

Accession No. 409958-11

DATA EVALUATION RECORD

1. **CHEMICAL:** Ametryn
Shaughnessey No. 80801.
2. **TEST MATERIAL:** Ametryn Technical, CAS #834-12-8, Batch code
ML5477-66113, FL No. 862730, 99.0% active
ingredient, a white powder.
3. **STUDY TYPE:** Honey Bee Acute Contact LD50.
Species Tested: Apis mellifera.
4. **CITATION:** Hoxter, K.A. and M. Jaber. 1988. Ametryn: An
Acute Contact Toxicity Study with the Honey Bee. Conducted
by Wildlife International Ltd., Easton, Maryland. Project
No. 108-288. Submitted by Ciba-Geigy Corporation,
Greensboro, NC. EPA Accession Number 409958-11.
5. **REVIEWED BY:**

Prapimpan Kosalwat, Ph.D.
Staff Toxicologist
KBN Engineering and
Applied Sciences, Inc.

Signature: P. Kosalwat
Date: 4/10/89
6. **APPROVED BY:**

James R. Newman, Ph.D.
Project Manager/
Principal Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: James R. Newman
Date: 4/20/89

Henry T. Craven, M.S.
Supervisor, EEB/HED
USEPA

Signature: H/T Craven
Date: 9/28/89
7. **CONCLUSIONS:** This study is scientifically sound and meets
the guideline requirements for a honey bee acute contact
test. With an LD50 value of greater than 100 ug/bee,
Ametryn is considered relatively non-toxic to honey bee
(Apis mellifera).
8. **RECOMMENDATIONS:** N/A.

9. BACKGROUND:

10. DISCUSSION OF INDIVIDUAL TESTS: N/A.

11. MATERIALS AND METHODS:

A. Test Animals: The apparently healthy, worker honey bees (Apis mellifera) were obtained from the Wildlife International Ltd. bee colony. All test bees were adults of undetermined age. Prior to the initiation of the study, frames of honey with adult bees attached were selected from the hives and shaken to remove the adult bees. At least 25 bees were placed into each test chamber.

B. Test System: The test chambers were disposable one-pint rolled paper containers measuring approximately 87 mm in diameter and 85 mm high. Each container was covered with a disposable (90 mm) plastic Petri dish through which a 20-ml glass vial containing an approximately 50% sugar/water solution was inserted. The opening of the vial was covered with cheese cloth to prevent leakage. This food source was available ad libitum to the test bees throughout the study.

Each test solution was prepared by weighing out calculated amounts of Ametryn. The test substance was then mixed with sufficient pesticide-grade acetone to prepare a 10-ml volume. The dosages and LD50 value reported were not corrected for purity of the test substance.

The test bees were maintained in the dark except during dosing and during daily observations. Test temperatures at the time of observations ranged from 21°C to 23°C, with mean relative humidity of 65%.

C. Dosage: 48-hour acute contact LD50 test. Nominal dosages were 13, 22, 36, 60, and 100 micrograms/bee (ug/bee), applied to the thorax and/or abdomen with a micropipette.

D. Design: Test chambers, each containing 25 or more bees were assigned by random draw to five treatment, a solvent control, and a negative control groups. Two replicates were tested at each dosage. The bees in each replicate were immobilized with N₂ and laid out on paper. Twenty-five bees were individually dosed on the thorax and/or abdomen with 2 microliters of the appropriate test solution using an Eppendorf Digital

Pipette. Dosed bees were returned to the test chamber, and any surplus bees discarded. The solvent control bees received a volume of acetone equal to the largest volume used during the test (i.e., 2 ul/bee). The negative control bees were treated identically to all other bees with the exception of dosing.

Immediately following dosing, the bees were observed for mortality and signs of toxicity. Observations were made twice on the day of initiation and once on Day 1 and Day 2 after dosing.

- E. **Statistics:** The mortality pattern in this study was not conducive to calculating the LD50 value. Therefore, an estimation of the LD50 value was made by a visual inspection of the mortality data. The LD50 value was used to classify the toxicity of test material according to the toxicity categories of Atkins et al. (1976). A chemical with an LD50 value greater than or equal to 11 ug/bee would be classified as relatively non-toxic to honey bees.

