

US EPA ARCHIVE DOCUMENT

11-27-78

FILE COPY

TO: Product Manager Miller
TS-767

THROUGH: Dr. Gunter Zweig, Chief
Environmental Fate Branch

FROM: Review Section No. 1 *[Signature]*
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No: 100-LOI

Chemical: Curacron

Type Product: Insecticide

Product Name: Curacron 6E Insecticide

Company Name: CIBA-GEIGY

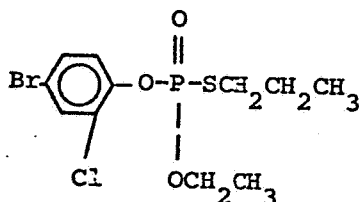
Submission Purpose: Preparation for meeting

Date in: 11/8/78

Date out: 11/27/78

1. INTRODUCTION

- 1.1 The registrant has submitted data in preparation for a November 1978 meeting.
- 1.2 The accession number of this submission is 235618 involving file symbols 100-LOI and 100-LOO.
- 1.3 Curacron is also known as Profenofos.
- 1.4 Structure



2. DIRECTIONS FOR USE

- 2.1 See the previous evaluation of 100-LOO dated May 26, 1978.

3. DISCUSSION OF DATA

3.1 Drift, Volatility and Dislodgeable Residue Monitoring

We note receipt of this chlordimeform data. However, it is not reviewed here as it does not bear on the current standing of Curacron 6E.

3.2 Adsorption of Profenofos (Curacron) on Various Soil Types, Project Report 19/78, April 7, 1978

Aliquots of four different soils were mixed with aqueous solutions of ^{14}C Curacron between 1.0 and 10.0 ppm to assess soil adsorption via the Freundlich adsorption isotherm which is expressed as

$$\frac{x}{m} = k C_e^{\frac{1}{n}} \quad \text{or} \quad \log \frac{x}{m} = \log k + \frac{1}{n} \log C_e$$

where x/m is the amount adsorbed by unit mass of soil in equilibrium with a solution of concentration C_e with k and $1/n$ being constants.

The values of the concentration of Curacron in solution before and after mixing with soil was determined by liquid scintillation counting.

Table 1 Origin and properties of soils used for adsorption measurements

Origin	pH	CaCO ₃ %	Organic Matter %	Mechanical Analysis		
				Clay %	Silt %	Sand %
Collombey VS, Switzerland	7.8	11.5	2.2	2.8	10.2	87.0
Lakeland, Florida	6.3	0.1	1.2	1.5	2.1	96.4
Les Evou- ettes, VS, Switzerland	6.1	0	3.6	12.2	49.4	38.4
Vetroz VS, Switzerland	6.7	15.0	5.6	22.6	19.6	57.8

Table 2 FREUNDLICH ADSORPTION CONSTANTS OF PROFENOFOS IN COMPARISON TO THOSE OF SOME OTHER PESTICIDES.

Soil Type	Collombey		Lakeland		Evouettes		Vetroz	
Compound	k^*	$\frac{1}{n}$	k^*	$\frac{1}{n}$	k^*	$\frac{1}{n}$	k^*	$\frac{1}{n}$
Profenofos	4.56	0.94	20.2	0.70	22.2	0.89	55.6	0.78
Atrazine	0.86	0.88	-----	-----	1.98	0.93	2.88	0.92
Ametryn	1.52	0.85	-----	-----	4.55	0.83	7.68	0.86
Methidathion	2.35	0.80	-----	-----	3.89	0.79	10.8	0.82
Diazinon	5.60	0.63	-----	-----	11.7	0.77	23.4	0.93

* ug adsorbed per g of soil

5

Conclusions

- 1) Of the soils and pesticides tested, Curacron has the highest adsorption constant. This is consistent with the conclusions drawn from the leaching data previously reviewed (100-EUP-53 dated February 1, 1977 and 100-LOO dated May 26, 1978) which show that Curacron does not leach except in soils high in sand and low in organic matter content where some leaching is observed.
- 2) An error in the calculation of the concentration of the Curacron solutions is noted. (The registrant calculates 100 mg Curacron in 100 ml acetone as 1000 ppm when the correct figure is 1266 ppm). It is not known if the error was corrected in the LSC measurements. However, the error is not significant enough to question Curacron's characteristic as a non-leacher.

4. RECOMMENDATIONS

- 4.1 This data was submitted by the registrant as preliminary to an HED/CIBA GEIGY meeting.
- 4.2 Conclusions drawn from this data submission do not bear on the current standing of Curacron 6E. See the recommendations section of the evaluation of 100-LOO dated May 26, 1978.

Ronald E. Ney Jr. 11/27/78
Samuel M. Creeger
November 17, 1978
Review Section #1
Environmental Fate Branch

Samuel M. Creeger Dec 4, 1978