

Chemical Factsheet

Dichlorvos (DDVP)

General Information

- Fact Sheet: [DDVP.pdf](#)
 - Product Names:
 - Spectracide Bug Stop Pest Strip** (Spectrum Brands)
 - Hot Shot No-Pest Strip** (Spectrum Brands)
 - Rockland C-EM-DIE** (Value Gardens Supply), formulated with [Piperonyl butoxide](#), [Pyrethrins](#)
 - Vapona** (Value Gardens Supply)
 - Sentry Collar** (Sergeant's Pet Care Products)
 - Chemical Class: Organophosphate insecticide
 - Uses: Agricultural sites, commercial, institutional and industrial sites; in and around homes; on pets, in greenhouses; mushroom houses; storage areas for bulk, packaged and bagged raw and processed agricultural commodities; food manufacturing/processing plants; animal premises; and non-food areas of food-handling establishments.
- Target pests are flies, gnats, mosquitoes, chiggers, ticks, cockroaches, armyworms, chinch bugs, clover mites, crickets, cutworms, grasshoppers, and sod webworms.
- Alternatives: [Organic Agriculture](#), [Least-Toxic Insect Control](#), [Least-Toxic Pet Care](#)
 - Beyond Pesticides rating: [Toxic](#)

Health and Environmental Effects

See citations at end of document.

- Cancer: Possible (1), Yes (2)
- Endocrine Disruption: Not documented
- Reproductive Effects: Yes (3)
- Neurotoxicity: Yes (4)
- Kidney/Liver Damage: Yes (4)
- Sensitizer/ Irritant: Yes (4)
- Birth/Developmental: Not documented
- Detected in Groundwater: Not documented
- Potential Leacher: Yes (4)
- Toxic to Birds: Yes (5)
- Toxic to Fish/Aquatic Organisms: Yes (5)
- Toxic to Bees: Yes (4)

Residential Uses as Found in the ManageSafe™ Database

- [Cockroaches](#)

Additional Information

- Regulatory Status:
 - [EPA DDVP Fact Sheets](#)

- [EPA Reregistration Eligibility Decision \(RED\) signed](#) (7/2006)
- Beyond Pesticides' OP cumulative risk RED [comments](#) (2002)
- California Environmental Protection Agency: [Dichlorvos \(DDVP\) Risk Characterization Document](#) (1996)
- Supporting information:
 - [Daily News Blog entries](#) (Beyond Pesticides)
 - [PAN Pesticides Database: Dichlorvos](#) (Pesticide Action Network)
 - [PAN International List of Highly Hazardous Pesticides](#) (12/2024)
- Studies [compiled from the [Pesticide-Induced Diseases Database](#)]
 - [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
 - [Home pesticide use and childhood cancer: A case-control study](#). Leiss, J., et al. 1995. American Journal of Public Health 85:249-252
 - [Incident Diabetes and Pesticide Exposure among Licensed Pesticide Applicators: Agricultural Health Study, 1993-2003](#). Montgomery et al. American Journal of Epidemiology 2008 167(10):1235-1246
 - [Effects of Dichlorvos on cardiac cells: Toxicity and molecular mechanism of action](#). Salem, I.B., Boussabbeh, M., Da Silva, J.P., Saidi, N.E., Abid-Essefi, S. and Lemaire, C., 2023. Chemosphere, 330, p.138714.
 - [Predicting the relationship between pesticide genotoxicity and breast cancer risk in South Indian women in in vitro and in vivo experiments](#). Sasikala, S. et al. (2023) 'Predicting the relationship between pesticide genotoxicity and breast cancer risk in south Indian women in in vitro and in vivo experiments', Scientific Reports, 13(1). doi:10.1038/s41598-023-35552-3.
 - [Pesticide-Induced Inflammation at a Glance](#). Lopes-Ferreira, M. et al. (2023) 'Pesticide-induced inflammation at a glance', Toxics, 11(11), p. 896. doi:10.3390/toxics11110896.
 - [Maternal exposure to the mixture of organophosphorus pesticides induces reproductive dysfunction in the offspring](#). Yu, Y., Yang, A., Zhang, J., & Hu, S. (2013). Maternal exposure to the mixture of organophosphorus pesticides induces reproductive dysfunction in the offspring. Environmental toxicology, 28(9), 507-515. https://doi.org/10.1002/tox.20741
 - [Persistence of aerially-sprayed naled in coastal sediments](#). Bamiduro, G. J., Kumar, N., Solo-Gabriele, H. M., & Zahran, E. M. (2021). Persistence of aerially-sprayed naled in coastal sediments. The Science of the total environment, 794, 148701. https://doi.org/10.1016/j.scitotenv.2021.148701
 - [Field Assessment of Naled and Its Primary Degradation Product \(Dichlorvos\) in Aquatic Ecosystems Following Aerial Ultra-low Volume Application for Mosquito Control](#). Smith, C.D., Hladik, M.L., Kuivila, K.M. et al. Field Assessment of Naled and Its Primary Degradation Product (Dichlorvos) in Aquatic Ecosystems Following Aerial Ultra-low Volume Application for Mosquito Control. Arch Environ Contam Toxicol 84, 307-317 (2023). https://doi.org/10.1007/s00244-023-00981-8
 - [Acute toxicity and risk assessment of permethrin, naled, and dichlorvos to larval butterflies via ingestion of contaminated foliage](#). Hoang, T. C., & Rand, G. M. (2015). Acute toxicity and risk assessment of permethrin, naled, and dichlorvos to larval butterflies via ingestion of contaminated foliage. Chemosphere, 120, 714-721. https://doi.org/10.1016/j.chemosphere.2014.10.040
 - [Mosquito control insecticides: a probabilistic ecological risk assessment on drift exposures of naled, dichlorvos \(naled metabolite\) and permethrin to adult butterflies](#). Hoang, T. C., & Rand, G. M. (2015). Mosquito control insecticides: a probabilistic ecological risk assessment on drift exposures of naled, dichlorvos (naled metabolite) and permethrin to adult butterflies. The Science of the total environment, 502, 252-265.

