

US EPA ARCHIVE DOCUMENT

MRID No. 440796-01

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

1. **CHEMICAL:** Tebuconazole PC Code No.: 128997
2. **TEST MATERIAL:** Folicur Technical Purity: 96.7%
3. **CITATION:** Author: L.M. Bowers
Title: Toxicity of Folicur Technical to the Green Alga *Selenastrum capricornutum*
Study Completion Date: June 24, 1996
Laboratory: Bayer Corporation, Environmental Research Section, Stilwell, KS
Sponsor: Bayer Corporation, Kansas City, MO
Laboratory Report ID: 107341
DP Barcode: D230858
MRID No.: 440796-01
4. **REVIEWED BY:** Max Feken, M.S., Environmental Toxicologist,
KBN Engineering and Applied Sciences, Inc.
Signature: **Date:** 12/4/96
- APPROVED BY:** Pim Kosalwat, Ph.D., Senior Scientist,
KBN Engineering and Applied Sciences, Inc.
Signature: **Date:**
5. **APPROVED BY:** Brian Montague, Fisheries Biologist
Environmental Risk Branch I
Environmental Fate and Effects Division
Signature: **Date:** 4/2000
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 with green algae species.
Results Synopsis
EC₅₀: 2.83 ppm ai 95% C.I.: 2.41 - 3.02 ppm ai
NOEC: 1.19 ppm ai Probit Slope: N/A
8. **ADEQUACY OF THE STUDY:**
A. **Classification:** Core



2046067

B. Rationale: N/A

C. Repairability: N/A

9. GUIDELINE DEVIATIONS: None

10. SUBMISSION PURPOSE: Submitted to support registration of tebuconazole for outdoor crop uses.

11. MATERIALS AND METHODS:

A. Test Organisms

Guideline Criteria	Reported Information
<u>Species</u> <i>Selenastrum capricornutum</i>	<i>Selenastrum capricornutum</i>
<u>Initial Number of Cells</u> 3,000 - 10,000 cells/mL	10,000 cells/mL
<u>Nutrients</u> Standard formula, e.g. 20XAAP	Sterile Freshwater Media (ASTM, 1990)

B. Test System

Guideline Criteria	Reported Information
<u>Solvent</u>	Acetone (0.5 mL/L)
<u>Temperature</u> Skeletonema: 20°C Others: 24-25°C	23.7 - 24.5°C
<u>Light Intensity</u> Anabaena: 2.0 Klux (±15%) Others: 4.0-5.0 Klux (±15%)	Approximately 4.3 Klux
<u>Photoperiod</u> Skeletonema: 14 h light, 10 h dark or 16 h light, 8 h dark Others: Continuous	Continuous
<u>pH</u> Skeletonema: approx. 8.0 Others: approx. 7.5	Initial: 6.7 - 7.0 Final: 6.5 - 8.2

C. Test Design

Guideline Criteria	Reported Information
<u>Dose range</u> 2X or 3X progression	2X
<u>Doses</u> at least 5	0.63, 1.25, 2.5, 5.0, and 10 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
<u>Daily observations were made?</u>	Observations were made daily.
<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 \geq2X initial count?	Yes
Initial chemical concentrations measured? (Optional)	Yes
Raw data included?	Yes

Dose Response - Day 4

Concentration mg ai/L		Avg. Cell Density (x 10 ⁴ cells/ml)	% reduction ^a	120-Hour pH
Nominal	Mean Measured			
Control	<0.05	176	-71	8.2
Solvent Control	<0.05	103	--	8.1
0.63	0.68	123	-19	8.2
1.25	1.19	118	-14	NR ^b
2.5	2.46	67	45	8.2
5.0	4.94	0.5	100	NR
10.0	10.9	0.2	100	6.5

^aCompared to the solvent control

^bNR - Not Reported

Dose Response - Day 5

Concentration mg ai/L		Avg. Cell Density (x 10 ⁴ cells/ml)	% reduction ^a	120-Hour pH
Nominal	Mean Measured			
Control	<0.05	177	-13	8.2
Solvent Control	<0.05	156	--	8.1
0.63	0.68	116	25	8.2
1.25	1.19	119	23	NR ^b
2.5	2.46	121	22	8.2
5.0	4.94	1.4	100	NR
10.0	10.9	0.9	100	6.5

^aCompared to the solvent control

^bNR - Not Reported

MAX FEKEN FOLICUR SELENASTRUM 11-26-96

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
4.94	100	100	100	0
2.46	100	45	45	0
1.19	100	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 2.570743

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.

