

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

1. CHEMICAL: Avermectin B<sub>1</sub>
2. FORMULATION: Technical - 91.4%
3. CITATION: Hollister, T. (1981) The Effect of Avermectin B<sub>1</sub> to Freshwater alga Selenastrum capricornutum; received 12/3/81 under 618-EUP-10; unpublished report prepared by EG&G Bionomics for Merck & Co., Inc, Rahway, NJ (in Acc #246358)
4. REVIEWED BY: Stephen M. Hopkins  
Plant Physiologist  
EEB/HED
5. DATE REVIEWED: 12/5/81
6. TEST TYPE: Growth and Reproduction of Aquatic Plants - Selenastrum capricornutum
7. REPORTED RESULTS:

The author demonstrated the following EC values for effects of the test material on algae growth

9 day EC<sub>10</sub> - 48 ppm  
9 day EC<sub>50</sub> - >100 ppm  
9 day EC<sub>90</sub> - >100 ppm

8. REVIEWER'S CONCLUSIONS:

This study is scientifically sound and follows proposed EPA protocol for a study on the effects of the test material on algal growth. The study has not been categorized due to lack of requirement for this study at this time.

## Materials and Methods

The test procedure generally complied with Supbart J guidelines of Nov 3, 1980. Some species of note include:

Cell numbers -  $1 \times 10^4$  cells/ml from an 8 day old culture  
Test vessel size - 125 ml flasks containing 50 ml of test medium,  
3 vessels per treatment level.  
Medium - Regular Algal Assay Procedure Medium  
Treatment Level - 6, 12, 25, 50, and 100 ppm plus  
untreated and solvent controls  
Temperature - 24°C  
Light - 4,200 lux illumination  
Test dates - July 6-15, 1981 (9 days)

Cell number was determined at day 5, 3, 4, 7, and 9, and dry weight was determined on day 9. Dry weight at 9 day 5 was analyzed by ANOVA and Williams' Method to determine significant differences among treatment means. 9-day EC values were calculated by linear regression based on cell numbers.

## Results

<u>Concentration</u> (ppm)	<u>Percent change</u>				<u>Dry Cell Weight</u>
	<u>Day 3</u>	<u>Day 4</u>	<u>Day 7</u>	<u>Day 9</u>	<u>Day 9</u>
100	-72	-55	-63	-38	-20*
50	-61	-30	-58	-12	-11*
25	-25	-32	-58	-20	-4
12	-23	-27	-60	-19	-2
6	-28	-21	-50	-3	+11*
Solvent Control	+12	+15	0	0	+1
Control	—	—	—	—	—

\* Significant difference ( $\leq 0.05$ ) from solvent control

The author calculated a 9-day EC<sub>10</sub> of 48 ppm. The EC<sub>50</sub> and EC<sub>90</sub> were to stated be greater than 100 ppm.

However, from the data it appears that a 5-day EC<sub>50</sub> would be less than 100 ppm, and the EC<sub>10</sub> would be less than 6 ppm.

Validation: This study is scientifically sound.