Chemical Factsheet

Heptachlor

General Information

- Chemical Class: Organochlorine
- Uses: Insect control, including ants, termites, and soil pests.
- Alternatives: Organic Agriculture
- Beyond Pesticides rating:

Health and Environmental Effects

See citations at end of document.

- Cancer: Probable (**1**, **2**, **3**)
- Endocrine Disruption: Possible (**3**)
- Reproductive Effects: Yes (**3**)
- Neurotoxicity: Not documented
- 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: Not documented
- Toxic to Fish/Aquatic Organisms: Yes (**2**)
- Toxic to Bees: Not documented

Additional Information

- Regulatory Status:
  - EPA RED Facts (1992)
  - EPA Factsheet (2016)
- Supporting information:
  - PAN Pesticides Database: Heptachlor (Pesticide Action Network)
  - Extoxnet Heptachlor Factsheet (Extension Toxicology Network)
  - CDC Agency for Toxic Substances and Disease Registry (2021)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - Perinatal heptachlor exposure increases expression of presynaptic dopaminergic markers in mouse striatum.. Caudle, W.M., et al. 2005. NeuroToxicology 26(4):721-728
  - Ecological Crisis Due to Chemical Toxicity: Addressing Soil Health for Better Human Health. Thakur, J.S. and Paika, R. (2024) Ecological crisis due to chemical toxicity: Addressing soil health for better human health, Journal of Environmental Science and Public Health. Available at: https://www.fortunejournals.com/articles/ecological-crisis-due-to-chemical-toxicity-addressing-soil-health-for-better-human-health.html.
  - Epidemiological study of high cancer among rural agricultural community of Punjab in Northern India. Thakur, J. et al. (2008) Epidemiological study of high cancer among rural agricultural community of Punjab in Northern India, International journal of environmental

research and public health. Available at: https://pubmed.ncbi.nlm.nih.gov/19151435/.
- 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.
- Herbicides and pesticides synergistically interact at low concentrations in complex mixtures. Alehashem, M. et al. (2024) Herbicides and pesticides synergistically interact at low concentrations in complex mixtures, Chemosphere. Available at: https://www.sciencedirect.com/science/article/pii/S0045653524003242?via%3Dihub.
- Concentrations and spatial patterns of organic contaminants in tree swallow (Tachycineta bicolor) eggs at United States and binational Great Lakes Areas of Concern, 2010-2015. Custer, C. M., Custer, T. W., Dummer, P. M., Goldberg, D., & Franson, J. C. (2016). Concentrations and spatial patterns of organic contaminants in tree swallow (Tachycineta bicolor) eggs at United States and binational Great Lakes Areas of Concern, 2010-2015. Environmental toxicology and chemistry, 35(12), 3071–3092. https://doi.org/10.1002/etc.3496
- An Environment-Wide Association Study (EWAS) on Type 2 Diabetes Mellitus. Patel CJ, et al. 2010. PLoS ONE 5(5): e10746.
- 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
- Bioaccumulation of pesticide contaminants in tissue matrices of dogs suffering from malignant canine mammary tumors in Punjab, India. Gautam, S., Sood, N. K., Gupta, K., Joshi, C., Gill, K. K., Kaur, R., & Chauhan, I. (2020). Bioaccumulation of pesticide contaminants in tissue matrices of dogs suffering from malignant canine mammary tumors in Punjab, India. Heliyon, 6(10), e05274. https://doi.org/10.1016/j.heliyon.2020.e05274
- Levels and patterns of organochlorine pesticides and their degradation products in rainwater in Kibaha Coast Region, Tanzania. Mahugija, J. A., Henkelmann, B., & Schramm, K. W. (2015). Levels and patterns of organochlorine pesticides and their degradation products in rainwater in Kibaha Coast Region, Tanzania. Chemosphere, 118, 12–19. https://doi.org/10.1016/j.chemosphere.2014.05.051
- Incident diabetes and pesticide exposure among licensed pesticide applicators: Agricultural Health Study, 1993-2003. Montgomery, M. P., Kamel, F., Saldana, T. M., Alavanja, M. C., & Sandler, D. P. (2008). Incident diabetes and pesticide exposure among licensed pesticide applicators: Agricultural Health Study, 1993-2003. American journal of epidemiology, 167(10), 1235–1246. https://doi.org/10.1093/aje/kwn028

Gateway Health and Environmental Effects Citations

1. 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.

2. National Library of Medicine. PubChem Hazardous Substances Database. PubChem (nih.gov)

3. Pesticide Action Network Pesticide Database. http://www.pesticideinfo.org/Search_Chemicals.jsp.

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