09/DEC/1999

SUBJECT: Product Chemistry Review of Tribufos Technical

FROM: Shyam Mathur, Chemist
Product Chemistry Team
Technical Review Branch/RD (7505C)

S Bhuvaneswaran 12-9-99

TO: Jim Tompkins, PM 25
Herbicide Branch/ RD (7505C)

DP BARCODE: D260837
EPA REG. NO.: 51036-GEU
REGISTRANT: Micro-Flo Company
USE: Herbicide

INTRODUCTION:

The Applicant has submitted product chemistry data to support the registration of the new active ingredient Tribufos Technical. The registrant claims that Tribufos technical of Micro-Flo is substantially similar to DEF Technical of Mobay Corporation.

SUMMARY OF FINDINGS:

1. The data submitted corresponding to guideline reference 830.1550(Product identity), 830.1600 (Description of material used in process), 830.1650(Production process), and 830.1670(Discussion on the formation of impurities) satisfy the data requirements of 40CFR§158.155, 158.160, 158.162, and 158.167 respectively.

2. The data submitted corresponding to guideline reference 830.1700 (Preliminary analysis), 830.1750 (certified limits) and 830.1800 (Analytical methods to verify certified limits) satisfy the data requirements of 40CFR §158.170, 158.175 and 158.180 respectively.

3. The data submitted corresponding to Guideline Series 830 Subgroup B(Physical-chemical properties)satisfy the data requirements of 40CFR§158.190, except for the items described in 4.

4. No data was reported for Stability to metal & metal ions(830.6313), Dissociation constant (830.7370), and Vapor pressure(830.7950).

CONCLUSION:

The TRB has reviewed the product chemistry data submitted for the Tribufos technical and has concluded that:

1. The data submitted corresponding to guideline reference 830.1550(Product identity), 830.1600 (Description of material used in process), 830.1650(Production process), and 830.1670(Discussion on the formation of impurities) satisfy the data requirements of 40CFR§158.155, 158.160, 158.162, and 158.167 respectively and are acceptable. The basic formulation CSF(dated 03-10-99) is acceptable.

2. The data submitted corresponding to guideline reference 830.1700(Preliminary analysis), 830.1750 (certified limits) and 830.1800(Analytical methods to verify certified limits) satisfy the data requirements of 40CFR §158.170, 158.175 and 158.180 respectively and are acceptable.

3. The data submitted corresponding to Guideline Series 830 Subgroup B(Physical-chemical properties) satisfy the data requirements of 40CFR §158.190 and are acceptable, except for stability to metal & metal ions(830.6313), dissociation constant(830.7370), and vapor pressure(830.7950). The registrant must explain why the above mentioned properties were not reported. Waiver requests (if any)must be made in writing with proper justification.

4. The technical Tribufos of Micro-Flo (Reg. No. 51036-GEU)was determined to be substantially similar to DEF technical of Mobay Corporation(Reg. No. 3125-96) from Product chemistry point of view.

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REVIEW OF PRODUCT CHEMISTRY, OPPTS 830 SERIES

Chemical Name (IUPAC, ANSI, etc.)	s,s,s-Tributylphosphorthioate
Chemical Numbers (CAS; PC Code)	Reg. No. 51036-GEU CAS No. 78-48-8 PC Code: 074801
Registration/Symbol No./Petition No.	51036-GEU
Type of Product (T, FI, MP, EP)	98.10 % T
DP Barcode	D260837
Reviewer	Shyam Mathur, Ph.D

Micro-Flo Co. has submitted (1999; MRIDs 449222-01, 449222-02, and 449600-01) product chemistry data for Tribufos technical support its registration. The Tribufos technical (Micro-Flo) was determined to be substantially similar to DEF technical (Mobay Corporation) from product chemistry point of view.

Table 1: Manufacturing and Impurity Data for the Beta-cypermethrin TGAI.

GLN	Requirement	MRID	Status[1]	Details and/or Deficiency[2]
830.1550	Product Identity & Disclosure of Ingredients	CSF dated 03-10-99	A	the basic formulation CSF with NC, upper and lower certified limits of AI provided. NC concur with label claim nominal concentration.
830.1600 830.1620 830.1650	Starting Materials & Manufacturing Process	449222-01	A	All the information is provided on the starting materials including name of suppliers, chemical names, CAS numbers ,Phy-chem properties. etc. Details are provided on manufacturing process along with chemical equations..
830.1670	Discussion of Impurities	449222-01	A	Theoretical discussion on the impurities is given. The GC / MS method was used for AI and for the organic impurities.
830.1700	Preliminary Analysis	449222-02	A	Five batches of the technical were analyzed by GC / MS and the method validation was performed.
830.1750	Certification of Limits	CSF dated 03-10-99	A	NC, UCL & LCL of the AI and NC and UCL of the impurities are provided as per 40CFR158.175b2.
830.1800	Analytical Methods	449222-02	A	The GC / MS method is used for determination of the AI and all other organic impurities.

[1] A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not Applicable.
[2] Refer to CBI Appendix A for details.

Table 2: Physical and Chemical Properties for the				
GLN	Requirement	MRID	Status[1]	Result[2] or Deficiency
830.6302	Color		G	
830.6303	Physical State	449600-01	A	Liquid
830.6304	Odor		G	not determined
830.6313	Stability	449600-01	U	Stable at RT, 60°C & sunlight. Stability to metal & metal ions not determined
830.6314	Oxidation/Reduction		NA	
830.6315	Flammability	" "	A	> 200°C
830.6316	Explodability		NA	
830.6317	Storage Stability		NA	"
830.6319	Miscibility		NA	
830.6320	Corrosion Characteristics		NA	
830.7000	pH	449600-01	A	3.64 at 20°C
830.7050	UV/Visible Absorption	449600-01	A	pH = 7; 207.4 nm; Log ε = 4.29 pH < 2; 203.1 nm; Log ε = 3.79 pH > 10; 216.8 nm; Log ε = 4.30
830.7100	Viscosity	449600-01	A	9.62 cTs @ 25°C; 5.37 cTs @ 45 °C
830.7200	Melting Point/ Melting Range		NA	
830.7220	Boiling Point/ Boiling Range	" "	A	167°C @ 0.70 mm Hg
830.7300	Density/ Relative Density/ Bulk Density	" "	A	1.07 g/ml at 20 deg C
830.7370	Dissociation Constant in Water	" "	G	
830.7550 830.7560 830.7570	Partition Coefficient (Octanol/Water)	" "	A	log $P_{o/w}$ = 4.71 by HPLC method
830.7840 830.7860	Solubility	" "	A	4.6 x 10^{-4} g/100 ml. Totally miscible with DCM, MeOH & Hexane
830.7950	Vapor Pressure	" "	G	

[1] A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not applicable.; G = Data gap
[2] For example, "brown" for 830.6302; "155° C" for 830.7200.

ATTACHMENT: CONFIDENTIAL APPENDIX

Tribufos - 12/9/99 Product Chemistry Review

Page _____ is not included in this copy.

Pages 5 through 8 are not included in this copy.

The material not included contains the following type of information:

_____ Identity of product inert ingredients.

✓ Identity of product impurities.

✓ Description of the product manufacturing process.

_____ Description of quality control procedures.

_____ Identity of the source of product ingredients.

_____ Sales or other commercial/financial information.

_____ A draft product label.

_____ The product confidential statement of formula.

_____ Information about a pending registration action.

_____ FIFRA registration data.

_____ The document is a duplicate of page(s) _____.

_____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.
