

US EPA ARCHIVE DOCUMENT

1-EEB-11B  
11/25/98

MRID No. 446327-07

DATA EVALUATION RECORD  
ALGAE OR DIATOM EC<sub>50</sub> TEST  
GUIDELINE 123-2 (TIER II)

DRAFT

1. **CHEMICAL:** Acetochlor ethane PC Code No.: 121601  
sulfonic acid (acetochlor metabolite)

2. **TEST MATERIAL:** R290131 Purity: 97%

3. **CITATION:**

Authors: D.V. Smyth, S.J. Kent, and N. Shillabeer

Title: R290131: Toxicity to the Green Alga  
(*Selenastrum capricornutum*)

Study Completion Date: June 26, 1997

Laboratory: Brixham Environmental Laboratory,  
Brixham, Devon, UK

Sponsor: ZENECA Ag Products, Wilmington, DE

Laboratory Project ID: BL5971/B

MRID No.: 446327-07

DP Barcode: D249066

4. **REVIEWED BY:** Mark Mossler, M.S., Toxicologist,  
Golder Associates Inc.

Signature: 

Date: 11/25/98

**APPROVED BY:** Pim Kosalwat, Ph.D., Senior Scientist,  
Golder Associates Inc.

Signature: P. Kosalwat

Date: 11/25/98

5. **APPROVED BY:**

Signature:

Date:

6. **STUDY PARAMETERS:**

**Definitive Test Duration:** 72 hours

**Type of Concentrations:** Mean measured

DRAFT

7. **CONCLUSIONS:** This study is scientifically sound but does not fulfill the guideline requirements for an algal toxicity test.

**Results Synopsis:**

EC<sub>50</sub>: 9.2 ppm  
NOEC: 3.3 ppm

95% C.I.: 8.5 - 10 ppm  
Probit Slope: N/A



Cell density - 72 hours  
 File: sel Transform: LOG BASE 10(Y)

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

| GROUP | IDENTIFICATION | N | ORIGINAL<br>MEAN | TRANSFORMED<br>MEAN | ISOTONIZED<br>MEAN |
|-------|----------------|---|------------------|---------------------|--------------------|
| 1     | control        | 6 | 288.333          | 2.459               | 2.459              |
| 2     | 0.6 ppm        | 3 | 273.000          | 2.435               | 2.435              |
| 3     | 1.1 ppm        | 3 | 271.667          | 2.433               | 2.433              |
| 4     | 1.9 ppm        | 3 | 262.000          | 2.417               | 2.421              |
| 5     | 3.3 ppm        | 3 | 266.667          | 2.425               | 2.421              |
| 6     | 5.9 ppm        | 3 | 236.667          | 2.374               | 2.374              |
| 7     | 10 ppm         | 3 | 148.667          | 2.171               | 2.171              |
| 8     | 19 ppm         | 3 | 9.793            | 0.988               | 0.988              |
| 9     | 33 ppm         | 3 | 2.520            | 0.401               | 0.401              |

Cell density - 72 hours  
 File: sel Transform: LOG BASE 10(Y)

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

| IDENTIFICATION | ISOTONIZED<br>MEAN | CALC.<br>WILLIAMS | SIG<br>P=.05 | TABLE<br>WILLIAMS | DEGREES OF<br>FREEDOM |
|----------------|--------------------|-------------------|--------------|-------------------|-----------------------|
| control        | 2.459              |                   |              |                   |                       |
| 0.6 ppm        | 2.435              | 0.949             |              | 1.72              | k= 1, v=21            |
| 1.1 ppm        | 2.433              | 1.031             |              | 1.80              | k= 2, v=21            |
| 1.9 ppm        | 2.421              | 1.534             |              | 1.83              | k= 3, v=21            |
| 3.3 ppm        | 2.421              | 1.534             |              | 1.84              | k= 4, v=21            |
| 5.9 ppm        | 2.374              | 3.460             | *            | 1.85              | k= 5, v=21            |
| 10 ppm         | 2.171              | 11.686            | *            | 1.85              | k= 6, v=21            |
| 19 ppm         | 0.988              | 59.786            | *            | 1.85              | k= 7, v=21            |
| 33 ppm         | 0.401              | 83.669            | *            | 1.86              | k= 8, v=21            |

s = 0.035

Note: df used for table values are approximate when v > 20.

*NOEC = 3.3 ppm*

EPA PROBIT ANALYSIS PROGRAM  
USED FOR CALCULATING EC VALUES  
Version 1.4

Mossler Acetochlor Selenastrum capricornutum 10-29-98

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CONC.      NUMBER      NUMBER      PERCENT      BINOMIAL
           EXPOSED      DEAD        DEAD        PROB. (PERCENT)
19         100         97          97          0
10         100         48          48          0
5.9        100         18          18          0
3.3        100         7           7           0
*****
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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 10.20771

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

|      |              |          |                              |          |
|------|--------------|----------|------------------------------|----------|
| SPAN | G            | LC50     | 95 PERCENT CONFIDENCE LIMITS |          |
| 3    | 1.556335E-02 | 9.175928 | 8.452814                     | 10.01385 |

RESULTS CALCULATED USING THE PROBIT METHOD

|            |          |          |                             |
|------------|----------|----------|-----------------------------|
| ITERATIONS | G        | H        | GOODNESS OF FIT PROBABILITY |
| 4          | .8308116 | 6.613388 | 1.341581E-03                |

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 4.259245  
95 PERCENT CONFIDENCE LIMITS = .3769915 AND 8.141499

LC50 = 9.074984  
95 PERCENT CONFIDENCE LIMITS = 3.630609 AND 38.77677

LC10 = 4.56742  
95 PERCENT CONFIDENCE LIMITS = 5.643751E-03 AND 7.45102

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