

CHLOROTHALONIL

EPA Proposed Interim Decision (PID)

Background

- Chlorothalonil is a broad-spectrum, non-systemic (contact) fungicide with multiple modes of action. It was first registered for turfgrass use in 1966¹.
- The EPA has approved the use of chlorothalonil to meet the needs of growers and turfgrass managers for controlling approximately 125 diseases on over 65 crops. It is widely used on cucurbits, peanuts, potatoes, sweet corn, stone fruit, tomatoes, ornamental plants and turfgrass.
- The Fungicide Resistance Action Committee (FRAC) lists chlorothalonil as a multi-site fungicide in the chloronitrile chemical group; FRAC Code M05. It is the only compound in this chemical group².
- The risk of turfgrass pathogens developing resistance to multi-site fungicides, including chlorothalonil, is considered low³. To date, there are no confirmed reports of turfgrass pathogens developing resistance to multi-site fungicides⁴.
- Chlorothalonil is the backbone of many disease management programs in turfgrass and essential to manage fungicide resistance.
- Fungicide rotations with chlorothalonil are critical for control of the pathogens which cause dollar spot (*Claviceps spp.*), anthracnose (*Colletotrichum cereale*), and gray leaf spot (*Pyricularia oryzae*) and to prevent these pathogens from developing resistance to single-site mode of action fungicides.
- Dollar spot is a major disease of turfgrass, consistently rated by golf course superintendents as the most problematic disease nationwide⁵. To effectively manage dollar spot, strategic fungicide rotation is essential, which includes the use of chlorothalonil.
- Additionally, chlorothalonil is an essential component for managing snow mold pathogens and is one of the few active ingredients registered for use in turfgrass to control algae⁶.

Registration review

Chlorothalonil is undergoing registration review at the EPA. Following extensive review of currently available scientific data, the Agency is seeking public comment on its Proposed Interim Decision (PID). This is the next step in the registration review process, governed by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Key developments

- On October 18, 2023, the EPA published its Proposed Interim Decision (PID) for chlorothalonil. Syngenta and others requested a deadline extension, and the comment

period now ends January 17, 2024.

- While risk exceedance was identified due to consideration of additional groundwater metabolites and updated risk assessment methods, the toxicological properties of chlorothalonil and/or its degradates have not changed.
- The EPA identified a potential dietary risk to the health of infants (<1-year-old) from drinking water consumed in baby formula, and the general public and females of reproductive age from drinking water.
- Rate reductions proposed in the PID are to mitigate dietary risk and ecological risk estimates. Additionally, interim ecological mitigation language is proposed to mitigate potential impact to endangered species.

Proposed Interim Decision Overview

- **Positive Conclusions**
 - The EPA used best available science to update their groundwater modeling, reducing the estimated risk cup for drinking water.
 - The EPA did not identify any residential handler risk of concern, risk to bystanders or occupational handler risks.
 - The EPA concluded that there was no further need to assess chlorothalonil for endocrine disruption potential for human health.
 - The EPA concluded non-pollinator terrestrial invertebrates are sensitive to chlorothalonil at levels higher than the current labeled maximum use rates.
 - The EPA continues to follow the risk benefits assessment approach for the use of the chlorothalonil which includes the proposed mitigation measures.
- **Risks Identified**
 - The EPA reviewed the available toxicology data on a metabolite of chlorothalonil and determined that it poses a potential dietary risk to the health of females who are of reproductive age if consumed through their diet (drinking water).
 - The EPA expanded the definition of residue for drinking water to include additional metabolites. This expansion led to a risk exceedance for long-term exposure to chlorothalonil and its metabolites for both the general public and infants. This expansion influenced the EPA's proposed rate reduction for most uses, specifically in areas with a high potential for groundwater contamination.
 - As part of the registration review process, the EPA has more recently identified the need for toxicity studies in honey bees and residue studies in pollen and nectar.
 - The EPA has a mandate to harmonize pesticide tolerances with CODEX MRLs, where possible.

Summary of proposed chlorothalonil use rate mitigations for turfgrass use:

- Table 1 lists the current chlorothalonil use rates and proposed use rates as outlined by the chlorothalonil proposed interim decision posted on 18 October 2023⁶.
 - Proposed use rates represent a 3, 13, 13, 35, and 38% annual maximum rate reduction for sod, industrial turf and athletic fields, golf course fairways, golf course tees and golf course putting greens, respectively.

Table 1. Current and proposed chlorothalonil used rates by turfgrass site.

