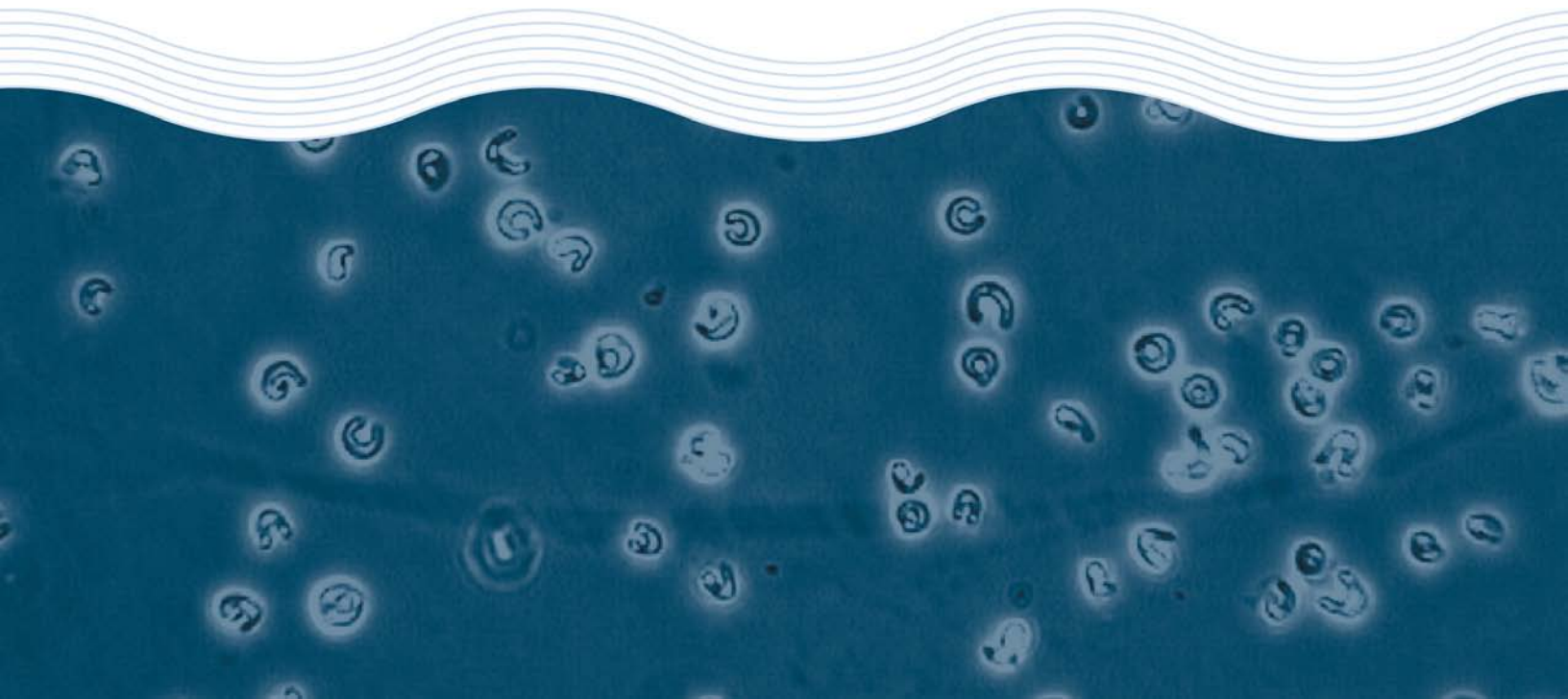


Toxicity Assessment of Hydragyp

VGT Pty Ltd

Test Report

September 2010



Toxicity Assessment of Hydragyp

VGT Pty Ltd

Test Report

September 2010

Toxicity Test Report: TR0627/1

(page 1 of 2)

This document is issued in accordance with NATA's accreditation requirements

Client:	VGT PO Box 2335 Greenhills NSW 2323	ESA Job #:	PR0627
Attention:	Lisa Thompson	Date Sampled:	Not applicable
Client Ref:	Not supplied	Date Received:	22 September 2010
		Sampled By:	Not applicable
		ESA Quote #:	PL0627_q01

Lab ID No.:	Sample Name:	Sample Description:
4358	Hydragyp	Chemical received at room temperature in apparent good condition

Test Performed:	72-hr microalgal growth inhibition test using the green alga <i>Selenastrum capricornutum</i>
Test Protocol:	ESA SOP 103 (ESA 2010), based on USEPA (2002)
Test Temperature:	The test was performed at 25±1°C.
Deviations from Protocol:	Nil
Comments on Solution Preparation:	The highest test concentration was prepared by adding sample 4358 'Hydragyp' into USEPA media. The remaining test concentrations were achieved by serially diluting the highest test concentration with USEPA media. A USEPA control was tested concurrently with the sample.
Source of Test Organisms:	ESA Laboratory culture, originally sourced from CSIRO Microalgal Supply Service, TAS
Test Initiated:	28 September 2010 at 1100h

Sample 4358: <i>Hydragyp</i>	Concentration (ppm)	Cell Yield x10 ⁴ cells/mL (Mean ± SD)	Vacant	Vacant
USEPA Control		129.4 ± 13.3		
4.1		129.0 ± 24.5		
12.3		123.6 ± 56.5		
37		118.7 ± 28.5		
111.1		150.9 ± 13.8		
333.3		118.8 ± 22.6		
1000		95.8 ± 22.5		
72-hr IC ₁₀ = 377.2ppm*				
72-hr IC ₅₀ = >1000ppm				
NOEC = 1000ppm				
LOEC = >1000ppm				

*95% confidence limit not available

QA/QC Parameter	Criterion	This Test	Criterion met?
Control mean cell density	>16.0x10 ⁴ cells/mL	130.4x10 ⁴ cells/mL	Yes
Control coefficient of variation	<20%	10.3%	Yes
Reference Toxicant within cusum chart limits	1.1-4.4g KCl/L	2.8g KCl/L	Yes

Toxicity Test Report: TR0627/1

(page 2 of 2)

Test Report Authorised by:



Dr Rick Krassoi, Director on 2 November 2010

Results are based on the samples in the condition as received by ESA.

NATA Accredited Laboratory Number: 14709

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Citations:

ESA (2010) *ESA SOP 103 – Green Alga, Selenastrum capricornutum, Growth Test*. Issue No 4. Ecotox Services Australasia, Sydney, NSW.

