

# Insect Repellent Information

## Personal Insect Repellents

Personal insect repellents are designed to repel, rather than kill, mosquitoes, biting flies (gnats, deer flies, sand flies, stable flies, black flies, horse flies), small flying insects, biting midges, chiggers, fleas, no-see-ums, and ticks.

That's plenty of pests and there are a variety of formulation types on the market - aerosol sprays, non-aerosol (pump) sprays, creams, lotions, sticks, foams, and towelettes. Because personal insect repellents are designed to keep bugs off of you, they are not intended to be used as space sprays or foggers. They are NOT designed to protect you from stinging insects like bees, hornets, yellow-jackets, or wasps, etc. Nothing besides a bee suit will work on them.

Most personal insect repellents use DEET, an acronym for N,N-diethyl-methyltoluamide ([see the structure](#)). DEET was developed and patented by the U.S. Army in 1946 for use by military personnel in insect infested areas. Because DEET was recognized as one of the few products effective against mosquitoes and biting flies, it was registered for use by the general public in 1957. Since that time, there has been no other compound discovered that comes close to the level of protection that DEET provides.

There are several myths about DEET that have been perpetuated throughout the years. While DEET is in fact a man-made chemical, it is probably the most tested pesticide ingredient ever. Essential oils, bath oils, or other 'natural' ingredients have not been subject to nearly the same level of scrutiny as DEET and, as a result, have dubious safety records and efficacy (effectiveness). Unfortunately, 'Natural' does not mean safe. In fact, most essential oils are extremely irritating to skin in concentrations greater than 1%. Products not registered with the U.S. Environmental Protection Agency have not been tested for safety or efficacy.

Repellents work at a maximum distance of about 4cm (1.6 inches) which is the physiological limit for insects. So if you're looking for a magical device like a wristband, button, or anything else that does not cover all exposed skin (& thin clothing), it will NOT WORK and you will be bitten. Even with effective repellents, bugs still may land occasionally and then fly away but they will not bite, which is the primary concern. In addition, 100% protection from bites for all people is not possible. Human variability, application amount, wind, humidity, temperature, abrasion, and biting pressure can affect performance.

## EPA Examines DEET

The EPA has re-examined all the safety and toxicity data on DEET and concluded that, as long as consumers follow label directions and take proper precautions,

**insect repellents containing DEET do not present a health concern. Also, the EPA has ruled that the scientific data does NOT support implied label claims that products which contain less than 15% DEET are safer for children. It does not matter what the concentration is - all levels are equally safe. Consequently, label claims on those products that say "For Kids" must be removed (most now say "For the entire family"). [Read the summary.](#)**

## **Consumer Specialty Products Association**

**The Consumer Specialty Products Association has some great information on DEET, its use in repellents, combination sunscreens, and insect borne diseases. [Click here.](#)**

## **Dosage is the Key**

**The concentration of DEET in some insect repellents has been called into question in recent years. The important issue is not concentration, but DOSAGE - the actual amount (grams) of DEET covering a certain area. Four squirts of 25% DEET in the same place is equal to one squirt of 100% DEET. The same amount of DEET remains on the skin after the alcohol evaporates.**

**With the natural evaporation of alcohol included in most repellent sprays, products containing less than 10% DEET do not provide users with a 'minimum effective dose' on the skin. This 'minimum effective dose' occurs with one squirt of 25% DEET, like that of Buggspray Insect Repellents. Products that contain more than 30% DEET offer more protection time, not more protection. You can always re-apply if you're outdoors for several hours.**

## **Common Sense**

**A small percentage of the population can be sensitive to certain household and personal care products: anti-perspirants, shampoos & conditioners, fragrances, soaps, cleaners, bleach, and detergents. As with any substance that comes in contact with the skin, if an irritation develops or a reaction occurs, you should discontinue use and wash the affected area with soap and water. If it is serious, call a physician or poison control center. Follow the directions - it's common sense.**