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

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

FEB 23 1996

SUBJECT: TPTH/Fentin Hydroxide. Case 0099. Additional Data for Analytical Method (171-4c). MRID 43874701 & 02. CBRS 16787. DP Barcode: D222078.

FROM: Leung Cheng, Chemist
Special Review Section I
Chemistry Branch II - Reregistration Support
Health Effects Division (7509C)

THROUGH: Andrew R. Rathman, Section Head
Chemistry Branch II - Reregistration Support
Health Effects Division (7509C)

TO: Jude Andreasen, CRM
Reregistration Branch
Special Review/Reregistration Division (7508W)

AgrEvo has submitted a response to our review of methods for measuring TPTH (triphenyltin hydroxide), MPTH and DPTH in plants (CBRS 15594, 15804, 6/28/95, 7/25/95, L. Cheng). The cover letter dated 12/11/95 (MRID 43874700) addresses four issues.

1. CBRS previously concluded that the registrant needs to submit data that demonstrate rapid hydrolysis of triphenyltin (TPT) acetate to TPTH since the plant matrix was spiked with triphenyltin acetate instead of TPTH in the method validation study.

In response the registrant submitted a study entitled "HOE 002782 (triphenyltin acetate) 14-C Determination of the Rate of Hydrolysis (Translation of Report #31534)". The report date is 7/25/85 and was assigned A32003. The experiment was performed in 1985 at Hoechst AG, Frankfurt, Germany, with an ID of CM 009/85.

The purpose of the study was to determine the rate of hydrolysis of TPT acetate at pH 7, pH 3 (gastric juice of the rat), and pH 8 (pancreatic juice), and the presence of TPTH after hydrolysis. Radiolabeled compounds were used: TPT acetate was labeled at the carbonyl carbon with carbon-14 and TPTH was labeled uniformly with carbon-14 in the phenyl ring (presumably in all 3

rings). Labeled TPT acetate was determined to be >95% pure by IR and NMR; labeled TPTH was 98% pure by TLC. No TLC photographs or spectra were submitted.

Standard aqueous solutions of disodium hydrogen phosphate (a), potassium dihydrogen phosphate (b), citric acid in sodium hydroxide (c), and HCl (d) were prepared. Buffer solutions of pH 3 (c + d), 7 (a + b), and 8 (a + b) were prepared by mixing 2 of the 4 solutions.

The experimental procedure was as follows. Labeled TPT acetate or TPTH was dissolved in hexane and its concentration was determined by counting (4.24 x E6 dpm/100 µL). An aliquot of 100 µL was "distributed" between 25 mL hexane and 25 mL buffer solution at 23-24 °C (with stirring?). The two phases were separated after one minute. The radioactivity in each phase was measured twice. The organic phase was evaporated to dryness and the residue was dissolved in methanol. The methanol phase was analyzed by HPLC (UV detector set at 220 nm) and "triphenyltin" was quantified by comparing the peak areas to a standard solution of TPTH.

The report summarized the results as shown in the following table.

	pH	% radioactivity in aqueous	organic	TPT in organic
TPT acetate	3 7 8	99.8 96.9 99.3	0.1 0.1 0.1	89.4 86.5 90.2
TPTH	3 7 8	0.9 3.8 2.6	97.3 90.8 91.8	

CBRS comment: The information is unacceptable. No raw data (activity counts in aqueous and organic phase, HPLC chromatograms, IR and NMR spectra and TLC photographs on the starting labeled compounds) were submitted. The registrant needs to provide the identity of the compounds in the aqueous and organic phases with supporting analytical data. The registrant also needs to provide certification that report A32003 is an accurate translation of document A31534.

2. The cover letter dated 12/11/95 states that "the enclosed report #A04536 demonstrates during the degradation of Triphenyltin in sugar beets, using radio labeled Sn, only 1.2% (of total radioactivity) of monophenyltin was formed at a maximum 6 days after application."

CBRS comment: The registrant submitted report A42784, "Determination of the Adsorption, Translocation and Storage of

Triphenyltin Acetate and Triphenyltin Chloride in Potatoes". A42784 is a translation of document A29235, which was completed in 1965. Report A42784 provides no information pertaining to the level of monophenyltin.

3. The registrant states that validation data of TPTH and its metabolites in animals commodities will be submitted with the required cow feeding study in September 1997, as agreed upon earlier between Dr. R. Landis and Ms. J. Andreasen.

CBRS comment: None.

4. The 12/11/95 letter states that the GLP compliance statement has been resolved since a new GLP statement was provided and accepted by the Agency.

CBRS comment: CBRS has not received and reviewed such a GLP compliance statement.

CONCLUSION

Residue chemistry studies for satisfying registration and reregistration of pesticides must be conducted with the registered active ingredient and not some other substitute. In view of the successful method validation study for TPTH, DPTH, and MPTH in sugarbeet and potatoes performed by the Huntingdon Research Centre Ltd, England (CBRS 16519, L. Cheng, 2/23/96), CBRS will not in this case require that the registrant submit additional data to resolve the issues concerning the plant method validation as discussed in CBRS 15594 & 15804. GLN 171-4(c) is satisfied pending an Agency method validation study to test its suitability as an enforcement method.

cc:Circ, SF, RF, Reg Std File, Cheng
RDI:ARRathman:2/22/96:RBPerfetti:2/22/96:EZager:2/22/96
7509C:CBRS:LCheng:CM#2:RM804E:2/21/96:[redacted]05:TPTH\METHODS

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Chemical: **Fentin hydroxide**

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