US EPA ARCHIVE DOCUMENT

FOLICUR - SELENASTRUM (DAY 4)
 File: 44079601 Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	SOLVENT	3	103.000	103.000	139.375
2	CONTROL	3	175.750	175.750	139.375
3	0.68	3	123.000	123.000	123.000
4	1.19	3	117.583	117.583	117.583
5	2.46	3	67.250	67.250	67.250
6	4.94	3	0.470	0.470	0.470
7	10.9	3	0.220	0.220	0.220

FOLICUR - SELENASTRUM (DAY 4)
 File: 44079601 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	139.375				
CONTROL	139.375	2.152	*	1.76	k= 1, v=14
0.68	123.000	1.183		1.85	k= 2, v=14
1.19	117.583	0.863		1.88	k= 3, v=14
2.46	67.250	2.115	*	1.89	k= 4, v=14
4.94	0.470	6.066	*	1.90	k= 5, v=14
10.9	0.220	6.081	*	1.91	k= 6, v=14

s = 20.702

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

FOLICUR - SELENASTRUM (DAY 5)

File: 44079601

Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	SOLVENT	3	155.500	155.500	166.438
2	CONTROL	3	177.377	177.377	166.438
3	0.68	3	116.127	116.127	118.834
4	1.19	3	119.127	119.127	118.834
5	2.46	3	121.250	121.250	118.834
6	4.94	3	1.443	1.443	1.443
7	10.9	3	0.907	0.907	0.907

FOLICUR - SELENASTRUM (DAY 5)

File: 44079601

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	166.438				
CONTROL	166.438	0.628		1.76	k= 1, v=14
0.68	118.834	2.106	*	1.85	k= 2, v=14
1.19	118.834	2.106	*	1.88	k= 3, v=14
2.46	118.834	2.106	*	1.89	k= 4, v=14
4.94	1.443	8.848	*	1.90	k= 5, v=14
10.9	0.907	8.879	*	1.91	k= 6, v=14

s = 21.324

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

5 Day 2.46 ppm value higher here than in 4 Day cell count thus 4 Day count used in determining EC₅₀ levels.

DP BARCODE: D230858

CASE: 192680
SUBMISSION: S510527

DATA PACKAGE RECORD
BEAN SHEET

DATE: 12/01/97
Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: REGISTRATION ACTION: 400 DATA-MISC DATA-NOT REQUES
RANKING : 0 POINTS ()
CHEMICALS: 128997 Tebuconazole 0.0000%

ID#: 003125-00383 Folicur Technical
COMPANY: 003125 BAYER CORP
PRODUCT MANAGER: 21 MARY WALLER 703-308-9354 ROOM: CM2 247
PM TEAM REVIEWER: MARY WALLER 703-308-9354 ROOM: CM2 247
RECEIVED DATE: 08/05/96 DUE OUT DATE: 12/03/96

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 230858 EXPEDITE: N DATE SENT: 10/23/96 DATE RET.: / /
CHEMICAL: 128997 Tebuconazole
DP TYPE: 001 Submission Related Data Package
CSF: N LABEL: N

ASSIGNED TO	DATE IN	DATE OUT	ADMIN DUE DATE: 11/17/96
DIV : EFED	10/24/96	04/20/00	NEGOT DATE: / /
BRAN: ERB1	10/25/96	04/28/00	PROJ DATE: / /
SECT: IO	10/25/96	04/28/00	
REVR :	10/25/96	04/20/00	
CONTR: ODENKIRCH	12/01/97	/ /	

* * * DATA REVIEW INSTRUCTIONS * * *

6(a)(2) committee has determined that this is not adverse effects data and should be reviewed normally.

* * * DATA PACKAGE EVALUATION * * *

No evaluation is written for this data package

* * * ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION * * *

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
-------	----------------	----------	----------	-----	-----	-------

* KBN Disk attached. *EA*

US EPA ARCHIVE DOCUMENT