

Fast knockdown
and long-lasting
**mosquito
control**
in one net



For further information on BASF's Public Health business:
www.publichealth.basf.com

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 **BASF**
The Chemical Company

Innovation to meet the Challenge

The laboratories of BASF – The Chemical Company have developed **Interceptor**[®], a fast knockdown, long-lasting mosquito net that gives immediate protection to people while they sleep. It uses a unique textile-finishing process developed by BASF's textile technologists which combines a proprietary polymer system with **Fendona**[®], a fast-acting BASF insecticide approved for use on mosquito nets.

With decades of experience in both textile chemistry and public health insecticides, the chemists and engineers at BASF continually strive to develop improved public health products. The **Interceptor** nets combine this comprehensive expertise and focus it on one of the most important public health issues of our time, malaria.

Only a small amount of the insecticide is biologically available but this is sufficient to knock down, kill and repel malaria mosquitoes, like *Anopheles gambiae*, when they come into contact with the net.

Research and development

BASF scientists tested numerous systems in order to discover one that possessed both suitable slow-release characteristics and the ability to withstand 20 vigorous washes, in accordance with WHO guidelines, in order to qualify as a long lasting insecticidal mosquito net (LLIN).

BASF scientists have developed the perfect balance between consistent quality and dependable performance. **Interceptor** has been evaluated by the World Health Organization Pesticide Evaluation Scheme (WHOPES) and a full recommendation has been given for its use in malaria prevention and control.

How does Interceptor work?

Interceptor demonstrates a fusion of BASF's expertise in textile development and insect control. A polymer binder system is combined with **Fendona** insecticide and applied directly to the fibers of the nets in a unique treatment process. This regulates a continuous, slow and controlled release of the insecticide and ensures long-term effectiveness. The system also ensures the nets are odorless, soft to the touch and pleasant to sleep under.





Malaria – One of the world's greatest challenges.

Most of those who die are young children, resulting in malaria being the single biggest cause of death of children under five years of age in Africa.

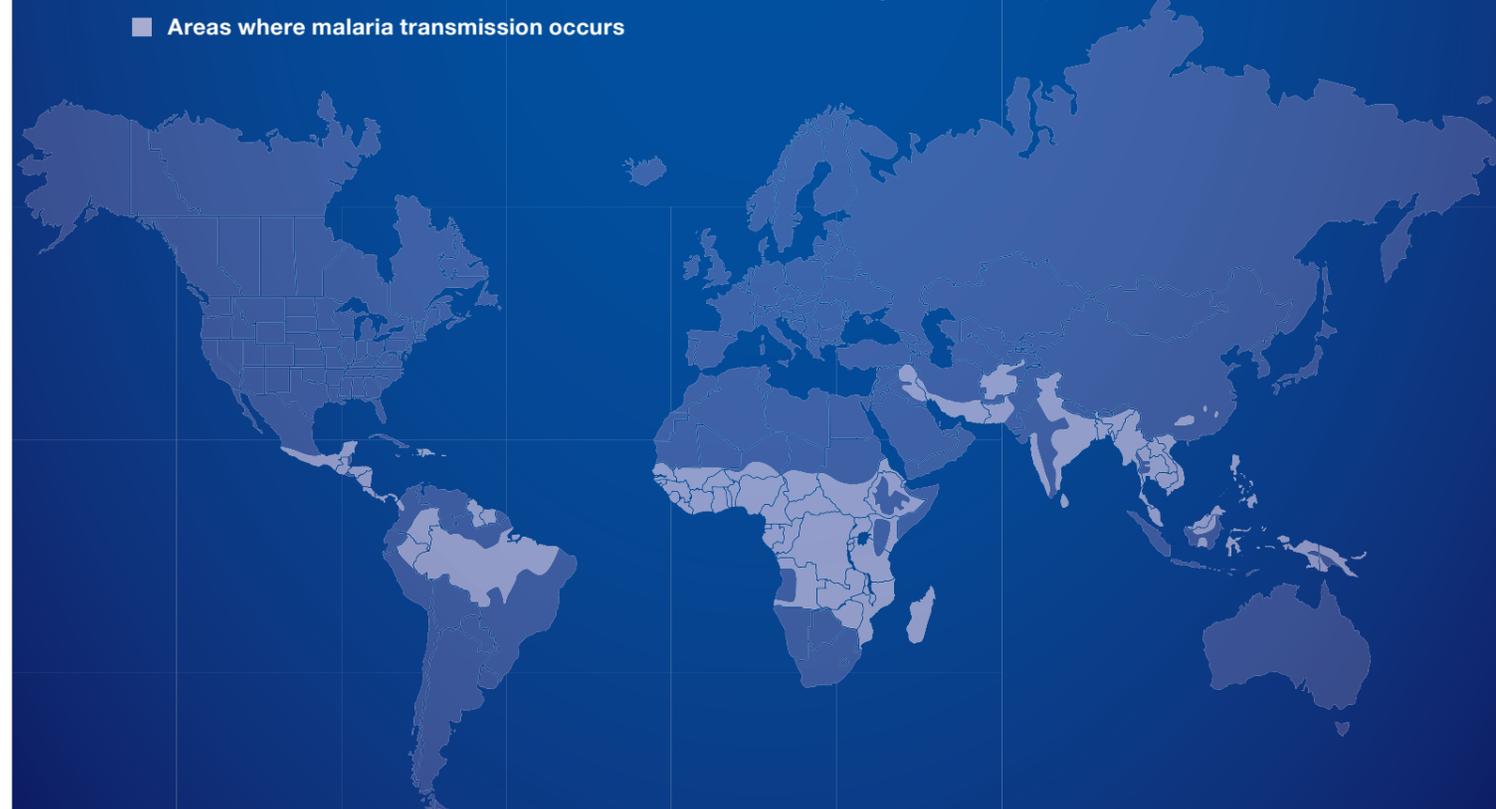
Below are some facts and statistics about this deadly vector-borne disease, as well as statistics concerning treatment and prevention.

