



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

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NOV 1 1995

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: **Oxyfluorfen.** Reassessment of Section 409 Food Additive Tolerances for Oils of Cottonseed, Peppermint, Spearmint, and Soybeans. Reregistration Case No. 2490 Chemical No.11601 No MRID # DP Barcode D220411 CBRS #16376

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Tolerances are established for residues of the herbicide oxyfluorfen [2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene] and its metabolites containing the diphenyl ether linkage in or on mint hay (peppermint and spearmint) at 0.10 ppm, and in or on cottonseed and soybeans at 0.05 ppm [40 CFR §180.381 (a)].

A food additive tolerance of 0.25 ppm is established for residues of oxyfluorfen and its metabolites containing the diphenyl ether linkage in or on the processed commodities cottonseed oil, mint oil (peppermint and spearmint) and soybean oil as a result of application of the herbicide to the growing crops [40 CFR §185.4600].

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As a result of a recently issued policy guidance (M.Metzger and E.Zager, 7/17/95, "Revised Procedures for Review of Processing Studies and Determination of Need for Section 409 Tolerances"), CBRS has been asked to reexamine the need for oxyfluorfen food additive tolerances.

Recommendations

Based on the revised procedures for review of processing studies (M.Metzger and E.Zager, 7/17/95), CBRS recommends that oxyfluorfen food additive tolerances (40 CFR §185.4600) for cottonseed oil, mint oil and soybean oil be revoked as they are not needed.

The Section 408 tolerances [40 CFR §180.381 (a)] for residues of oxyfluorfen in or on mint hay (peppermint and spearmint), cottonseed, and soybeans should be revised as follows:

mint hay	0.05 ppm
cottonseed	0.02 ppm
soybeans	0.02 ppm.

A Section 701 MRL should be established for residues of oxyfluorfen in or on cottonseed oil at 0.04 ppm.

Conclusions

1. Cottonseed Oil - The Section 408 tolerance [40 CFR §180.381 (a)] for residues of oxyfluorfen in or on cottonseed should be revised from 0.05 ppm to 0.02 ppm. The Section 409 food additive tolerance for cottonseed oil should be revoked. Cottonseed oil is not a ready-to-eat commodity and a dilution factor of 11X for use in food has been provided to the Agency by the USDA Beltsville Human Nutrition Research Center. Taking this dilution factor into consideration, oxyfluorfen residues in or on ready-to-eat food items should not exceed the recommended Section 408 tolerance of 0.02 ppm. Based on a highest average field trial (HAFT) residue of 0.01 ppm and a concentration factor of 3.3X, a Section 701 Maximum Residue Level (MRL) for residues of oxyfluorfen in or on cottonseed oil should be established at 0.04 ppm.

2. Mint Oil - The Section 408 tolerance [40 CFR §180.381 (a)] for residues of oxyfluorfen in or on mint hay should be revised from 0.10 ppm to 0.05 ppm. Based on the HAFT residue of 0.03 ppm and an average concentration factor of 2.4X, residues in mint oil are calculated as 0.072 ppm. The residue level for mint oil is not appreciably higher than the revised mint hay rac tolerance of 0.05 ppm. Therefore, the Section 409 food additive tolerance for mint oil is not required and should be revoked.

3. Soybean Oil - Dry seed obtained from soybeans treated at a 5x maximum application rate, had non-quantifiable oxyfluorfen residues (<0.01 ppm). Soybeans (dry seed) contain 20% oil by weight, resulting in a maximum concentration factor of 5x for oil. Because

non-quantifiable residues were found in dry soybean seeds following treatment at a rate equal to the maximum theoretical concentration factor, a processing study is not required. Additionally, the oxyfluorfen soybean oil food additive tolerance is not required and should be revoked.

Detailed Considerations

Cottonseed

Label directions for Goal 1.6E (EPA Reg. No. 707-174) call for application to cotton as a post-emergent directed spray at 0.25 to 0.5 lb ai/A. For southern cotton, the maximum seasonal rate is 0.5 lb ai/A/season, and for western cotton the maximal application rate is 1.0 lb ai/A/season. A 75 day PHI is in effect.

In conjunction with an EUP (PP#8G2028/FAP#9H5199), studies on cotton grown in CA(6), SC(1), GA(2), MS(1) and TX(1) were reported (data summarized in MRID #92136075). These studies involved one post-emergence directed spray application at 0.25 to 2.0 lb ai/A, PHIs ranged from 74 to 147 days (R.Perfetti, 12/4/78, PP#8G2028/ FAP#9H5199). A total of 25 samples were analyzed (some sites used more than one application rate). Four samples had quantifiable residues at 0.01 ppm (3 of these resulted from treatments at 0.5 lb ai/A and one from 1.0 lb ai/A), while the remaining 21 samples had non-detectable residues (<0.01 ppm).

