

**What you should know about mosquito and tick repellents**

Shujuan Li, Dawn H. Gouge, Shaku Nair, Kathleen Walker,  
Alfred J. Fournier

Personal repellents applied to skin, clothing, or other surfaces help to repel ticks, mosquitoes and other biting flies that feed on people.

**Important considerations while choosing a repellent:**

**1. What are you repelling?**

Ticks, mosquitoes, and/or biting flies.

**2. Are you looking for a repellent to apply to skin, or to apply to clothing and equipment, such as a tent?**

Never apply a repellent designed for fabrics to your skin.

**3. Who is using the repellent?**

Products are suitable for specific age groups. Be aware that not all repellents are appropriate for young children. Review the product label.

**4. How long will you be outdoors?**

Products are effective for specific lengths of time. However, extreme heat, sweating and water exposure will reduce the length of time a repellent is effective.

**5. How abundant are the biting pests where you will be?**

If you anticipate being in an area with high populations of ticks, mosquitoes, or biting flies, a repellent with a higher concentration of the active ingredient may be appropriate.

**6. How often should you reapply your repellent?**

Reapply after swimming or sweating, and periodically throughout the day when you are outdoors.

The Environmental Protection Agency (EPA) has an excellent web-based tool for selecting a repellent.

<https://www.epa.gov/insect-repellents/find-repellent-right-you>

Be aware that most repellents are not effective against stinging insects (bees, wasps, hornets, ants, etc.) or bed bugs.



Repel Lemon Eucalyptus Pump, contains 26% oil of lemon eucalyptus



Cutter Lemon Eucalyptus Insect Repellent, contains 30% oil of lemon eucalyptus

Examples of products containing PMD.



Coleman 100 Max Insect Repellent  
98.11% DEET



Off! Familycare Smooth & Dry  
15% DEET



Cutter Backwoods Insect Repellent (Pump Spray)  
25% DEET



Ben's Wipes 30% DEET

Examples of repellents that contain DEET.



Sawyer Picaridin Insect Repellent 20% picaridin



Avon Skin-So-Soft Bug Guard Plus Picaridin  
10% picaridin



Cutter Advanced Insect Repellent 7% picaridin



Off! Familycare 5% picaridin

Examples of repellents that contain picaridin.



Coleman Skin Smart Insect Repellent, contains 20% IR3535



Bull Frog Mosquito Coast Sunscreen and Insect Repellent, contains 20% IR3535



Avon Skin-So-Soft Bug Guard Plus with SPF 30, contains 19.6% IR3535

Examples of repellents that contain IR3535.



Sawyer Premium Insect Repellent Clothing & Gear, and Repel Permethrin Clothing & Gear Insect Repellent, both contain 0.5% Permethrin.

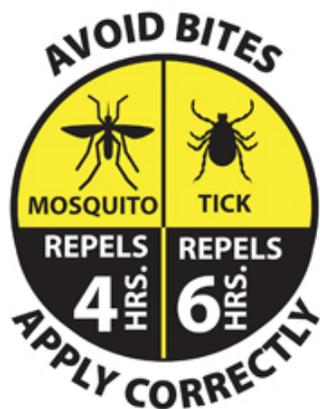


Examples of permethrin repellent for clothing and gear.

## Types of repellents

According to the Centers for Disease Control and Prevention (CDC), EPA-registered products containing DEET, picaridin, oil of lemon eucalyptus, IR3535, and para-menthane-diol (PMD) provide longer-lasting protection than alternatives.

Permethrin is an insecticide that also has repellent properties. Wear permethrin-treated clothing when engaging in outdoors activities for extended periods of time in areas at high risk for tick-borne disease transmission.



The Repellency Awareness Graphic shown here indicates that the product will protect against both mosquito and tick bites. However, not all products do.

## Important information about repellents

- Read the entire product label before using a repellent.
- Follow the use directions carefully.
- Store repellents away from children in a locked cabinet.
- Spatial repellents create a protective zone around a host and have the potential to protect more than one person within a space. Spatial repellent devices should only be used outdoors.



Always wear long-sleeved shirts and use insect repellents when engaging in outdoors activities.

A PDF of this publication is available online at <http://cals.arizona.edu/apmc/docs/Repellents-IPMShort.pdf>

The following is a list of precautions recommended by CDC and EPA:

- 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** allow children to handle repellents. 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.
- After returning indoors, wash treated skin with soap and water or bathe.
- If you (or your child) get a rash or other reaction from a repellent, stop using the repellent, wash the repellent off with mild soap and water, and call a local poison control center at **1-800-222-1222** for further guidance.
- Do **not** apply repellent on babies under 2 months old. Use mosquito netting or try to avoid habitats in which you are likely to encounter mosquitoes.
- Do **not** spray repellents in enclosed areas. Avoid breathing in a repellent spray, and do not spray repellents near food.
- Using repellent and sunscreen products at the same time is an acceptable practice. In general, the recommendation is to **apply sunscreen first, followed by repellent**.
- Wash treated clothing before wearing it again.
- Most repellents are classed as pesticides, and must be registered by the U.S. EPA. Repellent product labels give specific use instructions that should be followed carefully. CDC considers EPA-registered repellents safe for pregnant and nursing women if the above precautions are followed.
- Get specific information about repellents and other pesticides by calling the National Pesticide Information Center (NPIC) at 1-800-858-7378, or email [npic@ace.orst.edu](mailto:npic@ace.orst.edu) or visit <http://npic.orst.edu/ingred/ptype/repel.html>.

### Sources, further information:

D.H. Gouge, Li, S., Nair, S., Walker, K., and Bibbs, C.S. 2018. Mosquito and tick repellents. University of Arizona Cooperative Extension. Publication no. AZ1761. <https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1761-2018.pdf>

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