EEB 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 "halflife" 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%; Mol 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)

Segment (cm)	*Col. #1	Col. #2	Col. #3
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.

3.4 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"

Day	Water (ppm)	Whole Fish (ppm)	Factor
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 aged 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.**

Ronald E. Ney, Jr. 1/15/76

Environmental Chemistry Section
EEEB