

DATA EVALUATION RECORD
EC₅₀ 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.

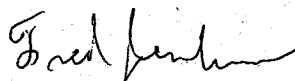
Laboratory Report ID: 96-66550

DP Barcode: D238406

MRID No.: 443074-51

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

Signature:



Date:

4/6/98

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

Signature:



Date:

4-6-98

6. STUDY PARAMETERS

Definitive Test Duration: 14 days

Type of Concentrations: Mean measured

7. CONCLUSIONS:

Results Synopsis

EC₅₀: 0.22 ppm A.E.

NOEL: 0.0023 ppm A.E.

95% C.I.: 0.12-0.59 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

DP Barcode: D238406

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B. Test System

Guideline Criteria	Reported Information
<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

Dose Response

Dose (Mean Measured) (A.E. ppm) ¹	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

¹ 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

EC₅₀: 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 EC₅₀ value); Dunnetts test, and Bonferri test (for NOEC value)

EC₅₀: 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

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BONFERRONI T-TEST - TABLE 1 OF 2

Ho:Control<Treatment

		TRANSFORMED MEAN CALCULATED IN				
GROUP	IDENTIFICATION		MEAN	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

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BONFERRONI T-TEST - TABLE 2 OF 2

Ho:Control<Treatment

		NUM OF Minimum Sig Diff % of DIFFERENCE			
GROUP	IDENTIFICATION	REPS	(IN ORIG. UNITS)	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

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DUNNETTS TEST - TABLE 1 OF 2

Ho:Control<Treatment

		TRANSFORMED		MEAN CALCULATED IN	
GROUP	IDENTIFICATION		MEAN	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

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DUNNETTS TEST - TABLE 2 OF 2

Ho:Control<Treatment

		NUM OF		Minimum Sig Diff		% of		DIFFERENCE	
GROUP	IDENTIFICATION	REPS	(IN ORIG. UNITS)	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

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