

3/25-6611

AUG 24 1981

MEMORANDUM

FROM: Review Section No. 1
Environmental Fate Branch, HED

SM Greer for Dr. Garner

TO: Chief, Ecological Effect Branch
Hazard Evaluation Division

THRU: Chief, Review Section No. 1
Environmental Fate Branch, HED

ATTENTION: L. Touart

Attached find environmental fate information and/or EEC(s) requested for:

Chemical: Oftanol

Product Name: Amaze

Use Pattern for EEC Calculations: Corn

Date in: 8 /20/81

Date out: 8 /24/81

EEC/EEP#: 100

E. Regelman
E. Regelman, Chemist
Section 1, EFB/HED

769

Introduction:

The standard scenario chosen for this EEC parallels the one previously used for Metolachlor (12/16/80).

The area chosen for this calculation was Watershed #1 in Treynor, Iowa, where severe runoff events are known to occur. The drainage basin there is 74.5A, and corn or soybeans are grown on 60% of the area at any given time.

The current maximum application rate for Amaze on corn is 1.3 lb. ai/A/yr. For calculation purposes, we have placed in this watershed a pond of 1A surface area with an average depth of 2.5 feet.

Assumptions:

1. This insecticide was surface applied, and uniformly incorporated into the upper 3" of soil within 24 hours. A severe runoff event occurred soon thereafter.
2. Maximum "edge of field" surface runoff (defined as water plus associated eroded soil) was one inch, removing 0.167% of the oftanol applied to areas immediately adjacent to the pond (correcting for the 3" incorporation - $33/30 = 0.167\%$)
3. For the entire watershed, the Sediment Delivery Ratio^{1/} (representing the average amount of runoff and the percent of applied chemical which reaches the pond) was assumed to be equal to $CA^{-0.2}$, where "C" is a constant, and "A" is the basin area, relating the amount of runoff sediment which reaches a given point to the area of the drainage basin where the runoff event occurred. While not directly applicable to chemical movement for relatively water-soluble pesticides like oftanol, there is evidence^{2/} that, even for completely soluble compounds, the percent of applied chemical removed from treated fields via runoff is inversely proportional to field size. "C" was assumed to be the maximum "edge of field" values: 5% for oftanol, and one inch for the runoff itself. Using the above equation, we calculate that for the entire watershed, 0.07% of the oftanol applied will reach the pond in a severe, worst-case runoff event, which produces an average of 0.422 inches of runoff from the total drainage basin.

4. The pond hydrosol contains 2.5% organic matter, the average value for the soil in this watershed. The K_d for this hydrosol was estimated (according to Chiou^{3/}) to be 20.5, based on the water solubility of 30 ppm at 20°C.^{4/}
5. Calculations were performed with the HR259 program. A summary printout is attached.

Results:

The maximum EEC in the pond water under the conditions delineated above is about 1 ppb. The depth of the pond after the severe runoff event is slightly over 5 feet.

References

- 1/ Control of water Pollution from Cropland, Vol. II. ORD-EPA/ARS-USDA, June, 1976.
- 2/ Trichell, D.W., et al. Weed Sci. 16: 447 (1968)
- 3/ Chiou, C.T., et al. Science 206: 831 (1979).
- 4/ Brussell, J.E., Manager, Gray Chemical Co., letter to W.H. Miller (W.H. Miller) on 6/15/81.

20.51	KD*
1.3	LB/A
44.7	A TR
0.07	% RO
0.	D LD
74.5	B SZ
0.422	R/D
1.	H2OA
2.5	DPTH
0.0182	WC-W
0.0225	WC-H
0.0268	EECH
0.0013	EECW
5.1238	DPTH