Ref 9/18/72 1. 7-18-72

Re Evaluation No. 1 of Environmental Data
70-15 for Endothall
Pennwalt Corp.
Ltr. April 28, 1972

I. Introduction
1. See evaluation ~~ED~~ dated June 29, 1971
and ~~9~~ comment of July 19, 1971
2. See PP No. ~~6F2092~~ 6F0972 and
Reg. No. 4581-EIU

II. Discussion of data

A. Exhibit 37.

1. About 20-30% of ^{14}C is absorbed on soil and can only be extracted with 2N-HCl in EtOH. More than 10% was evolved as $^{14}CO_2$ at 7 days and 15% at 14 days. Anaerobic?

2. Microorganism study (^{14}C)

Elodea absorbed endothall from Hoagland + drano nutrient and leveled off at 72 hours. Pondweed and milfoil at 24 hours.

Very small amount were absorbed by algae.

green	blue-green
Chlorella	Chlamydomonas
	Euglena
	Nostoc
	Anabaena

at 2 days 36% evolved as $14CO_2$, 40% in cells and 20% in

culture solution.

Algae: Chlorella growth was inhibited at 5 days by 4 ~~ppm~~ ppm and not by 2 ppm. Chlamydomas, Nostoc and Anabaena were discolored with 4 ppm at 3 days.

Blanks: No effect on Elodea, Elgeria and Hydrilla with 3 ppm.

Browning was noted in pondweed and water milfoil at 24 hours with 0.5 ppm.

4. Page 3 of Exh. 37 states 90% was absorbed on one soil and 30% on another. What type soil?

3. Model ecosystem ^{14}C (D-88)

Bioaccumulation of endothall did not appear to occur in snails that ate algae containing endothall nor in fish that ate Daphnia containing endothall all had residues. This

study was interesting but limited to only one time period for sampling. A fish study is needed.

4. ^{14}C study on Fish and Crayfish

3 l of H_2O was placed in 4 plastic vessels.
Aquatic plants added
1 inch of lak hydrosoil
~~Aer~~ Aerated 24 hours.
15 Comet goldfish (2 g)
1 vessel contains H_2O (control)
1 " " weeds + soil (control
the other vessels treated

	cold study (2.5 ppm)			^{14}C study	
~~Time~~	goldfish	Crayfish	H_2O	mud	Fish
1hr	—	—	—	2.7	2.8
1	N&D	ND	1.5	1.75	2.8
5	ND	ND	.39	.4	.75
6	ND	ND	ND	.1	.26
12				.07	.2
14				.05	.1

This study was not carried

out long enough. Soil type, pH of H_2O, temperature and other parameters not given. Can endothall be absorbed on plastic vessels?

5. Treated Pond Data
(Exhibits 38, 39, 40, 41, 42 & 43)
Data has been submitted from ponds treated at different levels with different formulations. Samples of H_2O, Fish, Soil and Weeds where analyzed. Samples collected from treated area, edge of treated area and out of treated area.
The pond treated with Hydout Pellets is the only one that resulted with residues in Bluegill after 10 days and fish exposed to the treatment had 0.09 ppm residues at

34 days. The soil had the same amount of residues.

Note - fish held in cages and not allowed to move free in all studies

III Conclusion

The following type 70-15 data are needed.

1. Photodegradation in water
2. Fish residue study
3. Soil metabolism study under aerobic conditions
4. Rate of breakdown and extent of soil adsorption
5. ~~The da~~ Some of the data (reports) as submitted by page numbers indicate that complete report was not submitted. If these reports are not complete; the complete report must be submitted.
6. Persistence of endothall pellets in aquatic environment

IV Recommendation

Send out letter with comments in conclusion