

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD  
EC<sub>50</sub> TEST WITH LEMNA GIBBA  
GUIDELINE 122-2 OR 123-2 (TIER I OR II)

1. CHEMICAL: San 1269H (Diflufenzopyr+Dicamba) PC Code No.: 005107

2. TEST MATERIAL: The test substance, SAN 1269H, is a formulated product consisting of the active ingredients, Dicamba sodium salt and San 836 (Diflufenzopyr sodium salt).  
Purity: 50% (wt. As acid equivalents) as Dicamba; 20% (wt. As acid equivalents) as Diflufenzopyr.

3. CITATION

Author: Hoberg, James R.  
Title: SAN 1269H Toxicity to Duckweed  
Study Completion Date: May 29, 1996  
Laboratory: Springborn Laboratories, Inc.  
Sponsor: Sandoz Agro Inc.  
Laboratory Report ID: 96-66550  
DP Barcode: D238406  
MRID No.: 443074-51

4. REVIEWED BY: Fred Jenkins, Aquatic Biologist, ERBII, EFED

Signature: *Fred Jenkins*

Date: 4/6/98

5. APPROVED BY: Mike Davy, Agronomist, ERBII, EFED

Signature: *Michael Davy*

Date: 4-6-98

6. STUDY PARAMETERS

Definitive Test Duration: 14 days  
Type of Concentrations: Mean measured

7. CONCLUSIONS:

Results Synopsis

EC<sub>50</sub>: 0.22 ppm A.E.      95% C.I.: 0.12-0.59 ppm A.E.  
NOEL: 0.0023 ppm A.E.      Slope: 0.59

8. ADEQUACY OF THE STUDY

A. Classification: Core

B. Rationale: The study meets guidelines

C. Repairability: N/A

9. GUIDELINE DEVIATIONS

N/A

10. SUBMISSION PURPOSE:

Section 3 Registration

11. MATERIALS AND METHODS

A. Test Organisms

Guideline Criteria	Reported Information
<u>Species</u> <i>Lemna gibba</i>	<i>Lemna gibba</i>
<u>Number of Plants/Fronds</u> 5 plants, 3 fronds per plant.	5 plant, 3 fronds per plant
<u>Nutrients</u> Standard formula, e.g. Hoagland E + EDTA, M-Hoagland (no EDTA, no sucrose), or 20XAAP	Hoagland medium

**B. Test System**

<u>Guideline Criteria</u>	<u>Reported Information</u>
<u>Solvent</u>	none
<u>Temperature</u> 25°C	25±°C
<u>Light Intensity</u> 4.2-5.8 K lux (±15%)	3.2-5.4 K Lux
<u>Photoperiod</u> Continuous	Continuous
<u>pH</u> Varies with media used, as follows: Hoagland E + EDTA, 4.60; M-Hoagland (no EDTA, no sucrose), 5.00 ± 0.1; 20XAAP, 7.50 ± 0.01.	The pH ranged from 5.1 to 6.6.
<u>Test System</u> Static or renewal	Static

**C. Test Design**

Guideline Criteria	Reported Information
<u>Dose range</u> 2X or 3X progression	3X progression
<u>Doses</u> at least 5	5
<u>Controls</u> negative and/or solvent	negative
<u>Replicates per dose</u> 3 or more	3
<u>Duration of test</u> 14 days	14 days
Daily observations were made?	Yes
<u>Method of Observations</u>	Fronds were counted and visual observations were made on days 3, 6, 9, & 12.
<u>Maximum Labeled Rate</u>	0.35 lb ai/acre

**12. REPORTED RESULTS**

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Initial and 14 day frond count?	Yes
Control frond count at 14 day $\geq$ 2X initial count?	Yes
Initial chemical concentrations measured? (Optional)	Not reported
Raw data included?	Yes

4

Dose Response

Dose (Mean Measured) (A.E. ppm) <sup>1</sup>	Frond Production	% Inhibition	14-Day pH
Control	663	N/A	6.6
Solvent Control	N/A	N/A	N/A
0.0023	612	7.7	6.6
0.0070	513	22.6	6.5
0.021	473	28.7	6.4
0.063	411	38	6.2
0.28	332	49.9	6.2

<sup>1</sup> The nominal concentrations of 1269H (Mixture combination of dicamba and 836H) were 0.0024, 0.0081, 0.027, 0.090, and 0.30 ppm A.E.. During the study the mean measured concentrations of SAN836H ranged from 87 to 110% of the nominal concentrations. The mean measured concentrations of Dicamba ranged from 63 to 95% of the nominal concentrations.

Statistical Results

Statistical Method: Williams Test

EC<sub>50</sub>: 0.28 ppm A.E.                      95% C.I.: 0.13-0.69 ppm A.E.

Slope: Not reported                      NOEC: 0.0023 ppm A.E.

**13. Verification of Statistical Results**

Statistical Method: Probit Method (for EC<sub>50</sub> value); Dunnetts test, and Bonferri test (for NOEC value)

EC<sub>50</sub>: 0.22 ppm A.E.                      95% C.I.: 0.12-0.58 ppm A.E.

Slope: 0.59                                      NOEC: < 0.0023 ppm A.E.

**14. REVIEWER'S COMMENTS:**

The study is scientifically sound and meets the guideline requirements of *The Hazard Evaluation Division Standard Evaluation Procedure for Non-Target Plants: Growth and Reproduction of Aquatic Plants*.

San 1269H Lemma  
 File: C:SAN1269L. Transform: NO TRANSFORM

BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	control	662.667	662.667		
2	0.0023	612.000	612.000	3.513	*
3	0.007	513.000	513.000	10.377	*
4	0.021	473.333	473.333	13.127	*
5	0.063	410.667	410.667	17.471	*
6	0.28	331.667	331.667	22.949	*

Bonferroni T table value = 2.68 (1 Tailed Value, P=0.05, df=12,5)

San 1269H Lemma  
 File: C:SAN1269L. Transform: NO TRANSFORM

BONFERRONI T-TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of DIFFERENCE CONTROL FROM CONTROL
1	control	3		
2	0.0023	3	38.669	5.8 50.667
3	0.007	3	38.669	5.8 149.667
4	0.021	3	38.669	5.8 189.333
5	0.063	3	38.669	5.8 252.000
6	0.28	3	38.669	5.8 331.000

6

San 1269H Lemma  
 File: C:SAN1269L. Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	control	662.667	662.667		
2	0.0023	612.000	612.000	3.513	*
3	0.007	513.000	513.000	10.377	*
4	0.021	473.333	473.333	13.127	*
5	0.063	410.667	410.667	17.471	*
6	0.28	331.667	331.667	22.949	*

Dunnett table value = 2.50 (1 Tailed Value, P=0.05, df=12,5)

San 1269H Lemma  
 File: C:SAN1269L. Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of DIFFERENCE CONTROL FROM CONTROL
1	control	3		
2	0.0023	3	36.059	5.4 50.667
3	0.007	3	36.059	5.4 149.667
4	0.021	3	36.059	5.4 189.333
5	0.063	3	36.059	5.4 252.000
6	0.28	3	36.059	5.4 331.000

San 1269H Lemma  
 File: C:SAN1269L. Transform: NO TRANSFORM