

Overview of insecticide products for public health vector control.

Date: 1 August 2025

There are a variety of insecticides used in vector control, many originating from the agriculture industry. Some have been used widely for many years while others are relatively new and have had limited use. WHO undertakes assessment of the safety, efficacy and quality of insecticides and presents a prequalification listing for those products that meet prescribed standards.

When selecting a WHO prequalified insecticide product for mosquito control, important considerations include availability, cost, registration and regulatory requirements in the intended country of use. It is also important to ensure selection of products containing active ingredients to which the target vectors are susceptible i.e., based on insecticide resistance status. Additional considerations include which class(es) of insecticides have been used in the past in the area and anticipated community acceptance if this differs between products. This information is important to monitor and review regularly as part of a vector surveillance and control program.

The current WHO prequalified products for mosquito vector control are listed below by insecticide class and mode of action. This information will change over time as new products are developed and assessed by WHO for use in public health. When procuring insecticides and designing resistance management strategies, please consult the current list of WHO-prequalified vector control products: <https://extranet.who.int/pqweb/vector-control-products/prequalified-product-list>

Overview of products for public health vector control

(as of 1 August 2025)

Mode of action	Insecticide class	Active ingredient/s	Intervention			
			Insecticide-treated net	Residual spraying	Space spraying	Larvicide
Targeted physiology: nerve & muscle						
Sodium channel modulators	Pyrethroid	Alpha-cypermethrin	DuraNet LN DuraNet Plus* Fendona 10 SC Fendona 6 SC Interceptor Interceptor G2* MAGNet MiraNet Pendulum 10 SC Pendulum 6 SC Royal Guard* Royal Sentry Royal Sentry 2.0 SafeNet SafeNet Plus* UNET G5 LN* Veeralin* Yahe 4.0* Yorkool G5 LN*	Fendona 10 SC Fendona 5 WP Fendona 6 SC Pendulum 10 SC Pendulum 6 SC Rubi 100 SC Rubi 100 WP Rubi 250 WG-SB Rubi 50 SC Rubi WP		
		Bioallethrin			Aqua Reslin Super* ⁱ	
		Bifenthrin	PRONet Duo*	Bistar 10WP		
		d,d,trans-Cyphenothrin			Gokilaht-S 5EC ^o	
		Deltamethrin	GreenNet Panda Net 2.0 PermaNet 2.0 PermaNet 3.0* Permanent Dual* Reliefnet Reverte Tsara Tsara Boost*	2GARD* Fludora Fusion* K-Othrine Polyzone K-Othrine WG250 Pali 250 WG	Aqua K-Othrine ^o SENTRIN 20 EW ^o	

*co-formulated as a mixture of two or more insecticides, or one insecticide with a synergist (such as piperonyl butoxide), ⁱ for indoor use, ^o for outdoor use

Mode of action	Insecticide class	Active ingredient/s	Intervention			
			Insecticide-treated net	Residual spraying	Space spraying	Larvicide
Sodium channel modulators	Pyrethroid		Tsara Plus* Tsara Soft UNET G3 LN* Yahe LN Yorkool G3 LN* PermaNet Dual*			
		Etofenprox	Vectron 10EW	Vectron 20EW		
		Lambda-Cyhalothrin	Icon CS - ITN Kit	Icon 10 CS - IRS Icon WP Lambda-cyhalothrin 10% WP Revival 100 CS Revival 100 WP	Icon 2.5 EC ⁱ Icon 5 EC ⁱ Revival 25 EC ^{io}	
		Permethrin	Olyset Net Olyset Plus*		Aqua Reslin Super* ⁱ	
		Prallethrin			Cielo ULV* ^{io}	
		Transfluthrin			Fludora Co-Max* ^{io}	
Acetylcholinesterase (AChE) inhibitors	Carbamate	Bendiocarb		FastM Ficam		
	Organo-phosphate	Malathion			Fyfanon EW ^o Fyfanon ULV ^o Axient 440EW ^o	
		Pirimiphos-methyl		Actellic 300CS Actellic EC		Actellic EC
		Temephos				Abate 1 SG Abate 500 EC Temeguard
Nicotinic acetylcholine receptor (nAChR) allosteric modulators	Spinosyns	Spinosad			Mozkill 120 SC Spinosad 0.5% GR Spinosad 20.6% EC Spinosad 25 Extended Release GR Spinosad 7.48% DT Spinosad Monolayer DT	
	Butenolides	Flupyradifurone			Fludora Co-Max* ^{io}	

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Mode of action	Insecticide class	Active ingredient/s	Intervention			
			Insecticide-treated net	Residual spraying	Space spraying	Larvicide
Nicotinic acetylcholine receptor (nAChR) competitive modulators	Neonicotinoid	Clothianidin		2GARD* Fludora Fusion* Klypson 500 WG SumiShield 50WG		
		Imidacloprid			Cielo ULV* ^{io}	
GABA-gated channel allosteric modulators	Meta-diamides isoxazolines	Broflanilide		Vectron T500	Optica ULV ^{io}	
		Isocycloseram		Sovrenta 15WP		
Targeted physiology: cellular respiration						
Uncouplers of oxidative phosphorylation	Pyrroles	Chlorfenapyr	Interceptor G2* PermaNet Dual* PRONet Duo* UNET G5 LN* Yorkool G5 LN*	Sylando 240 SC		
Targeted physiology: midgut						
Microbial disrupters of insect midgut membranes	Microbial	<i>Bacillus thuringiensis</i> var. <i>israelensis</i>				VectoBac GR VectoBac WG VectoMax FG*
		<i>Lysinbacillus sphaericus</i>				VectoMax FG*
Targeted physiology: growth and development						
Inhibitors of chitin biosynthesis affecting CHS1	Benzoylureas	Diflubenzuron				Device 25WP Dimilin GR Du-Dim 2 DT
		Novaluron				Mosquiron 100EC
Juvenile hormone mimic	Pyriproxyfen	Pyriproxyfen	Royal Guard*			LIMITOR 5 GR Sumilarv 0.5G Sumilarv 2MR
Targeted physiology: other						
Physical barrier	Silicone-based film	PDMS (Polydimethylsiloxane)				Aquatain AMF

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This overview aligns with the IRAC Mode of Action classification scheme. Products listed are as per the WHO prequalification list for vector control products on 1 August 2025. The choice of products should comply with country-specific pesticide regulations. Product labels must be checked for guidance on appropriate intervention types and application rates. Residual sprays are listed for 'indoor residual spraying' without any listings specific for outdoor use.

References

WHO. 2002. Prequalified vector control products. <https://extranet.who.int/pgweb/vector-control-products/prequalified-product-list>

IRAC. 2002. IRAC Mode of Action classification scheme. IRAC International MoA working group. <https://irac-online.org/modes-of-action/>