USEPA (2002) *Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms*. Fourth Edition. EPA-821-R-02-013. United States Environmental Protection Agency, Office of Research and Development, Washington DC, USA,

Toxicity Test Report: TR0627/2

(page 1 of 2)

This document is issued in accordance with NATA's accreditation requirements

Client:	VGT PO Box 2335 Greenhills NSW 2323	ESA Job #:	PR0627
Attention:	Lisa Thompson	Date Sampled:	Not applicable
Client Ref:	Not supplied	Date Received:	22 September 2010
		Sampled By:	Not applicable
		ESA Quote #:	PL0627_q01

Lab ID No.:	Sample Name:	Sample Description:
4358	Hydragyp	Chemical received at room temperature in apparent good condition

Test Performed:	48-hr acute (survival) toxicity test using the freshwater cladoceran <i>Ceriodaphnia cf dubia</i>
Test Protocol:	ESA SOP 101 (ESA 2009), based on USEPA (2002) and Bailey <i>et al.</i> (2000)
Test Temperature:	The test was performed at 25±1°C.
Deviations from Protocol:	Nil
Comments on Solution Preparation:	The highest test concentration was prepared by adding sample 4358 'Hydragyp' into Dilute Mineral Water (DMW). The remaining test concentrations were achieved by serially diluting the highest test concentration with DMW. A DMW (diluent) control was tested concurrently with the sample.
Source of Test Organisms:	ESA Laboratory culture
Test Initiated:	28 September 2010 at 1300h

Sample 4358: <i>Hydragyp</i>	<i>Vacant</i>	<i>Vacant</i>
Concentration (ppm)	% Survival at 48 h (Mean ± SD)	
DMW Control	95.0 ± 10.0	
4.1	95.0 ± 10.0	
12.3	100 ± 0.0	
37.0	100 ± 0.0	
111.1	100 ± 0.0	
333.3	100 ± 0.0	
1000	100 ± 0.0	
48-hr EC10 = >1000ppm 48-hr EC50 = >1000ppm NOEC = 1000ppm LOEC = >1000ppm		

QA/QC Parameter	Criterion	This Test	Criterion met?
Control mean % survival	>90.0%	95.0%	Yes
Reference Toxicant within cusum chart limits	154.4-339.7mg KCl/L	271.2mg KCl/L	Yes

Toxicity Test Report: TR0627/2

(page 2 of 2)

Test Report Authorised by:



Dr Rick Krassoi, Director on 2 November 2010

Results are based on the samples in the condition as received by ESA.

NATA Accredited Laboratory Number: 14709

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Citations:

Bailey, H.C., Krassoi, R., Elphick, J.R., Mulhall, A., Hunt, P., Tedmanson, L. and Lovell, A. (2000) Application of *Ceriodaphnia cf. dubia* for whole effluent toxicity tests in the Hawkesbury-Nepean watershed, New South Wales, Australia: method development and validation. *Environmental Toxicology and Chemistry* 19:88-93.

ESA (2008) *SOP 101 – Acute toxicity test using Ceriodaphnia dubia*. Issue No. 8. Ecotox Services Australasia, Sydney, New South Wales.

USEPA (2002) *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*. 4th Ed. United States Environmental Protection Agency, Office of Water, Washington DC.

Toxicity Test Report: TR0627/3

(page 1 of 2)

This document is issued in accordance with NATA's accreditation requirements

Client:	VGT PO Box 2335 Greenhills NSW 2323	ESA Job #:	PR0627
Attention:	Lisa Thompson	Date Sampled:	Not applicable
Client Ref:	Not supplied	Date Received:	22 September 2010
		Sampled By:	Not applicable
		ESA Quote #:	PL0627_q01

Lab ID No.:	Sample Name:	Sample Description:
4358	Hydragyp	Chemical received at room temperature in apparent good condition

Test Performed:	7-day partial life-cycle (chronic) toxicity test using the freshwater cladoceran <i>Ceriodaphnia cf dubia</i>
Test Protocol:	ESA SOP 102 (ESA 2010), based on USEPA (2002) and Bailey <i>et al.</i> (2000)
Test Temperature:	The test was performed at 25±1°C.
Deviations from Protocol:	Nil
Comments on Solution Preparation:	The highest test concentration was prepared by adding sample 4358 'Hydragyp' into Dilute Mineral Water (DMW). The remaining test concentrations were achieved by serially diluting the highest test concentration with DMW. A DMW (diluent) control was tested concurrently with the sample.
Source of Test Organisms:	ESA Laboratory culture
Test Initiated:	5 October 2010 at 1545h


Sample 4358: <i>Hydragyp</i>		Sample 4358: <i>Hydragyp</i>	
Concentration (ppm)	% Survival at 7 days (Mean ± SD)	Concentration (ppm)	Number of Young (Mean ± SD)
DMW Control	100 ± 0.0	DMW Control	21.1 ± 1.7
4.1	100 ± 0.0	4.1	20.9 ± 2.8
12.3	100 ± 0.0	12.3	20.0 ± 5.0
37.0	100 ± 0.0	37.0	20.7 ± 4.1
111.1	100 ± 0.0	111.1	21.0 ± 3.8
333.3	100 ± 0.0	333.3	21.1 ± 1.5
1000	100 ± 0.0	1000	12.2 ± 6.5
7 day EC10 (survival) = >1000ppm		7 day IC10 (reproduction) = 466.6 (347.1-570.3) ppm	
7 day EC50 (survival) = >1000ppm		7 day IC50 (reproduction) = >1000ppm	
NOEC = 1000ppm		NOEC = 333.3ppm	
LOEC = >1000ppm		LOEC = 1000ppm	

* Significantly lower number of young compared with DMW Control (Steel's Many-One Rank Test, 1-tailed, P=0.05)

QA/QC Parameter	Criterion	This Test	Criterion met?
Control mean % survival	>80.0%	100%	Yes
Control mean number of young	>15.0	21.1	Yes
Reference Toxicant within cusum chart limits	148.3-301.3mg KCl/L	212.2mg KCl/L	Yes

Toxicity Test Report: TR0627/3

(page 2 of 2)

Test Report Authorised by:  Dr Rick Krassoi, Director on 2 November 2010

Results are based on the samples in the condition as received by ESA.

NATA Accredited Laboratory Number: 14709

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Citations:

Bailey, H.C., Krassoi, R., Elphick, J.R., Mulhall, A., Hunt, P., Tedmanson, L. and Lovell, A. (2000) Application of *Ceriodaphnia cf. dubia* for whole effluent toxicity tests in the Hawkesbury-Nepean watershed, New South Wales, Australia: method development and validation. *Environmental Toxicology and Chemistry* 19:88-93.

ESA (2008) ESA SOP 102 – *Acute Toxicity Test Using Ceriodaphnia dubia*. Issue No 7. Ecotox Services Australasia, Sydney, NSW.

USEPA (2002) *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*. 4th Ed. United States Environmental Protection Agency, Office of Water, Washington DC.

