



Insect Shield Apparel & Gear

Questions and Answers

Insect Shield® Repellent Apparel and Gear are the most effective new tools launched in more than 50 years to help battle insects and insect-carried diseases such as West Nile virus, malaria and Lyme disease. As with any breakthrough technology, you are going to have questions.

So, we've got some answers...

What is Insect Shield?

Insect Shield® Repellent Apparel and Insect Shield® Repellent Gear are revolutionary products designed to provide long-lasting, effective and convenient personal insect protection. The durable protection provided by Insect Shield apparel and gear is the result of years of research and testing. In Insect Shield apparel and gear products combine the patent-pending Insect Shield process with a proprietary formulation of the insect repellent permethrin—resulting in effective, odorless insect protection that lasts the expected lifetime of a garment.

Is Insect Shield EPA-registered?

Following many years of extensive product testing, Insect Shield for apparel and gear has been successfully registered by the United States Environmental Protection Agency (EPA).

What does EPA registration mean?

The EPA registration process is designed to evaluate a proposed product to ensure it will not have adverse effects on people or the environment. Insect Shield products have been rigorously evaluated on multiple levels—the chemistry, the application process and the final consumer product. The end result? Insect Shield received the first-ever EPA registrations for insect-repellent clothing and gear.

How does Insect Shield compare according to the EPA?

The U.S. Environmental Protection Agency (EPA) issues a consumer labeling category rating for each product registered. Insect Shield has been rated a category IV by the EPA, which is the most favorable rating issued.

EPA Toxicity Categories for Consumer Labeling

Category I	DANGER
Category II	WARNING
Category III	CAUTION
Category IV	NONE REQUIRED

The overall category is determined by the most severe route of exposure (i.e., oral, dermal, ocular and inhalation)

Examples of Consumer Labeling Categories of Common Household Products

The overall toxicity category is determined by the most severe route of exposure.

Product	Overall Category
Bleach	I
Liquid Disinfectant Bowl Cleaner	I
Disinfectant Antibacterial Kitchen Cleaner	II
Mildew Remover	II
Insect Repellent, 23% DEET	II
Insect Repellent, 15% DEET	II
Insect-Repellent Clothing and Gear Spray, 0.5% permethrin	III
Disinfectant Daily Shower Cleaner	III
Military-Style Insect-Repellent Clothing Treatment, 0.5% permethrin	III
Insect Repellent for Kids, 7% DEET	III
Tick Repellent Spray, 0.5% permethrin	III
Insect Shield® Repellent Apparel	IV

Note: Similar sounding products with different EPA registration numbers may not be comparable in toxicity to those shown above.

Are warning labels required on Insect Shield products?

No. During the registration process, the EPA issues a consumer labeling rating for each product. Insect Shield has been rated a category IV product by the EPA—which is the most favorable rating issued. No warning labels are required on category IV products.

Can Insect Shield repellent apparel and gear be worn by children, infants and pregnant women?

Yes. Use of Insect Shield products by children of all ages, and pregnant women, is consistent with the EPA registrations of both Insect Shield apparel and gear.

Which insects does Insect Shield repel?

Insect Shield® Repellent Apparel has been proven and registered to repel mosquitoes, ticks, ants, flies, chiggers, and midges (no-see-ums). Insect Shield® Repellent Gear has been proven and registered to repel mosquitoes, ticks, fleas, and flies. The EPA requires extensive effectiveness data to prove a product's ability to repel insects. Many species and varieties of these insects have been tested, including many that can carry dangerous diseases.

How much protection is provided by Insect Shield repellent apparel?

A small item of Insect Shield clothing provides less repellency than a larger one. You may need to adjust the amount of Insect Shield apparel you wear, depending on the number of biting insects that are present. For example, you might prefer to wear pants instead of shorts in certain situations; long sleeves instead of short; or add a hat and socks. Topical repellent can be used for exposed skin, and is especially recommended for heavily infested locations.

Does the product have an odor?

No. Insect Shield protection is invisible, odorless and colorless, and does not change the feel of the garment.

How long will Insect Shield protection last?

The repellency of Insect Shield apparel is EPA-registered to last through 70 launderings—which is more than double the average life expectancy of a garment, as identified by the International Fabricare Institute. This is also well beyond the life of most performance fabric finishes commonly used in the technical-apparel industry. Insect Shield gear repellency remains effective through 6 months of exposure.

to weathering, or through 25 launderings for washable items.

Insect Shield products also have a long shelf life. Insect Shield-treated garments stored for ten years have shown no loss of repellent effectiveness.