Use site	Current use rates		Proposed use rates	
	Single application maximum (lbs ai/A)	Maximum yearly use rate (lbs ai/A)	Single application maximum (lbs ai/A)	Maximum yearly use rate (lbs ai/A)
Sod	11.3	13.0	11.3	12.6
Industrial turf and athletic fields	11.3	26.0	11.3	22.6
Golf course fairways and roughs	11.3	26.0	11.3	22.6
Golf course tees	11.3	52.0	11.3	33.9
Golf course putting greens	11.3	73.0	11.3	45.2

- The EPA has proposed additional chlorothalonil rate restrictions for sites where crops, including turfgrass, are grown on vulnerable soils.
 - For all sites where turfgrass is grown on vulnerable soils, the annual maximum use rate is 6.2 lbs ai/A.
 - Vulnerable soils are classified as soils that meet all three criteria listed below:
 - 1) Sandy or coarse-textured soils, based on USDA's soil classification system (see USDA's Web Soil Survey tool to determine soil texture: <https://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>)
 - 2) Less than 2% organic matter content
 - 3) The water table occurs at a depth of 30 feet or less from the surface

Summary of proposed ecological mitigations and label language additions or changes impacting turfgrass use:

- Untreated buffers around all estuarine/marine and freshwater habitats of 25 feet (see page 56 of the PID)
- FIFRA interim ecological mitigation measures for conventional uses (see pages 60-68 of the PID)
 - Pollinator stewardship advisory language
 - Ecological incident reporting label language
 - Bulletins Live! Two (BLT) labeling
 - Spray drift mitigation measures
 - Wind-directional drift buffers for conservation areas
- Endangered Species: Proposed risk mitigation to implement the 2011 NMFS Salmonid BiOp for conventional uses (see pages 68-70 of the PID)

How can you make an impact?

- Compose and post comments on the following subject matter:
 - Explain the importance of chlorothalonil in your agronomic program and resistance management strategy.
 - Outline how you use chlorothalonil on your turfgrass site. What are your actual application rates, number of applications and spray intervals? Please provide observed efficacy data and benefits of chlorothalonil applications. The EPA defaults to using maximum labelled rates in its calculations, so lower actual use rates are valuable data points.
 - Explain how the proposed mitigations will impact your disease management program and overall turf health. Include changes you will need to make and the impact of reduced chlorothalonil use rates.
 - Outline mitigation practices are used on your turfgrass site such as buffer and conservation areas and include agronomic and application practices used to reduce non-target impact.
 - Reference any strategies you use to control water runoff from chlorothalonil-treated turfgrass.
 - In your comments, include mitigations you are taking relative to honey bee and pollinator stewardship in general. Have you planted pollinator forage and/or a native habitat?

Here's how to post a public comment on the Chlorothalonil docket:

- 1) Comments can be made online directly to the Chlorothalonil Registration Review docket via this link: <https://www.regulations.gov/document/EPA-HQ-OPP-2011-0840-0140>
- 2) Click the blue "Comment" box on the left, below the docket title, "Pesticide Registration Review: Proposed Interim Decision for Several Pesticides".
- 3) Type or paste your comments into the free-text box and upload any attachments you wish to submit. You will be prompted add your email address and name of an individual or an organization depending on your affiliation, check the reCAPTCHA button, and then click the "Submit Comment".
- 4) [GCSAA industry information webinar January 3, 2024](#) Noon Central Time
- 5) [GCSAA advocacy take action](#)

The chlorothalonil PID comment period closes on January 17, 2024.

References:

- ¹EPA Reregistration Eligibility Decision (RED): Chlorothalonil. April 1999. ([web link](#))
- ²Fungicide Resistance Action Committee (FRAC) Code List. March 2022. ([web link](#))
- ³Fungicide Resistance Action Committee (FRAC): Importance of multisite fungicides for managing pathogen resistance. June 2018. ([web link](#))
- ⁴Latin, R. (2011). *A practical guide to turfgrass fungicides*. The American Phytopathological Society.
- ⁵Kalik, R. & Curl G. D. (2022). A strategic analysis of the US professional turf and ornamental pesticide market: The 2022 season. Specialty Consultants, LLC.
- ⁶Clark, B. B., Vincelli, P., Koch, P., & Munshaw, G. (2020). Chemical Control of Turfgrass Diseases 2020. University of Kentucky Cooperative Extension. ([web link](#))
- ⁷Chlorothalonil: Proposed interim registration review decision. Case number 0097. Docket number EPA-HQ-OPP-2011-0840. ([web link](#))

Classification: For Public Distribution