Chemical Factsheet

Thiophanate-methyl

General Information

- Product Names:
  Four Way Peanut Seed Treatment (Bayer) formulated with Captan, Metalaxyl, and Trifloxystrobin
  26/36 (Bayer) formulated with Iprodione
  Acronis (BASF) formulated with Pyraclostrobin
  Protocol (Loveland) formulated with Propiconazole
  Banrot (Everris) formulated with Terrazole
  Domain FL (Everris)
  T-Bird (United Phosphorus)
  Dovetail (United Phosphorus) formulated with Iprodione
  Transom (Prokoz)
  Topspin (Nisso)
  Fanate (Nisso)
  Akotop (Aako)
  Thiofan8 (Kaizen)
- Chemical Class: Thiophanate systemic fungicide
- Uses: Tree, vine, and root crops, wheat, and canola; residential lawns and ornamentals
- Alternatives: Organic agriculture
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

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

Additional Information

- Regulatory Status:
  - EPA Reregistration Eligibility Decision (RED) signed 10/2005
- Supporting information:
  - PAN Pesticides Database: Thiophanate-methyl (Pesticide Action Network)

- Studies [compiled from the Pesticide-Induced Diseases Database]
    - Thiophanate-methyl induces severe hepatotoxicity in zebrafish. Jia, K. et al. (2020) Thiophanate-methyl induces severe hepatotoxicity in zebrafish, Chemosphere. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0045653520301338.
    - Thiophanate methyl acute, subacute and chronic toxicity in rats. Singh, T., Garg, B. and Verma, P. (1987) Thiophanate methyl acute, subacute and chronic toxicity in rats, Indian Journal of Pharmacology. Available at: https://journals.lww.com/iphr/citation/1987/19020/thiophanate_methyl_acute,_subacute_and_chronic.15.aspx.
    - Methyl thiophanate-induced toxicity in liver and kidney of adult rats: a biochemical, molecular and histopathological approach. Feki, A., Ben Saad, H., Jaballi, I., Magne, C., Boudawara, O., Zeghal, K. M., Hakim, A., Ben Ali, Y., & Ben Amara, I. (2017). Methyl thiophanate-induced toxicity in liver and kidney of adult rats: a biochemical, molecular and histopathological approach. Cellular and Molecular Biology, https://doi.org/10.14715/cmb/2017.63.2.4
    - Impact of Endocrine Disrupting Pesticide Use on Obesity: A Systematic Review. Pérez-Bermejo, M. et al. (2024) Impact of Endocrine Disrupting Pesticide Use on Obesity: A Systematic Review, Biomedicines. Available at: https://www.mdpi.com/2227-9059/12/12/2677.
    - A Th2-type immune response and low-grade systemic inflammatory reaction as potential immunotoxic effects in intensive agriculture farmers exposed to pesticides . Lozano-Paniagua, D. et al. (2024) 'A th2-type immune response and low-grade systemic inflammatory reaction as potential immunotoxic effects in intensive agriculture farmers exposed to pesticides', Science of The Total Environment, 938, p. 173545. doi:10.1016/j.scitotenv.2024.173545.
    - 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.
    - Metabolic Effects of a Chronic Dietary Exposure to a Low-Dose Pesticide Cocktail in Mice: Sexual Dimorphism and Role of the Constitutive Androstane Receptor. Lukowicz, C., Ellero-Simatos, S., Régnier, M., Polizzi, A., Lasserre, F., Montagner, A., Lippi, Y., Jamin, E. L., Martin, J. F., Naylies, C., Canlet, C., Debrauwer, L., Bertrand-Michel, J., Al Saati, T., Théodorou, V., Loiseau, N., Mselli-Lakhal, L., Guillou, H., & Gamet-Payrastre, L. (2018). Metabolic Effects of a Chronic Dietary Exposure to a Low-Dose Pesticide Cocktail in Mice: Sexual Dimorphism and Role of the Constitutive Androstane Receptor. Environmental health perspectives, 126(6), 067007. https://doi.org/10.1289/EHP2877

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.

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