- Malaria is preventable and curable.
- Over 200 million people are infected with malaria each year, resulting in nearly one million deaths.
- Malaria kills a child somewhere in Africa every 45 seconds.
- Children who survive malaria can suffer from learning impairments or disabilities such as epilepsy and spasticity due to brain damage.
- Up to 200,000 newborn deaths occur each year as a result of malaria in pregnancy.
- Malaria can decrease gross domestic product (GDP) by as much as 1.3% in countries with high levels of transmission.

- Pregnant women in areas of unstable malaria transmission are 2–3 times more likely to develop severe malaria than non-pregnant women living in the same area.
- In one study, pregnant women protected by insecticide-treated nets gave birth to 25% fewer premature or low birth weight babies than pregnant women who were not protected.
- The World Health Organization (WHO) advises national malaria control bodies to purchase only LLINs for public health distribution programs.
- It is estimated that between 2000–2010, insecticide-treated nets like **Interceptor®**, saved the lives of 908,000 children under five in 35 malaria-endemic African countries.
- The fight against malaria is helping to achieve the Millennium Development Goals.

These statistics suggest that prevention is a vital measure for reducing the malaria crisis across the globe. Effective control of malaria and other vector-borne diseases depends upon controlling the pests that spread them.

■ Areas where malaria transmission occurs



Fast knockdown and long-lasting mosquito control in one net.



Interceptor® Nets with Fendona®

Interceptor is a unique, high-performance mosquito net. The secret lies in a special treatment system that combines polymeric binders with the potent BASF insecticide **Fendona** and applies them directly to the fibers of the net. **Fendona** is slowly released and rapidly knocks down, kills or repels mosquitoes as they come into contact with the net. The net delivers its protection even after 20 washes.



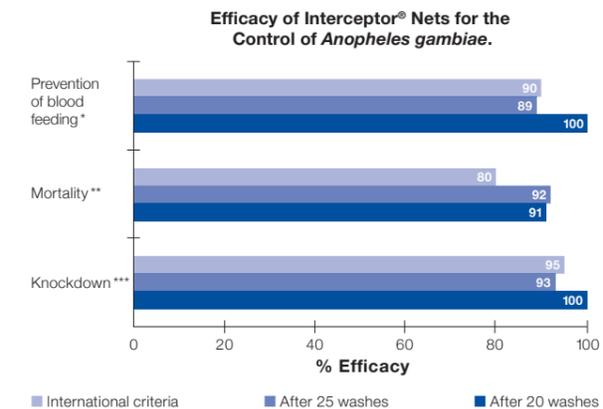
Performance of INTERCEPTOR® nets

International efficacy criteria

The results shown in the graph below were obtained in World Health Organization Pesticide Evaluation Scheme (WHOPES) Phase I trials. To meet the internationally accepted WHOPES criteria for LLINs, tested nets must achieve the following results:

Tunnel Test: Nets washed at least 20 times cause minimum 80% mortality and/or minimum 90% blood feeding inhibition.

Cone Bioassay Test: Nets washed at least 20 times cause minimum 95% knockdown and/or minimum 80% mortality.



* Prevention of blood feeding was determined after 15 hours of exposure in the tunnel test.
 ** Mortality was determined after 15 hours of exposure in the tunnel test.
 *** Knockdown was determined 60 minutes after a 3-minute exposure in the cone bioassay test.

In addition, a study conducted by the London School of Hygiene and Tropical Medicine demonstrated that the median time to knockdown was less than six minutes. This is significantly less than the standard criteria of the one-hour cone test.

