

US EPA ARCHIVE DOCUMENT

105001

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Chemical name Counter 15G

Company

Chemical: O,O-diethyl-S-t-butylthiomethylphosphorodithionate

Company Am. Cyanamid

Submission TEMP PERMIT PETITION 4F1496 REGISTRATION 241-EGT

Date submitted

Date received 10/18/74

Type of chemical insecticide

Use corn

Data submitted for review

Environmental safety:

Mammal LD50 _____

Mammal chronic _____

Fish _____

Bird _____

Shrimp, crab, oyster _____

Other _____

Environmental chemistry (70-15)

Fish residue _____

Other _____

Chemical CounterConclusions:

1. 4 life in soil of 14 days
2. monitoring + simulated testing (both carried out by Ill. Nat. Dist. Survey) look good → conclusions - minimal impact ^(wildlife)
3. neurotoxicant that inhibits enzyme cholinesterase
4. mallard - reproductive impairment at 20 ppm
5. label has W-4, 14, 21, 34, 38 and a main direction maps to cover & disc spills & turn areas

Recommendations

RL cover + disc statements

Jwa
11/1/74

Chemical Counter

Citation Am. Cyan.

Reg. no. 241-EGI

Exp permit _____

Retition 4F 1496

Submission
DATE _____

Accession no.

ORGANISM	DOSE	SYMPTOM / EFFECT	TEST MATERIAL
rabbits 30 day subacute dermal	0.004 mg/kg	occasional minimal edema (abated by day 21) and occasional mild erythema, no histo-path. effect	tech.
	0.02	same, no histo-path. effect	
	0.10	no histo-path effect same; 2 rabbits w/ well defined erythema	
	0.2	very slight erythema, no histo-path effects	formulation
	1.0	same, one rabbit w/ well defined erythema no histo-path effects	
	5.0	same, 6 of 8 died, no histo-path effects	
3 generation rat reproduction study	0.25 ppm 1.00 ppm	reproductive no effect level greater than highest level tested; slight increase in mean body weights at both levels.	
Residue in pheasant Tissue	1 and 5 pounds to acre plus a spill area	at 1 and 5 lbs/acre all tissues <u>< 0.05 ppm.</u> (50 g / 166 in ²)	spill area - SKIN = 14.4 ppm KIDNEY = 0.47 ppm LIVER = < 0.05 ppm MUSCLE = 0.12, < 0.05 ppm

Mallard Reproduction Test → 8 weeks, 25 ♀/treatment

	Normal 20 Ducks 10 weeks	control	Technical AC 92100 (89% ai)	
			2 ppm	20 ppm
eggs laid	560-760	479	494	310 *
eggs cracked		16	8	11
eggs set		425	447	261
viable embryos		381	340	237
live 3wk embryos		374	333	233
normal hatchlings		284	269	198
14 day old survivors		257	250	182
eggs laid/hen	25-38	19.2	19.8	12.4 *
eggs cracked (%)	0.6-2.0	3.3	1.6	3.5
viable embryos of eggs set (%)	85-98	89.6	76.1	90.8
live 3wk embryos of viable eggs (%)	97-99	98.2	97.9	98.3
Normal hatchlings of live 3wk embryos (%)	70-90	75.9	80.8	85.0
14 day survivors of normal hatchlings (%)	94-99	90.5	92.9	91.9
14 day survivors / hen	most meaningful parameter	10.3	10.0	7.3

* approaching statistical significance

Statistical analysis of body weight, food consumption, eggs laid, eggs cracked, eggs embryonated, live 3 week embryos, normal hatchlings, 14 day old survivors and eggshell thickness revealed no differences between the controls & those birds fed 2 & 20 ppm. There was marked reduction in the number of eggs laid at 20 ppm. This difference was not statistically significant, however, it was approaching significance and is considered to be biologically meaningful.

Bobwhite quail reproduction test → 8 weeks, 24 ♀/treatment

	Normal 20 quail 10 weeks	control	AC 72 100 (89% ai)	
			2 ppm	20 ppm
eggs laid	560-760	815	719	713
eggs cracked		25	34	39
eggs set		676	653	626
viable embryos		614	537	543
live 3wk embryos		603	525	535
normal hatchlings		538	493	487
14 day old survivors		468	424	414
eggs laid/hen	28-38	34.0	30.0	29.7
eggs cracked (%)	0.6-2.0	3.1	4.7	5.5
viable embryos of eggs set (%)	75-90	90.8	82.2	86.7
live 3wk embryos of viable eggs (%)	97-99	98.2	97.8	98.5
Normal hatchlings of live 3wk embryos (%)	70-90	89.2	93.9	91.0
14 day survivors of normal hatchlings (%)	75-90	87.0	86.0	85.0
14 day survivors /hen	most meaningful parameter	19.5	17.7	17.2

Statistical analyses of body weight, food consumption, eggs laid, eggs cracked, eggs embryonated, live three week embryos, normal hatchlings, 14 day old survivors and eggshell thickness revealed no differences between the control and test birds.

Responses of combined hen pheasants to simulated field applications of coumestrol - Ill. Natural History Survey

At the onset of the treatment, July 19, the hens were near the end of egg laying & at the beginning of post-nuptial molt. These are the pheasants in their poorest physical condition of the year during July & August. All the pheasants were given a total of 1 lb of ^{100% pure} Coumestrol (and 5 lb of 1A) in 1000 cc of water. The amount of simulated field application activity on Coumestrol → this gave moderate exposure of Coumestrol. The 4 hens were kept in separate pens (5 days beyond the life of Coumestrol). The hen pheasants exhibited no toxic effect at either level.

A simulated "spill" area was created which contained equivalent of 112.9 lb-tech / A. 2 of 3 hens died w/in 12 hours, 3rd hen showed no signs of Coumestrol poisoning.

The residues of Coumestrol & its metabolites were less than .05 ppm (the level of sensitivity to the analysis) in all samples of muscle, liver, skin, kidney & fat from all hen pheasants exposed for 22 days at rate of 1 x 5 lbs tech / A. Hens in "spill" area showed a composite residue in skin (14.7 ppm) & kidney (.88 ppm).

The findings from this investigation suggested that field applications of Coumestrol, in spring, at the recommended rate of 1 lb tech / A would not constitute a serious threat to resident populations of pheasants.