

# Chemical Factsheet

## Thiacloprid

### General Information

- Product Names:
  - **Calypso** (Bayer)
- Chemical Class: Chloronicotinoid Insecticide
- Uses: On the agricultural crops cotton and pome fruits for control of a variety of sucking insects. The primary target pests for thiacloprid on cotton are aphids and whiteflies; Psylla, codling moth and plum Curculio are the primary pests on pome fruits.
- Alternatives: [Organic agriculture](#)
- Beyond Pesticides rating:

### Health and Environmental Effects

*See citations at end of document.*

- Cancer: Likely (1)
- Endocrine Disruption: Not documented
- Reproductive Effects: Not documented
- Neurotoxicity: Yes (1)
- Kidney/Liver Damage: Yes (2)
- Sensitizer/ Irritant: Not documented
- Birth/Developmental: Yes (1)
- Detected in Groundwater: Not documented
- Potential Leacher: Yes (1)
- Toxic to Birds: Not documented
- Toxic to Fish/Aquatic Organisms: Not documented
- Toxic to Bees: Not documented

### Residential Uses as Found in the ManageSafe™ Database

- [Bed Bugs](#)

### Additional Information

- Regulatory Status:
  - [EPA Conditional Registration Issued 9/2006](#)
- Supporting information:
  - PAN Pesticides Database: [Thiacloprid](#) (Pesticide Action Network)
- Studies [compiled from the [Pesticide-Induced Diseases Database](#)]
  - [Effects of neonicotinoid pesticide exposure on human health: a systematic review](#). Cimino AM, Boyles AL, Thayer KA, Perry MJ. 2017. Environ Health Perspect. 125:155-162
  - [Direct pesticide exposure of insects in nature conservation areas in Germany](#). Brühl, C.A., Bakanov, N., Köthe, S., Eichler, L., Sorg, M., Hörrn, T., Mühlethaler, R., Meinel, G. and Lehmann, G.U. Scientific reports, 11(1), pp.1-10.
  - [Neonicotinoids: Still present in farmland birds despite their ban](#). Fuentes, E., Gaffard, A.,

- Rodrigues, A., Millet, M., Bretagnolle, V., Moreau, J. and Monceau, K., 2023. *Chemosphere*, 321, p.138091.
- [Prevalence of neonicotinoid insecticides in paired private-well tap water and human urine samples in a region of intense agriculture overlying vulnerable aquifers in eastern Iowa.](#) Thompson, D.A., Kolpin, D.W., Hladik, M.L., Lehmler, H.J., Meppelink, S.M., Poch, M.C., Vargo, J.D., Soupene, V.A., Irfan, N.M., Robinson, M. and Kannan, K., 2023. *Chemosphere*, 319, p.137904.
  - [Infantile Internal and External Exposure to Neonicotinoid Insecticides: A Comparison of Levels across Various Sources.](#) Zhang, H., Wang, Y., Zhu, H., Lu, S., Wang, Y., Xue, J., Zhang, T., Kannan, K. and Sun, H., 2023. *Environmental Science & Technology*, 57(13), pp.5358-5367.
  - [Organic farming reduces pesticide load in a bird of prey.](#) Fuentes, E. et al. (2024) Organic farming reduces pesticide load in a bird of prey, *Science of The Total Environment*. Available at: <https://www.sciencedirect.com/science/article/pii/S0048969724029255>.
  - [The molecular determinants of pesticide sensitivity in bee pollinators.](#) Bass, C. et al (2024) The molecular determinants of pesticide sensitivity in bee pollinators, *Science of The Total Environment*. Available at: <https://www.sciencedirect.com/science/article/pii/S0048969724003097>.
  - [Immunosuppression in Honeybee Queens by the Neonicotinoids Thiacloprid and Clothianidin.](#) Brandt, A. et al. (2017) Immunosuppression in honeybee queens by the neonicotinoids Thiacloprid and Clothianidin, *Scientific Reports*. Available at: <https://pubmed.ncbi.nlm.nih.gov/28680118/>.
  - [Interactions of traditional and biodegradable microplastics with neonicotinoid pesticides.](#) Wang, K. et al. (2024) Interactions of traditional and biodegradable microplastics with neonicotinoid pesticides, *The Science of The Total Environment*. Available at: <https://pubmed.ncbi.nlm.nih.gov/38972406/>.
  - [Neonicotinoid pesticides: evidence of developmental neurotoxicity from regulatory rodent studies.](#) Sass, J.B., Donley, N. and Freese, W. (2024) Neonicotinoid pesticides: evidence of developmental neurotoxicity from regulatory rodent studies, *Frontiers in Toxicology*. Available at: <https://www.frontiersin.org/journals/toxicology/articles/10.3389/ftox.2024.1438890/full>.
  - [Neuroprotective effect of piracetam-loaded magnetic chitosan nanoparticles against thiacloprid-induced neurotoxicity in albino rats.](#) Abomosallam, M., Hendam, B.M., Abdallah, A.A. et al. Neuroprotective effect of piracetam-loaded magnetic chitosan nanoparticles against thiacloprid-induced neurotoxicity in albino rats. *Inflammopharmacol* 31, 943-965 (2023). <https://doi.org/10.1007/s10787-023-01151-x>
  - [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.
  - [Current-use pesticides in vegetation, topsoil and water reveal contaminated landscapes of the Upper Rhine Valley, Germany.](#) Mauser, K.M., Wolfram, J., Spaak, J.W. et al. Current-use pesticides in vegetation, topsoil and water reveal contaminated landscapes of the Upper Rhine Valley, Germany. *Commun Earth Environ* 6, 166 (2025). <https://doi.org/10.1038/s43247-025-02118-2>
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  - [Widespread Pesticide Distribution in the European Atmosphere Questions their Degradability in Air.](#) Mayer, L., Degrendele, C., Šenk, P., Kohoutek, J., Přibylová, P., Kukučka, P., Melymuk, L., Durand, A., Ravier, S., Alastuey, A., Baker, A. R., Baltensperger,

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- [Do novel insecticides pose a threat to beneficial insects?](#) Siviter Harry and Muth Felicity 2020 Do novel insecticides pose a threat to beneficial insects? *Proc. R. Soc. B*.28720201265 <http://doi.org/10.1098/rspb.2020.1265>
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- [Networks in Aquatic Communities Collapse Upon Neonicotinoid-Induced Stress.](#) Barmantlo, S. et al. (2025) Networks in Aquatic Communities Collapse Upon Neonicotinoid-Induced Stress, *Ecology Letters*. Available at: <https://onlinelibrary.wiley.com/doi/10.1111/ele.70121>.
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## **Gateway Health and Environmental Effects Citations**

1. U.S. EPA, Office of Prevention, Pesticides and Toxic Substances, New Active Ingredients Factsheets: <http://web.archive.org/web/20120107215849/http://www.epa.gov/opprd001/factsheets/index.htm>
2. The Pesticide Management Education Program at Cornell University. Pesticide Active Ingredient Information. <http://pmep.cce.cornell.edu/profiles/index.html>.

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