

US EPA ARCHIVE DOCUMENT

10-22-80

TDMS0030

DATA EVALUATION RECORD

MULTIPLE
PAGE 1 OF 3

CASE GS0014

ENDOSULFAN A - (11/21/79)

PM 110 ~~12/26/79~~

CHE 079401

ENDOSULFAN (Hexachlorohexahydromethano)

BRANCH EEB DISC 40 TOPIC 05050045

FORMULATION 00 - ACTIVE INGREDIENT

FICHE/MASTER ID 05012881

CONTENT CAT 01

Gorecki, K. (1973) Zatrucia Pszczoly Miodnej-- Apis Mellifica L.
(Hym., Apidae) Insektycydami Stosowanymi W Kraju. [Harmful
Effects of Insecticides Used in Poland on the Honey Bee-- Apis
Mellifica L. (Hym., Apidae).] Polskie Pismo Entomologiczne.
Polish Journal of Entomology.] 43(1):201-210.

SUBST. CLASS = S.

DIRECT RVW TIME = 2 Hrs. (MH) START-DATE 10/22/80 END DATE 10/22/80

REVIEWED BY: Allen W. Vaughan
TITLE: Entomologist
ORG: EEB/HED
LOC/TEL: Crystal Mall #2
557-0268

SIGNATURE: *Allen W. Vaughan* DATE:

APPROVED BY:
TITLE:
ORG:
LOC/TEL:

SIGNATURE: DATE:

17.5% endosulfan

1

CONCLUSIONS: This study is scientifically sound.

METHODS AND MATERIALS:

Test Type: Toxicity to honey bee.

Test Species: Honey bee (Apis mellifera).

Test Procedure:

The trials were carried out in wire-netting isolators measuring 4 x 2 x 2 m. The day means ranged from 14.1 to 24.7°C. The isolators were placed in a field of white mustard Sinapis alba in full bloom. A hive populated by a bee colony numbering approximately 4500 insects was placed in each isolator. A trap was placed at the hive exit to catch the dead bees. After two days, when the bees had become accustomed to their new abode and had begun intensive flights, the application was carried out. The spray preparations were applied in the recommended doses, i.e., 500 liters of spray liquid per hectare and 20 kg of dust per hectare. The number of poisoned bees was checked daily for 5 days. The dead insects were located in the trap.

After two days of contact by the bees with the plants subjected to the applications, the isolators, together with the hives, were transferred to noncontaminated blooming mustard. Daily observations were made for another 3 days. Then the behavior of the bees and the viability of the colony were observed periodically. Studies covering several years revealed that the natural mortality rate of bees in isolators did not exceed 5 (0.1% of the entire population of the experimental hive) during a 5-day period.

REPORTED RESULTS:

Ex. "Harmful" preparations: fenitrothion, carbaryl, dioxacarb

Harmful preparations: dimethoate, propoxur, Azotox dust 5 (at 15.4°C.)

Relatively innocuous: Azotox 50 (at <15°C.), Tritox suspension extra 50, Sapecron 50EC, Methox liquid 30, Owadziak liquid 10.

Actually harmless: Azotox liquid 33, Azotox 50 (at >20°C.), Tritox liquid 30, Tritox 50 for suspension, Toxaphene 50, Melipax Staub, Thiodan emulsion, Sadofos liquid 30, Birlane 24.

For application rates and numerical data, see table.

2

Table: Characteristics of the Insecticides Investigated and their Toxicity for Bees

Commercial name	Active substance and content in the preparation	dose in kg/ha of		number of dead bees (after 5 days)
		pre- par- at- ion	active subs- tance	
Azotox liquid 33	33% DDT	3.75	1.25	4
Azotox 50 for suspension	50% DDT	1.80	0.90	94
Azotox 50 for suspension	50% DDT	1.80	0.90	2
Azotox dust 5	5% DDT	20.00	1.00	286
Tritox liquid 30	15% methoxychlor			
	10% DDT, 5% lindane	2.30	0.70	3
Tritox 50 for suspension	3% methoxychlor, 45% DDT, 2% lindane	2.00	1.00	7
Suspension Tritox extra 50	25% methoxychlor			
	17% DDT, 8% lindane	2.00	1.00	70
Methox liquid 30	30% methoxychlor	4.00	1.20	27
Owadziak liquid 10	10% lindane	1.00	0.10	29
Toxaphene 50	50% chlorinated camphene	2.50	1.25	16
Melipax Spritzmittel	50% chlorinated camphene	2.50	1.25	3
Melipax Staub	10% chlorinated camphene	20.00	2.00	2
Thiodan emulsion	17.5% endosulfan	7.00	1.25	15
Sadofos liquid 30	30% malathion	1.50	0.45	3
Owadofos liquid 50	50% fenitrothion	1.20	0.60	505
Owadofos dust 5	5% fenitrothion	20.00	1.00	1392
Bi-58	37% dimethoate	1.35	0.50	255
Birlane 24	24% chlorfenvin-phos	2.20	0.50	8
Sapcron 50 EC	50% chlorfenvin-phos	1.00	0.50	36
Karbatox suspension 75	75% carbaryl	1.00	0.75	450
Karbatox dust 5	5% carbaryl	20.00	1.00	1227
Unden	50% propoxur	2.00	1.00	153
Elocron 50 WP	50% dioxacarb	2.00	1.00	534

DISCUSSION:

- A. Test Procedure - Procedure is sound.
- B. Statistical Analysis - None reported.
- C. Discussion/Results - This study is scientifically sound.

3