



Allethrin Fact Sheet

ThermaCELL Mosquito Repellent

ThermaCELL Mosquito Repellent uses a repellent known as allethrin. Below is information on this repellent.

What is Allethrin?

Allethrin is a synthetic analog (chemical copy) of a naturally occurring insecticide, pyrethrin, found in the pyrethrum flower, a member of the chrysanthemum family.

How effective is Allethrin:

- Mosquitoes, Sand flies and No-See-Ums: up to 98% effective. Protection is greatest at 7.5 ft (15 ft diameter) and closer to the unit.
- Black Flies: up to 79% protection. Protection is greatest 3.75 ft (7 feet in diameter) from the unit. Testing was done in windy conditions. In no-wind conditions, the protection level would most likely have been higher.

Are there any Health Risks?

ThermaCELL Mosquito Repellent has sold hundreds of thousands of units and over a million refills. No health problems have been reported to the company.

What Happens when Allethrin is Left Outside?

Allethrin, a pyrethroid, will after time in an indoor or outdoor situation be biodegraded by the environment. The longevity of allethrin in the environment varies from 1-2 hours in the atmosphere to less than 8 hours in an aqueous environment or on a glass plate under sunlamps. Allethrin will be broken down into water, CO₂, and other carbon based materials.

Allethrin when stored in a laboratory or manufacturing setting, can be stored at room temperature, in a dark container with no contact with strong oxidizers. Allethrin in an outdoor environment will biodegrade in a relatively short time and is not considered a persistent pesticide. Allethrin is known as a “knock-down”, quick-acting pesticide but has no residual activity because of its short half-life in the environment.





Is Allethrin Safe to Use Around Adults and Children?

- Studies have been conducted on the affects of allethrin. One such study was done by Toxicologist Anne Costello*.
- The study looks at what scientists call a “**worst case scenario.**” In other words, what would be the expected exposure if an individual used this device in a manner inconsistent with its directions for use (i.e. indoors). ThermaCELL is for outdoor use only.
- As part of this “**worst case scenario**” the length of exposure and conditions are extreme - the ThermaCELL runs for 8 hours and the room has no windows or ventilation.
- When ThermaCELL is used outdoors as directed, the risk of exposure is significantly decreased due to naturally occurring air movement.
- When people are exposed to allethrin by inhalation or touch, it is metabolized (or digested) very quickly. allethrin does not “accumulate” in or stay in people’s bodies.
- The study concluded that, even under these “worst case scenario” conditions, ThermaCELL does not pose an unreasonable risk to humans (Adults or Children) because the exposure level is 2000 to 3000 times **less than** the **No Observable Effect Level (NOEL)** for allethrin. NOEL is the highest dosage given to an animal that does not cause any significant health effects.

*Anne Costello is a research scientist and toxicologist with over 20 years of experience. She holds a degree in toxicology from Philadelphia College of Pharmacy and Science. Prior to working at Scientific Coordination, Ms. Costello had the responsibility for toxicology data supporting more than 400 product labels of the OFF® and Raid® product lines of S.C. Johnson Wax. As a research scientist for SC Johnson Wax, Inc., Ms Costello designed, monitored, and interpreted toxicology studies for technical and formulated pesticide products. She was very instrumental in the research and toxicology data prepared for the registration of the SCJ product OFF Skintastic.® She also designed and conducted risk assessments to evaluate potential toxicity hazards related to numerous products under development.



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