

DEET

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What You Need To Know If you live in an area with biting insects you have almost certainly encountered an insect repellent that uses DEET as its active ingredient. The chemical formula for DEET is N,N-diethyl-3-methyl-benzamide (N,N-dimethyl-m-toluamide). DEET was patented by the U.S. Army in 1946 for use in areas with heavy biting insect infestation. It is a broad-spectrum repellent that is effective against mosquitoes, flies, fleas, chiggers, and ticks. DEET has a good safety record and is less toxic to birds and other mammals than many other insect repellents, but all DEET products should be handled with care.

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DEET Safety

DEET is absorbed through the skin, so it is important to use as low a concentration as is effective (10% or less for children) and as small an amount as is necessary.

Up to a certain point, protection against insects increases with higher DEET concentration, but even low concentrations will protect against most bites. Some people experience irritation or an allergic reaction to DEET-containing products. DEET is toxic and potentially fatal if swallowed, so care should be taken to avoid applying repellent to hands or face or anything a child might put in the mouth. DEET should not be applied to areas with cuts or sores or around the eyes, since permanent eye damage can result from contact. High doses or long-term exposure to DEET have been associated with neurological damage. DEET can damage some plastics and synthetic fabrics, such as nylon and acetate, so be careful not to damage clothing or camping equipment.

How DEET Works

Biting insects use chemical, visual, and thermal cues to locate hosts. DEET is believed to work by blocking the chemical receptors for carbon dioxide and lactic acid, two of the substances released by our bodies that serve as attractants. Although DEET helps keep insects from locating people, there is probably more involved in DEET's effectiveness, since mosquitoes won't bite DEET-treated skin. However, skin only a few centimeters away from DEET is susceptible to bites.

Recommendations for Using DEET

Despite its hazards, DEET remains one of the safest and most effective insect repellents available. Here are some tips for using DEET safely:

- Reduce your need for repellent. Avoid behaviors that will attract biting insects (e.g., avoid strenuous exercise or eating lots of high sodium or potassium foods prior to going outdoors, which increase carbon dioxide release).
- Avoid applying chemicals that attract biting insects (e.g., floral-scented perfumes, scented sunscreens, dryer-sheet-scented clothes).
- Where possible, apply DEET-containing repellent to clothes rather than to skin.
- Apply DEET in a well-ventilated area.
- Avoid applying DEET to hands, the face, or any injured or sensitive skin.
- Avoid behaviors that will lessen the duration of DEET effectiveness (e.g., perspiration, rain, mixing with sunscreens).
- When you come indoors, wash off DEET-containing products using warm, soapy water.