UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

DATE: **04/05/2023**

SUBJECT: **Spiropidion (044203): First Food Use;** Acute and Chronic Dietary (Food Only) Exposure for the Section 3 Registration Action for the Establishment of Permanent Tolerances without U.S. Registration for Residues in/on Soybean, Tomato, Bell and Nonbell Pepper, Muskmelon, Watermelon, Cucumber, Pumpkin, and Potato.

PC Code: 044203
Decision No.: 567090
Petition No.: 0E8880
Risk Assessment Type: NA
TXR No.: NA
MRID No.: NA

DP Barcode: D466979
Registration No.: NA
Regulatory Action: Tolerances without U.S. Registration
Case No.: NA
CAS Nos.: 1229023-00-0
40 CFR: NA

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The conclusions conveyed in this assessment were developed in full compliance with *EPA Scientific Integrity Policy for Transparent and Objective Science*, and EPA Scientific Integrity Program's *Approaches for Expressing and Resolving Differing Scientific Opinions.* The full text of *EPA Scientific Integrity Policy for Transparent and Objective Science*, as updated and approved by the Scientific Integrity Committee and EPA Science Advisor can be found here: https://www.epa.gov/sites/default/files/2014-02/documents/scientific_integrity_policy_2012.pdf. The full text of the EPA Scientific Integrity Program's *Approaches for Expressing and Resolving Differing Scientific Opinions* can be found here: https://www.epa.gov/scientific-integrity/approaches-expressing-and-resolving-differing-scientific-opinions.

This memorandum serves to update the previous memo (D463820, W. Wassell, 24-MAY-2022) with regards to the nomenclature of metabolites SYN547305, SYN547435, and SYN548430. This is the only update to the document.

Executive Summary

Acute and chronic dietary (food only) exposure and risk assessments were conducted using the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database (DEEM-FCID) Version 4.02. This software uses 2005-2010 food consumption data from the U.S. Department of Agriculture's (USDA's) National Health and Nutrition Examination Survey, What We Eat in America (NHANES/WWEIA). This is the first dietary analysis for spiropidion. The current assessment includes soybean, tomato, bell and nonbell pepper, muskmelon, watermelon, cucumber, pumpkin, and potato. This memorandum was reviewed by two peer reviewers of the DESAC as per the DESAC Standard Operating Procedure (SOP, 09-JUN-2021).

Acute Dietary (Food and Drinking Water) Exposure Assessment

HED conducted an unrefined acute dietary (food only) exposure assessment for the proposed uses of spiropidion. Adjustment of tolerance levels for additional residues of concern for risk assessment was not necessary. HED's 2018 default processing factors for potato dry commodities, dried tomato, tomato paste, tomato puree, and soybean flour were set to 1 as processing data for these commodities are available and no concentration of residues that would require an additional tolerance was required. HED's 2018 default processing factors were used for dried bell and nonbell pepper. It was assumed that 100% of the crops were treated. As the request is for tolerances without U.S. registration, residues in drinking water are not expected.

Results of the acute dietary assessment indicate that the general U.S. population and all other population subgroups have exposure and risk estimates below HED's level of concern. The DEEM acute dietary exposure estimate is 3.2% of the acute population-adjusted dose (aPAD) for the general U.S. population, and 7.3% of the aPAD for the highest exposed population subgroup, children 1-2 years old.

Chronic Dietary (Food and Drinking Water) Exposure Assessment

HED conducted an unrefined chronic dietary (food only) exposure assessment for the proposed uses of spiropidion. Adjustment of tolerance levels for additional residues of concern for risk

assessment was not necessary. HED's 2018 default processing factors for potato flour, dried tomato, tomato paste, tomato puree, soybean, soy milk, and soybean flour were set to 1 as processing data for these commodities are available and no concentration of residues that would require an additional tolerance was required. HED's 2018 default processing factors were used for dried bell and nonbell pepper. It was assumed that 100% of the crops were treated. As the request is for tolerances without U.S. registration, residues in drinking water are not expected.

Results of the chronic dietary assessment indicate that the general U.S. population and all other population subgroups have exposure and risk estimates below HED's level of concern. The DEEM chronic dietary exposure estimate is 2.3% of the chronic population-adjusted dose (cPAD) for the general U.S. population, and 6.7% of the cPAD for the highest exposed population subgroup, children 1-2 years old.

Cancer Dietary Exposure Assessment

No cancer assessment was conducted since spiropidion has been classified as "not likely to be carcinogenic to humans."

I. Introduction

Dietary risk assessment incorporates both exposure and toxicity of a given pesticide. For acute and chronic assessments, the risk is expressed as a percentage of a maximum acceptable dose (i.e., the dose that HED has concluded will result in no unreasonable adverse health effects). This dose is referred to as the population-adjusted dose (PAD). The PAD is equivalent to the point of departure (POD) divided by all applicable uncertainty factors, including the FQPA Safety Factor.

