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March 21, 2025

Office of Pesticide Programs
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001

Re: Pesticide Tolerance; Exemptions, Petitions, Revocations, etc.: Chlorpyrifos [EPA-HQ-OPP-2024-0431]

Dear Madam/Sir,

These comments are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers, and farmworkers. Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

We are writing in response to the proposed rule, as stated in the Federal Register, "to revoke all tolerances for residues of chlorpyrifos, except for those associated with the use of chlorpyrifos on the following crops: alfalfa, apple, asparagus, tart cherry, citrus, cotton, peach, soybean, strawberry, sugar beet, and spring and winter wheat. The proposal also addresses the request to revoke all chlorpyrifos tolerances contained in the September 12, 2007, petition submitted by the Natural Resources Defense Council (NRDC) and Pesticide Action Network North America (PANNA)."

Chlorpyrifos is a cholinesterase inhibitor that binds irreversibly to the active site of an essential enzyme for normal nerve impulse transmission, acetylcholine esterase (AchE), inactivating the enzyme, and has been under scrutiny for decades as a result of its high potential to elicit adverse neurological effects. The scientific evidence of neurotoxic dangers associated with chlorpyrifos exposure is extensive and consistent. Epidemiological data also points to subpopulations that are disproportionately affected by chlorpyrifos exposures, creating an environmental justice issue that must not continue to be ignored.

Given the serious toxicological issues associated with chlorpyrifos use and exposures, as well as failure of the U.S. Environmental Protection Agency (EPA) to meet the standards set

forth in Section 3(c)(5)(C) of the *Federal Insecticide Fungicide and Rodenticide Act* (FIFRA), these comments reiterate calls in previous comments by Beyond Pesticides to revoke the registration of chlorpyrifos and its food tolerances on all crops.

The latest milestone in the convoluted life span of the insecticide chlorpyrifos, under the deceptive headline "EPA Proposes Rule to Revoke Most Food Uses of the Insecticide Chlorpyrifos," is unconscionable. This new policy stems from decades of waffling and delay, in which industry influence sowed doubt about epidemiological evidence of health harms and emphasized uncertainties about data, particularly regarding drinking water exposure.

Chlorpyrifos's history exemplifies the failure of pesticide law and policy, as this chemical, among many others, not only has direct adverse health effects but is contributing to the climate crisis, biodiversity collapse, and disproportionate levels of illness in people of color communities. EPA has known for decades that chlorpyrifos (introduced in 1965) is a neurotoxicant, especially at crucial developmental stages such as prenatal and infancy phases when the human brain is growing at its fastest rate. In 2016 EPA said children between one and two years old were being exposed via food to 14,000% of the risk concern level.[1]

Despite this concerning evidence, chlorpyrifos uses and allowable residues on crops, such as the ones listed in the current proposal, continue. This approach from EPA can be starkly contrasted with the European Union's decision to eliminate chlorpyrifos. After comprehensive reviews from the European Food Safety Authority, "Experts concluded that concerns related to human health exist, in particular in relation to possible genotoxicity and developmental neurotoxicity."[2] Regulators confirmed in a statement that, "...concerns for human health have been identified and that safe levels of exposure cannot be determined based on the available data."[2]

A multitude of studies indicate chlorpyrifos is neurotoxic and particularly endangers children's health. A study from the Columbia Children's Center for Environmental Health (CCCEH) at Columbia University, which provides important information on the neurological outcomes of children exposed to chlorpyrifos, found that children exposed to high levels of chlorpyrifos had mental development delays, attention problems, attention-deficit/hyperactivity disorder problems, and pervasive developmental disorder problems.[3]

Concentrations of chlorpyrifos in umbilical cord blood also corresponded to a decrease in the psychomotor development and a decrease in the mental development in 3-year-olds.[4] A follow-up study found that children with high exposure levels of chlorpyrifos have changes to the brain, including enlargement of superior temporal, posterior middle temporal, and inferior postcentral gyri bilaterally, and enlarged superior frontal gyrus, gyrus rectus, cuneus, and precuneus along the mesial wall of the right hemisphere.[5]

