DATA EVALUATION RECORD
§ 72-2 -- ACUTE EC_{50} TEST WITH A FRESHWATER INVERTEBRATE

1. **CHEMICAL:** Captan **PC Code No.:** 081301

2. **TEST MATERIAL:** THPI **Purity:** 96%

3. **CITATION:**

Authors:	S.J. Kent, S.A. Sankey, A.J. Banner and S.E. Magor
Title:	THPI: Acute Toxicity to *Daphnia magna*
Study Completion Date:	September 1, 1994
Laboratory:	Brixham Environmental Laboratory, ZENECA Limited, Brixham, U.K.
Sponsor:	ZENECA Inc., Fernhurst, Haslemere, U.K.
Laboratory Report ID:	BL5239/B
MRID No.:	438698-08
DP Barcode:	Not available.

4. **REVIEWED BY:** Rosemary Graham Mora, M.S., Environmental Scientist, KBN Engineering and Applied Sciences, Inc.

Signature: for RGM **Date:** 3/11/96

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, KBN Engineering and Applied Sciences, Inc.

Signature: P. Kosalwat **Date:** 3/11/96

5. **APPROVED BY:**

Signature: **Date:** 6/6/97

6. **STUDY PARAMETERS:**

Scientific Name of Test Organism:	*Daphnia magna*
Age of Test Organism:	<24 hours
Definitive Test Duration:	48 hours
Study Method:	Static
Type of Concentrations:	Mean measured

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements for a freshwater invertebrate acute toxicity test. A 48-hour EC_{50} of >113 ppm classifies THPI as practically non-toxic to *Daphnia magna*. Since no mortality or sublethal effects were observed at the only concentration tested, the NOEC was 113 ppm.

Results Synopsis

EC_{50}:	>113 ppm	95% C.I.:	N/A
NOEL:	113 ppm	Probit Slope:	N/A

8. **ADEQUACY OF THE STUDY:**

   A. Classification: Core

   B. Rationale: Fulfills requirement.

   C. Repairability: N/A

9. **Guideline Deviations:** The pH of the dilution water control (8.0-8.18) during the test was higher than recommended (7.2-7.6).

10. **SUBMISSION PURPOSE:**

11. **MATERIALS AND METHODS:**

   A. Test Organisms

Guideline Criteria	Reported Information
Species Preferred species is *Daphnia magna*	*Daphnia magna*
All organisms are approximately the same size and weight?	Not Reported.
Life Stage Daphnids: 1st instar (<24 h). Amphipods, stoneflies, and mayflies: 2nd instar. Midges: 2nd & 3rd instar.	<24 hours old
Supplier	In-house cultures
All organisms from the same source?	Yes

   B. Source/Acclimation

Guideline Criteria	Reported Information
Acclimation Period Minimum 7 days	Parental stock was maintained in dilution water and at test temperature for 25 ±1 days.
Wild caught organisms were quarantined for 7 days?	N/A

Guideline Criteria	Reported Information
Were there signs of disease or injury?	No
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	N/A
Feeding No feeding during the study.	No feeding during the study.
Pretest Mortality No more than 3% mortality 48 hours prior to testing.	N/A

C. **Test System**:

Guideline Criteria	Reported Information
Source of dilution water Soft reconstituted water or water from a natural source, **not** dechlorinated tap water.	Reconstituted water used for testing was Elendt's M4 *Daphnia* medium.
Does water support test animals without observable signs of stress?	Yes
Water Temperature Daphnia: 20°C Amphipods and mayflies: 17°C Midges and mayflies: 22°C Stoneflies: 12°C	20 ±1°C
pH Prefer 7.2 to 7.6.	7.61-8.18
Dissolved Oxygen Static: ≥ 60% during 1st 48 h and ≥ 40% during 2nd 48 h, flow-through: ≥ 60%.	≥99% of saturation throughout the study
Total Hardness Prefer 40 to 200 mg/L as $CaCO_3$.	179 mg/L as $CaCO_3$

