

INDUSTRIAL AND HOUSEHOLD PESTS—For use by licensed pest management professionals only

Chemical Class ¹	Inorganic						Carbamates		Organophosphates		
	Boric acid (Niban, Perma-Dust, InTice)		Diatomaceous earth (Mother Earth D)	Silica gel (Drione, Tri-Die, Cimex Dust)	Sodium Tetraborate (Gourmet Liquid Ant Bait, Cymex)		Methomyl (Flytek, Sysco Fly Bait)	Propoxur (PT 2, Invader, Permacide Plus)	Acephate (Orthene)	Dichlorvos (Nuvan)	
Formulation ²	Bait	Dust	Dust ³	Dust ³	Bait	Dust	Bait ⁴	Sprayable	Sprayable (outdoor use only)	Strip	Sprayable
Pests											
Ants	X	X	X	X	X	X			X		X
Bed Bugs			X	X		X		X		X	X
Bees				X					X		X
Booklice	X		X	X							
Bugs (True) ⁴	X			X				X	X	X	
Carpet Beetles			X			X				X	X
Centipedes	X		X	X				X	X		
Clothes Moths			X							X	X
Clover Mites	X		X	X				X	X		
Cockroaches	X	X	X	X				X	X	X	X
Crickets	X	X	X	X					X		X
Earwigs	X	X	X	X				X	X	X	
Fleas		X	X	X		X			X		X
Flies	X		X	X			X			X	X
Hornets/Wasps				X					X		X
Lady Beetles	X		X	X				X			
Millipedes			X	X					X		X
Mosquitoes											X
Stored Product	X		X	X							
Pests											
Scorpions			X	X							
Silverfish	X	X	X	X				X	X	X	X
Spiders			X					X	X	X	X
Sowbugs			X					X	X		X
Springtails			X	X				X	X		X
Ticks				X				X			

¹ Alternating uses of insecticides in different chemical classes can help reduce the likelihood of the pests developing resistance to one group or class of compounds.

² Formulations:

Aerosol includes Crack & Crevice. Bait may be granular, gel, or station.

Sprayable may be concentrate or powder, some RTU formulations.

³ Some formulations of diatomaceous earth and silica gel contain pyrethrins as a flushing agent.

⁴ Not to be used in or around residences or other buildings where children may be present.

⁵ True bugs includes boxelder bugs, stink bugs, kudzu bugs, and similar occasional invaders.

INDUSTRIAL AND HOUSEHOLD PESTS—For use by licensed pest management professionals only (cont.)

Chemical Class ¹	Pyrethroids ¹																					
Pesticide	Bifenthrin (Bifen, Talstar)	Cyfluthrin (Tempo Ultra, Ultrashield CS)	Cypermethrin ² (Demon, Cynoff, Fendona, Talstar Xtra)			Deltamethrin (DeltaDust, DeltaGuard, Suspend)			Esfenvalerate (Onslaught)	Etofenprox (Zenprox)	Fenvalerate (Pyrid)	Lambda-cyhalothrin (Demand, 228L)	Permethrin (Flee, Dragnet, Prelude)	Phenothrin (Bedlam, Nyguard Plus ⁶)	Prallethrin (ULD Spy-300, Altocirrus Fog)	Pyrethrins and pyrethrum (Kicker, Pyrenone)			Sumithrin (Bedlam) Nyguard Plus ⁶	Tetramethrin (CB Stinger)		
	Formulation ³	S,G	S	D	G	S	D	G	S	S	S	S	G	S	G	S	S	A ⁴	S ⁴	D ⁴	S	S
Pests																						
Ants	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Bed Bugs		X				X		X	X	X		X		X		X			X	X		
Bees	X	X	X		X	X		X	X			X		X					X	X		X
Booklice		X				X		X						X					X			
Bugs (True) ⁵	X	X	X		X				X			X		X		X	X				X	
Carpet Beetles		X				X		X	X	X	X		X			X	X					
Centipedes	X	X	X	X	X	X	X	X	X	X	X		X		X	X					X	
Clothes Moths		X				X		X									X					
Clover Mites		X	X		X		X					X		X	X	X	X	X	X			
Cockroaches	X	X	X		X	X	X	X	X	X	X		X		X	X	X	X	X	X		
Crickets	X	X	X		X	X		X	X	X		X	X	X	X	X	X	X	X			
Earwigs	X	X	X	X	X				X	X		X	X	X	X	X	X	X	X			
Fleas	X	X	X	X	X	X		X	X	X		X		X		X	X	X	X		X	
Flies/Gnats	X	X	X		X			X		X		X		X		X	X	X	X			
Hornets/Wasps	X	X	X		X			X	X	X		X				X	X	X	X			X
Lady Beetles				X			X		X			X		X	X	X						
Millipedes	X	X	X		X			X	X			X										
Mosquitoes	X	X	X		X			X	X	X		X					X	X	X			
Stored Product										X				X			X					
Pests		X						X		X		X				X	X	X				
Scorpions	X	X	X	X	X				X			X	X		X		X	X				
Silverfish	X	X	X		X		X	X	X	X	X	X	X		X	X	X	X				
Spiders	X	X	X	X	X			X	X	X												
Sowbugs	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X			
Springtails	X	X	X		X	X	X	X	X	X	X		X		X	X	X	X				
Ticks	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X				

¹Alternating use of insecticides in different chemical classes can help reduce development of pesticide resistance to one class/group of compounds. Piperonyl butoxide tank-mixed with many pyrethroids will synergize performance.

