

Use and Application of DEET Repellent¹

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<http://ifasbooks.ifas.ufl.edu/p-154-pests-in-and-around-the-florida-home.aspx>

DEET or diethyltoluamide is an effective repellent of mosquitoes, gnats, ticks, mites, and blood-sucking flies. It has been used effectively for the past 45 years to prevent insect bites and disease transmission. Recently, DEET has

been extensively used to protect humans from bites of arthropods that transmit Lyme disease and encephalitis. Along with the increased use of DEET, there is concern about the adverse effects of DEET on humans. For instance, six cases of DEET poisoning in small children have been reported after the repeated use or ingestion of DEET.

Selection of Products Containing DEET

DEET is formulated in products containing 5 to 100% DEET. Usually products containing 15 to 40% DEET work best for adults. Products containing no more than 8 to 10% DEET are recommended for children. In general, the higher percentages provide longer and better protection than those with lower percentages.

DEET usually provides one to three hours of protection in typical situations. When an individual is swimming or sweating extensively, protection will last a shorter time. Therefore, DEET must be reapplied, as needed, to provide continuing protection.

Application of DEET Products

DEET products are available as liquids, lotions, and aerosols. They should be applied as directed on the label. Before using any DEET product, read the entire label. Even if you have used the product before, read it again before application as product labels and use instructions change overtime.

Liquids and lotions should be poured or squeezed directly onto the hands and spread evenly and completely on

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exposed skin in a thin layer. Contact with the eyes and lips should be avoided. Use just enough repellent to cover the exposed skin. Wipe or wash hands after completion of application.

Aerosols should be directed at the area to be treated from the appropriate distance, usually about 6 to 8 inches from the exposed skin. Aerosols should not be applied directly to the face, but rather sprayed onto hands and then rubbed onto the face and neck, avoiding contact with eyes and lips.

Reapply DEET formulations as necessary, but avoid overexposure. Frequent reapplication and saturation are unnecessary. Also, do not apply DEET to the hands of small children.

Apply DEET formulations, to exposed skin; do not apply to areas underneath clothing. DEET will damage plastic materials, so do not apply DEET formulations on or near plastics, acetate, rayon, Spandex, synthetic fabrics (other than nylon), furniture finishes, leather, watch crystals, and painted or varnished surfaces. Plastic glass frames and goggles should be protected from DEET applications. Car finishes and interiors also may be damaged by DEET. It will not damage nylon, cotton, or wool fabrics.

Precautionary Statements for DEET

DEET may cause eye injury or irritate mucous membranes. Therefore, do not apply to eyes or lips. It may also be harmful if swallowed. In rare cases, it can cause skin reaction. Do not apply to sunburned or damaged skin.

If DEET gets in eyes, flush with plenty of water. If eye irritation persists, get medical treatment. If swallowed, call a physician or contact a poison control center. If a child or adult reacts to the dermal application of DEET, wash treated skin and call a doctor.

Many older DEET products contained an R-11 additive to enhance activity. Because of concerns about the additive, all current products do not contain it. Do not use DEET products that were manufactured prior to 1993 to avoid exposure to the additive.

Minimizing DEET Exposure

Because of the concern about the health effects of using DEET, DEET use and exposure should be minimized. The most obvious way to minimize use and exposure is to avoid bloodsucking arthropods. This may be accomplished by staying on walkways to avoid ticks and remaining indoors during early morning and evening hours when mosquitoes

and gnats are most prevalent. Screening of doors and windows or use of mosquito netting will also avoid the use of DEET.

When exposure to bloodsucking arthropods is unavoidable, DEET use can be minimized by covering most of the body with clothing. Long sleeved shirts, buttoned collars, and long trousers will cover most of the body and protect skin from insect attack. Therefore, only the face, neck, hands, and wrists must be treated with DEET repellent. Removal of DEET from hands after application will also minimize exposure from wiping eyes or contacting food.

After returning indoors, wash treated skin with soap and water or bathe. This is especially important when repellents are used repeatedly or on consecutive days. Also, keep DEET in its original container so it is not accidentally ingested.

DEET and Children

Three-fourths of all DEET poisonings occur with children under six years of age. Small children are more vulnerable because they are more likely to accidentally ingest DEET and they have lower body weights. Store containers of DEET out of the reach of children to prevent accidental poisoning.

Also, use common sense in the application of DEET to small children. Do not apply to the hands of children because they may rub their eyes or ingest DEET from their hands or fingers. Do not allow small children to apply the product. An adult should apply the product or closely supervise the application. Use DEET sparingly on small children. The US Food and Drug Administration (FDA) recommends that DEET products should not be used on children under two months of age.

Other Insect Repellents

Non-DEET insect repellents are available and should be considered for use by those who cannot tolerate DEET products. Picaridin and oil of lemon eucalyptus are both registered with the EPA and have demonstrated effective insect repellency. Picaridin has proven to be similarly effective to DEET against certain mosquito species. Other products are available, but their effectiveness is generally not comparable to DEET.

Read the labels carefully and follow all instructions. For instance, products containing oil of eucalyptus are not recommended for use on children under 3 years of age, according to the United States FDA.