

Shaugh. No. 109401
EAB Log Out Date: 6/29/83
Init.: SLM

Miller

To: _____
Product Manager
Registration Division (TS-767)

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.: 3125-GGR, 3125-GGN, 3125-GUE

Chemical: (AMAZE) ISOFENPHOS

Type Product: _____

Product Name: OFTANOL

Company Name: MOBAY

Submission Purposes: EEC STUDY

ZBB Code: _____

Action Code: 176,176,171

Date In: 4/18/83

EFB#: 3321-23

Date Completed: 6/29/83

TAIS (Level II) Days

61

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Deferrals To:

____ Ecological Effects Branch

____ Residue Chemistry Branch

____ Toxicology Branch



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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

29 JUN 1983

MEMORANDUM

TO: Mr. William H. Miller
Product Manager Team (16)
Registration Division (TS-767C)

SUBJECT: Review of Estimated Environmental Concentrations
in Water (EEC_w) for Isofenphos Use on Golf Course Turf in
the United States. (Report #84058).

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

Mobay surveyed twenty golf courses across the United States as to course acreage, treated acres, water acres, average water depth, and the number of ponds, in order to obtain a realistic EEC_w for the use of isofenphos (OPTAVOL) on golf course turf in the United States.

Mobay used actual values obtained from existing golf courses instead of EPA's assumptions for areas drained, treated, and receiving drainage, but used the same methodology to calculate EEC_w 's for isofenphos on turf. (Refer to equations given in a paper by J.C. Reinert, "Estimating the Maximum Concentration of Pesticides in the Environment As a Consequence of Specific Events" dated September 15, 1980.).

Mobay determined the soil adsorption coefficient (K_d) values in the laboratory (Mobay's Report #67604) and used the lowest value of $K_d = 5.6$ and $t_{1/2}$ of 59 days to calculate the "worst case" scenario for EEC_w . Mobay's assumptions regarding rainfall event, homogenous hydrosol and density, and sediment delivery ratio ($CA=0.2$) are the same as EPA's.

We have checked Mobay's EEC_w calculations for twenty different golf courses at random and found them to be accurate. The realistic assumptions made in these calculations of EEC_w by Mobay are reasonable and acceptable to the Exposure Assessment Branch. Mobay shows a minimum of a ten-fold safety factor to fish even for the "worst case" situation. EEC_w of 128 ppb calculated for the Timpagnosi golf course, Provo, Utah.

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We have conducted a daily runoff study using the SWRRB model and a run of the environmental concentrations in a pond by the EXAMS pulse model, as discussed below:

The daily runoff was estimated by the SWRRB model in a turf (modified COSH 129) basin, which is in close proximity to the golf course of Fort Mitchell Country Club, Fort Mitchell, Kentucky, using the maximum isofenphos label application rate of 2 lbs a.i./A. Two applications (July and early August) were used to estimate the daily runoff values (details of the dates are in the attachments). The daily runoff values were estimated by the SWRRB model in the year 1970 only and also for three consecutive years (1968, 1969, and 1970.). The results of these evaluations are contained in the attachments.

The Exams - V2:0 Mode 2 (Exposure Analysis Modeling System) pulse version was used for the estimation of the environmental concentration of isofenphos 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 graphic form and are attached for your information.

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

- 1) No higher than around 7 ppb (2 lbs a.i./A applied twice) in the year 1969 (wet year) in Turf 03 - COSH 129 basin of Ohio. The half-life of isofenphos in the water was less than two days.
- 2) No higher than around 0.9 ppb (2 lbs a.i./A) applied two times in the year 1970 (dry normal year) in Turf 03- COSH 129 basin of Ohio. The half-life in the water was less than 2 days.

The values obtained from the modeling runs above (about 7 ppb) agree reasonably well with the values obtained by Mobay for the Fort Mitchell, Kentucky, golf course (about 60 ppb). This is especially true if one assumes that the confidence limits of the EXAMS model is one order of magnitude (i.e., 0.7 to 70 ppb). It should be noted that the models involved in this study are designed to be evaluative tools and not definitive, site-specific models.

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



Padma R. Datta, ph.D.
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)