Chemical Factsheet

Parathion/Ethyl parathion

General Information

- Fact Sheet: parathion.pdf
- Product Names:
  AC 3422
  Alkron (Tronox)
  Alleron
  Aphamite
  Corothion
  E-605
  ENT 15108
  Ethyl parathion
  Etilon
  Fosferno 50
  Niran
  Orthophos (Ortho Business Group)
  Panthion
  Paramar
  Paraphos
  Parathene
  Parawet
  Phoskil
  Rhodiatox
  Soprathion
  Stathion
  Thiophos
  Danthion
  DNTP
  DPP
  Sulphos
  Kolodust (FMC), formulated with Sulfur
  Prentox Ethyl Parathion (Prentiss), formulated with Xylene
  Red Panther Parathion (Universal Cooperatives)
- Chemical Class: Organophosphate insecticide
- Uses: alfalfa, barley, canola, corn, cotton, sorghum, soybeans, sunflowers, and wheat.
- Alternatives: Organic agriculture
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

- Cancer: Possible (**1**)
- Endocrine Disruption: Probable (**2**)
- Reproductive Effects: Yes (**3**)

- Neurotoxicity: Yes (**4**)
- Kidney/Liver Damage: Not documented
- Sensitizer/ Irritant: Not documented
- Birth/Developmental: Not documented
- Detected in Groundwater: Not documented
- Potential Leacher: Not documented
- Toxic to Birds: Yes (**3**)
- Toxic to Fish/Aquatic Organisms: Yes (**3**)
- Toxic to Bees: Yes (**5**)

Additional Information

- Regulatory Status:
  - All uses cancelled (effective 10/2003)
- Supporting information:
  - Extoxnet Parathion Factsheet (Extension Toxicology Network)
  - PAN Pesticides Database:Parathion (Pesticide Action Network)
  - ABC Parathion Factsheet (American Bird Conservancy)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - Children's Exposure to Chlorpyrifos and Parathion in an Agricultural Community in Central Washington State. Fenske, R.A., Lu, C, Barr, D, and Needham, L. 2002. Environ Health Perspect. 11(5):: 549–553
  - Diazinon and parathion diverge in their effects on development of noradrenergic systems. Slotkin TA, Skavicus S, Seidler FJ. 2017. Brain Res Bull. 130:268-273.
  - Does early-life exposure to organophosphate insecticides lead to prediabetes and obesity. Slotkin, T.A. 2011. Reproductive Toxicology. 31: 297–301.
  - Breast carcinogenesis induced by organophosphorous pesticides. Calaf, G.M., 2022. Advances in Pharmacology (San Diego, Calif.), 96, pp.71-117.
  - Pesticide use and inflammatory bowel disease in licensed pesticide applicators and spouses in the Agricultural Health Study. Chen, D. et al. (2024) Pesticide use and inflammatory bowel disease in licensed pesticide applicators and spouses in the Agricultural Health Study, Environmental Research. Available at: https://www.sciencedirect.com/science/article/pii/S0013935124003682?ref=pdf_download&fr=RR-2&rr=88272c5c9b94942f.
  - Chronic kidney disease from agricultural communities—association and accumulation of hexachlorobenzene, malathion, and parathion pesticides. Verma, J. et al. (2024) Chronic kidney disease from agricultural communities-association and accumulation of hexachlorobenzene, malathion, and parathion pesticides, Toxicology and Environmental Health Sciences. Available at: https://link.springer.com/article/10.1007/s13530-024-00222-y.
  - High Pesticide Exposure Events and Dream-Enacting Behaviors Among US Farmers. Yuan, Y., Shrestha, S., Luo, Z., Li, C., Plassman, B.L., Parks, C.G., Hofmann, J.N., Beane Freeman, L.E., Sandler, D.P. and Chen, H. (2022), High Pesticide Exposure Events and Dream-Enacting Behaviors Among US Farmers. Mov Disord, 37: 962-971. https://doi.org/10.1002/mds.28960
  - Association of organophosphate and pyrethroid pesticide metabolites and phenoxyacid herbicides with blood pressure and hypertension among older adults. Huang, Qinxin & Song, Shaofang & Deng, Fenfang & He, Jia & Yuan, Jun & Tan, Lei. (2025). Association of organophosphate and pyrethroid pesticide metabolites and phenoxyacid herbicides with blood pressure and hypertension among older adults. Environmental Chemistry and Ecotoxicology. 7. 10.1016/j.enceco.2025.05.017.

- An assessment of exposure to several classes of pesticides in pet dogs and cats from New York, United States. Li, Z. M., Robinson, M., & Kannan, K. (2022). An assessment of exposure to several classes of pesticides in pet dogs and cats from New York, United States. Environment international, 169, 107526. https://doi.org/10.1016/j.envint.2022.107526
- 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.
- Pesticides in surface water of the Ondas river watershed, western Bahia, Brazil: Spatial-seasonal distribution and risk assessment. do Rego EL, de Souza JR, Nakamura TC, Portela JF, Diniz PHGD, da Silva JDS. Pesticides in surface water of the Ondas river watershed, western Bahia, Brazil: Spatial-seasonal distribution and risk assessment. Chemosphere. 2024 Apr;354:141659. doi: 10.1016/j.chemosphere.2024.141659. Epub 2024 Mar 13. PMID: 38490616.
- Current-use pesticide exposures in remote Inuit communities. Aker, A. M. et al. (2024) ‘Current-use pesticide exposures in remote Inuit communities’, International Journal of Circumpolar Health, 83(1). doi: 10.1080/22423982.2024.2421048.
- Urinary pesticide biomarkers from adolescence to young adulthood in an agricultural setting in Ecuador: Study of secondary exposure to pesticides among children, adolescents, and adults (ESPINA) 2016 and 2022 examination data. Parajuli, R. et al. (2025) Urinary pesticide biomarkers from adolescence to young adulthood in an agricultural setting in Ecuador: Study of secondary exposure to pesticides among children, adolescents, and adults (ESPINA) 2016 and 2022 examination data, Data in Brief. Available at: https://www.sciencedirect.com/science/article/pii/S2352340925006067.

Gateway Health and Environmental Effects Citations

1. EPA weight-of-evidence category, "possible human carcinogen." US EPA, 2004. Office of Pesticide Programs. List of Chemicals Evaluated for Carcinogenic Potential. July 29, 2004. http://www.epa.gov/pesticides/carlist/

2. Illinois EPA, Endocrine Disruptors Strategy, February 1997. https://nepis.epa.gov/Exe/ZyNET.exe/910140ZK.txt

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

4. Beyond Pesticides ChemWatch Factsheets. (Cited under factsheets on Beyond Pesticides Gateway; see top of individual chemical page)

5. Tew, J.E. 1996. Protecting Honeybees from Pesticides. Ohio State University Cooperative Extension. http://web.archive.org/web/20031123075324/http://beelab.osu.edu/factsheets/sheets/2161.html

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