



Inventor:



Ralph Zee
Professor Emeritus
Dept. of Mechanical
Engineering

Status:

- US (20210244034) and PCT patent applications have been filed
- This technology is available for exclusive or non-exclusive licensing
- This technology has been tested in both lab and outdoor conditions

Contact:

Brian Wright
Auburn University
Innovation Advancement
& Commercialization
334-844-4977
dircomm@auburn.edu
iac.auburn.edu
Reference: Wax-Based Insect Repellent



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Wax-Based Insect Repellent

Auburn University is seeking a licensee or development partner for an insect repelling system using a wax-based volatile delivery method.

Overview: It is well established that various natural volatiles, particularly essential oils such as garlic oil, have insect repelling properties. For many customers, these are preferred over harsher, synthetic chemicals. However, utilizing volatiles in their liquid form comes with challenges. The liquid’s container may break or leak during transport, or the consumer may inadvertently spill the liquid. This technology system eliminates these potential issues by containing the volatile into environmentally friendly wax fragments that steadily release the volatile in vapor form, thereby repelling insects and other pests. This technology has two realizations: one with a container, with potential applications in the direct consumer market, such as with mosquitoes, and one without a container, with potential applications in the agriculture and forestry sectors to repel insects with negative economic impact.

Advantages:

- **ENVIRONMENTALLY FRIENDLY** - Utilizes eco-friendly microcrystalline and paraffin waxes to contain the volatiles.
- **LONG LASTING** - Proven to release vapors at desired rates for up to 100 days.
- **EASILY TRANSPORTABLE** - Contains no liquids, preventing spillage during either commercial transport or handling by the consumer.

Description: The growth of the global market for naturally-based insect repellents is outpacing the overall market, and is expected to reach over \$700MM by 2023. However, liquid-based systems can be hard to manage. By blending volatiles into a wax, this technology avoids the risks associated with transporting or handling liquids, thereby reducing loss of supply and enabling easier management. The volatiles are blended into wax ingots, which can then be cut into smaller fragments. The wax releases the volatile in vapor form at a steady rate, with demonstration up to 100 days.

For consumer use, the wax fragments are placed in vials with small apertures designed to slowly release the vapors. Consumers can hang the vials around the perimeter of an area, such as a deck, where they would like to repel insects. The container allows for the steady release of the vapor while also protecting the wax from the outside elements, including direct rainfall.

Alternatively, farmers and foresters can disperse the wax fragments throughout their property as a cost-effective and environmentally friendly alternative to more traditional pesticides and insecticides, and one that could potentially be considered organic. The high melting point of the wax protects it from melting in high summer temperatures, reducing the need for upkeep after the initial placement of wax. New wax can then be placed as needed.



Container system for consumer use (left); Open system for commercial use (right)

