OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

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February 13, 2024

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MEMORANDUM **DP Barcode: 498201**

SUBJECT: **Cyantraniliprole:** Problem Formulation for Registration Review

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The Environmental Fate and Effects Division (EFED) has completed a problem formulation for the ecological risk and drinking water exposure assessments to be conducted as part of the registration review of the insecticide cyantraniliprole (CAS# 736994-31-1; PC Code: 090098). Cyantraniliprole was first registered in 2013, and therefore, was not part of the first round of registration review. This abbreviated problem formulation refers to the recently completed biological evaluation (BE) for cyantraniliprole (USEPA, 2023) for detailed characterization of the uses, environmental fate data, ecological effects data, reported incidents, and residues of concern for the ecological risk assessment. Therefore, this problem formulation only contains the information not captured in the BE, which includes characterization of 1) the drinking water exposure assessment (DWA) needed for registration review (**Section 2**), 2) the DWA residues of

concern (**Section 3**), and 3) data needs (**Section 4**).

There are no environmental fate data needs for cyantraniliprole. However, data needs were identified for ecological effects studies (see **Section 4**).

1. Introduction

The Environmental Fate and Effects Division (EFED) has completed this preliminary problem formulation for the ecological risk and drinking water exposure assessments to be conducted as part of the registration review of the systemic diamide insecticide cyantraniliprole (CAS# 736994-31-1; PC Code: 090098). This abbreviated problem formulation refers to the recently completed biological evaluation (BE) for cyantraniliprole (USEPA, 2023) for detailed characterization of the uses, environmental fate data, ecological effects data, reported incidents, and residues of concern for the ecological risk assessment. Therefore, this problem formulation only contains the information not captured in the BE, which includes characterization of:

1) previous drinking water exposure assessments (DWA) (**Section 2**),
2) the DWA residues of concern (**Section 3**), and
3) data needs (**Section 4**).

The following sections of the BE for cyantraniliprole (USEPA, 2023) contain the material not covered in this abbreviated problem formulation:

- Executive Summary (p. 7): Conclusions from Previous Assessments (more specifically, the BE contains both FIFRA and ESA-based effects determinations for all currently registered uses)
- Section 1.4 (p. 120): Use Characterization
- Section 3.0 (p. 47): Environmental Fate Summary
- Section 3.2 (p. 50): Ecological Residues of Concern
- Section 2.1 (p. 20) and Section 4.8.3 (p. 129): Incidents Summary
- Section 4.0 (p. 60): Toxicity/Ecological Effects and Risk Characterization (Listed Species Assessment)
- Appendix A (p. 158): Chemical Names and Structures Table

2. Drinking Water Exposure Assessment

Table 2-1 summarizes estimated drinking water concentrations (EDWCs) for cyantraniliprole from currently labeled uses representing the potential maximum exposure from foliar use on various multi-season crops estimated with the Pesticide in Water Calculator (PWC) model in a 2016 drinking water exposure assessment (DWA). The then-proposed new uses on multi-season crops (*e.g.,* leafy, bulb, fruiting, and cucurbit vegetables) had applications spanning two seasons (USEPA, 2016a). EDWCs generated for ground water from the 2016 assessment are expected to

remain greater than EDWCs for surface water (based on fly control use) for this round of registration review. Since the 2016 DWA, there were updates to drinking water exposure modeling guidance. These updates include: the upgrade of the PWC model version to PWC v. 2.001 (September 10, 2020) from PWC v. 1.52 and adoption of new surface water scenarios based on soil batch equilibrium characteristics (April 28, 2023). Additional updates may occur prior to the next assessment. In addition, the groundwater zone of biodegradation has been updated from 1 meter to 2 meters in depth, which could potentially impact groundwater EDWCs (USEPA, 2022). Therefore, EFED will conduct a new assessment to update the EDWCs with the updated policy and guidance at the time of writing and, thus, plans to conduct a new DWA for registration review.

Table 2-1. Estimated Drinking Water Concentrations (EDWCs) for Cyantraniliprole[A]

Source (Exposure Model)	Use Site (Max. Annual Use Rate)	Acute EDWC (µg/L)	Chronic EDWC (µg/L)	Cancer Chronic EDWC (µg/L)
Surface water[A] (FIRST)	Fly Control (Bait Stations) (5 app. x 0.087 lbs a.i./A)	43	24	24
Ground water[B] (PWC-GW)	Various Multi-Season Crops (3 app. x 0.133 lbs a.i./A x 2 seasons)	**70**	**64**	

[A] Previously recommended values from USEPA, 2012 (DP 403747)
[B] Recommended EDWC values in **bold** font.
PWC=Pesticide in Water Calculator v. 2.001.

