12/18/90 List B File

CBRS TRANSMITTAL SHEET FOR PHASE 4 REVIEWS

Transmitted to HED on 10/18/90
Case name: Benfluralin
Chemical Name(s): Benefin, Benfluralin
Data submitter(s): Dow Elanco Products Co

CRM: Tom Luminello Phone #: 308-8075

Issues/flags:

This action contains a request for a DATA WAIVER (X)
TIME EXTENSION ( )
ALTERED/DELETED USE ( )

Other: Use information was derived from labels.

Branch: CBRS, Phase 4 Review Team
Reviewed by: Leung Cheng Lee Cheng Date: 12/18/90

12/18/90

Approvals:

Section Head: Andrew R. Rathman ARR Date: 12/18/90

Branch Approval: Edward Zager EZ Date: 12/18/90

cc: Circ, RF, List B File, Cheng, B. Grim (EFED), FOD/PIB

Response, by Guideline

Guideline #: 171-4(a) Description: Nature of residue - plants
Is requirement applicable? (Y/N): Y
Did registrant commit to conduct study? Y

Data Gap: The registrant must provide 3 new plant metabolism studies, one each on lettuce, peanuts, and alfalfa. Benfluralin labelled in a non-labile part of the molecule should be applied to each of the three crops reflecting the currently registered use. The specific activity and/or application rate should be high enough to allow for adequate identification of the metabolites/degradates. The plant material from the metabolism study should be tested using the data collection method(s) and enforcement analytical method(s).

Guideline #: 171-4(b) Description: Nature of residue - animals
Is requirement applicable? (Y/N): Y
Did registrant commit to conduct study? Y

Data Gap: The registrant must provide a livestock (poultry, ruminants) metabolism study. Benfluralin labelled in a non-labile part of the molecule should be fed to the livestock for a minimum of three days. Orally treated test animals must be sacrificed within 24 hours of the final dose. The dose administered and the specific activity should be high enough to allow for adequate identification of the metabolites/ degradates. The tissues from the metabolism study should be tested using the data collection method(s) and enforcement analytical method(s).

Guideline #: 171-4(c) Description: Res. analyt. method - plant
Is requirement applicable? (Y/N): Y
Did registrant commit to conduct study? Y

Data Gap: The registrant must submit data collection and regulatory analytical method(s) for the determination of benfluralin in/on plant matrices. If new metabolites (which require regulation) are found in the new plant metabolism studies, then analytical method(s) must be developed for them as well. Any regulatory methods submitted will

require an independent method validation as described in PR Notice 88-5 (July 15, 1988). Benfluralin and its metabolites must be tested through multi-residue Protocols A and D. (FDA's Pestrak (12/13/89) states that Protocol E gives complete recovery and Protocol A is targeted for further study.)

If method validations of the multi-residue methods are found to be necessary, representative plant matrices must be tested.

Guideline #: 171-4(d) Description: Res. anal. method - animals
Is requirement applicable? (Y/N): Y
Data Waiver(X) Time Extension( ) Other ( )
Data Waiver/Time Extension (If applicable) Granted? (Y/N): see discussion
Discussion: Registrant: "Based upon results of a similar chemical (trifluralin), it is anticipated that results from the Nature of Residue studies for animals would likewise be similar. In the case of trifluralin, this requirement was waived, thus this requirement would also likely not apply to benefin." CBRS: Granting of the waiver is dependent on the results of 171-4(b) Nature of the Residue - Livestock, 171-4(k,l) Magnitude of the Residue in feed items (rac's and processed), and 171-4(j) Magnitude of meat/milk/poultry/eggs.

Data Gap: Reserved pending outcome of 171-4 (b, j, k and l).

