

MOSQUITO REPELLENT – TREATMENTS AND PRECAUTIONS

BASIC SAFETY: Follow labels on products. Know the Poison Control Number: 1-800-222-1222

This page will not cover issues of broad spraying and overarching community procedures for mosquito control. Contact your city for specific information.

Consider the weather, hours outside, and age of participants, before choosing repellent for camping/hiking, and outdoor activities. The chart below looks at active ingredients in DEET, natural and proprietary products; variability of protection times; research and treatment precautions, specifically regarding children.

The Centers for Disease Control and Prevention (CDC) offers the following precautions when using insect repellents. The information is available on the CDC website (1).

- Apply repellents only to exposed skin and/or clothing. Do not apply repellents under your clothing.
- Never use repellents over cuts, wounds or irritated skin.
- Do not apply to eyes or mouth, and apply sparingly around ears. Do not spray directly on your face – spray on hands first and then apply to your face.
- Do not allow children to handle or spray the product. When using on children, apply to your own hands first and then put it on the child. Avoid applying repellent to children's hands because children frequently put their hands in their eyes and mouths. Use just enough repellent to cover exposed skin and/or clothing. Heavy application does not give you better or longer lasting protection.
- After returning indoors, wash treated skin with soap and water or bathe. This is particularly important when repellents are used repeatedly in a day or on consecutive days.
- If (or your child) get a rash or other reaction from repellent, stop using repellent, wash the repellent off with mild soap and water, and call a local poison control center for further guidance. If you go to a doctor, take the repellent with you.
- Permethrin products are for use on clothing, shoes, bed nets, and camping gear, not on skin. Follow labels.

ACTIVE INGREDIENTS	RESEARCH	LASTING TIMES*	PRECAUTIONS
DEET N,N-diethyl-m-toluamide or N,N-dimethylbenzamide	EPA approved	10% = 90 min 20% = 4 hours	NEVER use on infants, NEVER on cuts,wounds,rashes. Prolonged and Frequent use may result in brain changes in children.
Picaridin	EPA approved	3 to 8 hours	Not for skin, on clothing only
IR3535	EPA approved	7.5% = 23 min	Avon proprietary. Follow label
Citronella Oil	FDA rated Minimal Risk	10% = 20 min	Not for under 6 months
Combined Repellent/Sun Screen	Not recommended		May result in overdose if reapplied frequently
Garlic, Vitamins, Onion	No scientific evidence of effect	No effect	May cause some people to smell or have allergic response
Wristbands, Ultrasonics	Fradin (NEJM) found no effect	No effect	Not effective
Soybean Oil		2% = 20 min	
Lemon eucalyptus <i>p</i> -methane-3,8-diol (PMD)	EPA approved	2 hours	Eye irritant, Not for under age 3

*Protection times research results by commercial product names is available on web as printed in the NE Journal of Medicine (3).

RESOURCES:

1. CDC, *FAQ: Insect Repellent Use and Safety*, Centers for Disease Control and Prevention (CDC), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Vector-Borne Diseases (DVBD), 11/14/2013, www.cdc.gov/westnile/faq/repellent.html
2. *Flies, Gnats, and Mosquitos*, University of Nebraska-Lincoln. August 2008. <http://lancaster.unl.edu.pest>
3. Fradin, Mark S, MD, and John F Day, PhD, *Comparative Efficacy of Insect Repellents against Mosquito Bites*, *New England Journal of Medicine*. 347:13-18, July, 2002
4. *Insect Repellents*, *American Academy of Pediatrics*. www.healthychildren.org 6/2014
5. *Natural Mosquito Control Methods*, *Mother Earth Living*, July/August 2012
6. *Oil of Citronella General Fact Sheet*, National Pesticide Information Center, March 2013, npic@ace.orst.edu

- 7 *P-Methane-3, 8-diol (011550) Fact Sheet*, EPA Office of Pesticide Programs,
<http://EPA.gov>
- 8 *Piperonyl Butoxid, General Fact Sheet*. National Pesticide Information Center.
npic@ace.orst.edu
- 9 Rutledge, C. Roxanne and Jonathan F. Day, *Mosquito Repellents*, University of Florida Extension. 2008, <http://edis.ifas.ifl.edu>
- 10 Smith, Cabell. *Use Caution When Using DEET*, Duke University Medical Center News.