

Chemical Factsheet

Carbaryl

General Information

- Fact Sheet: [Carbaryl.pdf](#)
- Product Names:
 - Rose RX Insect & Disease Control** (Bonide Products), formulated with [Captan](#), [Malathion](#)
 - Ortho Bug B Gon Multi Purpose Garden Dust** (Solaris Group)
 - Adams Flea & Tick Dust II** (Farnham Companies), formulated with [Piperonyl butoxide](#), Pyrethrum, Talc (non-fibrous), Silica gel
 - Zodiac Flea & Tick Powder for Dogs and Cats** (Zodiac Pet Care Products), formulated with Aluminum silicate
 - Ortho Sevin Carbaryl Insecticide 5 Dust** (Solaris Group), formulated with Kaolin clay, Amorphous silica
 - Sevin brand 4F Carbaryl Insecticide** (Bayer CropScience)
- Chemical Class: Carbamate insecticide
- Uses: Agriculture fruit and nut trees, many types of fruit and vegetables, and grain crops; ornamental, turf and golf courses, residential lawns
- Alternatives: [Organic agriculture](#), [Organic lawn care](#)
- Beyond Pesticides rating: [Toxic](#)

Health and Environmental Effects

See citations at end of document.

- Cancer: Likely (1, 2)
- Endocrine Disruption: Yes (3)
- Reproductive Effects: Yes (4)
- Neurotoxicity: Yes (5)
- Kidney/Liver Damage: Yes (6)
- Sensitizer/Irritant: Yes (6)
- Birth/Developmental: Yes (7)
- Detected in Groundwater: Yes (6)
- Potential Leacher: Yes (6)
- Toxic to Birds: Yes (8)
- Toxic to Fish/Aquatic Organisms: Yes (6)
- Toxic to Bees: Yes (5)

Residential Uses as Found in the ManageSafe™ Database

- [Dandelions](#)
- [Bagworms](#)
- [Carpenter Ants](#)
- [Carpenter Bees](#)
- [Tree-boring Caterpillars](#)
- [Chiggers](#)
- [Grubs](#)

- [Wasps and Yellowjackets](#)
- [Snails and Slugs](#)
- [Ants](#)
- [Chinch Bugs](#)
- [Fleas](#)
- [Gypsy Moths](#)
- [Cockroaches](#)
- [Head Lice](#)
- [Ticks](#)
- [Thrips](#)
- [Whiteflies](#)

Additional Information

- Regulatory Status:
 - [EPA Plans New Use Limitations on Carbaryl, Carbofuran, and Methomyl to Protect Salmon and Steelhead in California, Idaho, Oregon, and Washington \(5/2010\)](#)
 - [EPA Reregistration Eligibility Decision \(RED\) signed \(8/2008\)](#)
 - Beyond Pesticides' and IRED [comments](#)
 - Natural Resources Defense Council's (NRDC) [comments](#)
- Supporting information:
 - [Daily News Blog entries](#) (Beyond Pesticides)
 - [Asthma, Children and Pesticides](#) (Beyond Pesticides)
 - [Poisoning our Pets](#) (Beyond Pesticides)
 - [NCAP Carbaryl Factsheet](#) (Northwest Coalition for Alternatives to Pesticides)
 - [NPIC Carbaryl Factsheet](#) (National Pesticide Information Center)
 - [PAN Pesticides Database:Carbaryl](#) (Pesticide Action Network)
- Studies [compiled from the [Pesticide-Induced Diseases Database](#)]
 - [Carbaryl exposure and incident cancer in the Agricultural Health Study](#). Mahajan, R., et al. 2007. Int J Cancer 121(8):1799-1805.
 - [Carbaryl, A Pesticide Causes "Toxic Hepatitis" in Albino Rats](#). Hamid, S., Mahajan, R. and Singh, H., 2012. J Cytol Histol, 3(4), pp.149-154.
 - [Cohort mortality and nested case-control study of lung cancer among structural pest control workers in Florida \(United States\)](#). Pesatori, A.C., et al. 1994. Cancer Causes and Control 5:310-318.
 - [Exposure to nonpersistent insecticides and male reproductive hormones.](#). Meeker JD, et al. 2006. Epidemiology;17(1):61-8
 - [Family pesticide use and childhood brain cancer.](#). Davis, J., et al. 1993. Family pesticide use and childhood brain cancer. Archives of Environmental Contamination and Toxicology 24:87-92
 - [Genetic Polymorphisms of Pesticide-Metabolizing Enzymes and Transporters in Agricultural Workers and Thyroid Hormone Levels](#). Sirivarasai, J., Chanprasertyothin, S., Kongtip, P. and Woskie, S. Risk Management and Healthcare Policy, 14, p.3435.
 - [Pesticides applied to crops and amyotrophic lateral sclerosis risk in the U.S.](#) Andrew, A., Zhou, J., Gui, J., Harrison, A., Shi, X., Li, M., Guetti, B., Nathan, R., Tischbein, M., Pioro, E.P. and Stommel, E. NeuroToxicology, 87, pp.128-135.
 - [Residues of agrochemicals in beebread as an indicator of landscape management](#). Bogo, G. et al. (2024) Residues of agrochemicals in beebread as an indicator of landscape management, Science of The Total Environment. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0048969724042232?via%3Dihub>.
 - [Exposure to pesticides, persistent and non – persistent pollutants in French 3.5-year-old](#)