3. Drinking Water Residues of Concern

The drinking water residues of concern (ROC) include IN-JCZ38, IN-J9Z38, IN-K5A77, IN-NXX69, IN-QKV54 and IN-RNU71, in addition to the parent compound cyantraniliprole. The Health Effects Division (HED) removed four major degradates (IN-JSE76, IN-K5A79, IN-PLT97, IN-K5A78) on March 5, 2016, from the ROCs in 2016. This update was based on registrant-provided information that showed the removed degradates are much less toxic than the parent compound, based primarily on physical-chemical properties and comparison of the results of repeated dose studies between cyantraniliprole and representative degradates (USEPA 2016b; DP 429265). In addition, IN-NXX69, IN-QKV54 and IN-RNU71 are all photolytic degradates and do not contribute to ground water exposure since photolysis is not an input into the ground water model. The ecological ROCs are described in detail in the BE.

4. Data Needs

Available studies submitted to fulfill environmental fate and ecological effects guideline requirements are tabulated below. In addition, each table provides study classifications and whether further data are needed to support risk assessments. The tables below (**Table 4-1** and **4-2**) identify cyantraniliprole terrestrial and aquatic non-target organism and environmental fate data requirements and whether further data are needed in order to support risk assessment. For Registration Review, there are no environmental fate or ecological effects data gaps (pending action on EFED's waiver recommendation, below).

850.1400 Estuarine/Marine Early Life Stage Toxicity Test

An estuarine/marine early life study toxicity study is conditionally required per 40 CFR Subpart G because data are required for estuarine/marine species if the product is intended for direct application to the estuarine/marine environment or is expected to enter the environment in significant concentrations because of its expected use or mobility patterns, which is the case for cyantraniliprole. Because the submitted study is supplemental (because undissolved test material was observed in some of the test chambers), EFED used an ACR to estimate the chronic estuarine/marine fish toxicity endpoint and did not identify any risks to this taxon. EFED continues to recommend this data requirement be waived because a new study is not expected to change risk conclusions or effects determinations based on the studies EPA has already assessed.

Tier I and Higher Tier Pollinator Tests

EFED does not recommend any additional pollinator studies for Registration Review. The Tier I honey bee toxicity dataset is considered complete. Honey bee guidelines indicate that the Tier I studies should be conducted with the TGAI (Technical Grade Active Ingredient). The submitted OECD 237 (honey bee larval acute toxicity test) toxicity study was conducted with a Typical End Use Product (TEP); however, sufficient Tier I toxicity studies are available such that this deficiency is not a data gap and does not impact the Agency's ability to estimate or characterize potential risk. Furthermore, the available data were sufficient for determining risks to terrestrial invertebrates and evaluating the potential risks to listed species in a recent Biological Evaluation (see USEPA, 2023). Therefore, no additional toxicity data for honey bees are recommended at the Tier I level.

A substantial amount of Tier 2 data, including both studies of residues in pollen and nectar and semi-field honey bee colony toxicity studies, are summarized in the BE (see USEPA, 2023). The BE describes several uncertainties within these Tier 2 studies. For the residue studies, several studies tested below the maximum registered application rates; however, a considerable number of the residue values reported exceed dietary-based endpoints for adult and larval honey bees. Therefore, new residue data at the maximum application rate are not expected to change overall risk conclusions. In regard to colony-level effects, there are short term effects observed in the available Tier 2 semi-field colony level toxicity studies. Deficiencies in these studies including methodological inconsistencies and not testing up to the highest application rate make it difficult to conclude if colony level risks to honey bees may occur following labeled use of cyantraniliprole; however, current label restrictions prohibit the application of cyantraniliprole to blooming crops: "This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds and may cause possible effects to pollinators from exposure to translocated residues in blooming crops. Do not apply this product or allow it to drift to blooming crops or weeds while bees are foraging in/or adjacent to the treatment area."

Therefore, will greatly reduce the potential for both on-field contact and dietary exposure from residues on pollen and nectar therefore minimizing effects at the colony level.