12. **REPORTED RESULTS:** Mortalities observed in the negative control, solvent control, and each treatment group are presented in Table 1 (attached). At study termination, no mortality was observed in both control groups. Mortalities at the 13-, 22-, 36-, 60-, and 100-ug/bee dosages ranged from 2 to 6%, and did not appear to be treatment related.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** Ametryn was classified as relatively non-toxic, according to the toxicity categories of Atkins (1976). The honey bee 48-hour contact LD50 value for Ametryn was determined to be greater than 100 ug/bee.

The study was examined for conformance with Good Laboratory Practices as published by the U.S. Environmental Protection Agency, Office of Pesticide Programs in 40 CFR Part 160, and the final report was reviewed and signed by the Quality Assurance Unit of Wildlife International Ltd.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

- A. **Test Procedure:** The test procedures were in accordance with the protocols recommended in the SEP, except for that the test bees were reported as being adults of undetermined age. The SEP recommends the use of worker bees of uniform age.

- B. Statistical Analysis: Since mortalities of bees in the treatment groups ranged from 2 to 6% and did not appear to be treatment-related, statistical analysis was not used to estimate the LD50 value.
- C. Discussion/Results: This study is scientifically sound. Compare to other pesticides (Table 2, attached) and according to classifications by Atkins, an LD50 value of greater than 100 micrograms a.i./bee classifies Ametryn as relatively non-toxic to Apis mellifera when administered through direct contact as topical solution.
- D. Adequacy of the Study:
- (1) Classification: Core.
 - (2) Rationale: N/A.
 - (3) Repairability: N/A.
15. COMPLETION OF ONE-LINER: Yes, April 10, 1989.

Ametryn

RIN 4475-95 P.C. 080801

Page 5 is not included in this copy.

Pages _____ through _____ are not included.

The material not included contains the following type of information:

- ☐ Identity of product inert ingredients.
- ☐ Identity of product impurities.
- ☐ Description of the product manufacturing process.
- ☐ Description of quality control procedures.
- ☐ Identity of the source of product ingredients.
- ☐ Sales or other commercial/financial information.
- ☐ A draft product label.
- ☐ The product confidential statement of formula.
- ☐ Information about a pending registration action.
- ☒ FIFRA registration data.
- ☐ The document is a duplicate of page(s) _____.
- ☐ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

Table 2. *Acute contact toxicity of some pesticides to worker honeybees determined in the laboratory during 1964, 1965 and 1966*

Mean median lethal doses (LD 50) expressed as μg compound per insect and mean slopes of regression lines, n is number of regression lines used to obtain each mean. LD 90 values derived from these means are also given.

	1964				1965				1966			
	n	Mean LD 50 (μg)	LD 90 (μg)	Mean slope	n	Mean LD 50 (μg)	LD 90 (μg)	Mean slope	n	Mean LD 50 (μg)	LD 90 (μg)	Mean slope
Azinphos-methyl	—	—	—	—	—	—	—	—	2	0.063	0.13	4.0
Mevinphos	6	0.070	0.10	7.3	—	—	—	—	—	—	—	—
Bidrin	1	0.076	0.10	9.6	—	—	—	—	—	—	—	—
Dimethoate	3	0.12	0.17	8.4	9	0.11	0.14	11	7	0.098	0.15	7.4
Dieldrin	8	0.16	0.23	7.6	6	0.16	0.26	6.0	—	—	—	—
Diazinon	2	0.22	0.30	9.4	—	—	—	—	—	—	—	—
Malathion	2	0.27	0.38	8.5	3	0.22	0.32	8.1	—	—	—	—
Pyrethrins	4	0.29	0.45	6.6	4	0.13	0.20	4.4	—	—	—	—
Phorate	3	0.32	0.42	11	—	—	—	—	2	0.33	0.57	5.3
BHC	3	0.46	0.68	7.4	6	0.20	0.33	5.8	—	—	—	—
Demeton-methyl	3	0.74	0.90	15	1	0.41	0.52	12	3	0.54	0.95	5.2
Endrin	—	—	—	—	3	1.2	2.1	4.9	2	0.65	1.5	3.6
Carbaryl	2	1.3	7.4	1.7	1	1.1	1.5	0.96	—	—	—	—
Chlordane	3	1.4	1.9	10	—	—	—	—	—	—	—	—
Carbophenothion	—	—	—	—	—	—	—	—	2	1.4	6.6	1.9
Almethrin	4	3.4	4.6	9.7	—	—	—	—	—	—	—	—
DDT	3	3.9	6.2	6.4	—	—	—	—	—	—	—	—
Disulfoton	3	4.1	5.9	8.1	4	4.3	8.0	4.7	2	5.0	6.8	9.4
Menazon	3	4.3	8.1	3.0	—	—	—	—	—	—	—	—
Endosulfan	4	7.1	13	4.6	—	—	—	—	—	—	—	—
Phyl mercury chloride	2	22	43	4.4	—	—	—	—	—	—	—	—
Standard deviation (%)	—	27	—	23	—	21	—	24	—	20	—	20