The University of California Berkeley CHAMACOS (Center for the Health Assessment of Mothers and Children of Salinas) team, studying organophosphate impacts on women and

children, found that every 522 pounds of combined organophosphate pesticide applications within one kilometer of a pregnant woman's home correlates with a two-point IQ loss in her children at seven years old.[6] Research published by scientists at Johns Hopkins Bloomberg School of Public Health adds to this wide body of scientific literature, noting chlorpyrifos exposure results in the expression of genetic mutations associated with autism spectrum disorder.[7]

The adverse effects of chlorpyrifos are not limited to direct impacts on public health. The chemical is also highly toxic to mammals, fish, and aquatic invertebrates. A previous biological opinion conducted by the Fish and Wildlife Service found that chlorpyrifos is "likely to adversely affect" 97% of species listed under the *Endangered Species Act*.[8] Prior research also finds that chlorpyrifos can result in adverse impacts to pollinators at levels well below its lethal dose.[9] Specifically, the chemical was found to slow learning and memory recall in honeybees, with the study authors noting that these impacts had the ability to threaten the success and survival of pollinators.[9]

The science on chlorpyrifos is unequivocal: exposures result in serious neurological health effects that cannot be ignored or mitigated. Chlorpyrifos is a highly hazardous neurotoxic organophosphate that has no place in modern agriculture, as it endangers pollinators, wildlife, and the wider environment, as well as threatens the health of farmworkers, farm families, especially vulnerable children, and the general public. There are alternatives in organic land management available for farmers and other users that ensure that there is no disruption in food production and practices once chemicals are removed.

The path is clear for EPA to revoke tolerances for chlorpyrifos. Eliminating all chlorpyrifos uses represents the best practice to protect children, waterways, and wildlife from this toxic pesticide. Given the serious risks involved, we urge EPA to revoke all tolerances of chlorpyrifos, including the 11 remaining products listed above that are among the most extensively grown and used in the world.

Thank you for your consideration of our comments.

Respectfully,

Sara Grantham
Science, Regulatory, and Advocacy Manager

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[1] U.S. Environmental Protection Agency (2016). Memorandum: Chlorpyrifos Refined Drinking Water Assessment for Registration Review. Available at: https://downloads.regulations.gov/EPA-HQ-OPP-2015-0653-0437/content.pdf.

[2] European Commission (2019). Chlorpyrifos and Chlorpyrifos-methyl. Available at: https://ec.europa.eu/food/plant/pesticides/approval_active_substances/chlorpyrifos_chlorpyrifos-methyl_en.

[3] Rauh, V. *et al*. (2006) Impact of prenatal chlorpyrifos exposure on neurodevelopment in the first 3 years of life among inner-city children, *Pediatrics*. Available at: https://pubmed.ncbi.nlm.nih.gov/17116700/.

[4] Lovasi, G. *et al*. (2011) Chlorpyrifos Exposure and Urban Residential Environment Characteristics as Determinants of Early Childhood Neurodevelopment, *American Journal of Public Health*. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC3000714/.

[5] Rauh, V. *et al*. (2012) Brain anomalies in children exposed prenatally to a common organophosphate pesticide, *Proceedings of the National Academy of Sciences of the United States of America*. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC3356641/.

[6] Gunier, R. *et al*. (2017) Prenatal Residential Proximity to Agricultural Pesticide Use and IQ in 7-Year-Old Children, *Environmental Health Perspectives*. Available at: https://pubmed.ncbi.nlm.nih.gov/28557711/.

[7] Johns Hopkins Bloomberg School of Public Health (2021). Brain Organoid Study Highlights Potential Role of Genetic and Environmental Interaction in Autism Spectrum Disorder. Available at: https://publichealth.jhu.edu/2021/brain-organoid-study-highlights-potential-role-of-genetic-and-environmental-interaction-in-autism-spectrum-disorder.

[8] U.S. Environmental Protection Agency (2016). EPA Releases Draft Biological Evaluations of Three Chemicals' Impacts on Endangered Species. Available at: https://web.archive.org/web/20170120193643/https://www.epa.gov/pesticides/epa-releases-draft-biological-evaluations-three-chemicals-impacts-endangered-species.

[9] Urlacher, E. *et al*. (2016) Measurements of Chlorpyrifos Levels in Forager Bees and Comparison with Levels that Disrupt Honey Bee Odor-Mediated Learning Under Laboratory Conditions, *Journal of Chemical Ecology*. Available at: https://pubmed.ncbi.nlm.nih.gov/26872472/.