DATA EVALUATION RECORD
EARTHWORM TOXICITY TEST

1. **CHEMICAL:** Azoxystrobin (128810)

2. **TEST MATERIAL:** ICIA5504 technical; 96.2%

3. **CITATION:**

Authors:	Fleming, T.M., H.A. Yearsdon, and J.M. Coulson
Title:	ICIA5504: toxicity to the earthworm *Eisenia foetida*.
Date:	1993
Laboratory:	ICI Agrochemicals, Jealotts Hill Research Station, Bracknell, Berkshire, UK
Lab. Report #:	92JH272
Sponsor:	ICI Americas Inc, Wilmington, DE
MRID No.:	436781-68

4. **REVIEWED BY:**

William Erickson — Signature: W. Erickson
Biologist
EEB/EFED — Date: 4/04/96

5. **APPROVED BY:**

Harry Craven — Signature: H.T. Craven
Section Head 4 — 6/21/96
EEB/EFED — Date:

6. **STUDY PARAMETERS/RESULTS SYNOPSIS:**

Age/size of Test Organism:	clitellate adults
Test Duration:	14 days
LC_{50}:	278 mg ai/kg
95% C.I.:	not determined
NOEC:	180 mg ai/kg

7. **CONCLUSIONS:** The study is scientifically sound.

8. **ADEQUACY OF THE STUDY:** Supplemental.

9. **MAJOR GUIDELINE DEVIATIONS:** Not a guideline study.

10. **SUBMISSION PURPOSE:** New chemical.

(1)

11. **MATERIALS AND METHODS:**

Test Organism:

Guideline Criteria	Reported Information
Species	earthworm (*Eisenia foetida*)
Age	clitellate adults
Mean weight	0.37 g (± 0.05 g)
No. worms/test vessel	10
Acclimation of worms to test conditions	24 h

Test System:

Guideline Criteria	Reported Information
Test site	laboratory
Test vessels	1-l glass beakers with plastic-film covers (6 small holes per cover for ventilation)
Test soil	70% fine silica sand, 20% Kaolinite clay, 10% peat; w/calcium carbonate incorporated into the soil at 5 g/kg
Room temperature	20 ± 2°C
Soil moisture content	50 ± 7% (moisture content was maintained by surface watering with deionised water)
Soil pH	6.1 ± 0.3
Photoperiod	24 h light (750-1000 lux)

Test Design:

Guideline Criteria	Reported Information
Duration	14 days
Nominal concentrations	10, 100, 180, 320, 560, 1000 ppm
No. reps	4
Controls	solvent (acetone)
Application method	sprayed onto soil surface through a fan jet (Allman 000)
Mixing of soil and test substance	soil poured into food mixer bowl and mixed for 2 min. by heavy duty food mixer to evenly incorporate the test substance into the soil
Addition of worms to soil/ test substance mixture	test organisms placed on soil surface 1-2 h after chemical treatment

12. **REPORTED RESULTS:**

General Results:

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	yes
Control Mortality	none
Data Endpoints	mortality, body weight
Raw data included?	yes

Effects Data: Data tabulated below are based on 40 earthworms per test concentration and a 14 day observation period.

Concentration (mg ai/kg)	Mortality		Mean body weight (mg)	
	no. dead	% dead	day 0	day 14
control	0	0	401.8	411.8
10	0	0	379.5	403.8
100	0	0	338.5	354.5
180	0	0	376.5	389.8
320	29	73	385.0	346.3
560	40	100	-	-
1000	40	100	-	-

Statistical analysis: The LC_{50} value and 95% confidence limits were estimated using iteratively re-weighted linear regression of the logit of percentage mortality upon $\log_{10}$ (dose). Body weight data were analyzed by a one-way analysis of covariance and t-tests between mean final body weight (adjusted for the mean initial body weight) at each dose with the mean final body weight (adjusted for the mean initial body weight) in the control. Body weight gains of earthworms at treatment levels of 10, 100, and 180 mg ai/kg did not differ significantly from the control group.

14-day LC_{50}: 283 mg ai/kg
95% confidence limits: 254-313 mg ai/kg
NOEC: 180 mg ai/kg

13. **REVIEWER'S DISCUSSION:**

Statistical analysis: EPA's TOXANAL program was used to determine the LC_{50} value (results attached). The NOEC is based on no mortality and no major decrease in the 14-day weight gain of earthworms treated at 180 mg ai/kg as compared to weight gain in the control group.

14-day LC_{50}: 278 mg ai/kg
95% confidence limits: not determined
NOEC: 180 mg ai/kg

Conclusions: The study is scientifically sound and can be used in risk assessments for azoxystrobin. The study was not a guideline requirement.

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W. ERICKSON AZOXYSTROBIN EARTHWORM TOXICITY

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
1000	40	40	100	0
560	40	40	100	0
320	40	29	72.5	0
180	40	0	0	0
100	40	0	0	0
10	40	0	0	0

BECAUSE THE NUMBER OF ORGANISMS USED WAS SO LARGE, THE 95 PERCENT CONFIDENCE INTERVALS CALCULATED FROM THE BINOMIAL PROBABILITY ARE UNRELIABLE. USE THE INTERVALS CALCULATED BY THE OTHER TESTS.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 278.1947

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

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