The INTERCEPTOR long-lasting insecticidal net (LLIN) is a unique high performance mosquito net that contains FENDOZIN® textile auxiliary, a new finishing product that binds the potent BASF insecticide, FENDONA®, in a special coating to the fibres of the net. The FENDONA is slowly released and rapidly knocks down, kills, or repels mosquitoes as they come in contact with the net.

**INTERCEPTOR™ LLIN - Long Lasting Insecticidal Net from BASF**

**BASF – The Chemical Company**

BASF is in a unique position to create INTERCEPTOR nets because of its expertise in both textile and insecticide chemistry. The netting is treated with FENDOZIN, a patented, proprietary blend of BASF chemistry that releases the protective FENDONA insecticide over time.

**Product description**

- **Net material:** Rectangular or conical netting, consisting of 75-denier or 100 denier, multi-filament (minimum 32 filaments) polyester fibres, warp knitted into open-width netting.
  - Mesh size: minimum 24 holes/cm².
- **Net material mass:**
  - 28 – 32 g/m² for 75-den yarn.
  - 37 – 43 g/m² for 100-den yarn.
- **Bursting strength:**
  - Minimum 250 kPa for 75-den yarn (7.3 cm²).
  - Minimum 405 kPa for 100-den yarn.
- **Dimensional stability:** ± 5 % shrinkage
- **Fire safety:** Class 1 (16CFR Part 1610)
- **Insecticide:** FENDONA (60 g/l SC or 100 g/l SC)
- **Odour:** Odourless
- **Appearance of insecticide on nets:** Invisible
- **Wash resistance:** INTERCEPTOR nets are manufactured to provide sufficient insecticidal efficacy after more than 20 washes.
**FENDONA® SC:**  
**Chemical name:** (1R cis)S and (1S cis)R enantiomer isomer pair of (α)-cyano-3-phenoxy-benzyl-3-(2,2-dichlorovinyl)-2,2-dimethyl cyclopropane carboxylate (IUPAC)  
**Common name:** Alphacypermethrin  
**Chemical group:** Pyrethroids  
**WHO specification:**  
Product is based on FAO/WHO specifications for BASF FENDONA: 
WHO specification 454/TC (April 2006) – purity of not less than 93 %.  
WHO specification 454/SC (April 2006) – a.i. up to 0 g/l.  
**Target dose rate:**  
200 mg alphacypermethrin / m² netting material (content [w/w] may vary depending on mass per m² of netting).  
**Maximum surface concentration of a.i.:**  
Due to the unique BASF treatment method only a relatively small part of the total amount of active ingredient is directly bioavailable on the surface of the nets. Risk assessment studies, concerning the maximum exposure of humans to the insecticide in INTERCEPTOR™ nets, revealed that the risk for human beings is negligible (see also under Risk Assessment below).  
**Mode of action:**  
The active ingredient in the INTERCEPTOR nets kills and repels mosquitoes by fast contact action.  
**Storage stability:**  
Accelerated storage tests indicated a storage stability of at least 3 years in cool and dry conditions. Longer-term tests are in progress.  
**Mode of Action**  
FENDOZIN® is a remarkable new textile finish consisting of a proprietary polymer that forms a thin slow release coating containing the insecticide FENDONA. FENDOZIN impregnates and clings tightly to the polyester fibres of the INTERCEPTOR netting even after numerous washings. The benchmark active ingredient, alphacypermethrin, diffuses in a controlled manner to the surface of the coating. With a triple effect it repels, knocks down, or kills mosquitoes, such as the malaria vector Anopheles gambiae, when coming into contact with the net.  
**Handling safety**  
INTERCEPTOR nets pose a low risk to workers and users for the following reasons:  
- Application of FENDOZIN in the manufacturing process takes place under strictly controlled conditions in accordance with BASF safety regulations.  
- The need to dip nets by users is eliminated by using INTERCEPTOR nets.  
- The slow release action of FENDOZIN prevents high insecticide concentrations on the surface of the INTERCEPTOR nets, thereby reducing the exposure risk for the users of the nets.  
- The long lasting effect of INTERCEPTOR nets eliminates the need for re-treatment.  
**Handling precautions when using INTERCEPTOR nets:**  
This net can be washed more than 20 times and still retain its efficacy against malaria mosquitoes, provided that the following instructions are followed:  
- Do not bleach.  
- Wash net using clean water under 30 °C.  
- Always wash in a bucket. Do not use an excessive amount of soap.  
- Rub the net gently.  
- Always dry in open air, not in direct sun, do not use dryer.  
- Do not iron.  
- Use rubber gloves or wash hands with soap immediately after washing the net.
**Performance of INTERCEPTOR™ nets**

Internationally accepted efficacy criteria for LLINs:
- **Cone Bioassay:** Nets washed at least 20 times that cause >95% knockdown and/or >80% mortality.
- **Tunnel test:** Nets washed at least 20 times that cause mortality >80% or blood feeding inhibition >90%

The results as shown in the graph below, were obtained in the internationally accepted Phase I Evaluation trials.