Toxicity Test Report: TR0627/5

(page 1 of 2)

Client:	VGT PO Box 2335 Greenhills NSW 2323	ESA Job #:	PR0627
Attention:	Lisa Thompson	Date Sampled:	Not applicable
Client Ref:	Not supplied	Date Received:	22 September 2010
		Sampled By:	Not applicable
		ESA Quote #:	PL0627_q01

Lab ID No.:	Sample Name:	Sample Description:
4358	Hydragyp	Chemical received at room temperature in apparent good condition


Test Performed:	7-day Growth inhibition of the freshwater aquatic duckweed <i>Lemna minor</i>
Test Protocol:	ESA SOP 112 (ESA 2010), based on OECD method 221 (2006)
Test Temperature:	The test was performed at 25±2°C.
Deviations from Protocol:	Nil
Comments on Solution Preparation:	The highest test concentration was prepared by adding sample 4358 'Hydragyp' into Swedish International (SIS) media. The remaining test concentrations were achieved by serially diluting the highest test concentration with SIS media. An SIS (diluent) control was tested concurrently with the sample.
Source of Test Organisms:	ESA Laboratory culture
Test Initiated:	28 September 2010 at 1100h

Sample 4358: <i>Hydragyp</i> Concentration (ppm)	Specific Growth Rate (Mean ± SD)	Vacant
SIS Control	0.3 ± 0.0	
4.1	0.3 ± 0.1	
12.3	0.3 ± 0.1	
37.0	0.3 ± 0.1	
111.1	0.3 ± 0.1	
333.3	0.3 ± 0.1	
1000	0.3 ± 0.0	
7 day IC10 = >1000ppm		
7 day IC50 = >1000ppm		
NOEC = 1000ppm		
LOEC = >1000ppm		

QA/QC Parameter	Criterion	This Test	Criterion met?
Control frond doubling time	<2.5 days	2.3 days	Yes
Reference Toxicant within cusum chart limits	2.8-6.5g KCl/L	4.2g KCl/L	Yes

Toxicity Test Report: TR0627/5

(page 2 of 2)

Test Report Authorised by: 

Dr Rick Krasso, Director on 2 November 2010

Results are based on the samples in the condition as received by ESA. This document shall not be reproduced except in full.

Citations:

ESA (2010) *SOP 112 – Duckweed Growth Inhibition Test*. Issue No. 2. Ecotox Services Australasia, Sydney NSW

OECD (2006) *Lemna sp.* Growth Inhibition Test. Method 221. OECD Guideline for the Testing of Chemicals. Organisation for Economic Cooperation and Development, Paris

Chain-of-Custody Documentation

Sample Receipt Notification

Attention : Lisa Thomson

Client : VGT
PO Box 2335
Greenhills NSW 2323

Email : lisa@vgt.com.au
Telephone : (02) 4028 6412
Facsimile :

Date : 27/09/2010

Re : Receipt of chemical product

Pages : 2

ESA Project : PR0627

For Review

Additional Documentation Required - Please Respond

Sample Delivery Details

Completed Chain of Custody accompanied samples:	NO - Documentation Required
Samples received in apparent good condition and correctly bottled:	YES
Security seals on sample bottles and esky intact:	NO

Date samples received : 22/09/2010

Time samples received : 11:00

No. of samples received : 1

Sample matrix : chemical

Sample temperature :

Comments : Includes 1 x 500mL Hydragyp (ESA ID# 4358)

Contact Details

Customer Services Officer : Tina Micevska

Telephone : 61 2 9420 9481

Facsimile : 61 2 9420 9484

Email : tmicevska@ecotox.com.au

Please contact customer services officer for all queries or issues regarding samples

Note that the chain-of-custody provides definitive information on the tests to be performed

Ecotox Services Australia

ABN 45 094 714 904

Unit 27, 2 Chaplin Drive

Lane Cove NSW 2066 Australia

Phone : 61 2 9420 9481

Fax : 61 2 9420 9484

Email : info@ecotox.com.au

PRO627

Product Name: Hydragyp

Test Name

- 48 hr acute toxicity test with *Ceriodaphnia dubia*
- 7 day chronic test with *Ceriodaphnia dubia*
- 72 hr growth inhibition test using *Selenastrum capricornutum*
- 96 hr Fish Imbalance test with rainbow fish
- 7 day growth inhibition test with *Lemna sp*

Received
22/09
AV

Minimum concentration for tests = 10 ppm

Maximum concentration for tests = 10%

Please call Lisa Thomson on (02) 4028 6412 or email lisa@vgt.com.au for further details

Client:

VGT Pty Ltd

PO Box 2335 Greenhills NSW 2323

Report to:

lisa@vgt.com.au

**Statistical Printouts for the
Selenastrum Growth Inhibition
Tests**

Microalgal Cell Yield-Cell Yield

Start Date: 28/09/2010 11:00 Test ID: PR0627/02 Sample ID: Hydra-gyp
 End Date: 1/10/2010 11:00 Lab ID: 4358 Sample Type: CP-Chemical product
 Sample Date: Protocol: ESA 103 Test Species: SC-Selenastrum capricornutum
 Comments:

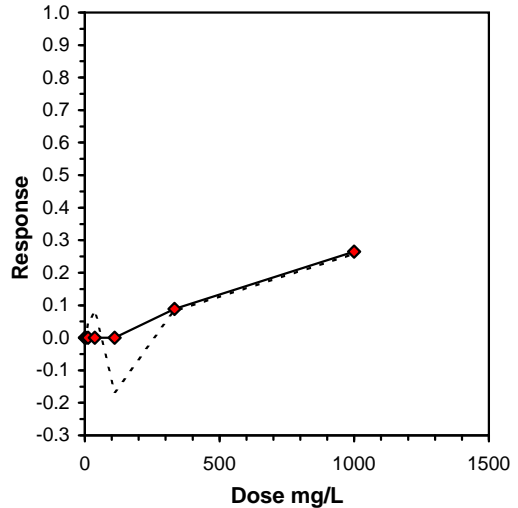
Conc-mg/L	1	2	3	4
USEPA Control	127.42	129.22	114.22	146.62
4.1	160.42	104.92	135.52	115.12
12.3	70.12	79.72	166.42	178.12
37	83.32	115.72	152.62	123.22
111.1	159.52	145.12	134.32	164.62
333.3	96.22	129.22	104.32	145.42
1000	71.62	106.42	83.62	121.72

Conc-mg/L	Transform: Untransformed							t-Stat	1-Tailed Critical	MSD	Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N				Mean	N-Mean
USEPA Control	129.37	1.0000	129.37	114.22	146.62	10.283	4				130.31	1.0000
4.1	128.99	0.9971	128.99	104.92	160.42	19.001	4	0.018	2.451	50.72	130.31	1.0000
12.3	123.59	0.9554	123.59	70.12	178.12	45.749	4	0.279	2.451	50.72	130.31	1.0000
37	118.72	0.9177	118.72	83.32	152.62	23.981	4	0.515	2.451	50.72	130.31	1.0000
111.1	150.89	1.1664	150.89	134.32	164.62	9.142	4	-1.040	2.451	50.72	130.31	1.0000
333.3	118.79	0.9183	118.79	96.22	145.42	19.052	4	0.511	2.451	50.72	118.79	0.9116
1000	95.84	0.7409	95.84	71.62	121.72	23.467	4	1.620	2.451	50.72	95.84	0.7355

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.05$)	0.991092	0.924	0.047978	-0.21104
Bartlett's Test indicates equal variances ($p = 0.20$)	8.551744	16.81189		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	1000	>1000			50.72335	0.392081	1083.007	856.2632	0.315188	6, 21

