

About Repellents

Choose and use a repellent containing one of the following active ingredients so you can spend time enjoying the outdoors knowing you are protected from biting insects and the diseases they may transmit.

DEET

DEET-based repellents have provided effective, dependable protection since the 1950s.

Repellents containing DEET are available in various concentrations that repel insects equally well for the length of time they are needed.

DEET-based products are available in a wide variety of forms, including aerosol and pump sprays as well as wipes.

DEET is the most effective and best-studied repellent available.

| | |
|-------------------|---------------|
| Repels Mosquitoes | Yes |
| Repels Ticks | Yes |
| Ages for Children | Over 2 months |

| Hours of Protection | Against Mosquitoes | Against Ticks |
|-----------------------|-----------------------------------------|-----------------------------------------|
| Less than 10% formula | 1-2 hours*† | 1-2 hours* for <i>some</i> products |
| 15-20% formula | 2-6 hours*† | X |
| 20-25% formula | 5-8 hours*† | X |
| 25-95% formula | 6-10 hours* for <i>most</i> products | 2-4 hours* for <i>some</i> products |
| 95% or more formula | 8-10 hours* | 5-10 hours* for <i>most</i> products |

IR3535®

IR3535®, also called Merck 3535, is registered with the EPA as a biopesticide, but has been used as a synthetic repellent in Europe for over 20 years with no significant harmful effects.

IR3535® was approved for use in the United States in 1999, and is currently available in aerosol, pump sprays and wipes.

While EPA recognizes the use of IR3535® as safe for adults and children, *be advised that it is an eye irritant.*

| | |
|-------------------|---------------|
| Repels Mosquitoes | Yes |
| Repels Ticks | Yes |
| Ages for Children | Over 6 months |

| Hours of Protection | Against Mosquitoes | Against Ticks |
|-----------------------|--------------------|-----------------------------------------|
| Less than 10% formula | 2-4 hours* | 2-4 hours* |
| 15-20% formula | 4-6 hours* | X |
| 20% or more formula | 6-8 hours* | 8-12 hours* for <i>some</i> products |

Oil of Lemon Eucalyptus/PMD

Oil of Lemon Eucalyptus is a natural plant-based repellent that is derived from the oil of the leaves of the *Eucalyptus citidora* tree.

Repellents containing oil of lemon eucalyptus provide protection similar to that of products containing low concentrations of DEET.

These products tend to have a strong botanical smell and are available in a wide variety of formulations, including pump sprays and lotions.

| | |
|-------------------|--------------|
| Repels Mosquitoes | Yes |
| Repels Ticks | Yes |
| Ages for Children | Over 3 years |

| Hours of Protection | Against Mosquitoes | Against Ticks |
|---------------------|--------------------|--------------------------------------|
| 20% or more formula | 2-6 hours*† | 6 hours* for <i>some</i> products |

Picaridin/KBR 3023

Picaridin is a synthetic repellent developed in the 1990s that has been commercially available in the United States since 2005. Picaridin is colorless, nearly odorless, and is available in multiple formulations. It provides long-lasting, effective protection similar to that of products containing identical concentrations of DEET.

Be advised that no specific recommendations regarding the use of Picaridin on children have been issued by the manufacturers or the CDC.

| | |
|-------------------|-------|
| Repels Mosquitoes | Yes |
| Repels Ticks | Maybe |
| Ages for Children | n/a |

| Hours of Protection | Against Mosquitoes | Against Ticks |
|-----------------------|--------------------|---------------|
| Less than 10% formula | 1-2 hours† | X |
| 15% formula | 2-4 hours* | X |

*. These protection times have been approved for product labels. These times are based on the technical information provided to the EPA by the companies on the effectiveness of the product against mosquitoes and/or ticks. Time frames were consolidated for all brands with the same percentage formulas.

X An "X" indicates that the majority of repellent product in this category has not been registered for protection from ticks.

† Information provided by the Centers for Disease Control and Prevention.