The majority of cyantraniliprole uses are pollinator-attractive, and many of the labeled crops rely upon commercial honey bees for pollination services. Current labels have advisory language and restrictions on applications around the time of flowering to limit potential dietary exposure to bees from residues on the target plants and non-target flowering plants. These current label restrictions reduce the dominant exposure pathway through which a colony may be exposed to cyantraniliprole, and therefore, reduce the likelihood that exposure could cause colony-level effects.

Based on the label restrictions discussed above, EFED does not recommend the submission of additional studies of residues in pollen and nectar or honey bee semi-field colony studies.

All submitted studies for each data guideline requirement are summarized in **Appendix A**.

Table 4-1. Cyantraniliprole Terrestrial and Aquatic Non-target Organism Data Requirements

Guideline Number - Study Type		Required[1]	Data Requirement Status
Birds (surrogates for terrestrial amphibians and reptiles)			
850.2100 - Avian Acute Oral Toxicity Test	Passerine	Yes	**Complete**
	Upland Game or Waterfowl	Yes	**Complete**
850.2200 - Avian Sub-acute Dietary Toxicity Test	Waterfowl	Yes	**Complete**
	Upland Game Bird	Yes	**Complete**
850.2300 - Avian Reproduction Test	Waterfowl	Yes	**Complete**
	Upland Game Bird	Yes	**Complete**
Mammals			
850.2400 - Wild Mammal Toxicity Testing		No[2]	**Not Triggered**
850.2500 - Field Testing for Terrestrial Wildlife		No[2]	**Not Triggered**
Aquatic Invertebrates Acute Toxicity (Water-Column Exposure)			
850.1010 - Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids		Yes	**Complete**
850.1025 - Oyster Acute Toxicity Test (Shell Deposition)		Yes	**Complete**
850.1035 - Mysid Acute Toxicity Test		Yes	**Complete**
850.1045 - Penaeid Acute Toxicity Test		No[2]	**Not Triggered**
850.1055 - Bivalve Acute Toxicity Test (Embryo-Larval)		No[2]	**Not Triggered**
Fish Acute Toxicity (surrogates for aquatic-phase amphibians)			
850.1075 - Freshwater Fish Acute Toxicity Test	Coldwater species	Yes	**Complete**
	Warmwater species	Yes	**Complete**
850.1075 - Saltwater Fish Acute Toxicity Test		Yes	**Complete**
Aquatic Invertebrate Chronic Toxicity			
850.1300 - Daphnid Chronic Toxicity Test		Yes	**Complete**
850.1350 - Mysid Chronic Toxicity Test		Yes	**Complete**
Fish Chronic Toxicity			
850.1400 - Freshwater Fish Early Life Stage (ELS) Toxicity Test		Yes	**Complete**
850.1400 - Estuarine/ Marine Fish Early Life Stage (ELS) Toxicity Test		Yes	**Waiver Granted (see USEPA, 2023)**

Guideline Number - Study Type		Required[1]	Data Requirement Status
850.1500 - Fish Life Cycle Toxicity Test	Freshwater	No[2]	**Not Triggered**
	Estuarine/Marine	No[2]	**Not Triggered**
Bioconcentration Factor (BCF) Study			
850.1710 - Oyster Bioconcentration Factor (BCF)		No	**Not Triggered**
850.1730 - Fish Bioconcentration Factor (BCF)		No	**Not Triggered**
Aquatic Invertebrates Acute Toxicity (Benthic Exposure)			
850.1735 - Spiked Whole Sediment 10-Day Toxicity Test, Freshwater Invertebrates	Midge	No	**Not Triggered**
	Freshwater Amphipod	No	
850.1740 - Spiked Whole Sediment 10-Day Toxicity Test, Saltwater Invertebrates		No	
Non-guideline - Whole sediment: chronic (28-65-Day life cycle) Toxicity Test	Freshwater midge	No	
	Freshwater amphipod	No	
	Estuarine/Marine amphipod	No	
Other Aquatic Studies			
850.1850 - Aquatic food chain transfer		No[2]	**Not Triggered**
850.1950 - Field testing for aquatic organisms		No[2]	**Not Triggered**
Terrestrial Invertebrate Toxicity (Surrogate for both *Apis* and non-*Apis* bees)[3]			
850.3020 (OECD Test Guideline 214)- Honey Bee [Adult] Acute Contact Toxicity Test		Yes	**Complete**
OECD Test Guideline 213 - Honey Bee Adult Acute Oral (AAO) Toxicity Test		Yes	**Complete**
OECD Test Guideline 237 - Larval Honey Bee Acute Oral (LAO) (single dose) Toxicity Test		No	**Complete[4]**
OECD Guidance Document 239 - Larval Honey Bee Chronic Oral (LCO) (repeat dose) Toxicity Test		Yes	**Complete**
OECD Test Guideline 245 - Honey Bee Adult Chronic Oral (ACO) (repeat dose) Toxicity Test		Yes	**Complete**
850.3030 - Honey Bee Toxicity of Residues on Foliage		Yes	**Complete**
OECD Guidance Document 75- Honey Bee Colony Brood Test (Enclosure Study) Under Semi-field Conditions		Yes	**Complete[4]**
Non-guideline Semi-field Colony Feeding Study (Oomen *et al*. 1992)		Yes	**Complete[4]**
850.3040 - Field Testing for Pollinators		No	**Not Triggered**
Non-guideline Field Trial of Residues in Pollen/Nectar		Yes	**Complete[4]**