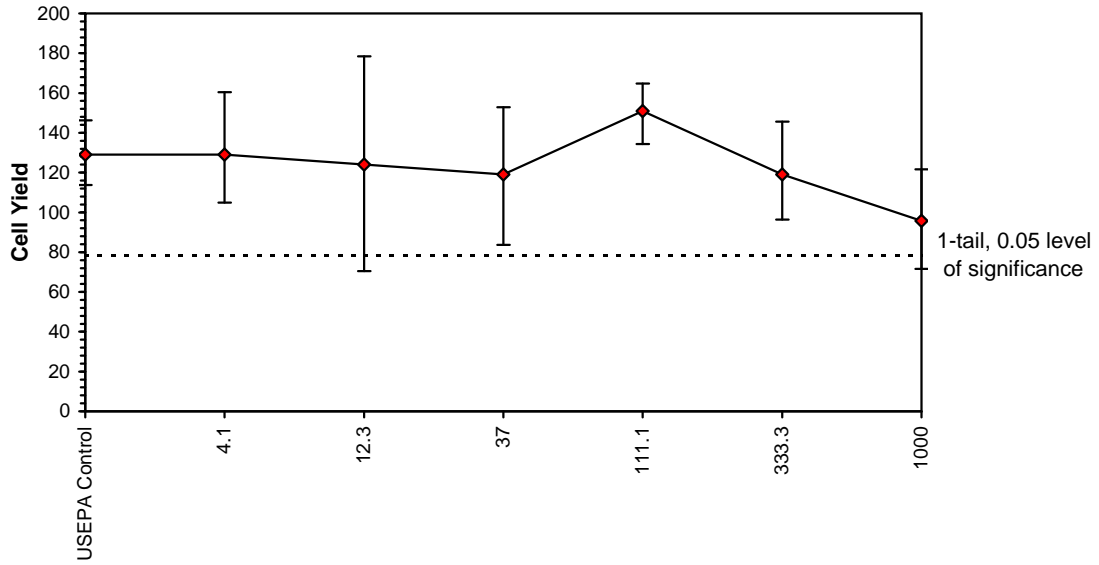
Linear Interpolation (200 Resamples)					
Point	mg/L	SD	95% CL(Exp)		Skew
IC05	236.78	146.51	0.00	603.82	0.8495
IC10	377.21				
IC15	566.49				
IC20	755.77				
IC25	945.05				
IC40	>1000				
IC50	>1000				



Microalgal Cell Yield-Cell Yield

Start Date: 28/09/2010 11:00 Test ID: PR0627/02 Sample ID: Hydra-gyp
End Date: 1/10/2010 11:00 Lab ID: 4358 Sample Type: CP-Chemical product
Sample Date: Protocol: ESA 103 Test Species: SC-Selenastrum capricornutum
Comments:

Dose-Response Plot



Microalgal Cell Yield-Cell Yield

Start Date: 28/09/2010 11:00 Test ID: PR0627/02 Sample ID: Hydra-gyp
 End Date: 1/10/2010 11:00 Lab ID: 4358 Sample Type: CP-Chemical product
 Sample Date: Protocol: ESA 103 Test Species: SC-Selenastrum capricornutum

Comments:

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
USEPA Control	Cell Yield	129.37	114.22	146.62	13.30	2.82	4
4.1		128.99	104.92	160.42	24.51	3.84	4
12.3		123.59	70.12	178.12	56.54	6.08	4
37		118.72	83.32	152.62	28.47	4.49	4
111.1		150.89	134.32	164.62	13.79	2.46	4
333.3		118.79	96.22	145.42	22.63	4.00	4
1000		95.84	71.62	121.72	22.49	4.95	4
USEPA Control	pH	7.40	7.40	7.40	0.00	0.00	1
4.1		7.40	7.40	7.40	0.00	0.00	1
12.3		7.30	7.30	7.30	0.00	0.00	1
37		7.30	7.30	7.30	0.00	0.00	1
111.1		7.20	7.20	7.20	0.00	0.00	1
333.3		7.20	7.20	7.20	0.00	0.00	1
1000		7.20	7.20	7.20	0.00	0.00	1
USEPA Control	Cond uS/cm	94.70	94.70	94.70	0.00	0.00	1
4.1		96.70	96.70	96.70	0.00	0.00	1
12.3		102.70	102.70	102.70	0.00	0.00	1
37		120.10	120.10	120.10	0.00	0.00	1
111.1		169.30	169.30	169.30	0.00	0.00	1
333.3		303.00	303.00	303.00	0.00	0.00	1
1000		732.00	732.00	732.00	0.00	0.00	1

**Statistical Printouts for the Acute
Test with *Ceriodaphnia dubia***

Ceriodaphnia Acute Toxicity Test-48 Hr Survival

Start Date:	28/09/2010 13:00	Test ID:	PR0627/02	Sample ID:	Hydragyp
End Date:	30/09/2010 13:00	Lab ID:	4358	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 101	Test Species:	CD-Ceriodaphnia dubia

Comments:

Conc-mg/L	1	2	3	4
DMW Control	1.0000	1.0000	1.0000	0.8000
4.1	0.8000	1.0000	1.0000	1.0000
12.3	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000
111.1	1.0000	1.0000	1.0000	1.0000
333.3	1.0000	1.0000	1.0000	1.0000
1000	1.0000	1.0000	1.0000	1.0000

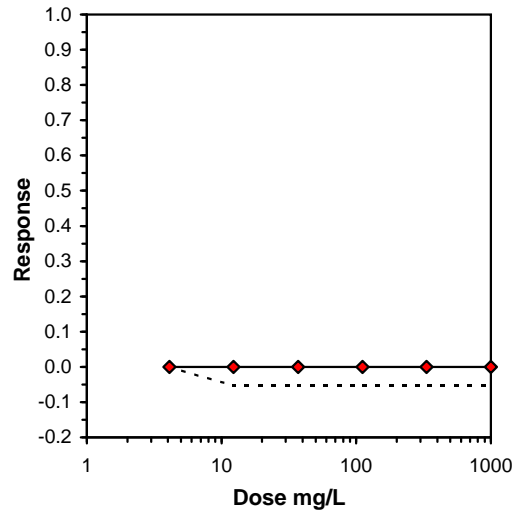
Conc-mg/L	Mean	N-Mean	Transform: Arcsin Square Root					Rank Sum	1-Tailed Critical	Isotonic	
			Mean	Min	Max	CV%	N			Mean	N-Mean
DMW Control	0.9500	1.0000	1.2857	1.1071	1.3453	9.261	4			0.9857	1.0000
4.1	0.9500	1.0000	1.2857	1.1071	1.3453	9.261	4	18.00	10.00	0.9857	1.0000
12.3	1.0000	1.0526	1.3453	1.3453	1.3453	0.000	4	20.00	10.00	0.9857	1.0000
37	1.0000	1.0526	1.3453	1.3453	1.3453	0.000	4	20.00	10.00	0.9857	1.0000
111.1	1.0000	1.0526	1.3453	1.3453	1.3453	0.000	4	20.00	10.00	0.9857	1.0000
333.3	1.0000	1.0526	1.3453	1.3453	1.3453	0.000	4	20.00	10.00	0.9857	1.0000
1000	1.0000	1.0526	1.3453	1.3453	1.3453	0.000	4	20.00	10.00	0.9857	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.05) Equality of variance cannot be confirmed	0.582785	0.924	-2.2845	6.473077

