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WASHINGTON, D.C. 20460

A. Estman

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OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Chlorothalonil Reregistration: List A Case No. 0097: Chemical No. 081901: ISK-Bioscience's Submission of Magnitude of the Residues of Chlorothalonil on Sweet Corn. MRID No. 44191001. DP Barcode D232879. CB No. 17747.

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In response to reregistration requirements, ISK Biosciences has previously petitioned for tolerances on field corn grain and fodder and sweet corn fodder (PP#6F04612). Chemistry Branch recommended in favor of establishing the proposed tolerances of 0.05 ppm on grain and 50 ppm on fodder (W. Smith, D222163, 4/25/96). The registrant committed to propose an appropriate tolerance for sweet corn forage/silage and submit supporting residue data from 1995 field trials conducted in OR, MN or WI and a third location in the northeastern U.S. HED agreed (W. Smith, D213495, 5/23/95) that acceptable data from these field trials could be used to establish tolerances for residues of chlorothalonil and SDS-3701 in/on sweet corn forage. The current submission reports on the results of these field trials. SRRD has requested that these data be reviewed for their adequacy in satisfying reregistration data requirements.

CONCLUSIONS

1. The submitted field trial data satisfy the reregistration data requirement for magnitude of the residue in corn.



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2. All supporting data have been previously submitted by the registrant and there are no residue chemistry issues remaining that would prevent establishment of a tolerance on sweet corn forage.
3. The data indicate that a suitable level for a tolerance on sweet corn forage is 65 ppm.

RECOMMENDATION

CEB-I recommends that a tolerance be established for the combined residues of chlorothalonil and its metabolite 4-hydroxy-2,5,6-trichloroisophthalonitrile in or on sweet corn forage at a level of 65 ppm. We recommend that RD notify the registrant that PP#6F4612 should be amended to propose this tolerance.

DISCUSSION OF DATA

Trials were conducted at test sites in PA, OR and WI to determine the magnitude of residues of chlorothalonil, SDS-3701(4-hydroxy-2,5,6-trichloroisophthalonitrile) and HCB (hexachlorobenzene) in ears and forage of sweet corn. Each site consisted of one treated plot and a control plot. Eight broadcast applications of Bravo 720 were made to each treated plot starting at 20-30 days after planting. Applications were repeated approximately every 7 days at a rate of 1.13 lb a.i./A. The test substance was Bravo 720, Batch Number 022015 GLP, 54% (w/w) active ingredient, 0.018% HCB. The corn crops were harvested at the time of ear maturity, 14 days after the final application of test substance. Duplicate samples of corn ears and forage were harvested by acceptable procedures, stored frozen and shipped to Ricerca, Inc. for analysis.

Samples for the study were stored frozen for a duration of 179-213 days. Storage stability data have previously been evaluated by HED confirming that residues of chlorothalonil, SDS-3701 and HCB are stable under frozen conditions for six years in similar matrices.

Residues of chlorothalonil, SDS-3701 and HCB were extracted and partitioned from samples of sweet corn and sweet corn forage into an organic solvent. Residues of chlorothalonil and HCB were separated by column chromatography. SDS-3701 was converted to its methyl ether and cleaned up by column chromatography. Residues were assayed by gas chromatography using an electron-capture detector.

For concurrent validation of the analytical method control samples of ears and forage were fortified using separate standard solutions of chlorothalonil, SDS-3701 and HCB. A summary of recovery data, taken from MRID 44191001, follows in Table 1.

Table 1. Summary of Recovery Data

Matrix	Compound	Amended Range (ppm)	No. Of Samples Analyzed	Recovery (percent)		
				Range	Mean	SD
Ears	chlorothalonil	0.010-1.00	4	79-85	81	3
	SDS-3701	0.010-0.50	4	80-110	90	14
	HCB	0.00025-0.050	4	82-124 ¹	96	20
Forage	chlorothalonil	0.010-75.0	4	86-120	103	14
	SDS-3701	0.010-0.50	4	70-100	85	13
	HCB	0.00025-0.050	4	76-140 ¹	103	29

1. A single analysis was out of the acceptable recovery range but the sample set containing the unacceptable recovery sample also contained a recovery sample that was within 70-120%.

These data and the documentation in MRID 44191001, including sample chromatograms, indicate that the analytical methods used were adequate for determination of chlorothalonil residues of concern on sweet corn ears and forage. The established limit of quantitation is 0.01 ppm for chlorothalonil and SDS-3701, and 0.00025 ppm for HCB.

Duplicate samples from both treated and untreated plots were analyzed for residues. All untreated samples of both ears and forage were free of detectable residues of chlorothalonil (<0.01 ppm), SDS-3701 (<0.01 ppm) and HCB (<0.00025 ppm). No residues were detected in any sweet corn ears with the exception of one replicate at 0.01 ppm. The treated forage samples had variable levels of residues as shown in Table 2, which is adapted from MRID 44191001.

Table 2. Chlorothalonil Residues of Concern in Samples from Three Treated Plots of Sweet Corn.

MATRIX	LOCATION	Chlorothalonil (ppm) Mean/Range	SDS-3701 (ppm) Mean/Range	HCB (ppm) Mean/Range
Ears	Oregon	ND ¹	ND	ND
		ND	ND	ND
	Pennsylvania	ND	ND	ND
		ND	ND	ND
	Wisconsin	ND	ND	ND
		ND-0.01	ND	ND
Forage	Oregon	28.2	0.05	0.0086
		28.0-28.4	0.05-0.05	0.0083-0.0088
	Pennsylvania	58.3	0.07	0.016
		55.7-60.8	0.07-0.07	0.015-0.016
	Wisconsin	8.2	0.07	0.0033
		7.64-8.66	0.06-0.07	0.0030-0.0036

1. ND: <0.01 ppm for chlorothalonil and SDS-3701, <0.00025 ppm for HCB.

The submitted data are adequate to propose establishment of a tolerance on sweet corn forage at a level of 65 ppm.

cc: W. Smith (CEB-I), Cynthia Giles-Parker (RD), A. Ertman (SRRD/RB), Reg Std File, SF, RF.

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RDI: FSuhre (06/27/97).