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
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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//p65chemicalslistsinglelisttable2021p.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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