

11-4-75

FIELD BRANCH REVIEW

DATE:	IN _____	OUT _____	IN <u>10/24/75</u>	OUT <u>11/4/75</u>	IN _____	OUT _____
	FISH & WILDLIFE		ENVIRONMENTAL CHEMISTRY		EFFICACY	

FILE OR REG. NO. _____

PETITION OR EXP. REFERENCE NO. 1F1105

DATE DEV. RECEIVED 7/9/75

DATE OF SUBMISSION 6/25/75

DATE SUBMISSION ACCEPTED 3CID No

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

PRODUCT REG. NO. 24- Jacoby

PRODUCT NAME(S) Endothal

COMPANY NAME Penwalt

SUBMISSION PURPOSE Substantial Amendment

CHEMICAL & FORMULATION 7-oxobicyclo (2.2.1)heptane -2,3-dicarboxylic acid

1.0 Introduction

1.1 This submission proposes amended registration and tolerances for sugar beets (and fish and forage legumes) of 0.2 ppm.

1.2 Previous environmental chemistry reviews were made 2/21/74 and 11/1/71.

1.3 Product is apparently registered for sugar beets.

1.4 Other uses include use for aquatic weed control.

2.0 Directions for Use

See review of 11/1/71.

2.1 The directions previously reviewed were for Endothal weed killer 4581-93.

Other previously registered uses include Herbicide 273, Herbicide 283 and Endothal-TCA Herbicide with USDA Regs. 4581-223, 4581-243, 4581-170 respectively. All are for sugar beet or sugar beet and table beet use.

Directions for the additional three products are similar to 4581-93, but vary with the concentration of the active in each formulation.

2.2 Endothal Weed Killer is 19.2% disodium salt of endothal (2 lbs active ingredient or 1.46 lbs acid equivalent per gallon.

2.3 Herbicide 273 is 40.3% disodium endothal which translates to 3.23 lbs/gallon or 3.0 lbs acid equivalent. Its directions call for 1-2.2 gals/acre (4.23-9.31 lbs a.i. or 3-6.6 lbs a.e./acre) for broadcast pre-emergence and 1.5-7.9 pints/acre (1.56-4.18 lbs a.i. or 1.11-2.97 lbs a.e./acre) band treatment as specified in Table on label. Post emergence treatment require 0.4-1.8 pints (0.21-0.95 lbs a.i. or 0.15-0.675 lbs a.e./acre) as per Table on label for band and 0.95-2.11 lbs a.i. or 0.75-1.5 lbs a.e. per acre broadcast.

2.4 Herbicide 283 is 54.7% mono(N,N-dimethyl-tridecylamine) salt of endothal giving 2 lbs a.e./gallon. Directions call for 2-5 lbs a.e./acre broadcast or 0.31-2.44 lbs a.e. band as specified in Table on label.

2.5 ^A Endothal-TC₅ Herbicide is 7.1% disodium salt of endothal and 11.9% Sodium Trichloroacetate. This gives 0.67 lbs. a.i. di-sodium endothal/gal. Directions call for 3.69-5.36 lbs a.i./acre broadcast and 0.59-2.68 lbs. a.i./acre band as specific in Table on label.

3.0 Discussion of data

3.1 Data have been previously reviewed for pp1F1105.

3.2 Some additional field data were submitted: These pertained to fish accumulation in natural systems. They are cold studies in which endothal was applied to lakes, the water and fish residues measured with time.

3.2.1 Example 1. Delafield Wisconsin - Lake water was treated at 5 ppm. The following data were obtained:

<u>Days After Treatment</u>	<u>Water</u>	<u>Fish (Bluegills)</u>
0 (2hrs)	4.9 ppm	0.02 ppm
1	4.3	0.04 ppm
3	4.3	< 0.02 ppm
6	3.8	< 0.02
10	3.4	< 0.02
15	0.8	< 0.02
25	N.D.	< 0.02

<u>Example 2 Days</u>	<u>Providence, Florida Water</u>	<u>- 0.4 ppm Fish (Catfish)</u>
0 (2hrs)	0.34 ppm	0.01 ppm
1	0.20	< 0.02
2	0.10	< 0.02
5	Trace	--

<u>Example 3</u> <u>Days</u>	<u>Providence, Florida</u> <u>Water</u>	<u>- 3 ppm</u> <u>Catfish</u>
0 (2 hrs)	3.3 ppm	0.08 ppm
1	2.3	Trace
2	1.2	"
3	--	N.D. (<0.02)
5	0.9	"

<u>Example 4</u> <u>Days</u>	<u>Providence, Florida</u> <u>Water</u>	<u>Fish</u> <u>(Catfish)</u>	<u>6 ppm</u> <u>(Bluegill)</u>
0 (2 hrs)	5.4ppm	0.13ppm	0.10 ppm
1	2.6	0.02	0.04
2	2.2	0.03	0.06
3	--	0.01	0.06
5	1.3	0.02	0.04

These and other similar studies show that endothall does not appear to accumulate under "real life" situations. In all tests of this type, the fish residues (portion of fish not reported) were less than the water residues and not greater than 0.1ppm (except once in example 4 above). These studies were not controlled radiolabeled studies, but nevertheless a trend of nonaccumulation is evident.

4.0 Conclusions

- 4.1 As reported in the review of 2/27/74, endothall appears to degrade rapidly and completely in soils and water, but not in plants or fish.
- 4.2 Fish accumulation appears insignificant though no proper laboratory study was made.
- 4.3 The half-life is so short that rotational crop residues should not occur after sugar beet plantings.
- 4.4 Runoff water will not be used to irrigate crops from this sugar beet use.
- 4.5 All previous requirements seem to have been satisfied either by subsequent submission of appropriate data or lack of applicability due to proposed use patterns.

- 4.6 This was reviewed under the old regulations and guidelines as directed.
- 4.7 Though satisfying previous requirements for data, needed under the old regulations, the same data submitted for this or other uses coming under the current regulations and guidelines might be difficult^{ient} in several areas.
- 5.0 Recommendations
- 5.1 No additional data are necessary to assess environmental chemistry hazard from these uses of endothall at this time. No significant environmental chemistry hazards can be identified from the data submitted.
- 5.2 If additional uses are proposed, other environmental chemistry data may be needed to support those uses.

R. E. Ney, Jr. 11/3/75
M. Segal
Ronald E. Ney, Jr. 11/4/75
M. Segal 11/3/75
EEEEB
Env. Chem. Sec.