

Chemical Factsheet

Permethrin

General Information

- Fact Sheets: [permethrin.pdf](#), [Synthetic Pyrethroids.pdf](#)
- Product Names:
 - Ambush** (Gowan)
 - Ambush** (Amvac Chemical)
 - Dragnet** (FMC)
 - Pounce** (FMC)
 - Pramex** (Valent Biosciences), formulated with [Piperonyl butoxide](#) (some formulations)
 - Assault II** (ABC Compounding)
 - Atroban** (Schering-Plough Animal Health Corporation), formulated with [Piperonyl butoxide](#) (some formulations)
 - Champion** (Chase Products), formulated with [Piperonyl butoxide](#), [Tetramethrin](#) (some formulations)
 - Chemi-cap** (Chemical Packaging), formulated with [Piperonyl butoxide](#), and [Pyrethrins](#)
 - Evercide** (McLaughlin Gormley King), formulated with N-octyl bicycloheptene dicarboximide, [D-trans Allethrin](#), [Pyrethrins](#), [Tetramethrin](#), [Piperonyl butoxide](#) (some formulations)
 - Unicorn** (Phaeton Corporation)
 - Sergeant's** (Sergeant's Pet Care Products), formulated with [Pyrethrins](#), [Piperonyl butoxide](#), [Pyriproxyfen](#), N-octyl bicycloheptene dicarboximide (some formulations)
 - Raid** (S.C. Johnson & Son), formulated with [D-Allethrin](#), [Tetramethrin](#), [Piperonyl butoxide](#), [Pyrethrins](#), N-octyl bicycloheptene dicarboximide, [Fenoxycarb](#) (some formulations)
 - Misty** (Amrep), formulated with [Piperonyl butoxide](#), [Tetramethrin](#), [Pyrethrins](#), N-octyl bicycloheptene dicarboximide (some formulations)
- Chemical Class: Synthetic pyrethroid insecticide
- Uses: Food/feed crops, livestock and livestock housing, modes of transportation, structures, buildings (including food handling establishments), public health mosquito abatement programs, residential use sites including use in outdoor and indoor spaces, pets, and [clothing](#) (impregnated and ready to use formulations).
- Alternatives: [Organic agriculture](#), [Least-toxic insect control](#), [Least-toxic mosquito control](#)
- Beyond Pesticides rating: [Toxic](#)

Health and Environmental Effects

See citations at end of document.

- Cancer: Yes (1, 2)
- Endocrine Disruption: Yes (3, 2)
- Reproductive Effects: Yes (4)
- Neurotoxicity: Yes (5)
- Kidney/Liver Damage: Yes (5)
- Sensitizer/ Irritant: Yes (6)
- Birth/Developmental: Not documented
- Detected in Groundwater: Yes (7)
- Potential Leacher: Not documented

- Toxic to Birds: Not documented
- Toxic to Fish/Aquatic Organisms: Yes (8)
- Toxic to Bees: Yes (8, 2)

Residential Uses as Found in the ManageSafe™ Database

- [Ants](#)
- [Bagworms](#)
- [Carpenter Bees](#)
- [Tree-boring Caterpillars](#)
- [Chiggers](#)
- [Cockroaches](#)
- [Fleas](#)
- [Wasps and Yellowjackets](#)
- [Ticks](#)
- [Termites](#)
- [Head Lice](#)
- [Bed Bugs](#)
- [Chinch Bugs](#)
- [Gypsy Moths](#)
- [Hemlock Woolly Adelgid](#)
- [Mosquitoes](#)
- [Spiders](#)
- [Carpenter Ants](#)
- [Carpet Beetle](#)
- [Grubs](#)
- [Thrips](#)
- [Aphids](#)
- [Fire Ants](#)

Additional Information

- Regulatory Status:
 - [Beyond Pesticides' Draft Human Health Risk Assessment for Permethrin comments](#) (11/2017)
 - [Beyond Pesticides' EPA Human Health and Ecological Risk Assessment Draft for Several Pyrethroid insecticides comments](#) (01/2017)
 - [Permethrin Registration Review](#) (2017)
 - [EPA Reregistration Eligibility Decision \(RED\) revised](#) (5/2009)
 - Beyond Pesticides' RED [comments](#) (2006)
- Supporting information:
 - [NCAP Permethrin Factsheet](#) (Northwest Coalition for Alternatives to Pesticides)
 - [PAN Pesticides Database: Permethrin](#) (Pesticide Action Network)
- Studies [compiled from the [Pesticide-Induced Diseases Database](#)]
 - [Behavioural disorders in 6-year-old children and pyrethroid insecticide exposure: the PELAGIE mother-child cohort.](#) Viel, JF, Rouget, F et al. 2017. *Occup Environ Med.* 74(4):275-281
 - [Association of pyrethroid pesticide exposure with attention-deficit/hyperactivity disorder in a nationally representative sample of U.S. children.](#) Wagner-Schuman M, Richardson JR, Auinger P, et al. 2015. *Environ Health.*14:44.
 - [Neurodevelopmental disorders and prenatal residential proximity to agricultural](#)

- [pesticides: the CHARGE study](#). Shelton JF, Geraghty EM, Tancredi DJ, et al. 2014. *Environ Health Perspect.* 122(10):1103-9.
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 - [Prenatal and infant exposure to ambient pesticides and autism spectrum disorder in children: population based case-control study](#). von Ehrenstein, et al. 2019. *BMJ* 2019;364:l962
 - [Early life exposure to permethrin: a progressive animal model of Parkinson's disease.](#) Nasuti C, Brunori G, Eusepi P, Marinelli L, et al. 2016. *J Pharmacol Toxicol Methods.* 83:80-86.
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 - [Effects of a mixture of pesticides on the adult female reproductive system of Sprague-Dawley, Wistar, and Lewis rats](#). Pascotto VM, Guerra MT, Franci JA, et al. 2015. *J Toxicol Environ Health A.* 78(9):602-16
 - [Effects of early life permethrin exposure on spatial working memory and on monoamine levels in different brain areas of pre-senescent rats.](#) Nasuti C, Carloni M, Fedeli D, et al. 2013. *Toxicology.* 303:162-8
 - [Evidence for diazinon-mediated inhibition of cis-permethrin metabolism and its effects on reproductive toxicity in adult male mice.](#) Wang D, Kamijima M, Okamura A, et al. 2012. *Reprod Toxicol.* 34(4):489-97
 - [Genotoxicity studies on permethrin, DEET and diazinon in primary human nasal mucosal cells](#). Tisch, M., et al. 2002. *Eur Arch Otorhinolaryngol* 259:150-153.
 - [Home-based community health worker intervention to reduce pesticide exposures to farmworkers' children: A randomized-controlled trial.](#) Salvatore AL, Castorina R, Camacho J, et al. 2015. *J Expo Sci Environ Epidemiol.* 25(6):608-15
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