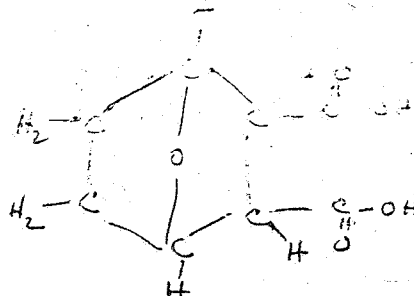


Endothall Formulations



1. AQUATHOL

038903	active ingred	disodium salt	19.2%
	inert	[REDACTED]	80.8%

2. AQUATHOL K

038904	active	dipotassium salt	40.3 %
	inert	[REDACTED]	59.7 %

3. AQUATHOL Granular

038904	active	dipotassium salt	10.1 %
	inert	[REDACTED]	70.7 %
			19.2 %

4. AQUATHOL Plus

038904	active	dipotassium salt	22.1 %
		potassium salt <u>Silux</u>	25.3 %
	inert	[REDACTED]	52.6 %

5. AQUATHOL Plus Granular

038904	active	dipotassium salt	5.1 %
		potassium salt <u>Silux</u>	5.6 %
	inert	[REDACTED]	73.5 %
			15.8 %

6. HYDROTHOL 47

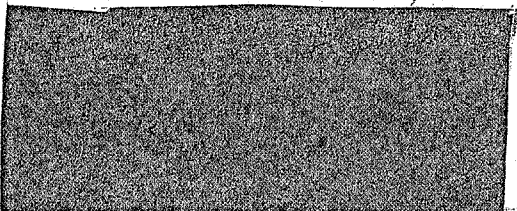
038907	active	di (N,N - dimethylalkylamines)	46.7 %
		salt of endothall	
	inert	[REDACTED]	26.5 %
			6.8 %

I BEST AVAILABLE COPY

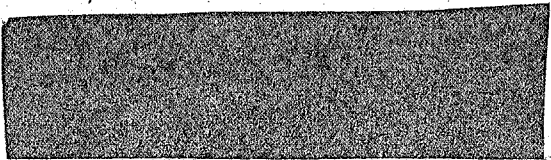
INERT INGREDIENT INFORMATION IS NOT INCLUDED

PRODUCT INGREDIENT SOURCE INFORMATION IS NOT INCLUDED
INERT INGREDIENT INFORMATION IS NOT INCLUDED

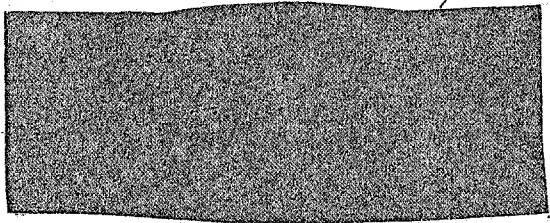
7. HYDROTHOL 47 Granular

238907 active: di (N,N-dimethylalkylamine)
salt of endothal 17.5%
inert:  73.3%
7.1%
2.1%

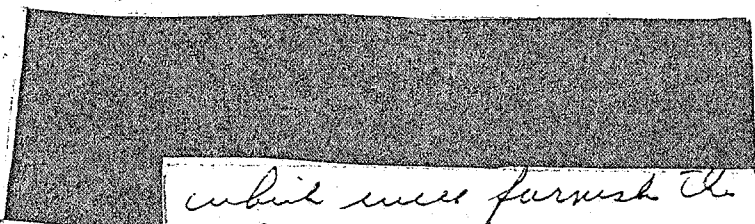
7. HYDROTHOL 191

038905 active: mono (N,N-dimethylalkylamine)
salt of endothal 53.0%
inert:  21.8%
25.2%

9. HYDROTHOL 191 Granular

038905 active: mono (N,N-dimethylalkylamine)
salt of endothal 11.2%
inert:  78.4%
4.7%
5.7%

10. HYDOUT

038905 active: mono (N,N-dimethylalkylamine)
salt of endothal 22.4%
inert: 
inert ingredients.

035704

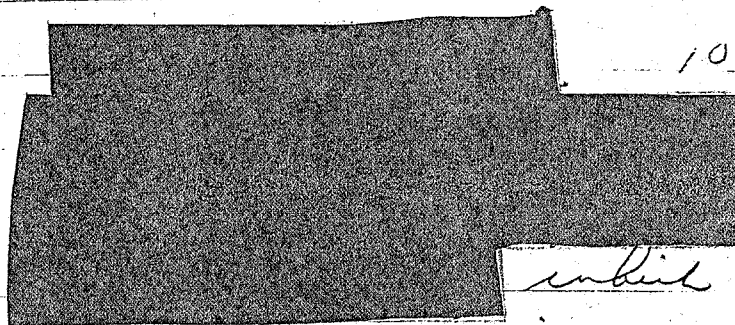
1. 2-ORAC

Active. Dipotassium salt of
endothall

20.0%

10.0%

inerts



inert

will furnish inert
ingredients.

INERT INGREDIENT INFORMATION IS NOT INCLUDED
PRODUCT INGREDIENT SOURCE INFORMATION IS NOT INCLUDED

D-Dice

1. D-Dice is double strength Aquathol Granular plus copper sulfate for algae control.
2. Product is formulated as a $3/8$ " pellet.
3. Both components are presently registered separately.
4. Petition submitted to obtain a negligible tolerance for endosulfan in water.