<https://doi.org/10.1016/j.scitotenv.2014.09.027>

- [Monitoring the aquatic toxicity of mosquito vector control spray pesticides to freshwater receiving waters](#). Phillips, B. M., Anderson, B. S., Voorhees, J. P., Siegler, K., Denton, D., TenBrook, P., Larsen, K., Isorena, P., & Tjeerdema, R. S. (2014). Monitoring the aquatic toxicity of mosquito vector control spray pesticides to freshwater receiving waters. *Integrated environmental assessment and management*, 10(3), 449–455. <https://doi.org/10.1002/ieam.1534>
- [Use of butterflies as nontarget insect test species and the acute toxicity and hazard of mosquito control insecticides](#). Hoang, T. C., Pryor, R. L., Rand, G. M., & Frakes, R. A. (2011). Use of butterflies as nontarget insect test species and the acute toxicity and hazard of mosquito control insecticides. *Environmental toxicology and chemistry*, 30(4), 997–1005. <https://doi.org/10.1002/etc.462>
- [Impaired mitochondrial energy metabolism and neuronal apoptotic cell death after chronic dichlorvos \(OP\) exposure in rat brain](#). Kaur, P., Radotra, B., Minz, R. W., & Gill, K. D. (2007). Impaired mitochondrial energy metabolism and neuronal apoptotic cell death after chronic dichlorvos (OP) exposure in rat brain. *Neurotoxicology*, 28(6), 1208–1219. <https://doi.org/10.1016/j.neuro.2007.08.001>
- [Nigrostriatal neuronal death following chronic dichlorvos exposure: crosstalk between mitochondrial impairments, \$\alpha\$ synuclein aggregation, oxidative damage and behavioral changes](#). BK, B., Bal, A., Kandimalla, R.J. et al. Nigrostriatal neuronal death following chronic dichlorvos exposure: crosstalk between mitochondrial impairments, α synuclein aggregation, oxidative damage and behavioral changes. *Mol Brain* 3, 35 (2010). <https://doi.org/10.1186/1756-6606-3-35>
- [Mapping pesticide-induced metabolic alterations in human gut bacteria](#). Chen, L. et al. (2025) Mapping pesticide-induced metabolic alterations in human gut bacteria, *Nature Communications*. Available at: <https://www.nature.com/articles/s41467-025-59747-6>.
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- [Dichlorvos toxicity: A public health perspective](#). Okoroiwu, H. U., & Iwara, I. A. (2018). Dichlorvos toxicity: A public health perspective. *Interdisciplinary toxicology*, 11(2), 129–137. <https://doi.org/10.2478/intox-2018-0009>
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- [Temporal trends of agricultural organophosphate pesticide use in California and proximity to pregnant people in 2021](#). Rotkin-Ellman, M., Carpenter, C., Richardson, M.J. et al. Temporal trends of agricultural organophosphate pesticide use in California and proximity to pregnant people in 2021. *BMC Public Health* 25, 3121 (2025). <https://doi.org/10.1186/s12889-025-23939-y>

- [Cellular metabolism and health impacts of dichlorvos: Occurrence, detection, prevention, and remedial strategies-A review](#). Saravanakumar, K., Park, S., Vijayasarathy, S., Swaminathan, A., Sivasantosh, S., Kim, Y., Yoo, G., Madhumitha, H., MubarakAli, D., & Cho, N. (2024). Cellular metabolism and health impacts of dichlorvos: Occurrence, detection, prevention, and remedial strategies-A review. *Environmental research*, 242, 117600. <https://doi.org/10.1016/j.envres.2023.117600>

Gateway Health and Environmental Effects Citations

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2. California Environmental Protection Agency. Proposition 65: Chemicals Known to the State to Cause Cancer or Reproductive Toxicity. Office of Environmental Health Hazard Assessment. February 25, 2022. <https://oehha.ca.gov/media/downloads/proposition-65//p65chemicalslistsingletable2021p.pdf>
3. US EPA, 2006. Hazard Assessment of the Organophosphates. Hazard ID Committee Report. http://www.epa.gov/oppsrrd1/cumulative/2006-op/op_cra_main.pdf
4. Extension Toxicology Network (EXTOXNET) Pesticide Information Profiles. <http://extoxnet.orst.edu/pips/ghindex.html>
5. US EPA, Office of Prevention, Pesticides and Toxic Substances, Reregistration Eligibility Decisions (REDs), Interim REDs (iREDs) and RED Factsheets. <https://archive.epa.gov/pesticides/reregistration/web/html/status.html>.

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