

## What you should know about mosquito and tick repellents

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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.

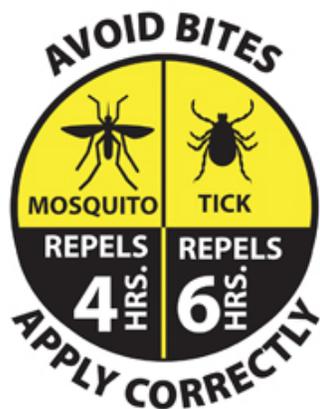


Examples of permethrin repellent for clothing and gear.

## 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 repellants in enclosed areas. Avoid breathing in a repellent spray, and do not spray repellants 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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