- [children: Findings from comprehensive hair analysis in the ELFE national birth cohort.](#) Macheka, L. et al. (2024) Exposure to pesticides, persistent and non – persistent pollutants in French 3.5-year-old children: Findings from comprehensive hair analysis in the ELFE national birth cohort, Environment International. Available at: <https://www.sciencedirect.com/science/article/pii/S0160412024004677>.
- [Pre-Conception And First Trimester Exposure To Pesticides And Associations With Stillbirth.](#) Furlong, M. et al. (2024) Pre-conception and first trimester exposure to pesticides and associations with stillbirth, American Journal of Epidemiology. Available at: <https://academic.oup.com/aje/advance-article-abstract/doi/10.1093/aje/kwae198/7714541>.
 - [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>.
 - [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.
 - [Pesticide exposure and sleep disorder: A cross-sectional study among Thai farmers.](#) Juntarawijit, C. et al. (2025) Pesticide exposure and sleep disorder: A cross-sectional study among Thai farmers, Heliyon. Available at: [https://www.cell.com/heliyon/fulltext/S2405-8440\(24\)17154-X](https://www.cell.com/heliyon/fulltext/S2405-8440(24)17154-X).
 - [Carbamate Insecticides Target Human Melatonin Receptors.](#) Popovska-Gorevski, M., Dubocovich, M. and Rajnarayanan, R. (2016) Carbamate Insecticides Target Human Melatonin Receptors, Chemical Research in Toxicology. Available at: <https://pubs.acs.org/doi/10.1021/acs.chemrestox.6b00301#>.
 - [Pharmacological Actions of Carbamate Insecticides at Mammalian Melatonin Receptors.](#) Glatfelter, G. et al. (2021) Pharmacological Actions of Carbamate Insecticides at Mammalian Melatonin Receptors, The Journal of Pharmacology and Experimental Therapeutics. Available at: [https://jpet.aspetjournals.org/article/S0022-3565\(24\)25757-8/fulltext](https://jpet.aspetjournals.org/article/S0022-3565(24)25757-8/fulltext).
 - [A cocktail of contaminants: how mixtures of pesticides at low concentrations affect aquatic communities.](#) Relyea R. A. (2009). A cocktail of contaminants: how mixtures of pesticides at low concentrations affect aquatic communities. Oecologia, 159(2), 363–376. <https://doi.org/10.1007/s00442-008-1213-9>
 - [Pesticide contamination in indoor home dust: A pilot study of non-occupational exposure in Argentina.](#) Aparicio, Virginia & Kaseker, Jessica & Scheepers, Paul & Alaoui, Abdallah & Figueiredo, Daniel & Mol, H. & Silva, Vera & Harkes, Paula & dos Santos, Danilo & Geissen, Violette & Costa, José. (2025). Pesticide Contamination in Indoor Home Dust: A Pilot Study of Non-Occupational Exposure in Argentina. Environmental Pollution. 373. 126208. [10.1016/j.envpol.2025.126208](https://doi.org/10.1016/j.envpol.2025.126208).
 - [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>.
 - [Association between pesticide exposure and colorectal cancer risk and incidence: A systematic review.](#) Matich, E. K., Laryea, J. A., Seely, K. A., Stahr, S., Su, L. J., & Hsu, P. C. (2021). Association between pesticide exposure and colorectal cancer risk and incidence: A systematic review. Ecotoxicology and environmental safety, 219, 112327. <https://doi.org/10.1016/j.ecoenv.2021.112327>
 - [Emerging prospects and consequences of environmental neurotoxic pollutants in the vertebrate system.](#) Shaw, R. et al. (2026) Emerging prospects and consequences of environmental neurotoxic pollutants in the vertebrate system, Discover Toxicology. Available at: <https://link.springer.com/article/10.1007/s44339-025-00042-w>.