In conjunction with PP#1F2488/FAP#1H5296 (M. Nelson 10/9/81) twelve additional studies on cotton grown in AR(1), CA(6), GA(2), LA(2), and SC(1) were reported (data summarized in MRID #92136039). These studies entailed on post-emergence directed spray application at 0.25 to 1.0 lb ai/A with PHIs ranging from 97-147 days. A total of 25 samples were analyzed (some sites used more than one application rate). Four samples had quantifiable residues at 0.01 ppm (3 of these resulted from treatments at 0.5 lb ai/A and one from 1.0 lb ai/A), while the remaining 21 samples had non-detectable residues (<0.01 ppm).

A processing study was also submitted in conjunction with the EUP (summarized in MRID #92136040). One sample of cottonseed containing residues of 0.01 ppm was processed in duplicate. The sample was delinted, ground, then extracted to separate the sample into oil and meal. Residues in oil were 0.02 and 0.03 ppm, resulting in an average concentration factor of 2.5X from this study. Results were also reported for cottonseed fortified with oxyfluorfen at 0.40 ppm. Following processing, crude oil was found to contain 1.57 ppm and refined oil 1.58 ppm oxyfluorfen, which translates into a 4X concentration factor for this study. The average concentration factor for cottonseed oil based on both of the processing studies is 3.3X.

Conclusion The Section 408 tolerance [40 CFR §180.381 (a)] for residues of oxyfluorfen in or on cottonseed should be revised from 0.05 ppm to 0.02 ppm. The Section 409 food

additive tolerance for cottonseed oil should be revoked. Cottonseed oil is not a ready-to-eat commodity and a dilution factor of 11X for use in food has been provided to the Agency by the USDA Beltsville Human Nutrition Research Center. The maximum level of cottonseed oil in the USDA recipe file is 9% in a ready-to-eat food (cookie). Taking this dilution factor into consideration, oxyfluorfen residues in or on ready-to-eat food items should not exceed the recommended Section 408 tolerance of 0.02 ppm. Based on a highest average field trial residue of 0.01 ppm and a concentration factor of 3.3X, a Section 701 Maximum Residue Level (MRL) for residues of oxyfluorfen in or on cottonseed oil should be established at 0.04 ppm.

Mint

Label directions for Goal 1.6E (EPA Reg. No. 707-174) call for dormant application to mint grown in ID, OR, and WA at up to 2.0 lb ai/A.

In conjunction with PP#1F2488/FAP#1H5296 (M. Nelson 10/9/81) data were supplied for 6 field trials conducted in WA(1) and OR(5) (data summarized in MRID #92136046).

Oxyfluorfen was applied as a winter application to dormant mint plants at 2.0 lb ai/A in the 5 OR trials and 4.0 lb ai/A in the WA trial. The treatment to sampling intervals were 127-182 days. Field trial and processing results are summarized in Table 1.

Table 1. Results for Mint field trials and processing studies.

Test Location/ Number	Crop	Applic. Rate (lb ai/A)	Oxyfluorfen Found (ppm)		Concentration/ Reduction Factor
			Fresh Mint	Mint Oil	
OR (77-487)	Peppermint	2.0	<0.01	<0.01	1.0
OR (77-489)	Peppermint	2.0	0.02	<0.01	0.5
OR (78-232)	Peppermint	2.0	<0.01	not processed	
OR (79-200)	Peppermint	2.0	0.03	0.05	1.7
OR (79-204)	Spearmint	2.0	<0.01	0.07	7.0
WA (79-217)	Peppermint	4.0	<0.01	<0.01, 0.03	2.0
Average Concentration Factor = 2.4X					

Conclusion The Section 408 tolerance [40 CFR §180.381 (a)] for residues of oxyfluorfen in or on mint hay should be revised from 0.10 ppm to 0.05 ppm. Based on the highest average field trial residue of 0.03 ppm and an average concentration factor of 2.4X, residues in mint oil are calculated as 0.072 ppm. The residue level for mint oil is not appreciably higher than the revised mint rac tolerance of 0.05 ppm. Therefore, the Section 409 food additive tolerance for mint oil is not required and should be revoked.

Soybeans

Label directions for Goal 1.6E (EPA Reg. No. 707-174) call for use on fallow beds to be planted to soybeans. Applications are to be made at 0.25 to 0.5 lb ai/A. Do not apply oxyfluorfen within 7 days prior to planting. Prior to planting, fallow beds should be worked to a depth of at least 2 inches

A soybean processing study was submitted in conjunction with re-registration of oxyfluorfen (S.Knizner, 10/25/95, CBRS #16374 DP Barcode D220316, MRID #43764901). Dry seed obtained from soybeans treated at a 5x maximum application rate, had non-quantifiable oxyfluorfen residues (<0.01 ppm). Soybeans (dry seed) contain 20% oil by weight, resulting in a maximum concentration factor of 5x for oil.

Conclusion Because non-quantifiable residues were found in dry soybean seeds following treatment at a rate equal to the maximum theoretical concentration factor, a processing study is not required. Additionally, the oxyfluorfen soybean oil Section 409 food additive tolerance at 0.25 ppm is not required and should be revoked.

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