[1]Required Per 40 CFR Part 158

[2]Per 40 CFR Part 158, specified conditions that require the study are not met.

[3] See EFED guidance on exposure and effects testing for assessing risk to bees. (https://www.epa.gov/sites/default/files/2016-07/documents/guidance-exposure-effects-testing-assessing-risks-bees.pdf)

[4] Despite some study deficiencies, it is unlikely a new study would change risk conclusions. Therefore, a new study is not recommended (see **Appendix A**).

Table 4-2. Cyantraniliprole Environmental Fate Data Requirements

Guideline Number & Study Type	Required	Data Requirement Status
835.2120 - Hydrolysis	Yes	**Complete**
835.2240 - Photodegradation in Water	Yes	**Complete**
850.2410 - Photodegradation in Soil	Yes	**Complete**

Guideline Number & Study Type		Required	Data Requirement Status
835.2370 - Photodegradation in Air		No[1]	**Not Triggered**
835.4100 - Aerobic Soil		Yes	**Complete**
835.4200 - Anaerobic Soil		Yes	**Complete**
835.4300 - Aerobic Aquatic		Yes	**Complete**
835.4400 - Anaerobic Aquatic		Yes	**Complete**
835.1230 - Batch Equilibrium and 835.1240- Column Leaching		Yes	**Complete**
835.1410 - Volatility Laboratory		No[1]	**Not Triggered**
835.8100 - Volatility Field		No[1]	**Not Triggered**
835.6100 - Terrestrial Field Dissipation		Yes	**Complete**
835.6200 - Aquatic Field Dissipation		Yes	**Complete**
835.6300 - Forestry Dissipation		No[1]	**Not Triggered**
835.7100 – Prospective Groundwater Monitoring		No[1]	**Not Triggered**
850.6100 – Environmental Chemistry Method/ Independent Laboratory Validation	Soil (supports 835.6100 and monitoring)	Yes	**Complete**
	Water (supports monitoring)	Yes	**Complete**
	Air (supports monitoring)	No[1]	**Not Triggered**
Storage Stability	Soil (supports 835.6100)	Yes	**Complete**
	Water (supports 835.6200)	Yes	**Complete**
	(supports 835.6300, 835.6400, and/or 835.7100)	No[1]	**Not Triggered**
835.6400 - Combination and Tank Mixes		No[1]	**Not Triggered**

[1] Per 40 CFR Part 158, specified conditions that require the study are not met.
[2] See EFED guidance on exposure and effects testing for assessing risk to bees. (https://www.epa.gov/sites/default/files/2016-07/documents/guidance-exposure-effects-testing-assessing-risks-bees.pdf)

5. References

USEPA. 2012. Tier I Drinking Water Exposure Assessment for Cyantraniliprole in Support of New Chemical Registration on Various Crops. DP 403747 dated 21 November 2012. U.S. Environmental Protection Agency. Washington, DC.

USEPA. 2016a. Cyantraniliprole: Revised Drinking Water Assessment including Ground Water Exposure Refinements for Proposed New Uses on Leafy, Bulb, Fruiting, and Cucurbit Vegetables with Two Seasons of Applications. DP 433365 dated 09 June 2016. U.S. Environmental Protection Agency. Washington, DC.

USEPA. 2016b. Cyantraniliprole. Toxicological Significance of Ground Water Metabolites for Drinking Water Assessment. D429265 dated 05 March 2016. U.S. Environmental Protection Agency. Washington, DC.

