Chemical Factsheet

Dimethoate

General Information

- Product Names:
  Chemathoate (Cheminova)
  Cygon (Chem-tech Ltd.)
  Cymate (Arysta Lifescience North America, LLC)
  Ferti-lome (Voluntary Purchasing Groups, Inc.)
  Prokil (Gowan Co.)
  Rebelate (Basf Corporation)
- Chemical Class: Organophosphate insecticide
- Uses: Alfalfa, asparagus, beans , broccoli, Brussels sprouts, cauliflower, celery, cherries, Christmas tree farms, conifer seed farms, cotton, endive, field corn, grass grown for seed, herbaceous ornamentals in commercial nurseries or greenhouses, grapefruit, leaf lettuce (except head lettuce), lemons, lentils, kale, melons, mustard greens, oranges, pears, peas, pecans, peppers, popcorn, potatoes, safflower, sorghum, soybeans, Swiss chard, tangerines, tangelos, tomatoes, turnips, watermelons, wheat, cottonwood grown for pulp, and woody ornamentals in commercial nurseries or greenhouses.
- Alternatives: Organic agriculture, Organic christmas trees
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

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

Residential Uses as Found in the ManageSafe™ Database

- Bagworms

Additional Information

- Regulatory Status:
  - EPA Revised Interim Reregistration Eligibility Decision (iRED) (8/2007)

- Supporting information:
  - Daily News Blog entries (Beyond Pesticides)
  - Extoxnet Dimethoate Factsheet (Extension Toxicology Network)
  - PAN Pesticides Database:Dimethoate (Pesticide Action Network)
  - Scorecard Dimethoate Factsheet (Environmental Defense Fund)
  - CAT Dimethoate Toxicological Profile (Californians for Alternatives to Toxics)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - Top 15 Farmworker Poison
  - Assessment of genetic effects and pesticide exposure of farmers in NW Greece. Moshou, H., Karakitsou, A., Yfanti, F., Hela, D., Vlastos, D., Paschalidou, A.K., Kassomenos, P. and Petrou, I., 2020. Environmental Research, p.109558.
  - Hypospadias and residential proximity to pesticide applications.. Carmichael SL, Yang W, Roberts EM, et al. 2013. Pediatrics. 132(5):e1216-26
  - Mixture effects of thiamethoxam and seven pesticides with different modes of action on honey bees (Aplis mellifera). Li, W. et al. (2023) Mixture effects of thiamethoxam and seven pesticides with different modes of action on honey bees (Aplis mellifera), Scientific Reports. Available at: https://www.nature.com/articles/s41598-023-29837-w#ref-CR30.
  - 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 .
  - Genotoxicity and Adverse Human Health Outcomes Among People Living Near Highly Polluted Waste Water Drains in Punjab, India. Thakur, J. et al. (2008) Genotoxicity and Adverse Human Health Outcomes Among People Living Near Highly Polluted Waste Water Drains in Punjab, India, Epidemiology. Available at: https://journals.lww.com/epidem/fulltext/2008/11001/genotoxicity_and_adverse_human_health_outcomes.867.aspx.
  - Unveiling bee pollen's contamination with pesticides and mycotoxins: Current analytical procedures, results and regulation. Carrera, M. et al. (2024) Unveiling bee pollen’s contamination with pesticides and mycotoxins: Current analytical procedures, results and regulation, Trends in Analytical Chemistry. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0165993624004187.
  - 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.
  - Prenatal residential proximity to endocrine disrupting agricultural pesticides and menstrual cycle characteristics among Latina adolescents in California. Paul, J. et al. (2025) Prenatal residential proximity to endocrine disrupting agricultural pesticides and menstrual cycle characteristics among Latina adolescents in California, American Journal of Epidemiology. Available at: https://academic.oup.com/aje/advance-article/doi/10.1093/aje/kwaf059/8083004.
  - Effect of dimethoate administration schedules on compensatory ovarian hypertrophy, follicular dynamics, and estrous cycle in hemicastrated mice. Mahadevaswami, M. P., & Kaliwal, B. B. (2002). Effect of dimethoate administration schedules on compensatory ovarian hypertrophy, follicular dynamics, and estrous cycle in hemicastrated mice. Journal of basic and clinical physiology and pharmacology, 13(3), 225–248. https://doi.org/10.1515/jbcpp.2002.13.3.225
  - 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

- Pesticide use and risk of Hodgkin lymphoma: results from the North American Pooled Project (NAPP). Latifovic, L., Freeman, L. E. B., Spinelli, J. J., Pahwa, M., Kachuri, L., Blair, A., Cantor, K. P., Zahm, S. H., Weisenburger, D. D., McLaughlin, J. R., Dosman, J. A., Pahwa, P., Koutros, S., Demers, P. A., & Harris, S. A. (2020). Pesticide use and risk of Hodgkin lymphoma: results from the North American Pooled Project (NAPP). Cancer causes & control : CCC, 31(6), 583–599. https://doi.org/10.1007/s10552-020-01301-4
- Case fatality of agricultural pesticides after self-poisoning in Sri Lanka: a prospective cohort study. Buckley, N. A., Fahim, M., Raubenheimer, J., Gawarammana, I. B., Eddleston, M., Roberts, M. S., & Dawson, A. H. (2021). Case fatality of agricultural pesticides after self-poisoning in Sri Lanka: a prospective cohort study. The Lancet. Global health, 9(6), e854–e862. https://doi.org/10.1016/S2214-109X(21)00086-3
- Chronic oral lethal and sub-lethal toxicities of different binary mixtures of pesticides and contaminants in bees (Apis mellifera, Osmia bicornis and Bombus terrestris). Spurgeon, David & Hesketh, Helen & Lahive, Elma & Svendsen, Claus & Baas, Jan & Robinson, Alex & Horton, Alice & Heard, Matthew. (2016). Chronic oral lethal and sub-lethal toxicities of different binary mixtures of pesticides and contaminants in bees (Apis mellifera, Osmia bicornis and Bombus terrestris). EFSA Supporting Publications. 13. 10.2903/sp.efsa.2016.EN-1076.
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Gateway Health and Environmental Effects Citations

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3. Californians for Alternatives to Toxics (CATs). Toxicological Profiles. http://alt2tox.org/tox_profiles.htm.

4. Extension Toxicology Network (EXTOXNET) Pesticide Information Profiles. http://extoxnet.orst.edu/pips/ghindex.html

5. Environmental Defense Fund, Scorecard Database. http://www.scorecard.org/chemical-profiles/.

6. 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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