effectively used insecticide.

Characteristics	91111 – Anti-Insect
MB composition	Is a Type I non-cyano pyrethroid insecticide with isomeric enrichment finely dispersed into a polymeric matrix of polyethylene
MB Colour	Clear to slightly white
Mechanism in finished product	Acts against insects by slowly releasing the active substance influencing the insects nerve system
Applications	Flexible plastic film or netting in agricultural, horticultural, forestry and home applications
Addition Rate	Most applications at 2 – 3% by weight
Odour	Faint sweet smell
Stability	It is stable in air (non volatile) and is not sensitive to UV radiation

BUPROFEZIN

SYMPHONY'S 91141 PLASTIC MASTERBATCH:

ACTIVE SUBSTANCE: Buprofezin is a non-systemic narrow spectrum foliar insecticide in the thiadiazine class that is registered for use on a broad range of crops to control a variety of homopteran pests. Buprofezin is an insect growth regulator / chitin synthesis inhibitor that prevents the proper formation of exoskeleton after moulting.

BUPROFEZIN IS: Stable in air (non-volatile) and is not sensitive to UV radiation. It is available in clear to white pellets and has a faint sweet smell.

Facts:

- Buprofezin is effective against whiteflies, mealybugs, leafhoppers, plant hoppers. Psylla and scales.
- It is mainly used on crops such as brown rice, sweet potato, cucumbers, tomatoes, sweet peppers and aubergines.
- It is on the EPA's list of registered pesticide products.

Characteristics	91141 – Anti-Insecticide
MB composition	Is a broad spectrum of insecticide in the thiadiazine class finely dispersed into a polymeric matrix of polyethylene
MB Colour	Clear to white pellets
Mechanism in finished product	Chitin synthesis inhibitor that prevents the proper formation of exoskeleton after moulting
Applications	Flexible plastic film or netting in agricultural and horticultural applications
Addition Rate	Most applications at 2 – 3% by weight
Odour	Faint sweet smell
Stability	It is stable in air (non volatile) and is not sensitive to UV radiation

PERMETHRIN

SYMPHONY'S 91150 PLASTIC MASTERBATCH:

ACTIVE SUBSTANCE: Permethrin is a common synthetic chemical, which is widely used as an insecticide, acaricide and insect repellent.

It belongs to the family of synthetic chemicals called pyrethroids and functions as a neurotoxin affecting neuron membranes by prolonging sodium channel activation.

PERMETHRIN IS: available in off white pellets and is stable in air (non-volatile) and is not sensitive to UV radiation.

Facts:

- Permethrin has been used as pharmaceuticals for treatment of head lice and scabies on humans. This is regulated by the FDA.
- It can also be used in various residential sites, both indoor and outdoor and on clothing and pets.
- Permethrin was registered for use by the U.S. Environmental Protection Agency in 1979, and it was re-registered in 2006.
- The U.S. Environmental Protection Agency (EPA) consider permethrin to be low in toxicity for acute oral and dermal exposure.

Characteristics	91150 – Anti-Insecticide
MB composition	Permethrin is a synthetic insecticide, acaricide and is part of the pyrethroids family
MB Colour	Off white pellets
Mechanism in finished product	Functions as a neurotoxin, affecting neuron membranes by prolonging sodium channel activation. Permethrin can be effective by contact or ingestion, and it can also act as a mild repellent.
Applications	Main application is in agriculture to protect crops and kill livestock parasites
Addition Rate	Most applications at 2 – 3% by weight
Odour	N/A
Stability	It is stable in air (non volatile) and is not sensitive to UV radiation

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d₂p INSECTICIDE



Advantages in fruit bag applications:

- Protects the fruit from harm by direct sun and birds
- Strong when wet with improved protection against wind and rain
- The fruit has bright colour and is sweeter
- Effectively reduces growing time and increases production
- No other agricultural substances or chemicals are required for this plastic application
- Light weight, saving raw materials
- Post-production and post-consumer treated plastic can be recycled for the same application

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