- [Specific time of exposure during tadpole development influences biological effects of the insecticide carbaryl in green frogs \(*Lithobates clamitans*\)](#). Boone, M. D., Hammond, S. A., Veldhoen, N., Youngquist, M., & Helbing, C. C. (2013). Specific time of exposure during tadpole development influences biological effects of the insecticide carbaryl in green frogs (*Lithobates clamitans*). *Aquatic toxicology (Amsterdam, Netherlands)*, 130-131, 139-148. <https://doi.org/10.1016/j.aquatox.2012.12.022>
- [Long term effects of carbaryl exposure on antiviral immune responses in *Xenopus laevis*](#). De Jesús Andino, F., Lawrence, B. P., & Robert, J. (2017). Long term effects of carbaryl exposure on antiviral immune responses in *Xenopus laevis*. *Chemosphere*, 170, 169-175. <https://doi.org/10.1016/j.chemosphere.2016.12.018>
- [Epilithic biofilms as bioindicators of water contamination by pesticides in Protected Areas from Atlantic Forest](#). Mollmann, V. et al. (2026) Epilithic biofilms as bioindicators of water contamination by pesticides in Protected Areas from Atlantic Forest, *Science of The Total Environment*. Available at: <https://www.sciencedirect.com/science/article/pii/S0048969726003177>.
- [Residential proximity to agricultural pesticide exposures during preconception and pregnancy and associations with Apgar scores in the Az-PEAR study \(2006-2020\)](#). Yang, A. et al. (2026) Residential proximity to agricultural pesticide exposures during preconception and pregnancy and associations with Apgar scores in the Az-PEAR study (2006-2020), *Journal of Exposure Science & Environmental Epidemiology*. Available at: <https://www.nature.com/articles/s41370-026-00849-8>.
- [Effects of Commonly Used Pesticides in China on the Mitochondria and Ubiquitin-Proteasome System in Parkinson's Disease](#). Chen, T., Tan, J., Wan, Z., Zou, Y., Kessete Afewerky, H., Zhang, Z., & Zhang, T. (2017). Effects of Commonly Used Pesticides in China on the Mitochondria and Ubiquitin-Proteasome System in Parkinson's Disease. *International Journal of Molecular Sciences*, 18(12), 2507. <https://doi.org/10.3390/ijms18122507>
- [Preconception and first trimester exposure to pesticides and associations with stillbirth](#). Furlong, M. A., Paul, K. C., Parra, K. L., Fournier, A. J., Ellsworth, P. C., Cockburn, M. G., Arellano, A. F., Bedrick, E. J., Beamer, P. I., & Ritz, B. (2025). Preconception and first trimester exposure to pesticides and associations with stillbirth. *American journal of epidemiology*, 194(1), 44-55. <https://doi.org/10.1093/aje/kwae198>
- [Contributions of nearby agricultural insecticide applications to indoor residential exposures](#). Madrigal, J. M., Gunier, R. B., Jones, R. R., Flory, A., Metayer, C., Nuckols, J. R., & Ward, M. H. (2023). Contributions of nearby agricultural insecticide applications to indoor residential exposures. *Environment international*, 171, 107657. <https://doi.org/10.1016/j.envint.2022.107657>

Gateway Health and Environmental Effects Citations

1. US EPA Office of Pesticide Programs. List of Chemicals Evaluated for Carcinogenic Potential. October 30, 2023. http://npic.orst.edu/chemicals_evaluated.pdf
2. EPA weight-of-evidence category, "Likely to be carcinogenic to humans." US EPA, 2005. Office of Pesticide Programs. List of Chemicals Evaluated for Carcinogenic Potential. May 10, 2005. <http://www.fluoridealert.org/wp-content/pesticides/pesticides.cancer.potential.2006.pdf>
3. European Commission. Endocrine Disruptors: Study on Gathering Information on 435 Substances with Insufficient Data. Final Report. EU DG Environment: B4-3040/2001/325850/MAR/C2. BKH Consulting Engineers: M0355037. November 2002. http://ec.europa.eu/environment/chemicals/endocrine/pdf/bkh_report.pdf#page=76.

4. Frazier, L. and M.L. Hage. 2001. Reproductive Hazards of the Workplace. Europe: Wiley. Table 10: Partial List of Reproductive Toxins.
<https://web.archive.org/web/20100624221623/http://www.biosci.osu.edu/safety/CHP/Tables2001/Tab1e10-11-00.pdf>.
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>.
6. Extension Toxicology Network (EXTOXNET) Pesticide Information Profiles.
<http://extoxnet.orst.edu/pips/ghindex.html>
7. Northwest Coalition for Alternatives to Pesticides (NCAP), Pesticide Factsheets.
<http://www.pesticide.org/pesticide-factsheets>.
8. Khanam, S., 2017. Effect of Carbaryl on Hemoglobin and Hematocrit Values of Broiler Chicks. Malaysian Journal of Medical Research, 1(2), pp.38-40.
<http://ejournal.lucp.net/index.php/mjmr/article/view/139>

Factsheet generated on June 22, 2026