**Efficacy of INTERCEPTOR nets for the control of Anopheles gambiae**

![Graph showing efficacy results](image)

- **Prevention of blood feeding***
- **Mortality**
- **Knockdown***

* 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-minutes exposure in the cone bioassay test.

In a study conducted by the London School of Hygiene and Tropical Medicine it was 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 samples washed 20 and 25 times still meet performance standards for LLINs with high efficacy.

**INTERCEPTOR™ TECHNICAL INFORMATION BULLETIN**

INTERCEPTOR nets were tested with a range of popular soaps available on the market in eastern and southern Africa with comparable results.

**Summary of bioassay results from BASF**

A quality control program is established to assure the efficacy and wash resistance of BASF production lots of FENDOZIN®-treated netting, which are used to produce INTERCEPTOR nets. The reported sample results represent 185 batches from production runs completed from March through August, 2006.

Results demonstrate that INTERCEPTOR biological efficacy averaged 91.2% mortality at 24 hours and 97.9% KD at 60 minutes post-exposure after 20 washes, which exceeds internationally accepted standards.

**WHOPES II**

The World Health Organisation has authorized BASF to make the following statement to the Public Health Community concerning Interceptor™ Long Lasting Insecticide Net. : “This product has been evaluated by the WHO Pesticide Evaluation Scheme (WHOPES) and interim recommendation has been given for its use in malaria prevention and control.”
Risk Assessment
BASF evaluated the potential human safety issues of sleeping under INTERCEPTOR nets treated with FENDOZIN using the World Health Organization Pesticide Evaluation Scheme Generic Assessment Model for Insecticide Treatment and Subsequent Use of Mosquito Nets (WHO/CDS/WHOPES/GCDPP/2004.6 – WHO/PCS/04.). This model addresses the exposure risk for newborn babies, small children and adults sleeping under treated nets.

Worst-case criteria were used in conducting the assessment:
- Assumes a baby or child will sleep 12 hours under the bednet and would suck continuously on the netting.
- A 12-hour continuous contact with the netting via sweat is assumed.
- Extraction data from unwashed, newly produced bednets were used.

The Margin of Safety (total systemic exposure) for a newborn, a child and an adult respectively was 94, 47 and 3000. The results clearly show that systemic exposure is negligible. It can be concluded that no unacceptable risk occurs for newborn babies, children, or adults when sleeping under INTERCEPTOR nets.

Ecotoxicology
Exposure of non-target organisms to FENDOZIN® on the nets is highly unlikely when used in accordance with the recommendations. Washing of nets in natural water sources, such as rivers, streams, lakes and dams, should be avoided.

A series of extensive studies have demonstrated that despite its high level of activity against mosquitoes, FENDONA®, the insecticide component of FENDOZIN, used at the recommended dose rates generally has little or transient effect on non-target species. It is practically non-toxic to birds and is biodegradable in the environment. FENDONA is toxic to fish in the laboratory and care should be taken to ensure that treated material does not contaminate fish tanks, ponds, or waterways.

Packaging
INTERCEPTOR nets are individually packed in polypropylene bags with clear product identity indications to avoid confusion with other insecticide treated nets.

For bulk transport, the nets are packed in a handler friendly 42 cm x 42 cm x 70 cm polypropylene bag, containing 100 INTERCEPTOR nets with a total mass of about 50 kg.

Quality
The quality and reliability of INTERCEPTOR nets is backed by advanced technology, developed by BASF, The Chemical Company. INTERCEPTOR is an in-line factory treated net, ensuring consistent quality. BASF INTERCEPTOR nets are subject to the same rigorous BASF quality control standards to which all products must adhere.

Safety
The initial total concentration of insecticide provides a reservoir within the polymer binder. It is not all available at one time. BASF laboratory studies demonstrated that the surface concentration of insecticide for INTERCEPTOR nets, the amount biologically available on the fibre surface, is slightly less than the amount of FENDONA on a conventionally dipped net. The active ingredient is highly effective against mosquitoes at low use rates and the toxicity of this low dose rate makes the exposure to FENDOZIN-treated netting safe for humans, mammals, and the environment. FENDONA is used in kitchens, restaurants, food storage and food processing areas. It has no odour, does not stain, and has a low skin irritation factor.

Disposal
When the useful life of the net is finished, INTERCEPTOR nets will not require any special handling. They should be disposed according to protocols established by international organizations for all LLINs.

Always read and follow label directions.
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