USEPA. 2017. Guidance for Using Daily Average Aquatic Concentrations in Ecological and Drinking Water Assessments. June 27, 2017. Environmental Fate and Effects Division. Office of Chemical Safety and Pollution Prevention. U.S. Environmental Protection Agency.

USEPA. 2022. Implementation of Updated Subsurface-Modeling Assumptions for Groundwater Modeling. Environmental Fate and Effect Division, Office of Chemical Safety and Pollution Prevention. February 24, 2022. pp. 4

USEPA. 2023. Cyantraniliprole: Biological Evaluation Effects Determination for Endangered and Threatened Species and Designated Critical Habitats. U.S. Environmental Protection Agency, Office of Chemical Safety and Pollution Prevention, Office of Pesticide Programs, Environmental Fate and Effects Division. September 19, 2023.

Appendix A. Preliminary Identification of Data Gaps

a. Environmental Fata Data

Table A-1 identifies environmental fate studies by master record identification (MRID) number that offer data for each guideline requirement, as well as study classifications.

Table A-1. Submitted Environmental Fate Data for Cyantraniliprole

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Risk Assessment?	Justification
835.2120	Hydrolysis	48119905	Acceptable	No	--
835.2240	Aqueous photolysis	48119906	Acceptable	No	--
835.2410	Soil photolysis	48120082	Acceptable	No	--
		48120046	Acceptable		
835.4100	Aerobic soil metabolism	48120045	Acceptable	No	--
		48120060	Acceptable		
		48120061	Acceptable		
		48120062	Acceptable		
		48120064	Acceptable		
		48120063	Acceptable		
		48120070	Supplemental		
		48120074	Acceptable		
		48120083	Acceptable		
		48120087	Acceptable		
835.4200	Anaerobic soil metabolism	48120047	Acceptable	No	--
835.4300	Aerobic aquatic metabolism	48120049	Acceptable	No	--
835.4400	Anaerobic aquatic metabolism	48120071	Acceptable	No	--
		48120081	Acceptable		
835.1230 835.1240	Adsorption/ desorption and leaching	48120073	Acceptable	No	--
		48120065	Acceptable		
		48120066	Acceptable		
		48120067	Acceptable		
		48120068	Acceptable		
		48120069	Acceptable		
		48120072	Acceptable		
		48120075	Acceptable		
		48120086	Acceptable		
		48120088	Acceptable		

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Risk Assessment?	Justification
835.6100	Terrestrial field dissipation	48120055	Acceptable	No	--
		48120054	Acceptable		
		48120056	Acceptable		
		48120053	Acceptable		
		48120058	Acceptable		
		48120057	Acceptable		
	Storage stability in soil	48120076	Acceptable		
		48122591	Acceptable		
835.6200	Aquatic Field Dissipation	50234303	Supplemental	No	--
850.1730	Fish bioconcentration	48120139	Supplemental	No	--
850.6100	Analytical method in soil	48119921	Acceptable	No	There is no submitted independent laboratory validation (ILV) for the analytical method MRID 48119930; therefore, the method is unreviewable. However, the ILV is not needed to support the submitted field studies.
	ILV for soil	48122528	Acceptable		
	Analytical method in water	48119927	Acceptable		
	ILV for water	48122535	Acceptable		
	Analytical method for air[1]	48119930	Unreviewable		

[1]EPA could not review MRID 48119930 due to the lack of independent laboratory validation of analytical method in air.

b. Ecological Effects Data

Tables A-2 & **A-3** identify ecological effects studies by MRID that offer data for each guideline requirement, as well as study classifications.

Table A-2. Submitted Aquatic Ecological Effects Data for Cyantraniliprole[1]

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Risk Assessment?	Justification
850.1075	Freshwater Fish Acute Toxicity (TGAI)	48120108	Supplemental	No	All freshwater fish studies were classified as supplemental due to undissolved material; however, all identified non-definitive endpoints result in no mortality. In previous risk assessments no LOC exceedances were identified for freshwater fish. Therefore, no additional data are needed for this assessment.
		48120104	Supplemental		
		48120106	Supplemental		
	Freshwater Fish Acute Toxicity (TEP)	48432413	Acceptable		--
		48120321	Acceptable		
		48120220	Acceptable		
		48432527	Supplemental		
	Freshwater Fish Acute Toxicity (Degradate)	52044302	No Review[2]		Degradate: IN-K5A78
850.1075	Estuarine/Marine Fish Acute Toxicity	48120105	Supplemental	No	--
		50234309	Acceptable		
850.1400	Freshwater Fish Early Life Sage	48120109	Acceptable	No	--
850.1400	Estuarine/Marine Fish Early Life Stage	48120110	Supplemental	No	This study was supplemental, but not useful for risk estimation due to the presence of undissolved test material. Although no acceptable data are available for estuarine/marine invertebrates on a chronic basis, an Acute-to-Chronic Ratio (ACR) was used to estimate this endpoint. Although there are inherent uncertainties due to use of an ACR, no risks were identified, and it is unlikely a new study would change risk conclusions. Therefore, no new data are needed.

