

# Repellent Fact Sheet



Maine Center for Disease  
Control and Prevention  
An Office of the  
Department of Health and Human Services

## Why should I use repellent?

Repellents can help reduce exposure to mosquito and tick bites. These arthropods may carry pathogens like West Nile virus and Lyme disease, which can cause serious illness and even death. Using repellent allows you to continue to spend time outdoors with a reduced risk of insect bites.

## What are some general considerations to remember when using repellents?

Always follow all directions and precautions appearing on the product label.

- Use only enough repellent to cover exposed skin or clothing. Do not apply repellent to skin that is unexposed.
- Heavy application is not necessary to achieve protection.
- Do not apply repellent to cuts, wounds or irritated skin.
- Do not spray aerosol or pump products directly on to your face. Spray your hands and then rub them carefully on your face, avoiding contact with the eyes and mouth.
- Do not spray aerosol or pump products in enclosed areas or use them near food.
- After returning indoors, wash treated skin with soap and water.

## How often should repellent be reapplied?

In general, you should reapply repellent if you are being bitten by insects. **Always follow the directions on the product you are using.** Sweating, perspiration or getting wet may mean that you need to re-apply repellent more frequently. Repellents containing a higher concentration (higher percentage) of active ingredient typically provide longer-lasting protection.

## What should I consider when choosing a repellent?

There are a variety of factors that you should think about:

- The biting arthropods from which you want protection
  - Is the pest of interest listed on the label?
- The length of time you need protection

- The active ingredient
- The percent of active ingredient in the product
- The activities you will be performing
  - High amounts of physical activity? Water exposure? Air temperature?
- How attractive **YOU** are to biting arthropods – everyone is different

You can search for a repellent that is right for you at <http://epa.gov/pesticides/insect/choose.htm>

## Which repellents work best?

CDC recommends using products that have been shown to work in scientific trials and that contain active ingredients which have been registered with the US Environmental Protection Agency (EPA) for use as repellents on skin or clothing. When the EPA registers a repellent, they evaluate the product for efficacy and potential effects on human beings and the environment. EPA registration means that EPA does not expect a product, when used according to the instructions on the label, to cause unreasonable adverse effects to human health or the environment. The following are active ingredients registered with the EPA:

- DEET
- Picaridin
- IR3535
- Oil of Lemon Eucalyptus (synthetic version is PMD)

Of the active ingredients registered with the EPA, the CDC believes that DEET and Picaridin have demonstrated a higher degree of effectiveness against biting insects. Products containing these active ingredients typically provide longer-lasting protection than others.

## How can you know which active ingredient a product contains?

Check the product label if you have questions – repellents must specify their active ingredients. In some cases you will note the chemical name in addition to/instead of the “common” name:

- DEET is N, N-diethyl-m-toluamide
- Picaridin is KBR 3023, sometimes known as “Bayrepel” outside the US

- Oil of Lemon Eucalyptus contains p-Menthane 3,8-diol
- PMD is the synthetic version of p-Menthane 3,8-diol
- IR3535 is also called Merck 3535

### Where can I find these repellents?

Most of these repellents are sold at multiple retail, discount and drug stores. A wider selection may be available at “outdoor” stores or in hunting and camping sections.

### What is permethrin?

Permethrin is registered with the EPA for use as both an insecticide and a repellent. Permethrin should **NOT** be applied directly to your skin. Permethrin products are intended for use on clothing, shoes, bed nets and camping gear. Permethrin treated products kill mosquitoes, ticks and other arthropods on contact. One application of permethrin to clothing retains its effectiveness through several washings. Clothing should be retreated according to the label instructions. Some commercial products are available pretreated with permethrin.

### What are some reactions to be aware of when using repellents?

The use of repellent products may cause skin reactions in rare cases. Most products also note that eye irritation can occur if product gets in the eye. If you suspect a reaction to a product, discontinue use, wash the treated skin, and call a poison control center. If product gets in the eyes, flush with water and consult your health care provider or a poison control center. If you go to a doctor, take the product with you.

There is a national number to reach a Poison Control Center near you: 1-800-222-1222

### What guidelines are available for using a repellent on children?

Always follow the recommendations appearing on the product label when using repellent:

- When using repellent on a child, apply it to your own hands and then rub them on your child. Avoid children’s eyes and mouth and use it sparingly around their ears.
- Do not apply repellent to children’s hands. (Children may put their hands in their mouths)
- Do not allow young children to apply repellent themselves; have an adult do it for them.
- Keep repellents out of reach of children.
- Do not apply repellent under clothing. If repellent is applied to clothing, wash treated

clothing before wearing again. (May vary by product, check label for specific instructions)

The American Academy of Pediatrics (AAP) Committee on Environmental Health recommends that repellents with DEET should not be used on infants less than 2 months old.

### Can repellents be used by pregnant or nursing women?

Other than the routine precautions noted earlier, the EPA does not recommend any additional precautions for the use of registered repellents on pregnant or nursing women. Consult your health care provider if you have questions.

### How else can I protect my family from insect bites?

Using repellents on the skin is not the only way to avoid insect bites:

- Both children and adults can wear long pants and long sleeves while outdoors
- DEET and other repellents such as permethrin can be applied to clothing, as some insects can bite through thin fabric
- Mosquito netting can be used over infant carriers
- Make your home and yard less attractive to biting arthropods
  - Use screens on windows and doors to prevent entrance of insects
  - Get rid of or empty water holding containers around your house to eliminate places where mosquitoes lay their eggs
  - Create a tick-safe zone through landscaping –

[www.cdc.gov/lyme/prev/in\\_the\\_yard.html](http://www.cdc.gov/lyme/prev/in_the_yard.html)

### Where can I find more information?

- Maine CDC Website: [www.maine.gov/dhhs/boh/ddc/epi/vector-borne/index.shtml](http://www.maine.gov/dhhs/boh/ddc/epi/vector-borne/index.shtml)
- EPA Website: [www.epa.gov](http://www.epa.gov)
- AAP Website: [www.aap.org](http://www.aap.org)
- Maine Board of Pesticides Control: [www.maine.gov/agriculture/pesticides](http://www.maine.gov/agriculture/pesticides)

