

US EPA ARCHIVE DOCUMENT

EEE BRANCH REVIEW

DATE: IN _____ OUT _____ IN 11/13/75 OUT 1/15/76 IN _____ OUT _____
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 3125-GNA

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED 11/12/75

DATE OF SUBMISSION 11/7/75

DATE SUBMISSION ACCEPTED 3CID NO

TYPE PRODUCT(S): (I) D, H, F, N, R, S _____

PRODUCT MGR. NO. 12 Sanders

PRODUCT NAME(S) Baygon MOS Insecticide

COMPANY NAME Mobay Chemical Corporation, Chemagro Agr. Div.

SUBMISSION PURPOSE answer to Environmental Chemistry

CHEMICAL & FORMULATION O-Isopropoxyphenyl Methylcarbamate

1.0 Introduction

1.1 Baygon - see reviews of June 1974 and August 1975.

1.2 Deficiencies in the supporting data were noted in our letter of September 3, 1975. The applicant's replies to our general 70-15 questions follow:

(1) How much is found in soil

"--- we are currently undertaking an additional soil metabolism study with ring labeled Baygon -- as outlined in the current guidelines---"

(2) What is the "half-life" of Baygon

(3) What is the time only 10% of total residues remain

"--- Table II on page 6 of Supplement No. 1 --- dated November 1, 1971 --- noted --- studies in which --- half-life(s) ranged from 14 to 33 days --- under field conditions." The same table indicates the time to the 10% level ranged from 45 to 115 days."

(4) What are the soil degradation products

"--- we observed little degradation in soil (lab studies) --- extracts (chloroform-methanol) consisted of Baygon and isopropoxy phenox --- water soluble extractables --- one major (49%; MoI wt ca 340) and one minor (7%; Mo wt ca 670) --- 44% could not be identified ---"; see 1.3(2) below.

(5) If crop uses are proposed ---.

"--- no crop applications are proposed."

(6) Will residues accumulate in fish

"A fish accumulation study is enclosed (44735)."

1.3 Since the product is not applied to crops the completed studies and the new reports, which include a fish residue study (44735) and a revised report (30589 Rev 9/75) with additional data, are sufficient to assess the proposed use.

1.4 Although not germane, based on studies referenced, it is noted that soil metabolism, aged leaching and photodegradation studies are reported in progress.

2.0 Directions for Use

See Review of August 13, 1975

3.0 Discussion of Data

3.1 In the reports 30533, 30589, 30958, 30960, and 30961 soils were sampled to a depth of 6 inches.

3.2 In report 30589, a discrepancy in the adsorption study, relating to sample size, has been corrected; the weight was five not 15 grams.

3.3 Report 30589 (Revised 8/75) provides the leaching data requested in an additional table V2. It is noted that Baygon added to the column was labelled; isopropoxy with tritium, carbamate with "14C". Analyses, indicating no change in 3H/14C ratios between the applied and column segments, indicates no significant degradation during the study.

Table Va (figures in micrograms)

<u>Segment (cm)</u>	<u>*Col. #1</u>	<u>Col. #2</u>	<u>Col. #3</u>
0 - 4	4.56	3.37	5.75
4 - 8	5.66	6.79	14.95
8 - 12	18.07	45.61	67.25
12 - 16	103.81	94.60	71.39
Column total	132.1	150.4	159.3
Eluate	13.8	0.5	0.6
Total	145.9	150.9	159.9
% **Recovery	97.2%	100.6%	106.6%

* Column 15 cm.

**The applied (0.15 mg) averaged 10 ppm through the column

Column #1: sandy loam

Column #2: silty clay loam

Column #3: high organic silty clay loam

Conclusion

Baygon can leach in soil.

3.2/ Accumulation and Persistence of Residues in Channel Catfish Exposed to Baygon-14C (44735)

Baygon was ring-labelled; the aquaria, without soil, were the flow through type.

Baygon (ppm) calculated from "14C"

<u>Day</u>	<u>Water (ppm)</u>	<u>Whole Fish (ppm)</u>	<u>Factor</u>
0 (1 hr)	0.010	0.016	1.7
0 (6 hr)	0.011	0.034	3.6
1	0.011	0.018	1.6
4	0.012	0.014	1.2
7	0.011	0.013	1.2
14	0.010	0.011	1.1
21	0.010	0.012	1.2
28	0.01	0.013	1.2

Conclusion

The data indicates accumulation in catfish will not be significant.

4.0 **Summary**

4.1 A soil metabolism study is in progress. An oral leaching study has been scheduled.

4.2 Baygon leaches readily (Rev. 8/75).

4.3 Accumulation in food chain, based on fish data, will not be significant.

4.4 **Brief summary of all data**

- (1) **Soil persistence:** The submitted studies indicate halflife varying with the soil, from 14 to 33 days; and 45 to 115 days to the 10% level. Additional work is in progress (see 4.1).
- (2) **Hydrolic stability:** Very stable in acid and neutral media, hydrolyzed in alkaline solution (rev. 8/75).
- (3) **Photostability:** limited testing indicates stability to sunlight and little affect by UV; photosensiters (28) were without affect (Rev. 8/75). Studies following Guideline protocols are in progress.
- (4) **Effect on soil microbes:** populations were not affected (Rev. 8/75).
- (5) **Residues in rotational crops:** short term metabolism studies, with corn and bean plants, are reported; the product is not intended for crop applications (August 1975).
- (6) **The fish accumulation factor is less than two.**

5.0 Recommendations

1. The submitted studies are sufficient to go along with the proposed use.
2. The photodegradation, aged leaching, and soil metabolism studies reported to be in progress are not germane to this use pattern but are still needed.

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1/16/76