Guideline #: 171-4(e) Description: Storage stability
Is requirement applicable? (Y/N): Y
Did registrant commit to conduct study? Y

Data Gap: Storage stability studies must be conducted on all crops and processed products for which a field trial and/or processing study has been (or will be) conducted, as well as representative livestock commodities. Use of field-weathered samples is strongly recommended. Storage conditions must reflect the storage conditions of the treated samples (from the field trial and processing studies) with respect to temperature, length of storage, containers, lighting, etc. If there are any metabolites and/or degradates included in the tolerance expressions, then they must be tested as well. The chosen intervals must allow for unforeseen delays in sample storage.

Guideline #: 171-4(f) Description: Mag. res. - potable water
Is requirement applicable? (Y/N): N

Guideline #: 171-4(g) Description: Magnitude residue - fish
Is requirement applicable? (Y/N): N

Guideline #: 171-4(h) Description: Mag. res. - irrigated crop
Is requirement applicable? (Y/N): N

Guideline #: 171-4(i) Description: Mag. res. - food handling
Is requirement applicable? (Y/N): N

Guideline #: 171-4(j) Description: Mag. meat/milk/poultry/eggs
Is requirement applicable? (Y/N): Y
Data Waiver(x) Time Extension( ) Other ( )
Data Waiver/Time Extension (If applicable) Granted? (Y/N): see discussion

Discussion: Registrant: "Based upon results of a similar chemical (trifluralin), it is anticipated that results from the Nature of Residue studies for animals would likewise be similar. In the case of trifluralin, this requirement was waived, thus this requirement would also likely not apply to benefin." CBRS: Granting of the waiver is dependent on the results of 171-4(b) Nature of the Residue - Livestock and 171-4(k,l) Magnitude of the Residue in feed items (rac's and processed).

Data Gap: If the waiver is not granted based on the results of 171-4(b) Nature of the Residue - Livestock and 171-4(k,l) Magnitude of the Residue in feed items (rac's and processed), then benfluralin must be fed to dairy cattle and/or poultry for 28 days or until residues plateau in the milk or eggs. Following oral treatment, test animals should be sacrificed within 24 hours of the final dose. Feeding levels should be determined based on the latest crop residue data generated or to be generated. When determining the feeding levels the registrant should consider the maximum crop residue levels possible and the dietary burden based on Table II Subdivision O - Residue Chemistry Guidelines. Exaggerated feeding levels of 3x and 10x dietary burden must be tested as well as untreated controls.

Guideline #: 171-4(k) Description: Crop field trials
Is requirement applicable? (Y/N): Y
Did registrant commit to conduct field trials: Y - alfalfa/clover/ birdsfoot trefoil, lettuce, and peanuts

Data Gap: Using the information provided in Table 1, fill in the appropriate blanks for each commodity to determine the data gaps for each commodity. Data are required depicting residues of benfluralin and the regulated metabolites in/on the 5 rac's. All formulations must be applied in separate tests at the maximum label rates, maximum number of applications, minimum PHI, and minimum retreatment intervals. Applications should be made prior to seeding or planting. The use of each type of application equipment must be represented in separate tests. The tests must be conducted in states which represent the major crop production regions.

Table 1. Crop Field Trial Parameters for Each Commodity to be Tested

Commodity	Maximum		Minimum		Formula-tion[2]	Application type/timing	Equip.[3]	States[4]
	Rate lb ai/A[1]	No. of Appl.	PHI days	Interval days				
alfalfa[5] clover birdsfoot trefoil	1.5[6]	1	N/A	N/A	EC, LC, DF	soil incorporation before seeding	G	CA/ID/OR/WA, IA/MN/NE/WI, NY/OH/PA
lettuce (direct seeded)	1.5[6]	1	N/A	N/A	EC, LC, DF	soil incorporation before seeding	G	CA, FL, TX/AR, NY/NJ, CO, WA
peanuts	1.5[6]	1	N/A	N/A	EC, LC, DF	soil incorporation before planting	G	AL, GA, VA/NC, TX/OK

[1]Refers to single application rate, not seasonal rate

[2]EC = emulsifiable concentrate; LC = liquid concentrate; DF = dry flowable. Any one (or more) of these formulation classes may be tested