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Risk Assessment?	Justification
850.1010	Freshwater Invertebrate Acute Toxicity (TGAI)	48120114	Acceptable	No	--
	Freshwater Invertebrate Acute Toxicity (TEP)	48120217	Acceptable		--
		48120242	Acceptable		
		48120415	Acceptable		
		48120319	Acceptable		
		48432528	Supplemental		
		48432414	Supplemental		
	Freshwater Invertebrate Acute Toxicity (Degradates)	48120151	Acceptable		Degradate: IN-PLT97
		48122523	Acceptable		Degradate: IN-QKV54
		48122521	Acceptable		Degradate: IN-RNU71
		48120120	Acceptable		Degradate: IN-J9Z38
		48120121	Acceptable		Degradate: IN-JCCZ28
		48120145	Acceptable		Degradate: IN-JS76
		48120125	Acceptable		Degradate: IN-K5A77
		48120142	Acceptable		Degradate: IN-K5A78
		48120152	Acceptable		Degradate: IN-K5879
		48122515	Acceptable		Degradate: IN-NXX79
		48120133	Acceptable		Degradate: IN-J9Z38
850.1035 850.1025 850.1045 850.1055	Estuarine/Marine Invertebrate Acute Toxicity	48120096 (850.1010)	Acceptable	No	--
		48120095 (850.1025)			
850.1300	Freshwater Invertebrate Life Cycle	48120091	Acceptable	No	--
		52212501	In Review		
850.1350	Estuarine/Marine Life Cycle	48120097	Supplemental	No	--
Non-Guideline	Acute Toxicity to Freshwater Invertebrates	48120102	Supplemental	No	--
		48120101	Acceptable		
		48120098	Acceptable		
		48120103	Acceptable		
		48120117	Acceptable		
		48120099	Acceptable		
Non-Guideline	Midge Acute toxicity	48120094	Acceptable	No	--

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Risk Assessment?	Justification
850.1735	Freshwater Spiked Sediment -10-day Study (Degradates)	52044303	No Review[2]	No	Degradate: IN-J9Z38
		52044304			Degradate: IN-J9Z38
Non-Guideline	Chronic Toxicity to Sediment Dwelling Organisms 28-day sediment toxicity test	48120093	Supplemental	No	--
850.4400	Lemna spp. toxicity	48122543	Acceptable	No	--
850.4500	Algal toxicity-TGAI	48120107	Supplemental		
		48120157	Acceptable		
		48122542	Supplemental		
	Algal toxicity-TEP	48120221	Supplemental		--
		48120416	Supplemental		
		48120323	Supplemental		
		48432415	Supplemental		
		48432529	Supplemental		
	Algal toxicity (Degradates)	52044305	No Review[2]		Degradate: IN-QKV54
		52044307	No Review[2]		Degradate: IN-K5A78
		52044308	No Review[2]		Degradate: IN-JCZ38
		52044309	No Review[2]		Degradate: IN-J9Z28
850.5400	Cyanobacteria	48122541	Supplemental	No	Precipitate observed in the highest test concentration. No significant effects reported in the study. The 96-hr EC_{50} of 15 mg a.i./L was well below the maximum 1-day EEC for cyantraniliprole uses (69.9 µg a.i./L).

[1] Benthic studies are not triggered due the fate properties of cyantraniliprole (it will not strongly sorb to sediments (K_d=2.77 at pH 7; K_{OC} = 241 at pH 7 and log K_{ow}=1.9).

[2] No Review indicates that these studies were received during the public comment period, and EPA preliminarily reviewed the studies but did not formally determine whether the studies are acceptable. EPA may ultimately review the studies but does not believe a full review is necessary at this time because it is unlikely that they will change any risk conclusions or effects determinations based on the preliminary review.

