Natular® SC Larvicide

Frequently Asked Questions

1.	**Q. What is the active ingredient in Natular® SC larvicide?** A. Spinosad. It is a naturally-derived active ingredient produced during fermentation by the soil organism, *Saccharopolyspora spinosa*. The natural metabolites produced during the fermentation process were termed "spinosyns." Spinosad is the collective term for the two most prominent and most active compounds in the fermentation broth (spinosyn A and spinosyn D). Hence the name "Spinos**ad**." Spinosad has been used since 1999 on more than 250 crops and in consumer and animal health uses in over 85 countries. Its first use in public health began in 2009, when it was introduced as the active ingredient in Clarke's Natular® brand of mosquito larvicides. Spinosad received the USEPA's Presidential Green Chemistry Challenge Award in 1999 as a novel natural insecticide that provided a new mode of action against target pests and provided a good environmental profile compared to traditional synthetic pesticides. More information about this award for Spinosad can be found at https://www.epa.gov/greenchemistry/document-green-chemistry-challenge-award-recipients-1996-2016.
2.	**Q: How is the active ingredient manufactured?** A: Spinosad is produced in a state-of-the-art fermentation facility in the United States, using natural feed-stocks to maintain the fermentation process.
3.	**Q: Is Natular SC an EPA Registered product?** A: Yes. Natular SC was registered with the EPA in June 2020 and is approved for use in a limited number of states. Check with your Clarke representative on availability of Natular SC in your state.
4.	**Q: How does Natular SC work?** A: Natular SC is a liquid larvicide for public health mosquito control use. When applied to areas with mosquito breeding, it prevents mosquito larvae from developing into biting adults.

5.	**Q: What types of mosquito larvae can Natular SC control?** A: Natular SC can kill the larvae of both nuisance and disease vectoring mosquitoes, including those that can carry and transmit diseases, such as West Nile virus, Dengue and Zika. Natular SC is effective on larvae from all four instar stages and spinosad has been tested on twenty of the most common vector and nuisance mosquito species.
6.	**Q: Where should I use Natular SC?** A: Natular SC is an EPA-registered product for killing mosquito larvae in residential, urban, industrial, and rural areas, and other natural and artificial or man-made sites. Please refer to the Natular SC product label for a full list of approved application sites.
7.	**Q: How can Natular SC be applied?** A: Natular SC is labeled for applications from the ground or by air. Ground applications may be conducted with airblast machines such as a Buffalo Turbine or A1 Mister, a backpack sprayer or a handheld pump. Natular SC may be applied by air through fixed wing aircraft or helicopter. Please refer to the Natular SC product label for application instructions by ground or air.
8.	**Q: What are the EPA-registered application rates for Natular SC?** A: Natular SC may be applied at the rate of 1.2 to 2.9 fl.oz/acre. The product may be applied at rates up to 6.4 fl oz per acre in waters high in organic content, deep-water mosquito habitats, sites with dense surface cover, and in areas where monitoring indicates a lack of control at typical rates. Please refer to the Natular SC product label for application guidelines in specific habitats.
9.	**Q: Can I use Natular SC to treat around or over water sources?** A: Natular SC is a liquid larvicide intended to control mosquito breeding in a variety of water sites. In order to prevent mosquito larvae from becoming biting adults, the product must be applied to the water source where larvae are present. However, per the Natular SC label, this product is not intended for use in drinking water sources or in water intended for irrigation.
10.	**Q: Will Natular SC cause paint spotting or damage any hard surfaces? Will it corrode my application equipment?** A: No. Natular SC is a non-abrasive formulation that will not damage paint, hard surfaces or application equipment. If any product residue is observed after an application, such as on a vehicle in the application area, field and laboratory tests confirm that the residue will rinse off easily with water and cause no lasting damage to the surface.

11.	**Q. Is Natular SC safe for the environment?** A: Spinosad was the first mosquito larvicide active ingredient registered under the EPA's Reduced Risk program due to its reduced risk to human health and non-target organisms when compared to other available alternatives. Spinosad is not toxic to birds, terrestrial wildlife, or fish. While spinosad is toxic to some aquatic invertebrates, following the label use directions will minimize the risk to these organisms.
12.	**Q. Is Natular SC safe when used in areas near people and domestic animals?** A: When applied as indicated on the label for control of mosquito larvae, Natular SC will not endanger human or animal health. Spinosad is not toxic to mammals. Spinosad is not carcinogenic, not genotoxic, and is not a reproductive or developmental toxin. Prior to registering a product, the EPA evaluates products thoroughly to be sure it can be used safely, within minimum risk to humans, animals and the environment. Spinosad has been approved by the EPA for use in a variety of outdoor aquatic areas that breed mosquitoes, including in residential and recreational areas.
13.	**Q: Is Natular SC safe for pollinators such as honey bees?** A: As a registered product, the EPA has determined that when Natular SC is used according to label directions for public health mosquito control, it should not pose significant risk to honey bees or other pollinators. Due to the inherent toxicity of Spinosad, the Natular SC label notes that Spinosad is toxic to bees upon direct exposure. The directions for use on the Natular SC label, including rates and sites provides applicators instruction on how to best manage this inherent risk. For example, most wide-area public health mosquito control applications are scheduled at night when bees and other beneficial insects are not active and/or sheltered in their hives, which greatly reduces the risk of direct exposure. This is best practice for pollinator stewardship, along with notifying local commercial and hobby bee keepers in advance of a treatment so they may cover their hives if they wish. Studies have also been conducted to assess if and how long *residues* of Spinosad on foliage and blooming plants remain toxic to honeybees. One method used to assess the toxicity of residual foliar exposure to bees is a laboratory study that determines the residual time to 25% bee mortality (referred to as the RT25, https://www.epa.gov/pollinator-protection/residual-time-25-bee-mortality-rt25-data). The RT25 has been conducted with Spinosad at two different use rates: 1. The first RT25 study, applies Spinosad at a common agricultural use rate of 0.16 lbs/acre (nearly 5x the rate typically used in mosquito control). This study determined that within 3 hours of an application at this use rate, residues are non-toxic to honeybees that may forage or land on treated plants. 2. Clarke replicated the RT25 study with a third-party laboratory at 0.08 lbs/acre, which is equivalent to applying 5.0 fl oz/acre of Natular SC – more than twice the recommended rate for public health mosquito control. This study found that as

		soon as the product dried on the foliage (within about 10 minutes) residues were non-toxic to exposed honey bees.