² Some products use alpha-cypermethrin or zeta-cypermethrin which contain chemical isomers of cypermethrin. Talstar Xtra is a mixture of zeta-cypermethrin and bifenthrin.

³ **KEY TO FORMULATION SYMBOLS:** A = aerosol; B = bait (granular or station) D = dust; G = granular; S = sprayable (concentrate or powder, some RTU formulations);

⁴ Some formulations of pyrethrins contain piperonyl butoxide as a synergist.

⁵ True bugs includes boxelder bugs, stink bugs, kudzu bugs, and similar occasional invaders.

⁶ Nyguard Plus contains the IGR pyriproxyfen

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Chemical Class ¹	Insect Growth Regulators				Neonicotinoids						Other Classes										
	Hydroprene (Gencor) ³	Fenoxycarb (Altosid re-Strike) ³	Methoprene (Altosid Kabat, PharoRID, Precor, Vigen) ³		Pyriproxyfen (Archer, Ultracide) V ³	Acetamiprid + Bifenthrin (Transport)	Dinotefuran (Advance, Alpine)	Imidacloprid (FlyBait Maxforce, Premise, Temprid) ⁸	Thiamethoxam (Optigard) ⁹	Clothianidin (Maxforce Impact)	Abamectin (Ascend, vert, Advance)	Aluminum phosphide (Phostoxin) ⁵	Chlorfenapyr (Phantom) ⁶	Cyantraniliprole (Zyrox)	d-Limonene (ProCitra DL)	Fipronil (Maxforce F, TopChoice, Termidor) ⁷	2-Phenyl Propionnate (EcoPCO EC)	Hydramethylinon (Amdro, Siege, MaxForce)	Indoxacarb (Advion, Arillion)	Mint oil (Victor)	Sulfuryl floride (Vikane, Profume, Zythor) ⁹
Formulation ²	A,S	S	B	A,S	A,S	B,S	B,D,S	B	B,S		B	F	S	B	S	B,G,S	A,S	B	B,S	A	F
Pests																					
Ants	X		X		X	X	X	X	X ⁹		X		X		X	X	X	X	X	X	
Bed Bugs				X	X	X	X					X		X		X					X
Bees						X	X									X				X	
Booklice							X														
Bugs (True) ⁴						X	X		X						X		X				
Carpet Beetles						X	X									X					X
Centipedes						X			X						X	X					
Clothes Moths						X	X								X						X
Clover Mites						X									X						
Cockroaches	X				X	X	X	X	X	X	X		X		X	X	X	X	X	X	X
Crickets					X	X	X		X						X	X	X	X	X	X	
Earwigs	X					X	X		X						X	X	X			X	
Fleas				X	X	X	X								X		X				
Flies/Gnats	X				X	X	X	X					X	X	X	X	X			X	
Hornets/Wasps						X	X					X ¹⁰			X	X	X			X	
Lady Beetles						X	X		X						X	X	X		X	X	
Millipedes						X	X		X						X	X	X			X	
Mosquitoes	X	X	X		X	X									X		X				
Stored Product				X			X		X			X	X								X
Product Pests	X				X	X											X				
Scorpions						X	X								X						
Silverfish						X	X		X						X	X	X			X	
Spiders						X	X								X	X					
Sowbugs						X	X													X	
Springtails					X	X	X								X	X				X	
Ticks						X									X						

¹Alternating uses of insecticides in different chemical classes can help reduce the likelihood of the pest developing resistance to one class or group of compounds.

² **KEY TO FORMULATION SYMBOLS:** A = Aerosol (includes Crack & Crevice) B = Bait (granular, gel or station) D = Dust F = Fumigant G = Granular S = Sprayable (concentrate or powder, some RTU formulations)

³ IGR products are not typically effective against adult stage of pests; use with an adulticide to provide quicker control of pest population.

⁴ True bugs includes boxelder bugs, stink bugs, kudzu bugs, and similar occasional invaders

⁵ Requires an F-Phase Structural Pest Control License.

⁶ Chlorfenapyr labeled for indoor use only for these pests or limited spot treatment outdoors.

⁷ Termidor liquid formulations are labeled for outdoor use only; use other insecticide products indoors.

⁸ Temprid contains both imidacloprid and cyfluthrin.

⁹ Optigard not for use against pharaoh ants or carpenter ants.

¹⁰ Phantom is not a knockdown insecticide for pests such as wasps.