

DATA EVALUATION RECORD
ALGAE OR DIATOM EC₅₀ TEST
GUIDELINE 123-2 (TIER II)

1. **CHEMICAL:** Cloransulam-methyl (DE-565) PC Code No.: 129116

2. **TEST MATERIAL:** 5-Hydroxy-DE-565 Acid Purity: >97%
(A metabolite of DE-565)

3. **CITATION:**

Authors: H.D. Kirk, M.M. Gilles, and J.M. Hugo
Title: Phytotoxicological Evaluation of 5-Hydroxy-DE-565 Acid Exposed Saltwater Diatom, *Skeletonema costatum*

Study Completion Date: July 15, 1998

Laboratory: Health & Environmental Research Laboratories, The Dow Chemical Company, Midland, MI

Sponsor: Dow AgroSciences, LLC, Indianapolis, IN

Laboratory Report ID: 981077

DP Barcode: D252903

MRID No.: 447445-08

4. **REVIEWED BY:** Max Feken, M.S., Environmental Toxicologist, Golder Associates Inc.

Signature: 

Date: 4/2/99

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

Signature: P. Kosalwat

Date: 4/2/99

5. **APPROVED BY:**

Signature: 

Date: 4/14/99

6. **STUDY PARAMETERS:**

Definitive Test Duration: 120 hours

Type of Concentrations: Mean measured

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements for an aquatic plant toxicity test.

Results Synopsis

EC₅₀: >103 ppm

95% C.I.: N/A

NOEC: 103 ppm

Probit Slope: N/A

8. ADEQUACY OF THE STUDY:

A. Classification: Core

B. Rationale: N/A

C. Repairability: N/A

9. **GUIDELINE DEVIATIONS:** Each test vessel contained approximately 48,000 cells/mL at the start of the test. The guidelines recommend an initial cell count of 3,000 to 10,000 cells/mL.

10. SUBMISSION PURPOSE:

11. MATERIALS AND METHODS:

A. Test Organisms

Guideline Criteria	Reported Information
Species <i>Skeletonema costatum</i> <i>Anabaena flos-aquae</i> <i>Selenastrum capricornutum</i> <i>Navicula pelliculosa</i>	<i>Skeletonema costatum</i>
Initial Number of Cells 3,000 - 10,000 cells/mL	48,000 cells/mL
Nutrients Standard formula, e.g. 20XAAP	Algal Assay Medium with a salinity range of 26-30 parts per thousand.

B. Test System

Guideline Criteria	Reported Information
Solvent	DMF (0.4 mL/L)
Temperature Skeletonema: 20°C Others: 24-25°C	18.9 - 20.1°C

Guideline Criteria	Reported Information
<u>Light Intensity</u> Anabaena: 2.0 Klux ($\pm 15\%$) Others: 4.0-5.0 Klux ($\pm 15\%$)	3.2 - 5.4 Klux
<u>Photoperiod</u> Skeletonema: 14 h light, 10 h dark or 16 h light, 8 h dark Others: Continuous	14 h light, 10 h dark
<u>pH</u> Skeletonema: approx. 8.0 Others: approx. 7.5	Without alga: 7.8 - 8.7 With alga: 8.8 - 9.0

C. Test Design

Guideline Criteria	Reported Information
<u>Dose range</u> 2X or 3X progression	2X
<u>Doses</u> at least 5	Six doses: 3.13, 6.25, 12.5, 25, 50, and 100 mg/L
<u>Controls</u> negative and/or solvent	Negative and solvent control
<u>Replicates per dose</u> 3 or more	3
<u>Duration of test</u> 120 hours	120 hours
Daily observations were made?	Yes
<u>Method of Observations</u>	Cellular counts
<u>Maximum Labeled Rate</u>	Not reported

12. REPORTED RESULTS:

Guideline Criteria	Reported Information
Initial and 120 h cell densities were measured?	Yes
Control cell count at 120 hr $\geq 2X$ initial count?	Yes
Initial chemical concentrations measured? (Optional)	Yes
Raw data included?	Yes

Measured Concentrations

Nominal Conc. (mg/L)	Measured Concentration (mg/L)			
	0-Hour	120-Hour	Mean	% Nominal
Control	<0.8	<0.8	--	--
Solvent Control	<0.8	<0.8	--	--
3.13	3.12	3.02	3.07	98
6.25	6.67	6.21	6.44	103
12.5	12.4	11.5	12.0	96
25.0	25.3	21.7	23.5	94
50.0	52.1	44.5	48.3	97
100	112	94.5	103	103

Dose Response

Mean Measured Concentration (mg/L)	Avg. Cell Density ($\times 10^3$ cells/ml)	% reduction ^a	pH range
Control	699	--	8.8
Solvent Cont.	649	--	8.8
3.07	610	6	8.8 - 8.9
6.44	655	-9 ^b	8.9
12.0	630	3	8.9 - 9.0
23.5	648	0	8.8 - 8.9
48.3	670	-3	8.8 - 8.9
103	633	3	8.8 - 8.9

^aCompared to the solvent control

^bNegative value indicates stimulation of growth

Other Significant Results: None

Statistical Results

Statistical Method: Visual inspection with results based on the initial measured concentrations.

EC₅₀: >112 mg/L

95% C.I.: N/A

Probit Slope: N/A

NOEC: 112 mg/L

13. VERIFICATION OF STATISTICAL RESULTS:

Statistical Method: Visual inspection and Williams' test for mean comparisons. Results based on mean measured concentrations.

EC₅₀: >103 ppm

95% C.I.: N/A

Probit Slope: N/A

NOEC: 103 ppm

14. **REVIEWER'S COMMENTS:** This study is scientifically sound and fulfills the guideline requirements for an aquatic plant toxicity test. Based on mean measured concentrations, the 120-hour EC₅₀ for *Anabaena flos-aquae* exposed to 5-hydroxy-DE-565 Acid was >103 ppm. The NOEC was 103 ppm. This study is categorized as **Core**.

5-OH-DE-565 - SKELETONEMA

File: 44744508

Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	SOLVENT	3	648975.000	648975.000	648975.000
2	3.07	3	609863.667	609863.667	642574.267
3	6.44	3	654815.000	654815.000	642574.267
4	12.0	3	630326.333	630326.333	642574.267
5	23.5	3	648188.333	648188.333	642574.267
6	48.3	3	669678.000	669678.000	642574.267
7	103	3	632513.000	632513.000	632513.000

5-OH-DE-565 - SKELETONEMA

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Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
SOLVENT	648975.000				
3.07	642574.267	0.281		1.76	k= 1, v=14
6.44	642574.267	0.281		1.85	k= 2, v=14
12.0	642574.267	0.281		1.88	k= 3, v=14
23.5	642574.267	0.281		1.89	k= 4, v=14
48.3	642574.267	0.281		1.90	k= 5, v=14
103	632513.000	0.723		1.91	k= 6, v=14

U = 27881.754

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

NOEL = 103 mg/L