

Chemical Factsheet

Lambda-cyhalothrin

General Information

- Product Names:
 - Karate** (Syngenta)
 - Impasse** (Syngenta)
 - Demand** (Syngenta)
 - Wasp & Hornet Killer** (Chemsico), formulated with [Prallethrin](#)
 - Saber** (Schering-Plough Animal Health), formulated with [Piperonyl butoxide](#) (some formulations)
 - Cyzmic** (Control Solutions, Inc.)
- Chemical Class: Synthetic pyrethroid insecticide
- Uses: Agriculture, residential, mosquitoes
- Alternatives: [Organic agriculture](#), [Least toxic residential products](#), [Least toxic mosquito products](#)
- Beyond Pesticides rating: [Toxic](#)

Health and Environmental Effects

See citations at end of document.

- Cancer: Not documented
- Endocrine Disruption: Yes (1)
- Reproductive Effects: Not documented
- Neurotoxicity: Yes (2)
- Kidney/Liver Damage: Not documented
- Sensitizer/ Irritant: Yes (2)
- Birth/Developmental: Not documented
- Detected in Groundwater: Not documented
- Potential Leacher: Not documented
- Toxic to Birds: Not documented
- Toxic to Fish/Aquatic Organisms: Yes (2)
- Toxic to Bees: Yes (2, 3)

Residential Uses as Found in the ManageSafe™ Database

- [Bagworms](#)
- [Bed Bugs](#)
- [Carpenter Bees](#)
- [Centipedes](#)
- [Chiggers](#)
- [Chinch Bugs](#)
- [Gypsy Moths](#)
- [Spiders](#)
- [Carpenter Ants](#)
- [Grubs](#)
- [Ticks](#)

- [Wasps and Yellowjackets](#)

Additional Information

- Regulatory Status:
 - [EPA Office of Pesticide Programs](#)
 - [EPA Lambda-cyhalothrin classification and endpoints](#) (2022)
- Supporting information:
 - [NPIC Factsheet](#) (National Pesticide Information Center)
 - [Asthma, Children and Pesticides](#) (Beyond Pesticides)
 - [Children & Lawn Chemicals Don't Mix](#) (Beyond Pesticides)
 - [The Safer Choice](#) (Beyond Pesticides)
 - [Exttoxnet Pesticide Factsheet](#) (Extension Toxicology Network)
 - [PAN Pesticides Database: Cyhalothrin, Lambda](#) (Pesticide Action Network)
- Studies [compiled from the [Pesticide-Induced Diseases Database](#)]
 - [Use and Toxicity of Pyrethroid Pesticides in the Central Valley, California, USA.](#) Amweg, E. et al. 2004. *Environmental Toxicology and Chemistry* 24(4):966-972
 - [Indoor spraying with the pyrethroid insecticide lambda-cyhalothrin: effects on spraymen and inhabitants of sprayed houses.](#) Moretto A. 1991. *Bull WHO* 69 (5): 591-594
 - [Lambda-cyhalothrin disrupts the up-regulation effect of 17 \$\beta\$ -estradiol on post-synaptic density 95 protein expression via estrogen receptor \$\alpha\$ -dependent Akt pathway.](#) Wang Q, Xia X, Deng X, Li N, et al. 2016. *J Environ Sci (China)*. 41:252-60.
 - [Haematological and biochemical toxicity in freshwater fish *Clarias gariepinus* and *Oreochromis niloticus* following pulse exposure to atrazine, mancozeb, chlorpyrifos, lambda-cyhalothrin, and their combination.](#) Kanu, K.C., Okoboshi, A.C. and Otitolaju, A.A., 2023. *Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology*, 270, p.109643.
 - [Assessing pyrethroid resistance in *Aedes aegypti* from Cordoba Colombia: Implications of *kdr* mutations.](#) Atencia-Pineda, M.C. et al. (2024) Assessing pyrethroid resistance in *Aedes aegypti* from Cordoba colombia: Implications of KDR mutations, PLOS ONE. Available at: <https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0309201>.
 - [Insecticide Resistance and Its Intensity in Populations of Malaria Vectors in Colombia.](#) Orjuela, L. et al. (2018) Insecticide Resistance and Its Intensity in Populations of Malaria Vectors in Colombia, *BioMed Research International*. Available at: <https://onlinelibrary.wiley.com/doi/10.1155/2018/9163543>.
 - [Pesticides and prostate cancer incidence and mortality: An environment-wide association study.](#) Soerensen, S. et al. (2024) Pesticides and prostate cancer incidence and mortality: An environment-wide association study, *Cancer*. Available at: <https://acsjournals.onlinelibrary.wiley.com/doi/10.1002/cncr.35572>.
 - [Lambda-cyhalothrin alters locomotion, mood and memory abilities in Swiss mice.](#) Assmaa Tali, Nadra Lekouch, Samir Ahboucha, Lambda-cyhalothrin alters locomotion, mood and memory abilities in Swiss mice, *Food and Chemical Toxicology*, Volume 188, 2024, 114680, ISSN 0278-6915, <https://doi.org/10.1016/j.fct.2024.114680>.
 - [Impact of Endocrine Disrupting Pesticide Use on Obesity: A Systematic Review.](#) Pérez-Bermejo, M. et al. (2024) Impact of Endocrine Disrupting Pesticide Use on Obesity: A Systematic Review, *Biomedicines*. Available at: <https://www.mdpi.com/2227-9059/12/12/2677>.
 - [Assessing pesticide residue occurrence and risks in the environment across Europe and Argentina.](#) Alaoui, A., Christ, F., Abrantes, N., Silva, V., González, N., Gai, L., Harkes, P., Navarro, I., Torre, A., Martínez, M. Á., Norgaard, T., Vested, A., Schlünssen, V., Aparicio, V. C., Campos, I., Pasković, I., Pasković, M. P., Glavan, M., Ritsema, C., & Geissen, V. (2024).