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	1000	>1000		

Treatments vs DMW Control

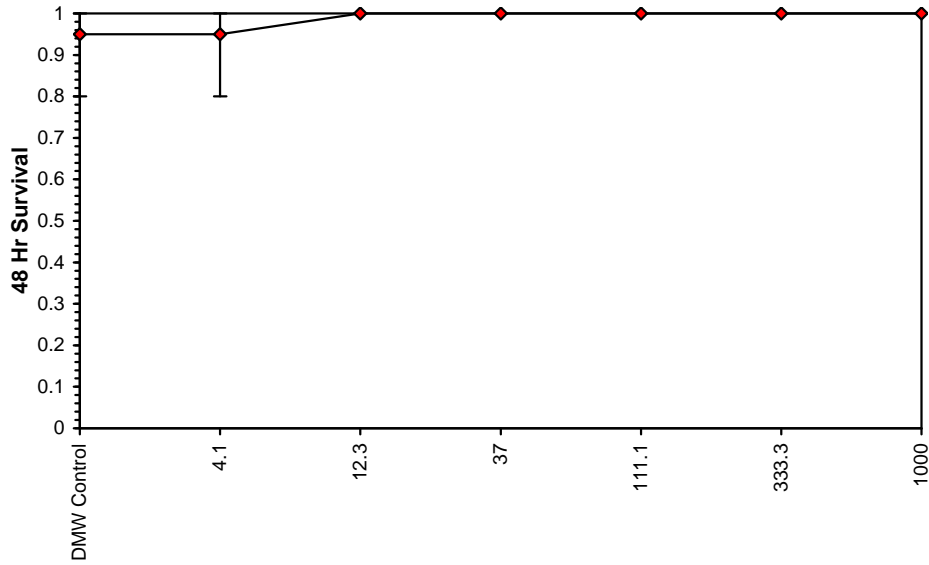
Log-Logit Interpolation (200 Resamples)				
Point	mg/L	SD	95% CL(Exp)	Skew
IC05	>1000			
IC10	>1000			
IC15	>1000			
IC20	>1000			
IC25	>1000			
IC40	>1000			
IC50	>1000			



Ceriodaphnia Acute Toxicity Test-48 Hr Survival

Start Date: 28/09/2010 13:00 Test ID: PR0627/02 Sample ID: Hydragyp
End Date: 30/09/2010 13:00 Lab ID: 4358 Sample Type: CP-Chemical product
Sample Date: Protocol: ESA 101 Test Species: CD-Ceriodaphnia dubia
Comments:

Dose-Response Plot



Ceriodaphnia Acute Toxicity Test-48 Hr Survival

Start Date: 28/09/2010 13:00 Test ID: PR0627/02 Sample ID: Hydragyp
 End Date: 30/09/2010 13:00 Lab ID: 4358 Sample Type: CP-Chemical product
 Sample Date: Protocol: ESA 101 Test Species: CD-Ceriodaphnia dubia

Comments:

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
DMW Control	% Survival	95.00	80.00	100.00	10.00	3.33	4
4.1		95.00	80.00	100.00	10.00	3.33	4
12.3		100.00	100.00	100.00	0.00	0.00	4
37		100.00	100.00	100.00	0.00	0.00	4
111.1		100.00	100.00	100.00	0.00	0.00	4
333.3		100.00	100.00	100.00	0.00	0.00	4
1000		100.00	100.00	100.00	0.00	0.00	4
DMW Control	pH	8.20	8.20	8.20	0.00	0.00	1
4.1		8.20	8.20	8.20	0.00	0.00	1
12.3		8.20	8.20	8.20	0.00	0.00	1
37		8.20	8.20	8.20	0.00	0.00	1
111.1		8.20	8.20	8.20	0.00	0.00	1
333.3		8.10	8.10	8.10	0.00	0.00	1
1000		8.10	8.10	8.10	0.00	0.00	1
DMW Control	DO %	98.20	98.20	98.20	0.00	0.00	1
4.1		99.50	99.50	99.50	0.00	0.00	1
12.3		99.10	99.10	99.10	0.00	0.00	1
37		99.80	99.80	99.80	0.00	0.00	1
111.1		99.50	99.50	99.50	0.00	0.00	1
333.3		99.30	99.30	99.30	0.00	0.00	1
1000		100.10	100.10	100.10	0.00	0.00	1
DMW Control	Cond uS/cm	176.40	176.40	176.40	0.00	0.00	1
4.1		178.60	178.60	178.60	0.00	0.00	1
12.3		184.60	184.60	184.60	0.00	0.00	1
37		202.00	202.00	202.00	0.00	0.00	1
111.1		251.00	251.00	251.00	0.00	0.00	1
333.3		386.00	386.00	386.00	0.00	0.00	1
1000		743.00	743.00	743.00	0.00	0.00	1

**Statistical Printouts for the 7-d
Chronic Test with *Ceriodaphnia
dubia***

Ceriodaphnia Partial Life-Cycle Test-7 Day Survival

Start Date: 5/10/2010 15:45 Test ID: PR0627/04 Sample ID: Hydragyp
 End Date: 12/10/2010 15:45 Lab ID: 4358 Sample Type: CP-Chemical product
 Sample Date: Protocol: ESA 102 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-mg/L	1	2	3	4	5	6	7	8	9	10
DMW Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
111.1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
333.3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-mg/L	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical	Isotonic Mean	Isotonic N-Mean
DMW Control	1.0000	1.0000	0	10	10	10			1.0000	1.0000
4.1	1.0000	1.0000	0	10	10	10	1.0000	0.0500	1.0000	1.0000
12.3	1.0000	1.0000	0	10	10	10	1.0000	0.0500	1.0000	1.0000
37	1.0000	1.0000	0	10	10	10	1.0000	0.0500	1.0000	1.0000
111.1	1.0000	1.0000	0	10	10	10	1.0000	0.0500	1.0000	1.0000
333.3	1.0000	1.0000	0	10	10	10	1.0000	0.0500	1.0000	1.0000
1000	1.0000	1.0000	0	10	10	10	1.0000	0.0500	1.0000	1.0000

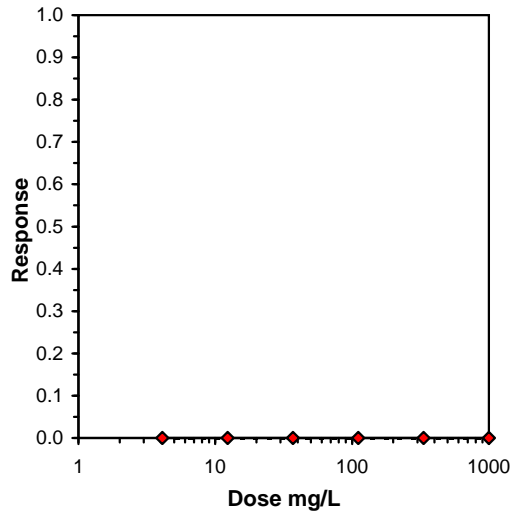
Hypothesis Test (1-tail, 0.05) NOEC LOEC ChV TU

Fisher's Exact Test 1000 >1000

Treatments vs DMW Control

Log-Logit Interpolation (200 Resamples)