Table A-3. Submitted Terrestrial Ecological Effects Data for Cyantraniliprole

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Assessment?	Justification
850.2100	Avian Acute Oral Toxicity	48120153	Acceptable	No	--
	Avian Acute Oral Toxicity (TEP)	48120171	Acceptable		
		48120218	Acceptable		
		48120305	Acceptable		
		52044301	No review		
850.2200	Avian Dietary Toxicity	48120128	Acceptable	No	--
		48120127	Acceptable		
		40600603	Acceptable		
850.2300	Avian Reproduction Toxicity	48120116	Acceptable	No	--
		48120115	Acceptable		
Non-guideline	Avian inhalation	(None)	(N/A)	No	Inhalation is not expected to be a main exposure route since cyantraniliprole is not volatile.
OECD 213	Honey bee Acute Oral Toxicity-Adult	48120090	Acceptable	No	--
	Honey bee Acute Oral Toxicity-Adult (TEP)	48120113	Acceptable		
		48120164	Acceptable		
		48120137	Acceptable		
		48432416	Supplemental		
		49546101	Acceptable		
		48432530	Acceptable		
	Honey Bee Acute Oral with Degradates	48120184	Supplemental	No	Degradate: IN-HGW87
		48122518	Supplemental		Degradate: IN-HGW87
		48120185	Supplemental		Degradate: IN-J9Z38
		48122514	Supplemental		Degradate: IN-K5A78
850.3020	Honey bee Acute Contact Toxicity-Adult	48120090	Acceptable	No	--
	Honey Bee Acute Contact Toxicity-Adult (TEP)	48120113	Acceptable		
		48120164	Acceptable		
		48120137	Acceptable		
		48432416	Supplemental		
		49546101	Acceptable		
		48432530	Acceptable		

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Assessment?	Justification
NG-OECD TG 245	Honey Bee 10-Day Adult Chronic	50811801	Supplemental	No	--
	Honey Bee 10-Day Adult Chronic (TEP)	49545801/ 49545802	Supplemental		
		51537802	Acceptable		
		51537804	Acceptable		
		51537805	Supplemental		
OECD TG 237	Honey Bee Larval Acute Oral (TEP)	49541901	Acceptable	No	The submitted OECD 237 (honey bee larval acute toxicity test) guideline toxicity study was conducted with a Typical End Use Product (TEP); however, sufficient studies are available such that this deficiency does not impact the Agency's ability to estimate or characterize potential risk. Furthermore, the available data were sufficient for determining risks to terrestrial invertebrates and evaluating the potential risks to listed species in a recent Biological Evaluation (see USEPA, 2023). Therefore, no additional toxicity data for honey bees are recommended at the Tier I level.
NG OECD 239	Honey Bee Larval Chronic (TEP)	51537801	Acceptable	No	--
	Honey Bee Larval Chronic (TGAI)	51813801	Acceptable		
Non-Guideline OECD 247	Acute Oral and Contact-Bumblebee	51537806	Acceptable	No	--
	Acute Oral and Contact Bumblebee (TEP)	52044332	No Review[1]		
		51537807	Acceptable		
		49545701	Acceptable		
		49545901	Acceptable		
		49546001	Acceptable		
		49545803	Supplemental		
		51537803	Acceptable		
		52044332	No Review[1]		
		52044333	No Review[1]		

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Assessment?	Justification
Non-Guideline	Residues in pollen and nectar without effects data	48122554	Supplemental	No	The studies are classified as supplemental due to study deficiencies, which include testing below the maximum labelled application rate. However, despite limitations, a considerable number of the residue values reported exceed dietary-based endpoints for adult and larval honey bees; therefore, new data at the maximum application rate are not expected to change overall risk conclusions.
		48120031			
		48122556			
		48120030			
		48122562			
		48122563			
		48122565			
		48122566			
		48122567			
		48122568			
		48122569			
		48122571			
		48122570			
		48208401			
		48208402			
		48208403			
		48208404			
		50510301			
		50510302			
		48208405			
		48208406			
		48208407			
		52044324	No Review[1]		
		52044325	No Review[1]		
		52044326	No Review[1]		
		52044326	No Review[1]		
		52044327	No Review[1]		
		52044328	No Review[1]		
		52044329	No Review[1]		
		52044330	No Review[1]		
		52044331	No Review[1]		
850.3030	Aged Residue Study (RT 25)	48120132	Acceptable	No	--