For acute and non-cancer chronic exposures, HED is concerned when estimated dietary risk exceeds 100% of the PAD. References that discuss the acute and chronic risk assessments in more detail are available on the EPA/pesticides web site: "Available Information on Assessing Exposure from Pesticides, A User's Guide," 21-JUN-2000, web link: https://www.regulations.gov/document?D=EPA-HQ-OPP-2007-0780-0001; or see SOP 99.6 (20-AUG-1999).

This is the first dietary analysis for spiropidion.

II. Residue Information

Residues of Concern

Table 1.0. Summary of Metabolites and Degradates to be Included in the Risk Assessment and Tolerance Expression[1,2].

Matrix		Residues Included in Tolerance Expression	Residues Included in Risk Assessment
Plants	Primary Crop	Spiropidion and SYN547305	Spiropidion, SYN547305, SYN547435, and SYN548430
	Rotational Crop	Not applicable as tolerances without U.S. registration is proposed.	Not Applicable
Livestock	Ruminant	SYN547305	SYN547305 (Free and Conjugated) and SYN548430
	Poultry	Not determined	Spiropidion, SYN547305, and SYN548430
Drinking Water		Not applicable as tolerances without U.S. registration is proposed.	Not Applicable

[1] **SYN547305** is 3-(4-chloro-2,6-dimethylphenyl)-4-hydroxy-8-methoxy-1-methyl-1,8-diazaspiro[4,5]dec-3-en-2-one.
SYN547435 is 3-(4-chloro-2,6-dimethylphenyl)-4-hydroxy-8-methoxy-1,8-diazaspiro[4.5]dec-3-en-2-one.
SYN548430 is 3-(4-chloro-2,6-dimethylphenyl)-4-hydroxy-1-methyl-1,8-diazaspiro[4.5]dec-3-en-2-one.

[2] Residues of concern (ROC) in poultry commodities are not determined. If feeding study is conducted residues of spiropidion and its metabolites SYN547305 and SYN548430 should be monitored.

Recommended Tolerances:

Tolerances for residues of spiropidion are recommended for residues of spiropidion and its metabolite SYN547305 in/on soybean at 3 ppm, tomato at 0.6 ppm, bell pepper at 0.9 ppm, nonbell pepper at 1.5 ppm, muskmelon at 0.9 ppm, watermelon at 0.9 ppm, cucumber at 0.8 ppm, pumpkin at 0.7 ppm, and potato at 1.5 ppm. Additionally, tolerances for residues of only

the metabolite SYN547305 are recommended for fat of cattle, goats, horse, and sheep at 0.03 ppm, and meat byproduct of cattle, goats, horse, and sheep at 0.3 ppm.

Residue Data used for the Acute Assessment:

HED conducted an unrefined acute and chronic dietary (food only) exposure assessment for the proposed uses of spiropidion. Adjustment of tolerance levels for additional residues of concern for risk assessment was not necessary (see VIII. Characterization of Inputs/Outputs below). HED's 2018 default concentration factors were used as available. HED's 2018 default processing factors for potato flour, dried tomato, tomato paste, tomato puree, soybean, soy milk, and soybean flour were set to 1 as processing data for these commodities are available and no concentration of residues that would require an additional tolerance was required. HED's 2018 default processing factors were used for dried bell and nonbell pepper. It was assumed that 100% of the all the registered crops were treated (100% CT). As the request is for tolerances without U.S. registration, residues in drinking water are not expected.

The USDA Pesticide Data Program (PDP) monitored pesticide residues in catfish in 2008, 2009, and 2010 and salmon in 2013 and 2014. Residues of spiropidion in catfish and salmon were not monitored as spiropidion was not registered. As a result, residues in fish were not included in the assessment.

III. Percent Crop Treated Information

The assessment assumes all crops consumed were treated (100% CT).

IV. Drinking Water Data

As the request is for tolerances without U.S. registration, residues in drinking water are not expected.

V. DEEM-FCID Program and Consumption Information

The spiropidion acute and chronic dietary exposure assessment was conducted using the DEEM-FCID, Version 4.02, which incorporates 2005-2010 consumption data from USDA's NHANES/WWEIA. The data are based on the reported consumption of more than 20,000 individuals over two non-consecutive survey days. Foods "as consumed" (e.g., apple pie) are linked to EPA-defined food commodities (e.g., apples, peeled fruit - cooked; fresh or N/S; baked; or wheat flour - cooked; fresh or N/S, baked) using publicly available recipe translation files developed jointly by USDA/ARS and EPA. For acute exposure assessment, consumption data are retained as individual consumption events. Based on analysis of the 2005-2010 WWEIA consumption data, which took into account dietary patterns and survey respondents, HED concluded that it is most appropriate to report risk for the following population subgroups: the general U.S. population, all infants (<1 year old), children 1-2 years old, children 3-5 years old, children 6-12 years old, youth 13-19 years old, adults 20-49 years old, females 13-49 years old, and adults 50-99 years old.