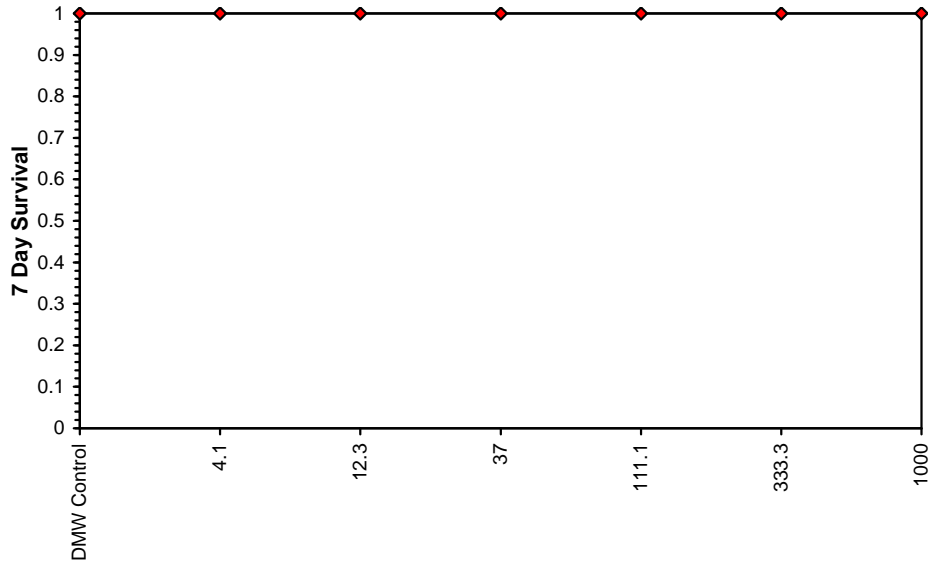
Point	mg/L	SD	95% CL	Skew
IC05	>1000			
IC10	>1000			
IC15	>1000			
IC20	>1000			
IC25	>1000			
IC40	>1000			
IC50	>1000			



Ceriodaphnia Partial Life-Cycle Test-7 Day Survival

Start Date: 5/10/2010 15:45 Test ID: PR0627/04 Sample ID: Hydragyp
End Date: 12/10/2010 15:45 Lab ID: 4358 Sample Type: CP-Chemical product
Sample Date: Protocol: ESA 102 Test Species: CD-Ceriodaphnia dubia
Comments:

Dose-Response Plot



Ceriodaphnia Partial Life-Cycle Test-7 Day Survival

Start Date: 5/10/2010 15:45 Test ID: PR0627/04 Sample ID: Hydragyp
 End Date: 12/10/2010 15:45 Lab ID: 4358 Sample Type: CP-Chemical product
 Sample Date: Protocol: ESA 102 Test Species: CD-Ceriodaphnia dubia
 Comments:

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
DMW Control	No of Young	19.00	0.00	24.00	6.86	13.79	10
4.1		20.90	17.00	26.00	2.81	8.02	10
12.3		20.00	9.00	24.00	4.99	11.17	10
37		20.70	11.00	25.00	4.08	9.76	10
111.1		21.00	12.00	25.00	3.80	9.28	10
333.3		21.10	19.00	23.00	1.52	5.85	10
1000		12.20	2.00	19.00	6.46	20.83	10
DMW Control	% survival	100.00	100.00	100.00	0.00	0.00	10
4.1		100.00	100.00	100.00	0.00	0.00	10
12.3		100.00	100.00	100.00	0.00	0.00	10
37		100.00	100.00	100.00	0.00	0.00	10
111.1		100.00	100.00	100.00	0.00	0.00	10
333.3		100.00	100.00	100.00	0.00	0.00	10
1000		100.00	100.00	100.00	0.00	0.00	10
DMW Control	pH	7.90	7.90	7.90	0.00	0.00	1
4.1		7.90	7.90	7.90	0.00	0.00	1
12.3		7.90	7.90	7.90	0.00	0.00	1
37		7.90	7.90	7.90	0.00	0.00	1
111.1		7.90	7.90	7.90	0.00	0.00	1
333.3		7.90	7.90	7.90	0.00	0.00	1
1000		7.80	7.80	7.80	0.00	0.00	1
DMW Control	DO %	99.70	99.70	99.70	0.00	0.00	1
4.1		100.70	100.70	100.70	0.00	0.00	1
12.3		100.20	100.20	100.20	0.00	0.00	1
37		100.10	100.10	100.10	0.00	0.00	1
111.1		99.90	99.90	99.90	0.00	0.00	1
333.3		99.70	99.70	99.70	0.00	0.00	1
1000		100.50	100.50	100.50	0.00	0.00	1
DMW Control	Cond uS/cm	202.00	202.00	202.00	0.00	0.00	1
4.1		187.20	187.20	187.20	0.00	0.00	1
12.3		193.30	193.30	193.30	0.00	0.00	1
37		209.00	209.00	209.00	0.00	0.00	1
111.1		256.00	256.00	256.00	0.00	0.00	1
333.3		381.00	381.00	381.00	0.00	0.00	1
1000		696.00	696.00	696.00	0.00	0.00	1

Ceriodaphnia Partial Life-Cycle Test-Reproduction

Start Date: 5/10/2010 15:45 Test ID: PR0627/03 Sample ID: HYDRAGYP
 End Date: 12/10/2010 15:45 Lab ID: 4358 Sample Type: CP-Chemical product
 Sample Date: Protocol: ESA 102 Test Species: CD-Ceriodaphnia dubia
 Comments:

Conc-mg/L	1	2	3	4	5	6	7	8	9	10
DMW Control	24.000	19.000	21.000	19.000	22.000	21.000	21.000	23.000	20.000	
4.1	19.000	26.000	24.000	21.000	18.000	19.000	21.000	17.000	21.000	23.000
12.3	22.000	22.000	20.000	21.000	24.000	24.000	9.000	23.000	22.000	13.000
37	19.000	25.000	21.000	22.000	19.000	24.000	11.000	24.000	23.000	19.000
111.1	19.000	21.000	19.000	22.000	21.000	23.000	25.000	25.000	23.000	12.000
333.3	22.000	19.000	22.000	23.000	20.000	19.000	23.000	21.000	22.000	20.000
1000	18.000	19.000	15.000	19.000	15.000	9.000	15.000	2.000	7.000	3.000

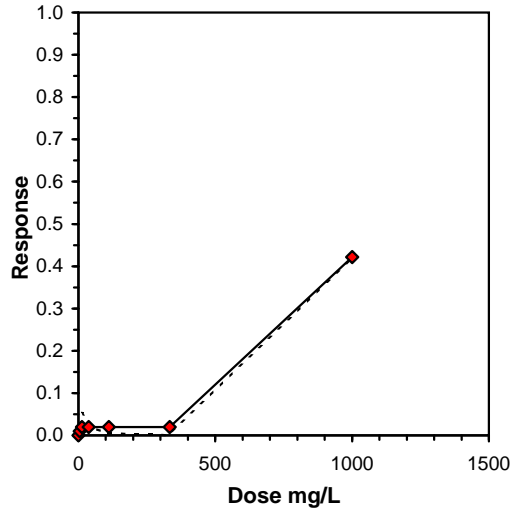
Conc-mg/L	Transform: Untransformed							Rank Sum	1-Tailed Critical	Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N			Mean	N-Mean
DMW Control	21.111	1.0000	21.111	19.000	24.000	8.012	9			21.111	1.0000
4.1	20.900	0.9900	20.900	17.000	26.000	13.429	10	95.50	70.00	20.900	0.9900
12.3	20.000	0.9474	20.000	9.000	24.000	24.944	10	106.00	70.00	20.700	0.9805
37	20.700	0.9805	20.700	11.000	25.000	19.729	10	102.50	70.00	20.700	0.9805
111.1	21.000	0.9947	21.000	12.000	25.000	18.098	10	105.50	70.00	20.700	0.9805
333.3	21.100	0.9995	21.100	19.000	23.000	7.222	10	101.00	70.00	20.700	0.9805
*1000	12.200	0.5779	12.200	2.000	19.000	52.952	10	57.00	70.00	12.200	0.5779

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates non-normal distribution (p <= 0.05)	1.222262	0.895	-1.05588	1.372622
Bartlett's Test indicates unequal variances (p = 4.13E-04)	24.552	16.81189		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Wilcoxon Rank Sum Test	333.3	1000	577.3214	

Treatments vs DMW Control

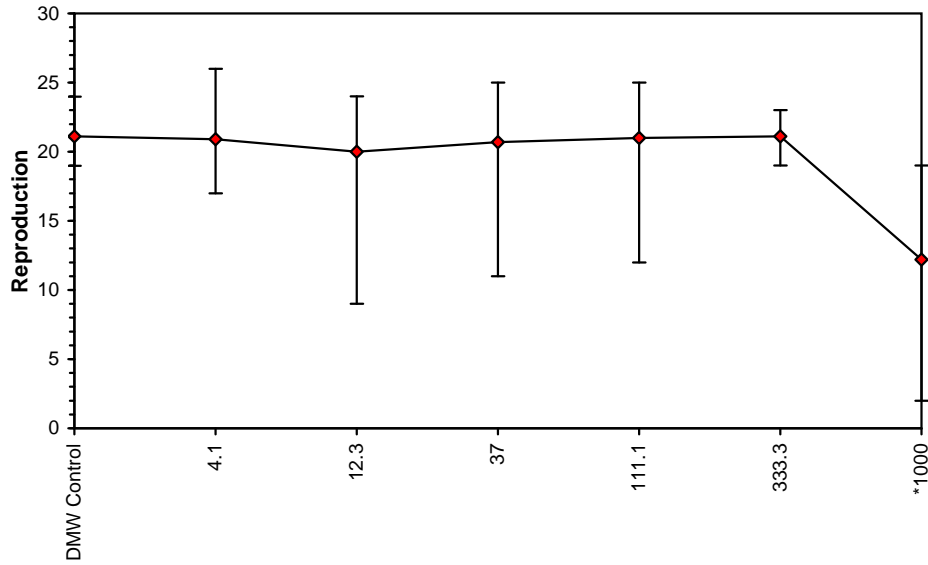
Linear Interpolation (200 Resamples)					
Point	mg/L	SD	95% CL		Skew
IC05	383.85	168.84	3.05	449.69	-0.7451
IC10	466.64	77.07	347.06	570.32	-2.3457
IC15	549.43	72.48	439.55	692.61	0.8252
IC20	632.23	91.87	509.58	854.21	0.9018
IC25	715.02				
IC40	963.40				
IC50	>1000				



Ceriodaphnia Partial Life-Cycle Test-Reproduction

Start Date: 5/10/2010 15:45 Test ID: PR0627/03 Sample ID: HYDRAGYP
End Date: 12/10/2010 15:45 Lab ID: 4358 Sample Type: CP-Chemical product
Sample Date: Protocol: ESA 102 Test Species: CD-Ceriodaphnia dubia
Comments:

Dose-Response Plot



Ceriodaphnia Partial Life-Cycle Test-Reproduction

Start Date:	5/10/2010 15:45	Test ID:	PR0627/03	Sample ID:	HYDRAGYP
End Date:	12/10/2010 15:45	Lab ID:	4358	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 102	Test Species:	CD-Ceriodaphnia dubia

Comments:

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
DMW Control	No of Young	21.11	19.00	24.00	1.69	6.16	9
4.1		20.90	17.00	26.00	2.81	8.02	10
12.3		20.00	9.00	24.00	4.99	11.17	10
37		20.70	11.00	25.00	4.08	9.76	10
111.1		21.00	12.00	25.00	3.80	9.28	10
333.3		21.10	19.00	23.00	1.52	5.85	10
1000		12.20	2.00	19.00	6.46	20.83	10
DMW Control	% survival	100.00	100.00	100.00	0.00	0.00	9
4.1		100.00	100.00	100.00	0.00	0.00	10
12.3		100.00	100.00	100.00	0.00	0.00	10
37		100.00	100.00	100.00	0.00	0.00	10
111.1		100.00	100.00	100.00	0.00	0.00	10
333.3		100.00	100.00	100.00	0.00	0.00	10
1000		100.00	100.00	100.00	0.00	0.00	10
DMW Control	pH	7.90	7.90	7.90	0.00	0.00	1
4.1		7.90	7.90	7.90	0.00	0.00	1
12.3		7.90	7.90	7.90	0.00	0.00	1
37		7.90	7.90	7.90	0.00	0.00	1
111.1		7.90	7.90	7.90	0.00	0.00	1
333.3		7.90	7.90	7.90	0.00	0.00	1
1000		7.80	7.80	7.80	0.00	0.00	1
DMW Control	DO %	99.70	99.70	99.70	0.00	0.00	1
4.1		100.70	100.70	100.70	0.00	0.00	1
12.3		100.20	100.20	100.20	0.00	0.00	1
37		100.10	100.10	100.10	0.00	0.00	1
111.1		99.90	99.90	99.90	0.00	0.00	1
333.3		99.70	99.70	99.70	0.00	0.00	1
1000		100.50	100.50	100.50	0.00	0.00	1
DMW Control	Cond uS/cm	202.00	202.00	202.00	0.00	0.00	1
4.1		187.20	187.20	187.20	0.00	0.00	1
12.3		193.30	193.30	193.30	0.00	0.00	1
37		209.00	209.00	209.00	0.00	0.00	1
111.1		256.00	256.00	256.00	0.00	0.00	1
333.3		381.00	381.00	381.00	0.00	0.00	1
1000		696.00	696.00	696.00	0.00	0.00	1

Statistical Printouts for the Duckweed Growth Inhibition Tests

Duckweed Growth Inhibition Test-Specific Growth Rate

Start Date:	28/09/2010 11:00	Test ID:	PR0627/02	Sample ID:	Hydragyp
End Date:	5/10/2010 11:00	Lab ID:	4358	Sample Type:	CP-Chemical product
Sample Date:		Protocol:	ESA 112	Test Species:	LD-Lemna disperma

Conc-mg/L	1	2	3	4
Diluent Control	0.2971	0.3426	0.3253	0.3520
4.1	0.3015	0.3458	0.2299	0.3099
12.3	0.3393	0.3520	0.2830	0.1980
37	0.4109	0.3770	0.2878	0.2560
111.1	0.3636	0.2728	0.3770	0.3426
333.3	0.3289	0.3139	0.3139	0.2067
1000	0.3325	0.3489	0.2728	0.3664

Conc-mg/L	Transform: Untransformed							t-Stat	1-Tailed Critical	MSD	Isotonic	
	Mean	N-Mean	Mean	Min	Max	CV%	N				Mean	N-Mean
Diluent Control	0.3292	1.0000	0.3292	0.2971	0.3520	7.326	4				0.3292	1.0000
4.1	0.2968	0.9014	0.2968	0.2299	0.3458	16.351	4	0.856	2.451	0.0931	0.3154	0.9581
12.3	0.2931	0.8902	0.2931	0.1980	0.3520	23.915	4	0.952	2.451	0.0931	0.3154	0.9581
37	0.3329	1.0112	0.3329	0.2560	0.4109	21.922	4	-0.098	2.451	0.0931	0.3154	0.9581
111.1	0.3390	1.0297	0.3390	0.2728	0.3770	13.676	4	-0.257	2.451	0.0931	0.3154	0.9581
333.3	0.2909	0.8834	0.2909	0.2067	0.3289	19.442	4	1.011	2.451	0.0931	0.3105	0.9431
1000	0.3301	1.0028	0.3301	0.2728	0.3664	12.320	4	-0.024	2.451	0.0931	0.3105	0.9431

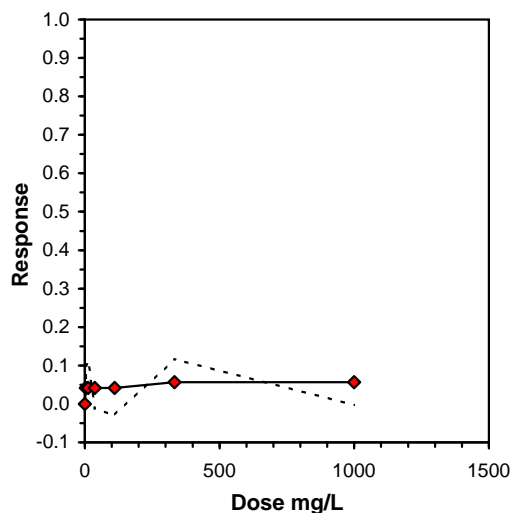
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.05$)	0.924724	0.924	-0.60594	-0.67251
Bartlett's Test indicates equal variances ($p = 0.71$)	3.72763	16.81189		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	1000	>1000			0.093063	0.282669	0.001813	0.002882	0.705501	6, 21

Treatments vs Diluent Control

Linear Interpolation (200 Resamples)

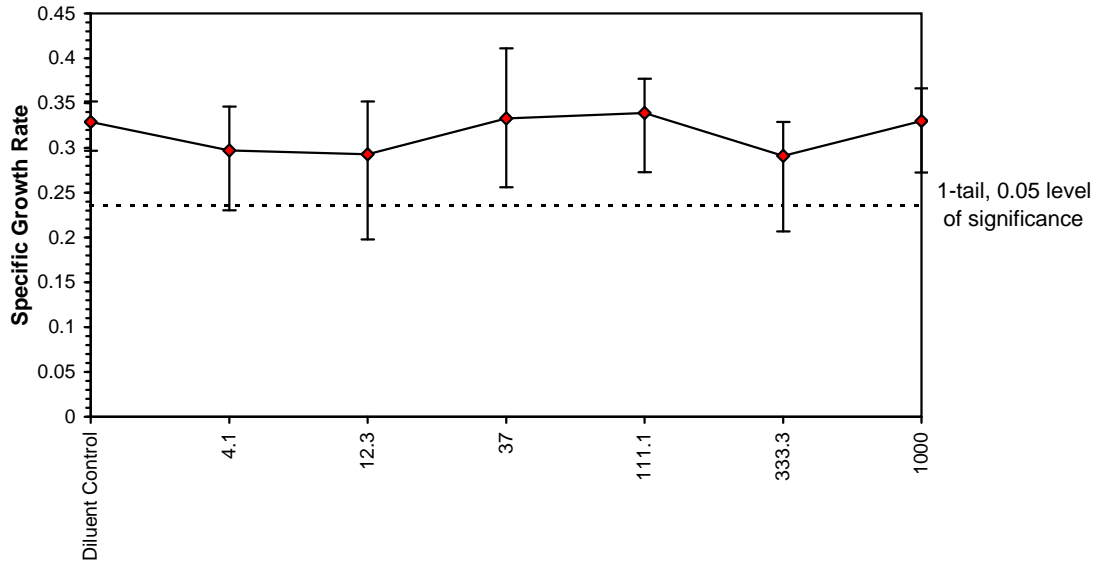
Point	mg/L	SD	95% CL(Exp)	Skew
IC05	231.26			
IC10	>1000			
IC15	>1000			
IC20	>1000			
IC25	>1000			
IC40	>1000			
IC50	>1000			



Duckweed Growth Inhibition Test-Specific Growth Rate

Start Date: 28/09/2010 11:00 Test ID: PR0627/02 Sample ID: Hydragyp
End Date: 5/10/2010 11:00 Lab ID: 4358 Sample Type: CP-Chemical product
Sample Date: Protocol: ESA 112 Test Species: LD-Lemna disperma
Comments:

Dose-Response Plot



Duckweed Growth Inhibition Test-Specific Growth Rate

Start Date: 28/09/2010 11:00	Test ID: PR0627/02	Sample ID: Hydragyp
End Date: 5/10/2010 11:00	Lab ID: 4358	Sample Type: CP-Chemical product
Sample Date:	Protocol: ESA 112	Test Species: LD-Lemna disperma

Comments:

Auxiliary Data Summary

Conc-mg/L	Parameter	Mean	Min	Max	SD	CV%	N
Diluent Control	Specific growth rate	0.33	0.30	0.35	0.02	47.17	4
4.1		0.30	0.23	0.35	0.05	74.23	4
12.3		0.29	0.20	0.35	0.07	90.33	4
37		0.33	0.26	0.41	0.07	81.14	4
111.1		0.34	0.27	0.38	0.05	63.52	4
333.3		0.29	0.21	0.33	0.06	81.76	4
1000		0.33	0.27	0.37	0.04	61.09	4
Diluent Control		pH	6.40	6.40	6.40	0.00	0.00
4.1	6.40		6.40	6.40	0.00	0.00	1
12.3	6.40		6.40	6.40	0.00	0.00	1
37	6.40		6.40	6.40	0.00	0.00	1
111.1	6.50		6.50	6.50	0.00	0.00	1
333.3	6.50		6.50	6.50	0.00	0.00	1
1000	6.50		6.50	6.50	0.00	0.00	1
Diluent Control	Cond uS/cm		284.00	284.00	284.00	0.00	0.00
4.1		287.00	287.00	287.00	0.00	0.00	1
12.3		294.00	294.00	294.00	0.00	0.00	1
37		311.00	311.00	311.00	0.00	0.00	1
111.1		362.00	362.00	362.00	0.00	0.00	1
333.3		495.00	495.00	495.00	0.00	0.00	1
1000		919.00	919.00	919.00	0.00	0.00	1