Chemical Factsheet

Difenoconazole

General Information

- Product Names:
  Inspire (Syngenta)
  Revus (Syngenta) formulated with Madipropamide
  Dividend (Syngenta) formulated with Metalaxyl-M
  Bravo (Syngenta) formulated with Chlorothalonil
  Cruiser (Syngenta) formulated with Thiamethoxam, and Metalaxlyl-M
- Uses: Agriculture
- Alternatives: Organic agriculture
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

- Cancer: Possible (**1**)
- Endocrine Disruption: Suspected (**1**)
- Reproductive Effects: Not documented
- 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 (**1**)
- Toxic to Bees: Not documented

Residential Uses as Found in the ManageSafe™ Database

- Mold

Additional Information

- Supporting information:
  - PAN Pesticides Database (Pesticide Action Network North America)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - 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.
  - Single and combined exposure to ‘bee safe’ pesticides alter behaviour and offspring production in a ground-nesting solitary bee (Xenoglossa pruinosa). Rondeau, S. and Raine, N. (2024) Single and combined exposure to ‘bee safe’ pesticides alter behaviour and offspring production in a ground-nesting solitary bee (Xenoglossa pruinosa),

Proceedings of the Royal Society Biological Sciences. Available at: https://royalsocietypublishing.org/doi/10.1098/rspb.2023.2939.
- Immune response of Brazilian farmers exposed to multiple pesticides . Jacobsen-Pereira, C.H. et al. (2020) 'Immune response of Brazilian farmers exposed to multiple pesticides', Ecotoxicology and Environmental Safety, 202, p. 110912. doi:10.1016/j.ecoenv.2020.110912.
- Pesticide bioaccumulation in radish produced from soil contaminated with microplastics. Ju, Hui & Yang, Xiaomei & Tang, Darrell & Osman, Rima & Geissen, Violette. (2023). Pesticide bioaccumulation in radish produced from soil contaminated with microplastics. Science of The Total Environment. 910. 168395. 10.1016/j.scitotenv.2023.168395.
- Sperm quality of rats exposed to difenoconazole using classical parameters and surface-enhanced Raman scattering: classification performance by machine learning methods. Pereira, V.R., Pereira, D.R., de Melo Tavares Vieira, K.C. et al. Sperm quality of rats exposed to difenoconazole using classical parameters and surface-enhanced Raman scattering: classification performance by machine learning methods. Environ Sci Pollut Res 26, 35253–35265 (2019). https://doi.org/10.1007/s11356-019-06407-0
- Triazole pesticides exposure impaired steroidogenesis associated to an increase in AHR and CAR expression in testis and altered sperm parameters in chicken. Serra, L., Bourdon, G., Estienne, A., Fréville, M., Ramé, C., Chevaleyre, C., Didier, P., Chahnamian, M., Ganier, P., Pinault, F., Froment, P., & Dupont, J. (2023). Triazole pesticides exposure impaired steroidogenesis associated to an increase in AHR and CAR expression in testis and altered sperm parameters in chicken. Toxicology reports, 10, 409–427. https://doi.org/10.1016/j.toxrep.2023.03.005
- Cardiotoxicity and triazole pesticides: therapeutic options for a neglected heart disease. Souza, D. and Roman-Campos, D. (2025) Cardiotoxicity and triazole pesticides: therapeutic options for a neglected heart disease, Expert Review of Cardiovascular Therapy. Available at: https://www.tandfonline.com/doi/full/10.1080/14779072.2025.2476124.
- Difenoconazole induces cardiovascular toxicity through oxidative stress-mediated apoptosis in early life stages of zebrafish (Danio rerio). Zhu, J., Liu, C., Wang, J., Liang, Y., Gong, X., You, L., Ji, C., Wang, S. L., Wang, C., & Chi, X. (2021). Difenoconazole induces cardiovascular toxicity through oxidative stress-mediated apoptosis in early life stages of zebrafish (Danio rerio). Ecotoxicology and environmental safety, 216, 112227. Advance online publication. https://doi.org/10.1016/j.ecoenv.2021.112227
- Assessing pesticide residue occurrence and risks in the environment across Europe and Argentina. Alaoui, A., Christ, F., Abrantes, N., Silva, V., González, N., Gai, L., Harkes, P., Navarro, I., Torre, A., Martínez, M. Á., Norgaard, T., Vested, A., Schlünssen, V., Aparicio, V. C., Campos, I., Pasković, I., Pasković, M. P., Glavan, M., Ritsema, C., & Geissen, V. (2024). Assessing pesticide residue occurrence and risks in the environment across Europe and Argentina. Environmental pollution (Barking, Essex : 1987), 363(Pt 1), 125056. https://doi.org/10.1016/j.envpol.2024.125056
- Adsorption behavior and mechanism of five pesticides on microplastics from agricultural polyethylene films. Wang, Ting & Yu, Congcong & Chu, Qiao & Wang, Fenghe & Lan, Tao & Wang, Jingfeng. (2019). Adsorption behavior and mechanism of five pesticides on microplastics from agricultural polyethylene films. Chemosphere. 244. 125491. 10.1016/j.chemosphere.2019.125491.
- Metabolomics and transcriptomics reveal the toxicity of difenoconazole to the early life stages of zebrafish (Danio rerio). Teng, Miaomiao et al. "Metabolomics and transcriptomics reveal the toxicity of difenoconazole to the early life stages of zebrafish (Danio rerio)." Aquatic toxicology (Amsterdam, Netherlands) vol. 194 (2018): 112-120. doi:10.1016/j.aquatox.2017.11.009

- Exposure to fungicide difenoconazole reduces the soil bacterial community diversity and the co-occurrence network complexity. Zhang, H., Song, J., Zhang, Z., Zhang, Q., Chen, S., Mei, J., Yu, Y., & Fang, H. (2021). Exposure to fungicide difenoconazole reduces the soil bacterial community diversity and the co-occurrence network complexity. Journal of hazardous materials, 405, 124208. https://doi.org/10.1016/j.jhazmat.2020.124208

Gateway Health and Environmental Effects Citations

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

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