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Assessment?	Justification
OECD GD 75	Semi-Field Colony Effects Studies with Residue Data	48122551	Supplemental	No	Despite the limitations and uncertainty in the current data set (not testing up to the maximum field application rate and issues with experimental design; see USEPA, 2023), EFED does not recommend the submission of additional studies of residues in pollen and nectar or semi-field effects. This is due to the label language restricting applications during bloom that reduces the dominant exposure pathway and the likelihood that exposure could cause colony-level effects.
		48122552	Supplemental		
		48122553	Supplemental		
		48122557/ 48688804	Supplemental		
		48122558/ 48688805	Supplemental		
		48122548	Supplemental		
		48119994	No Review[1]		
		48120013	No Review[1]		
	Semi-Field Effects Studies	48120135	Supplemental		
		48120136	Supplemental		
		48120138	Supplemental		
		48122539	Supplemental		
		48122546	Supplemental		
		48122547	Supplemental		
		48688806/ 48832204	Supplemental		
		49799801	Supplemental		
		48208408	No Review[1]		
		48120112	No Review[1]		
		48122549	No Review[1]		
		48122550	No Review[1]		
		48122564	No Review[1]		
		52044317	No Review[1]		
		52044318	No Review[1]		
		52044319	No Review[1]		
		5204320	No Review[1]		
		52044321	No Review[1]		
		52044322	No Review[1]		
		52044323	No Review[1]		
Non-Guideline	Other Terrestrial Invertebrate Studies	48120155	Supplemental	No	--
		48120130	Supplemental		
		48120164	Supplemental		

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Assessment?	Justification
		48120193	Supplemental		
		48120168	Supplemental		
		48120161	Supplemental		
		48122501	Supplemental		
		48120188	Supplemental		
		41822516	Supplemental		
		48122519	Supplemental		
		48205411	Supplemental		
		48208412	Supplemental		
		48663805	Supplemental		
		48432417	Supplemental		
		48432419	Supplemental		
		48432418	Supplemental		
		48120129	Supplemental		
		48120154	Supplemental		
		48120162	Supplemental		
		48120189	Supplemental		
		48120190	Supplemental		
		48122506	Supplemental		
		48120183	Supplemental		
		48120196	Supplemental		
		48122511	Supplemental		
		48122504	Supplemental		
		48122510	Supplemental		
		48122507	Supplemental		
		48120197	Supplemental		
		48208415	Supplemental		
		48208414	Supplemental		
		48120165	Supplemental		
		48208413	Supplemental		
		48120192	Supplemental		
		48120160	Supplemental		
		48120170	Supplemental		
		48120199	Supplemental		
		48120191	Supplemental		

OCSPP Guideline	Data Requirement	Submitted Studies (MRID)	Study Classifications	Are Data Needed for Assessment?	Justification
		48120159	Supplemental		
		48120169	Supplemental		
		48120198	Supplemental		
		48208453	Supplemental		
		48122512	Supplemental		
		48122505	Supplemental		
		48122509	Supplemental		
		48120195	Supplemental		
		48122513	Supplemental		
		48122508	Supplemental		
		48122530	Supplemental		
		48120194	Supplemental		
		48122573	Supplemental		
		48122574	Supplemental		
		48208428	Supplemental		
		48208451	Supplemental		
		48120166	Supplemental		
		52044311	No Review[1]	No	--
		52044310	No Review[1]		
		52044312	No Review[1]		
		52044313	No Review[1]		
		52044314	No Review[1]		
		52044315	No Review[1]		
		52044316	No Review[1]		
		48688807	No Review[1]		
850.4100	Seedling Emergence and Seedling Growth	50234311	Acceptable	No	MRID 48122575 was classified as supplemental due to control emergence not reaching the 70% validity criterion and phytotoxic effects in control plants. MRID 50234311 satisfies the guideline.
		48122575	Supplemental		
850.4150	Vegetative Vigor	50234312	Acceptable	No	MRID 48120173 is classified as supplemental due to phytotoxic effects in control groups for several species. MRID 50234312 fulfils this guideline.
		48120173	Supplemental		
		48120186	Acceptable		

[1] No Review indicates that these studies were received during the public comment period, and EPA preliminarily reviewed the studies but did not formally determine whether the studies are acceptable. EPA may ultimately review the studies but does not believe a full review is necessary at this time because it is unlikely that they will change any risk conclusions or effects determinations based on the preliminary review.