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EAB Log Out Date: JUN 2 0 1983

Init.:

To: James.D Felkel
Wildlife Biologist
Ecological Effect Branch
Hazard Evaluation Divison (TS- 769)

From: Carolyn K. Offutt
Head, Environmental Processes and Guidelines Section
Exposure Assessment Branch, HED (TS-769)

Attached, please find the estimated environmental concentration review of:

Reg./File No.: Registertion Standerd

Chemical: Terbufos

Type Product: -

Product Name: " Counter"- 15 G

Company Name:

Submission Purposes:

ZBB Code: Action Code:

Date In: EFB#:

Date Completed: TAIS (Level II) Days

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

4 pages

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

JUN 30 1983

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

TO: James D. Felkel
Wildlife Biologist
Ecological Effects Branch
Hazard Evaluation Division (TS-769)

SUBJECT: Revised Estimated Environmental Concentrations (EEC) for Terbufos

THRU: Carolyn K. Offutt, Chief
Environmental Processes and Guidelines Section
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)

THRU: David J. Severn, Chief
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)

On December 10,1982, we provided the Ecological Effects Branch (EEB) a memo on "Estimated Environmental Concentrations (EEC) of Terbufos by the SWRRB and EXAMS Pulse Model" in response to your November 10,1982,request.

On December 16, 1982, EEB requested a revised EEC based on other application rates and, in subsequent conversations, EEB requested an evaluation of the effect of soil incorporation of Terbufos, on runoff and aquatic concentrations. In addition, Jim Falco in ORD's Exposure Assessment Group provided comments on April 20,1983, at our request on our December 10 review. After reevaluating the chemical and environmental parameters used in our modeling efforts, we have prepared the following revisions to our initial estimated environmental concentrations for Terbufos.

In response to your request, we modified the application rates to evaluate soil incorporated terbufos for runoff in the SWRRB model and subsequently used the runoff data for estimation of environmental concentrations in a pond by the EXAMS Pulse model.

The daily runoff was estimated by the SWRRB model in two different basins, Coshocton, Ohio (COSH 115), and Tifton, GA (Tifton), for corn crops. We understand from Dr. E. David Thomas, ASIB/BUD, that the maximum application rate of granular terbufos ("Counter" 15G) allowed on corn is 2.4 oz. a.i./1000 linear feet of row with 7" band treatment over the

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row. If the rows were spaced at the 20" apart minimum specified in the label directions for corn, then the maximum application rate is 3.92lb a.i/A. If one assumes uniform incorporation of the maximum applied rate (3.92 lb a.i./A) of terbufos in the top 5 cm of soil in the corn field, then 0.784 lb ai/A per acre (20% of 3.9 lbs a.i./A) will be incorporated in the top 1 cm of soil, which the SWRRB model uses for runoff data.

On the other hand, if one accepts the soil incorporated data of granular insecticide published by Erback and Tollefson, then approximately 15% of the applied granular terbufos should reside on the surface of the soil. If one further assumes that the remainder 85% will be incorporated uniformly in the top 5 cm of soil then the top 1 cm will contain 32% of the original applied terbufos (15% on the surface + 17% in the top 1 cm of the soil) which is equivalent to 1.25 lb a.i./A (32% of 3.92 lb a.i./A).

Two applications (May and early June) of the above two rates (0.784 lb a.i./A and 1.25 lb a.i./A) were used to estimate the daily runoff values. (Details of the dates are in Attachments). The daily runoff values were estimated by the SWRRB model in the years 1953, 1957, 1961, 1965, and 1969 for COSH 115 and in the years 1970 and 1971 for Tifton. Two different application rates (0.784 lb a.i./A and 1.25 lb a.i./A) were used for both basins.

The EXAMS--V2.0: Mode 2 (Exposure Analysis Modeling System) pulse version was used for the estimation of the environmental concentration of terbufos in the water column and in the benthic sediment of a pond whose drainage area is 15 hectares. The results are summarized in table and graph forms and are attached for your information.

Under the given assumptions the maximum concentration of terbufos expected on a short-time basis as the result of runoff would be as follows:

(1) no higher than around 10 ppb (1.25 lb a.i./A) and 7 ppb (0.784 lb a.i./A) dissolved in the water column in the year 1957 (wet year) in the COSH 115 basin of Ohio.

(2) no higher than around 4 ppb (1.25 a.i./A) and 2 ppb (0.784 lb a.i./A) for the year 1970 (wet year) and 0.9 ppb (1.25lb a.i/A) for the year 1971 (dry year) in the Tifton basin of Georgia.

I understand that the estimated runoff data from the SWRRB model and estimated environmental concentrations (EEC's) from the EXAMS pulse model Version 2.0 Mode 2 will be used as a part of the Terbufos Registration Standard.

If you have any questions, please contact me or Carolyn Offutt at (557-7347).

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P.R. Datta
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)

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