Guideline Criteria	Reported Information
Test Aquaria 1. Material: Glass or stainless steel. 2. Size: 250 ml (daphnids and midges) or 3.9 L (1 gal). 3. Fill volume: 200 ml (daphnids and midges) or 2-3 L.	1. Borosilicate glass 2. 250 ml beakers 3. 200 ml of test solution
Type of Dilution System Must provide reproducible supply of toxicant.	N/A
Flow Rate Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period.	N/A
Biomass Loading Rate Static: ≤ 0.8 g/L at ≤ 17°C, ≤ 0.5 g/L at > 17°C; flow-through: ≤ 1 g/L/day.	Not reported.
Photoperiod 16 hours light, 8 hours dark.	16 hours light, 8 hours dark
Solvents Not to exceed 0.5 ml/L for static tests or 0.1 ml/L for flow-through tests.	No solvent was used.

D. **Test Design**

Guideline Criteria	Reported Information
Range Finding Test If EC_{50} >100 mg/L, then no definitive test is required.	A limit test was performed.
Nominal Concentrations of Definitive Test Control & 5 treatment levels; a geometric series with each concentration being at least 60% of the next higher one.	Dilution water control and one nominal test concentration (120 mg/L)

Number of Test Organisms Minimum 20/level, may be divided among containers.	5 daphnids per vessel, 4 vessels per level
Test organisms randomly or impartially assigned to test vessels?	Yes
Water Parameter Measurements 1. Temperature Measured continuously or, if water baths are used, every 6 h, may not vary > 1°C. 2. DO and pH Measured at beginning of test and ever 48 h in the high, medium, and low doses and in the control.	1. Temperature was measured daily and hourly in an extra test vessel of the dilution water placed next to the control. 2. DO of the dilution water and pH of excess test solution were measured at test initiation. Both parameters were measured at test termination in two replicates of the treatment and the control.
Chemical Analysis Needed if solutions were aerated, if chemical was volatile, insoluble, or known to absorb, if precipitate formed, if containers were not steel or glass, or if flow-through system was used	Concentrations were measured in excess test solution at test initiation and in one replicate of the treatment and control at test termination.

12. REPORTED RESULTS:

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Control Mortality Static: ≤10% Flow-through: ≤5%	0%
Percent Recovery of Chemical	92-100% of nominal
Raw data included?	Yes

Mortality

Concentration (ppm ai)		Number of Organ-isms	Cumulative Number Immobile			
			Hour of Study			
Nominal	Mean Measured		24	48	72	96
Control	<0.04	20	0	0	NA	NA
120	120	20	0	0	NA	NA

Other Significant Results: None

B. Statistical Results
Method: N/A

48-hr EC_{50}: >120 ppm
95% C.I.: N/A
Probit Slope: NA
NOEC: 120 ppm

13. VERIFICATION OF STATISTICAL RESULTS:

Parameter	Result
Binomial Test EC_{50} (C.I.)	N/A
Moving Average Angle EC_{50} (95% C.I.)	N/A
Probit EC_{50} (95% C.I.)	N/A
Probit Slope	N/A
48-hour EC_{50} (Visual Inspection)	>120 ppm
NOEC	120 ppm

14. REVIEWER'S COMMENTS: The authors presented the mean measured concentration as 120 ppm. However, measured concentrations were 120, 110, 120 ppm at 0 hours and 110, 110, 110 ppm at 48 hours. The actual mean measured concentration is 113 ppm.

This study is scientifically sound and fulfills the guideline requirements for a freshwater invertebrate acute toxicity test. A 48-hour EC_{50} value of >113 ppm classifies THPI as practically non-toxic to *Daphnia magna*. The NOEC was 113 ppm since no mortality or sublethal effects were observed at the only concentration tested. This study is classified as **Core**.