From: Stevenson, J. H. 1968. Laboratory studies on the acute contact and oral toxicities of insecticides to honey bees. Ann. Appl. Biol. 61(3):467-472.

Shaughnessy/No. <u>80801</u>		Chemical Name <u>Ametryn</u>	Chemical Class _____	Page <u>1</u> of <u>1</u>
Study/Species/Lab/ Accession _____		Chemical X a.i. _____	Results (Ametryn Technical)	Reviewer/ Date _____
		Validation Status _____		
14-Day Single Dose Oral LD ₅₀		LD ₅₀ = _____ mg/kg (<u>95% C.L.</u>)	Contr. Mort. (X) = _____	
Species _____	Slope = _____	# Animals/Level = _____	Age (Days) = _____ Sex = _____	
Lab _____	14-Day Dose Level mg/kg/(X Mortality) () , () , () , () , ()			
Acc. _____	Comments: _____			
14-Day Single Dose Oral LD ₅₀		LD ₅₀ = _____ mg/kg (<u>95% C.L.</u>)	Contr. Mort. (X) = _____	
Species _____	Slope = _____	# Animals/Level = _____	Age (Days) = _____ Sex = _____	
Lab _____	14-Day Dose Level mg/kg/(X Mortality) () , () , () , () , ()			
Acc. _____	Comments: _____			
8-Day Dietary LC ₅₀		LC ₅₀ = _____ ppm (<u>95% C.L.</u>)	Contr. Mort. (X) = _____	
Species _____	Slope = _____	# Animals/Level = _____	Age (Days) = _____ Sex = _____	
Lab _____	8-Day Dose Level ppm/(X Mortality) () , () , () , () , ()			
Acc. _____	Comments: _____			
8-Day Dietary LC ₅₀		LC ₅₀ = _____ ppm (<u>95% C.L.</u>)	Contr. Mort. (X) = _____	
Species _____	Slope = _____	# Animals/Level = _____	Age (Days) = _____ Sex = _____	
Lab _____	8-Day Dose Level ppm/(X Mortality) () , () , () , () , ()			
Acc. _____	Comments: _____			
48-Hour LD ₅₀		LD ₅₀ = >100 <u>µg/bee</u> (<u>95% C.L.</u>)	Contr. Mort. (X) = 0	
Species <u>Apis mellifera</u>	Slope = N/A	# Animals/Level = 50	Sol. Contr. Mort. (X) = 0	
Lab <u>Wildlife International Ltd.</u>	48-Hour Dose Level <u>µg/bee</u> /(X Mortality) 13(0), 22(0), 36(6), 60(0), 100(2)			
Acc. <u>409958-11</u>	Comments: _____			
96-Hour LC ₅₀		LC ₅₀ = _____ pp (<u>95% C.L.</u>)	Con. Mort. (X) = _____	
Species _____	Slope = _____	# Animals/Level = _____	Sol. Con. Mort. (X) = _____	
Lab _____	96-Hour Dose Level pp/(X Mortality) () , () , () , () , ()			
Acc. _____	Comments: _____			
96-Hour LC ₅₀		LC ₅₀ = _____ PP (<u>95% C.L.</u>)	Con. Mort. (X) = _____	
Species _____	Slope = _____	# Animals/Level = _____	Sol. Con. Mort. (X) = _____	
Lab _____	96-Hour Dose Level pp/(X Mortality) () , () , () , () , ()			
Acc. _____	Comments: _____			