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

OFFICIAL RECORD
HEALTH EFFECTS DIVISION
SCIENTIFIC DATA REVIEWS
EPA SERIES 361

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

Date: 9/28/99

Subject: PP#9F5046 and 9F5051. Thiamethoxam on Canola, Barley, Sorghum, Wheat, Cotton, Tuberos and Corm Vegetables, Leafy Vegetables, Brassica Vegetables, Fruiting Vegetables, Cucurbit Vegetables, Pome Fruits, and Tobacco. Initiation of Petition Method Validation Request. PC Code 060109 (MRID#s: 447035-22, -24, -27. DP Barcode#: D259769.)

From: G. Jeffrey Herndon, Chemist
Registration Action Branch 2
Health Effects Division (7509C)

Through: Richard Loranger, Senior Scientist
Registration Action Branch 2
Health Effects Division (7509C)

To: Francis Griffith, Chief
Analytical Chemistry Branch
Biological and Economic Analysis Division (7503W)

Novartis Crop Protection, Inc., has submitted a petition (PP#9F5051) for the establishment of a permanent tolerance for residues of a new insecticide to be used as a combination seed treatment with three fungicides for control of certain insects and diseases of canola. The proposed common name of the insecticide is thiamethoxam (CGA-293343), and the chemical name is 3-[(2-chloro-5-thiazolyl)methyl]tetrahydro-5-methyl-N-nitro-4H-1,3,5-oxadiazin-4-imine. The petitioner is proposing the establishment of a tolerance for residues of thiamethoxam and its major metabolite, N-(2-chloro-thiazol-5-ylmethyl)-N'-methyl-N''-nitro-guanidine (CGA-322704), converted to parent equivalents in/on:

Canola 0.02 ppm

Novartis Crop Protection, Inc., has also submitted a petition (PP#9F5046) for the establishment of permanent tolerances for residues of the insecticide, thiamethoxam. The petitioner is proposing the establishment of tolerances for residues of thiamethoxam and its major metabolite, N-(2-chloro-thiazol-5-ylmethyl)-N'-methyl-N''-nitro-guanidine (CGA-322704), converted to

parent equivalents in/on:

Tuberous and corm vegetables crop subgroup (1C)	0.02 ppm
Leafy vegetables crop group (4)	2.0 ppm
Head and stem brassica crop subgroup (5A)	1.0 ppm
Leafy brassica greens crop subgroup (5B)	2.0 ppm
Fruiting vegetables crop group (8)	0.25 ppm
Cucurbit vegetables crop group (9)	0.20 ppm
Pome fruits crop group (11)	0.20 ppm
Barley, grain	0.02 ppm
Barley, hay	0.05 ppm
Barley, straw	0.03 ppm
Cotton, undelinted seed	0.05 ppm
Cotton, gin byproducts	1.0 ppm
Sorghum, grain, forage, and stover (each)	0.02 ppm
Wheat, grain, hay, and straw (each)	0.02 ppm
Wheat, forage	0.50 ppm
Tomato, paste	0.80 ppm
Milk	0.02 ppm

In addition, Novartis has included residue data in this petition supporting the use of thiamethoxam on tobacco. Thiamethoxam is a new broad spectrum, systemic insecticide with activity against sucking and chewing insects on a wide variety of crops. Thiamethoxam belongs to a new pesticide chemical class known as the neonicotinoids. There are currently no established tolerances for residues of thiamethoxam in/on any plant or animal commodities.

A petition method validation (PMV) is requested for recovering thiamethoxam and its metabolite CGA-322704 from canola, cotton, tomato, spinach, wheat grain, milk, liver, and eggs. The proposed enforcement methods (MRID# 447035-24 and 447035-27) and independent lab validation (MRID# 447035-22) have been supplied as Attachments II, III, and IV.

“Analytical Method for the Determination of Residues of CGA-293343 and the Metabolite CGA-322704 in Animal and Crop Substrates by High Performance Liquid Chromatography with Detection by UV and Mass Spectrometry, Including Validation Data”, D.D. Campbell, 9/18/98, Novartis Crop Protection, Inc., Doc.# AG-675 (MRID# 447035-24)

“Independent Laboratory Validation of Method AG-675, for the Determination of Residues of CGA-293343 and the Metabolite CGA-322704 in Animal and Crop Substrates”, C.J. Crawford, 11/11/98, Ricerca, Inc., Doc.# 490-98 (MRID# 447035-22)

"CGA-293343 Combi FS-D - Magnitude of the Residues in or on Canola", T.P. Vincent, 11/13/98, Novartis Crop Protection, Inc., Doc.# 476-97 (MRID# 447035-27)