[3]G = ground

[4]If a slash appears between states then either site may be chosen. Major soil types must be represented

[5]Generally, alfalfa may serve as test crop. Several trials in the IA/MN/NE/WI region should involve birdsfoot trefoil. Several trials in the CA/ID/OR/WA region should involve clover

[6]On medium and coarse soils, apply 1.2 lbs ai/A

Guideline #: 171-4 (1) Description: Processing studies
Commodity: Alfalfa, peanuts
Is requirement applicable? (Y/N): Y
Did registrant commit to conduct processing studies? Y- alfalfa/ clover/birdsfoot trefoil and peanuts

Data Gap: Using the information provided below, fill in the commodity and processed products to determine the data gaps. Processing studies must be conducted for alfalfa and peanuts. The raw agricultural commodity with finite residues of the parent compound and any regulated metabolites should be processed to determine the residue concentration or reduction factor(s). If the rac is treated at exaggerated rates equivalent to at least the maximum theoretical concentration factor due to processing and no detectable residues are found in/on the rac, then processing studies are not required.

Commodity	Processed Products
alfalfa	meal
peanuts	meal, crude oil, refined oil, soapstock

Guideline #: 171-4(2) Description: Tobacco
Is requirement applicable? (Y/N): Y
Did registrant commit to conduct study? N. However, see discussion

Discussion: Dow Elanco has deleted tobacco from all of their benfluralin labels (EPA Reg # 1471-55, -114, and -140) prior to submission under the List A and B label DCI. At least one other EP label (Setre Chemical Co, EPA Reg # 38167-11) still retains the use. Use of a pesticide on tobacco does not require a tolerance or an exemption from the requirement to obtain a tolerance. Nonetheless, data are needed to assess the exposure of man to the residue remaining at the time of use of the tobacco. The data required include a residue profile for the tobacco and its smoke.

This residue profile must include the active ingredient and its significant plant metabolites, translocated soil degradation products, and photodegradation products. Radioisotopic techniques will normally be required to identify the significant components of the residue. If residues at 0.1 ppm or more are detected, analytical methods must be developed.

Data gap: Note that Dow Elanco apparently does not intend to support the tobacco use. If a registrant,

government agency, or user group intends to support the tobacco use, data from the following studies must be submitted to show conclusively the level of residue likely to result from the use of the pesticide:

If total radioactive residues on green freshly harvested tobacco exceed 0.1 ppm, then residues on cured or dried tobacco must be determined. If total residues on cured or dried tobacco exceed 0.1 ppm, then pyrolysis products derived from the active ingredient must be characterized and the level of residue in smoke must be quantified.

PRODUCT CHEMISTRY

Case Name: Benfluralin
Chemical Name(s): Benefin
Registrant: Dow Elanco, Setre Chemical

Guideline Number	Is requirement applicable?	Does summary or available information indicate MRID is a candidate for Phase 5 review?	Are additional data required?	MRID Number
61-1	Y	N/A	Y[a]	
61-2(a)	Y	N/A	Y[a]	
61-2(b)	Y	N/A	Y[a]	
62-1	Y	N/A	Y[a]	
62-2	Y	N/A	Y[a]	
62-3	Y	N/A	Y[a]	
63-2	Y	Y	N	160843
63-3	Y	Y	N	160843
63-4	Y	Y	N	160844
63-5	Y	Y	N	160843
63-6	N/A			
63-7	Y	Y	N	160844
63-8	Y	Y	N	160844
63-9	Y	Y	Y[a]	
63-10	N/A			
63-11	Y	Y	Y[a]	
63-12	N/A			
63-13	Y	P	Y[b]	

Key: Y=yes; N=no; I=a decision cannot be made at this time; S=fully satisfies requirement; P=partially; N/A=not applicable; U=unsatisfactory.

[a]The registrant has committed to generate a new study.

[b]Stability upon exposure to metals and metal ions, elevated temperatures, and sunlight must be determined.