Assessing pesticide residue occurrence and risks in the environment across Europe and Argentina. *Environmental pollution* (Barking, Essex : 1987), 363(Pt 1), 125056.
<https://doi.org/10.1016/j.envpol.2024.125056>

- [Toxicokinetic model of the pyrethroid pesticide lambda-cyhalothrin, main exposure route and dose reconstruction predictions in agricultural workers](#). Côté J, Bouchard M (2024) Toxicokinetic model of the pyrethroid pesticide lambda-cyhalothrin, main exposure route and dose reconstruction predictions in agricultural workers. *PLoS ONE* 19(10): e0309803. <https://doi.org/10.1371/journal.pone.0309803>
- [Eco\(geno\)toxicity of the new commercial insecticide Platinum Neo, a mixture of the neonicotinoid thiamethoxam and the pyrethroid lambda-cyhalothrin](#). Dalpiaz, F. L., Laçoli, R., Butzke-Souza, N., Santin, J. R., Poyer-Radetski, L., Dallabona, J. A., Testolin, R. C., Almeida, T. C. M., Radetski, C. M., & Cotelle, S. (2024). Eco(geno)toxicity of the new commercial insecticide Platinum Neo, a mixture of the neonicotinoid thiamethoxam and the pyrethroid lambda-cyhalothrin. *Environmental pollution* (Barking, Essex : 1987), 358, 124485. <https://doi.org/10.1016/j.envpol.2024.124485>
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- [Combined toxic effects of polyethylene microplastics and lambda-cyhalothrin on gut of zebrafish \(Danio rerio\)](#). Zhao, Y., Chen, H., Liang, H., Zhao, T., Ren, B., Li, Y., Liang, H., Liu, Y., Cao, H., Cui, N., & Wei, W. (2024). Combined toxic effects of polyethylene microplastics and lambda-cyhalothrin on gut of zebrafish (Danio rerio). *Ecotoxicology and environmental safety*, 276, 116296. <https://doi.org/10.1016/j.ecoenv.2024.116296>
- [Adverse Effects of Pesticides on the Ovary: Evidence from Epidemiological and Toxicological Studies](#). Wang, L., Ma, X. and Liu, J. (2025) Adverse Effects of Pesticides on the Ovary: Evidence from Epidemiological and Toxicological Studies, *Environment & Health*. Available at: <https://pubs.acs.org/doi/full/10.1021/envhealth.4c00243>.
- [Characterizing pyrethroid and fipronil concentrations in biosolids](#). Wheeler, J., Black, G. P., Hladik, M. L., Sanders, C. J., Teerlink, J., Wong, L., Zhang, X., Budd, R., & Young, T. M. (2025). Characterizing pyrethroid and fipronil concentrations in biosolids. *The Science of the total environment*, 969, 178954. <https://doi.org/10.1016/j.scitotenv.2025.178954>
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Gateway Health and Environmental Effects Citations

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<http://extoxnet.orst.edu/pips/ghindex.html>
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