Applied Performance Treatments for Apparel							
Durability=Number of Washes	10	20	30	40	50	60	70
Water/Stain Resistance	█						
Moisture Wicking	█						
UV Block	█						
Odor Resistance	█						
Insect Shield	█						

What are the benefits of Insect Shield vs. other forms of insect protection?

Insect Shield repellent apparel and gear puts insect repellency near your skin, instead of on it, and the protection is odorless and invisible. Also, the repellency is long lasting, so no re-application is needed, which is convenient, and can help alleviate concerns about overuse and misuse of repellent.

Comparison of Insect Shield to Topical Repellents

	Odor	Can Require Re-application	Potential for overuse	Harmful if swallowed	Keep out of reach of children	Harmful to eyes
DEET	X	X	X	X	X	X
CITRONELLA	X	X		X	X	X
PICARIDIN	X	X	X	X	X	X
LEMON EUCALYPTUS	X	X	X	X	X	X
INSECT SHIELD		NA		NA		

Is Insect Shield Responsible Insect Protection?

The patent-pending Insect Shield process is designed to prevent loss of active ingredient outside the system, and once applied, Insect Shield repellency is so tightly bound to fabric fibers that garments retain effective repellency through 70 launderings. Compare this to insect-control methods that require fogging or spraying, and traditional topical repellents that last just a matter of hours and readily wash off in water.

Why does the Insect Shield label say “dispose of in trash after use?”

This indicates that Insect Shield products can be simply deposited in the trash and require no special disposal process. In the case of Insect Shield-treated apparel, the “after use” can last for years in the used clothing market since many people donate their clothing. Eventually, the repellency becomes exhausted through wearing and laundering.

How do you care for Insect Shield products?

For items that can be washed, normal home laundering is recommended. Insect Shield repellent apparel can be bleached, starched, pressed, etc., without effect on the repellent quality; however, it should not be dry-cleaned.

Do Insect Shield products require special storage?

No. And the repellency has a long shelf life. Insect Shield-treated garments stored for ten years have shown no loss of repellent effectiveness.

Why can't the products be dry-cleaned?

Dry cleaning removes some of the active ingredient—which reduces the insect repellent quality of the apparel.

How can Insect Shield impact world health?

As reported by the Disease Control and Prevention Centers (CDC) website, 41% percent of the world's population lives in areas where malaria is transmitted. Each year, 350–500 million cases of malaria occur worldwide, and over one million people die—mostly young children in Africa. Additionally, *Newsweek International* raised awareness about the effect of global warming on insect-borne diseases, indicating that temperature increases can extend a mosquito species' range and result in a longer biting season. Insect Shield technology has the potential to greatly impact worldwide health by offering durable and effective solutions to people whose lives are threatened by insect-borne diseases.

Who recommends permethrin-treated apparel?

The following international agencies recommend permethrin-treated apparel:

- The U.S. Centers for Disease Control and Prevention (CDC), www.cdc.gov/travel
- The World Health Organization (WHO), www.who.int
- The American Academy of Family Physicians, <http://www.familydoctor.org>
- The Public Health Agency of Canada, www.phac-aspc.gc.ca

Insect Shield represents a promising new approach to the longstanding problem of protection against both insects and the diseases they can carry. All of the above agencies actively encourage at-risk individuals to use permethrin-treated clothing as a protective measure against insect-borne diseases.

How did permethrin originate, and how is it used?

Permethrin is a man-made version of a natural insect repellent found in certain chrysanthemum plants. It has been successfully used in the United States as an EPA-registered product since 1977, with an excellent safety record. Permethrin is used in lice shampoos for children, flea dips for dogs, and various other products, some of which are regulated by the FDA.

The Insect Shield process uses a proprietary formulation of permethrin in a patent-pending system, and the resulting repellency is so tightly bound to the fabric fibers of each garment that it lasts through 70 launderings.

The patent-pending process designed by our researchers specifically for creating Insect Shield products and the proprietary formulation that is used are quite different from permethrin-based technologies employed in other industries.

How are permethrin-treated products being utilized to save lives?

As reported by the CDC website, 41% of the world's population lives in areas where malaria is transmitted. Each year, 350–500 million cases of malaria occur worldwide, and over one million people die—mostly young children in Africa. In response, millions of permethrin-treated bed nets are being distributed globally via malaria control programs. Insect Shield-treated uniforms are now being utilized by numerous international relief organizations to help protect them in areas prone to insect-borne diseases. Research is also being done on the impact of future alternative Insect Shield products.