

Chitin; Poly-N-acetyl-D-glucosamine (128991) Fact Sheet

Summary

Chitin is used for controlling soil nematodes on ornamentals, turf, and many food and non-food crops at commercial and residential sites. The active ingredient is isolated from the shells of crustaceans, especially crabs and shrimp. Given its lack of toxicity, chitin is not expected to harm people, pets, wildlife, or the environment when used according to label directions.

I. Description of the Active Ingredient

Active Ingredient Name: Chitin; Poly-N-acetyl-D-glucosamine

OPP Chemical Code: 128991; (CAS# 1398-61-4)

Chitin (poly-N-acetyl-glucosamine) is one of the most common polymers found in nature. Structurally, it is related to cellulose, which consists of long chains of glucose molecules linked to each other. In chitin, the building block of the chains is a slightly modified form of glucose. [For another pesticide structurally related to chitin and cellulose, see [Chitosan](#), also known as poly-D-glucosamine.] Chitin is present in the shells of all crustaceans and insects, and in certain other organisms including many fungi, algae, and yeast. Commercially, chitin is isolated from the shells of crustaceans after the edible parts have been removed.

Chitin appears to control pathogenic nematodes by stimulating the growth of certain naturally occurring microorganisms in soil, which, in turn, release substances that kill the pathogenic nematodes and their eggs.

Note: The active ingredient used in the single registered product consists of a chitin-protein complex.

II. Use Sites, Target Pests, And Application Methods

- **Use Sites:** Many field crops, ornamentals, and turf grown in fields, home gardens, and nurseries.
- **Target pests:** Pathogenic nematodes, which attack plant roots. (Nematodes are slender eel-shaped organisms that live in soil. They cannot be seen by the naked eye, but are easily visible using a microscope.)
- **Application Methods:** Two to four weeks before planting, the product is applied in the field so that it is concentrated 6-8 inches below the soil surface. For use in greenhouses and nurseries, the product is mixed with soil. After planting, the product can be used on short grasses, such as on lawns, turf, and golf courses.

III. Assessing Risks to Human Health

No risks to humans are expected when products containing chitin are used according to label directions. Chitin is closely related structurally to the active ingredient chitosan (poly-D-glucosamine), which shows no toxicity to mammals, and is approved by FDA as a food additive.

IV. Assessing Risks to the Environment

Risks to the environment are not expected because a structurally similar active ingredient has not shown any

toxicity, and because chitin is abundant in nature.

V. Regulatory Information

First registered (licensed for sale) as active ingredient: 1988

Number of end products, February 2001 1

VI. Producer Information

IGENE Biotechnology, Inc
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VII. Additional Contact Information

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