ENDOTHALE

1. Residues and Disappearance from "whole Body & Water" treatments

- weed and plant debris & micro-organisms significantly ~~increase~~ increase rate of disappearance.
- $\approx$ 7-10 days for chemical to reach same concentration on bottom as on surface, & need to be evenly distributed in all points of the lake.

~~3. The endothal (amine) products~~

2. Fate of Endothal in the Bio-environment

- Of the various mechanisms for inactivation or depletion, metabolism by micro-organisms predominate.
- Endothal rapidly metabolized by plants and fragments diverted into normal metabolic channels.
- Fish accumulation of endothal

- Goldfish and silver salmon fingerlings exposed to two different levels.

Goldfish 6.0 and 12.0 ppm

Silver salmon 2.5 and 5.0 ppm

exposure up to 5½ days.

- Results - C^{14} label from endothal widely distributed throughout both types of fish. (Radioactivity apparently not in form of parent herbicide).

Experiment concludes from these studies that endosulfan is rapidly degraded by fish. The solvent and ion exchange fractionation indicates that very little of the C^{14} label could be endosulfan.

d. Factors affecting the soil behavior of endosulfan.

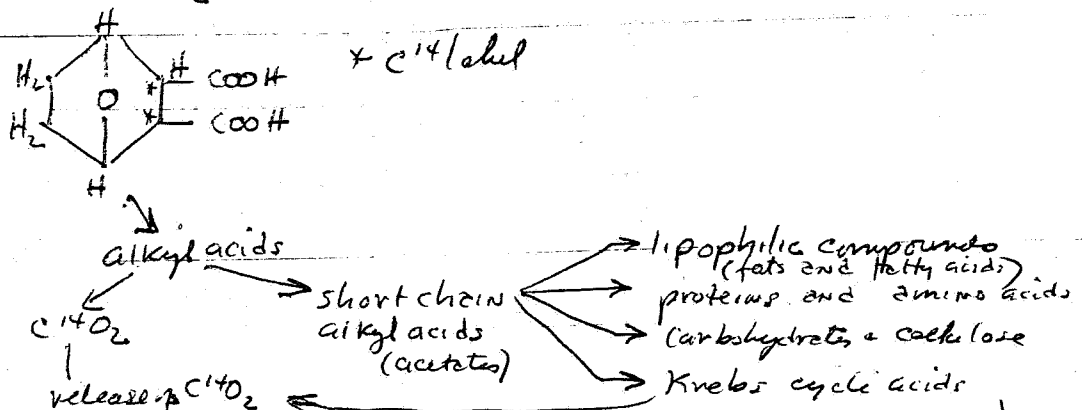
1. Large differences in amount of endosulfan which was adsorbed by different soil types.
2. Under conditions favorable for microbiological activity, endosulfan quite readily degrades.
3. Ring structure of endosulfan is completely disrupted.
4. Metabolites:

a. studies; 5-10 days before metabolites began to appear in detectable amounts

b. metabolic fragments resulting from metabolism are readily degraded by soil microorganisms.

5. Concluded that plants, fish and soil microorganisms are capable of completely metabolizing endosulfan.

~~Path of $C^{14}O_2$ from labeled~~ ^{Suggested} Degradation pathway of endosulfan



(3)

6. Test data show that endothall normally exists from 7-28 days up to not 40 days in soil. Factors influencing existence depend upon soil type, temperature, moisture, and microflora populations.

Animals

1. Reproductive studies

Rats for three generation reproduction study at 100 (Disodium endothall) or 300 ppm in diet.

results - parents & offspring generations exhibited normal reproduction and developmental processes.

2. Metabolic studies

a. C^{14} tagged disodium endothall (ip) for rats.

50% left body within 7 hours and over 99% in 48 hrs. chief route of excretion was in urine with some in feces.

b. C^{14} tagged disodium endothall (mixed with feed)

resulted in 7% recovery in urine, 87% in feces (determined as unchanged endothall). Endothall was eliminated completely from all tissues and organs within 72 hrs.

7

3. C^{14} endosulfate (disodium salt) were fed at 0.1, 1 and 5 ppm to goats. No biologically significant amount of endosulfate in milk or muscle tissue.
4. Distribution of endosulfate in biological fluids and tissues of lactating goats (Goats fed 1 and 5 ppm endosulfate). Milk, urine and fecal samples analyzed. Material balance showed majority of ~~the~~^{14C} administered, $\approx 90\%$, appeared in feces with urine accounting for remainder.
5. White Leghorn Hens fed endosulfate (disodium salt) at level of 5 ppm up to 14 days. Highest residues in eggs or flesh are toxicologically insignificant (0.02 ppm or less).

Dissipation of Endosulfate and effects on Aquatic Weeds and Fish

R.R. Yoo Weeds Sci Vol 18 NO 2 NOV 1970

1. No single water quality or physical factor appeared to influence dissipation rate of endosulfate.
2. Presence of thermocline increased conc. of endosulfate in water above thermocline.
3. Smallmouth bass, green sunfish and mosquitofish inhabited the reservoir / no dead or distressed fish.

Legend Hydranthus 191

Hydranthus 191

Hydr 47

Hydr 47

Hydr 47

Hydr 47

Hydr pellets

Cellulose fil ex 18

50% fl. kill ex 20

goldfinch killed.

loss, cut fl. slope 4-27

^{untaken}
Julia Miller

no kill