It should be noted that the independent laboratory validation (ILV) in Attachment III is for the method in Attachment II (AG-675), which involves HPLC and, depending on the commodity, UV or MS detection. In the case of canola seed, the crop which is of highest priority for tolerance establishment, an HPLC/MS/MS method was employed to determine residues. An ILV was not provided for the MS/MS procedure, but that method is described as being "based on Novartis method AG-675" with a different extraction mixture and elimination of two cleanup steps due to the more selective MS/MS detector. A specific report containing just that method was not provided. It is contained in Attachment IV, which contains residue data and methods for three different pesticides. The pages of Attachment IV which describe the canola method include pages 50-52 of 257 ("Analytical Procedures", "Method Recovery Validation Data"), page 59 of 257 (summary of recovery data), pages 61-75 of 257 (chromatograms), and pages 76-77 of 257 (calibration curves).

All samples (including the controls) should be run in triplicate at the requested fortification levels (see attached table). Please return the requested information on the attached forms and all other information concerning the PMV that are generated according to your SOP on PMVs, including fortified samples, standard curves, and examples of sample calculations. If any communication with the registrant is necessary to clarify minor points, a description of such communication should also be returned to RAB2 with your final report. The results of this PMV should be directed to G.J. Herndon.

Please contact us when you have received this method so we are certain it has arrived.

- Attachment I - Method Report Form (1 page)
- Attachment II - "Analytical Method for the Determination of Residues of CGA-293343 and the Metabolite CGA-322704 in Animal and Crop Substrates by High Performance Liquid Chromatography with Detection by UV and Mass Spectrometry, Including Validation Data", D.D. Campbell, 9/18/98, Novartis Crop Protection, Inc., Doc.# AG-675 (MRID# 447035-24)
- Attachment III - "Independent Laboratory Validation of Method AG-675, for the Determination of Residues of CGA-293343 and the Metabolite CGA-322704 in Animal and Crop Substrates", C.J. Crawford, 11/11/98, Ricerca, Inc., Doc.# 490-98 (MRID# 447035-22)
- Attachment IV - "CGA-293343 Combi FS-D - Magnitude of the Residues in or on Canola", T.P. Vincent, 11/13/98, Novartis Crop Protection, Inc., Doc.# 476-97 (MRID# 447035-27)

cc (with Attachment I only): PP#9F5046, PP#9F5051, Herndon, RAB2 RF,
Don Marlow (7503W), T. Levine/D. Daniel (P.M. Team 4).

cc (with all attachments): M. Clower (FDA, HFS-335), F.D. Griffith (7503W).

Attachment I

METHOD REPORT FORM

Please do not use control values for recovery corrections. Please do not report control values as 0.0 ppm; accurately state your limit of detection and note any commodity coextratives that could change the recovery values reported. The method in Attachment II should be used for all commodities except canola, whose method is described in Attachment IV as explained on page 3.

<u>Commodity</u>	<u>Method</u>	<u>Chemical Added</u>	<u>ppm Added</u>	<u>ppm Found</u>	<u>% Recovery</u>
canola seed	LC/MS/MS	thiamethoxam	0.0		
			0.01		
			0.02		
		CGA-322704	0.0		
			0.01		
			0.02		
cotton seed	LC/MS	thiamethoxam	0.0		
			0.01		
			0.025		
		CGA-322704	0.0		
			0.01		
			0.025		
tomato	UV	thiamethoxam	0.0		
			0.01		
			0.125		
		CGA-322704	0.0		
			0.01		
			0.125		
spinach	UV	thiamethoxam	0.0		
			0.01		
			1.0		
		CGA-322704	0.0		
			0.01		
			1.0		
wheat grain	UV	thiamethoxam	0.0		
			0.01		
			0.02		
		CGA-322704	0.0		
			0.01		
			0.02		
milk	UV	thiamethoxam	0.0		
			0.005		
			0.01		
		CGA-322704	0.0		
			0.005		
			0.01		
liver	UV	thiamethoxam	0.0		
			0.01		
			0.02		
		CGA-322704	0.0		
			0.01		
			0.02		
eggs	UV	thiamethoxam	0.0		
			0.01		
			0.02		
		CGA-322704	0.0		
			0.01		
			0.02		

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Modifications to Method (major or minor):

Special Precautions to be Taken:

Sources of Analytical Standards:

Instruments Used:

Instrument Parameters (if different):

Commercial Source for any Special Reagents or Equipment:

Comments:

Chromatograms: