Chemical Factsheet

Diquat Dibromide

General Information

- Product Names:
  Spectracide Triple Strike Grass & Weed Killer (Spectrum Brands), formulated with DMA salt of Dicamba, Fluazifop-p-butyl
  Spectracide Total Vegetation Killer Concentrate 2 (Spectrum Brands), formulated with Prometon
  Spectracide Triple Strike Grass & Weed Killer Ready-to-Use Spray (Spectrum Brands), formulated with DMA salt of Dicamba, Fluazifop-p-butyl
  Real Kill Liquid Edger (Realex)
  Spectracide Systemic Grass & Weed Killer (Spectrum Brands), formulated with Fluazifop-p-butyl
- Chemical Class: Bipyridylium herbicide and dessicant
- Uses: Agriculture drainage areas, irrigation systems, carrot (including tops), cucumber, melons, pepper, radish, squash, turnip, potato (white/irish), sorghum, soybeans (unspecified), tomato; lakes/ ponds/ reservoirs, intermittently flooded areas, streams/rivers/channeled water, residentail ornamental ponds and aquaria, lawns, and storage areas; targets algae, bladderwort, crabgrass, elodea, jimsonweed, leafy spurge, naiad, poison ivy, salvinia, shepherdspurse, and waterlettuce.
- Alternatives: Organic agriculture, Organic lawn care
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

- Cancer: Not documented
- Endocrine Disruption: Not documented
- Reproductive Effects: Yes (**1**)
- Neurotoxicity: Not documented
- Kidney/Liver Damage: Yes (**2**)
- Sensitizer/ Irritant: Yes (**3**)
- Birth/Developmental: Not documented
- Detected in Groundwater: Not documented
- Potential Leacher: Not documented
- Toxic to Birds: Yes (**2**)
- Toxic to Fish/Aquatic Organisms: Yes (**3**)
- Toxic to Bees: Not documented

Residential Uses as Found in the ManageSafe™ Database

- Dandelions
- Annual Bluegrass

Additional Information

- Regulatory Status:
  - EPA Tolerance Reassessment Progress and Risk Management Decision (TRED) signed (4/2002)
- Supporting information:
  - Daily News Blog entries (Beyond Pesticides)
  - Extoxnet Diquat Dibromide Factsheet (Extension Toxicology Network)
  - PAN Pesticides Database: Diquat Dibromide (Pesticide Action Network)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - A pesticide and iPSC dopaminergic neuron screen identifies and classifies Parkinson-relevant pesticides. Paul, K.C., Krolewski, R.C., Lucumi Moreno, E., Blank, J., Holton, K.M., Ahfeldt, T., Furlong, M., Yu, Y., Cockburn, M., Thompson, L.K. and Kreymerman, A., 2023. Nature Communications, 14(1), p.2803.
  - 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.
  - Imaging Findings and Toxicological Mechanisms of Nervous System Injury Caused by Diquat. Ren, Y., Guo, F. & Wang, L. Imaging Findings and Toxicological Mechanisms of Nervous System Injury Caused by Diquat. Mol Neurobiol 61, 9272–9283 (2024). https://doi.org/10.1007/s12035-024-04172-x
  - Effect of Diquat on gut health: molecular mechanisms, toxic effects, and protective strategies. He C, Cai G, Jia Y, Jiang R, Wei X and Tao N (2025) Effect of Diquat on gut health: molecular mechanisms, toxic effects, and protective strategies. Front. Pharmacol. 16:1562182. doi: 10.3389/fphar.2025.1562182
  - Single-cell analysis of diquat-induced oxidative stress and its impact on organ-specific toxicity. Chen, Z., Lin, G., Ye, K., Wang, J., Tang, M., Lai, K., Yuan, Y., Lin, S., Dai, X., Chen, H., Ma, H., Zhou, J., & Xu, Y. (2025). Single-cell analysis of diquat-induced oxidative stress and its impact on organ-specific toxicity. Ecotoxicology and environmental safety, 297, 118246. https://doi.org/10.1016/j.ecoenv.2025.118246
  - Diquat Induces Cell Death and dopamine Neuron Loss via Reactive Oxygen Species Generation in Caenorhabditis elegans. Wang, B., Yin, Z., Liu, J., Tang, C., Zhang, Y., Wang, L., Li, H., & Luo, Y. (2025). Diquat Induces Cell Death and dopamine Neuron Loss via Reactive Oxygen Species Generation in Caenorhabditis elegans. Environmental science & technology, 59(1), 152–162. https://doi.org/10.1021/acs.est.4c07783
  - Diquat exacerbates oxidative stress and neuroinflammation by blocking the autophagic flux of microglia in the hippocampus. Wang, Ping & Song, Cong-Ying & Lu, Xuan & Zhou, Jia-Ning & Lin, Li-Ying & Li, Ting & Zhang, Qin & Lu, Yuan-Qiang. (2024). Diquat exacerbates oxidative stress and neuroinflammation by blocking the autophagic flux of microglia in the hippocampus. Ecotoxicology and environmental safety. 286. 117188. 10.1016/j.ecoenv.2024.117188.

Gateway Health and Environmental Effects Citations

1. New Jersey Department of Health and Senior Services, Right to Know Hazardous Substances Fact Sheets. Available online at http://web.doh.state.nj.us/rtkhsfs/indexfs.aspx

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

3. 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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