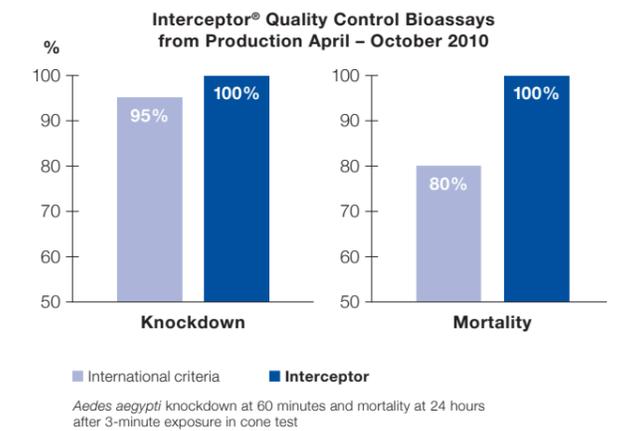
Wash resistance

Results from trials where **Interceptor**® nets were washed using the internationally accepted protocol indicate that samples washed 20 and 25 times still meet or exceed performance standards for LLINs with high efficacy.

BASF quality control program

In parallel, a quality control program, established to assure the efficacy and wash resistance of the treated netting, regularly samples the BASF production lots used to produce **Interceptor** nets.

These bioassay results from this program demonstrate that **Interceptor's** biological efficacy averages 100% mortality at 24 hours and 100% knockdown at 60 minutes post-exposure after 20 washes, which exceeds internationally accepted standards.



Performance proven in the field

In 2010, a one-year study¹ in Liberia demonstrated not only **Interceptor's** effectiveness, but also that users preferred its texture and smaller holes over polyethylene nets. Published in the same year, WHOPES III analog field tests² performed in two provinces in India demonstrated **Interceptor's** effective long-term protection. A four-year study³ in Western Uganda published in 2011 indicated that **Interceptor** has a likely 'useful life' of four years there, which more than adequately fulfills the criteria for WHOPES Phase III and a LLIN recommendation.

¹ Banek et al. Malaria Journal 2010
² Dev et al. Trans Roy Soc Trop Med Hyg, 2010 and Sharma et al. Acta Tropica 2010
³ Kilian et al. Malaria Consortium 2011



Very fast knockdown results

100% knockdown at one-hour post exposure – even after the net has been washed 20 times.

“Intercepts” mosquitoes

The **Interceptor**® net literally intercepts mosquitoes as they come into contact with the net, thereby preventing them from biting or sucking blood from hosts, and therefore malaria cannot be transmitted.

Long-lasting mosquito control

Fendona® is slowly released and remains effective even after 20 washes.

Odorless and invisible

The polymer binder system is invisible and the patented textile-finishing process ensures the nets are odorless, soft to the touch and pleasant to sleep under. All to ensure a good night's rest.

Cost-effective and user-friendly

Because the net is long-lasting it is highly cost-effective, as well as being user-friendly. No dipping. No re-treatment. No mess. No fuss.

BASF: Committed to effective disease control

BASF often partners with international organizations, like the Red Cross, UNICEF, Roll Back Malaria and others, to support programs such as those currently delivering the benefits of BASF's public health products, **Interceptor**, **Abate**® and **Fendona**. BASF has received numerous accolades for its commitment to furthering its mission by helping international organizations to render improvements in disease control to people worldwide. For instance, BASF was recognized by former U.S. president Jimmy Carter for its support of The Carter Center's efforts to eradicate Guinea worm disease, a program that has virtually eliminated this disease in Africa.

BASF continues to seek opportunities to support disease relief efforts as part of its commitment to improve quality of life throughout the world.

Questions and Answers

1. Q: Why should I buy the **Interceptor**® net?

A: As its name implies, the **Interceptor** net “intercepts” mosquitoes, thereby preventing them from biting or sucking blood from hosts, so malaria cannot be transmitted. In addition, it is treated with **Fendona**® – a BASF insecticide that knocks down, kills or repels malaria mosquitoes even after numerous washings of the net.

2. Q: What makes this product unique?

A: **Interceptor** has a very fast knockdown effect, therefore protecting people from mosquitoes while they sleep. The unique treatment system slowly releases the insecticide so that the net provides long lasting control.

3. Q: How dangerous is malaria?

A: Malaria is one of the most severe health problems in Africa, Asia and Latin America. In some areas, 90% of deaths are due to malaria.

4. Q: What are the benefits of **Interceptor** over dipped nets?

A: **Interceptor** is a long-lasting insecticidal net which means that it will last for up to 4 years and will still be effective after 20 washes. This makes **Interceptor** nets more user-friendly and avoids the need for users to regularly retreat their nets with insecticide, thus reducing exposure and risk of contamination.



Innovative Interceptor® nets

- Very fast knockdown results
- “Intercepts” mosquitoes
- Long lasting
- Odorless, invisible and soft to the touch
- Cost effective and user friendly

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