

Result Summary

Client: NOR239
Reference: 08-0414-01-TRD

Client: Bodycote Testing Group; operation Edmonton

Sample: 606892-1
AC Aqua

Collection: collected on not given at not given by not given

Receipt: received on 2008/03/13 at 0920 by S. Hynes

Containers: received 1 X 1L jar at NA °C, in good condition with no seals and no initials

Description: type: Polymer, collection method: not given

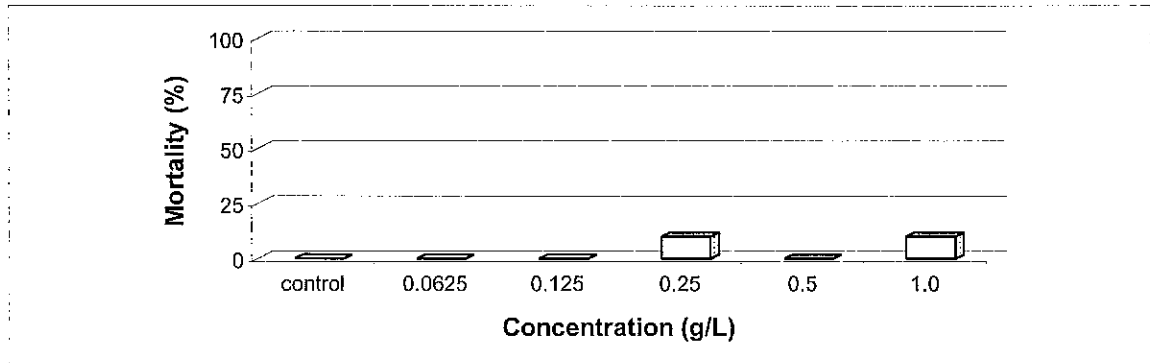
Test: started on 2008/03/20 ; ended on 2008/03/24

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Result:

	Endpoint (96-hour)	Value (g/L)	Confidence Limits (95%)		Method Calculated
			lower	upper	
Acute:	LC50	> 1.0			could not be calculated
(mortality)	LC25	> 1.0			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population




Authorized by S. Krishnappa, B.Sc., Quality Coordinator
The test data and results are verified correct.

Test Conditions

Client: NOR239
Reference: 08-0414-01-TRD

Method: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 2000. Environment Canada, EPS 1/RM/13. Second Edition.

Test type: Trout 96-h Static Acute Test (HQ 4.4.4.1)

Species: *Oncorhynchus mykiss*

Organism source: Sun Valley Trout Farms (Batch 20080130TR)

Acclimation: 50 days (must be ≥ 2 weeks)

Stock mortality: 1.6% (seven days preceding testing)

Sample initial chemistry: pH: ; EC: 0 ($\mu\text{S}/\text{cm}$); DO: (mg/L); temperature: 0 °C
hardness (mg CaCO_3/L): 0; colour: 0; odour: 0

Sample holding time: NA

Sample storage: $4 \pm 2^\circ\text{C}$ in darkness

Test vessel: The test was conducted in 22 L plastic pails with polyethylene liners

Test volume: 20 Litres (depth of solution in each test vessel $\geq 15\text{cm}$)

Sample pre-treatment: All test solutions and controls were pre-aerated for 30 minutes

Dissolved oxygen in 100 % sample was 9.9 mg/L after pre-aeration

The sample was not filtered or pH adjusted prior to or during testing

Loading density: 0.282 g/Litre (must be ≤ 0.5 g/Litre)

Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions

Test concentrations: 5 effluent concentrations (0.0625, 0.125, 0.25, 0.5, 1.0 g/L (v/v) plus a negative con

Test replicates: One replicate per treatment; 10 fish per replicate

Feeding: Fish are not fed 24 hours before test initiation and no feeding during test

Measurements: pH, conductivity, dissolved oxygen and temperature measured daily

Aeration: All treatments aerated at 6.5 ± 1 mL/min/L by oil-free compressed air passed through airline tubes connected to disposable air stones

Lighting: Overhead full spectrum fluorescent lights; 100-500 lux at surface

Photoperiod: 16h light:8h dark

Test temperature: $15 \pm 1^\circ\text{C}$

Endpoint: Mortality, 96-h LC50 (with 95% confidence limits)

Test validity: The control had 100% survival (must $\geq 90\%$)

Reference toxicant: 96-h test with Phenol ($\text{C}_6\text{H}_6\text{O}$) initiated February 25, 2008; current results (96-h LC50 and 95% confidence limits) = 0.90 (0.82-0.99) log (mg/L Phenol)

Note: Outlined sections are protocol deviations explained on the comment page; v/v, volume per volume

Test Data

Client: NOR239
Reference: 08-0414-01-TRD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2008/03/20	0	1115	E. Blais/T. McDonald	test fish loaded at 1115 h
2008/03/21	1	1100	T. McDonald/D. Lalonde	all test fish appear normal
2008/03/22	2	1100	T. McDonald/D. Lalonde	all test fish appear normal
2008/03/23	3	1025	T. McDonald/D. Lalonde	all test fish appear normal
2008/03/24	4	1015	E. Blais/T. McDonald	all test fish appear normal

Chemistry:

Conc. (g/L)	control	0.0625	0.125	0.25	0.5	1.0		
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Day

pH (units)

Day	Control	0.0625	0.125	0.25	0.5	1.0		
0	7.7	7.6	7.6	7.6	7.6	7.7		
1	8.1	8.2	8.2	8.2	8.2	8.2		
2	8.4	8.4	8.4	8.4	8.4	8.4		
3	8.2	8.3	8.3	8.4	8.4	8.4		
4	8.5	8.6	8.5	8.5	8.5	8.6		

Conductivity (µS/cm)

Day	Control	0.0625	0.125	0.25	0.5	1.0		
0	471	474	475	480	479	479		
1	473	480	490	504	513	525		
2	470	482	495	521	540	559		
3	476	484	497	505	533	558		
4	479	487	499	503	536	572		

Dissolved Oxygen (mg/L)

Day	Control	0.0625	0.125	0.25	0.5	1.0		
0	9.6	9.8	9.9	9.7	9.9	9.9		
1	9.7	9.7	9.7	9.7	9.7	9.7		
2	9.9	9.8	9.9	9.8	10.0	10.2		
3	9.0	9.1	8.9	9.0	8.8	8.8		
4	8.9	9.0	9.1	9.0	9.1	9.1		

Temperature (°C)

Day	Control	0.0625	0.125	0.25	0.5	1.0		
0	14	14	14	14	14	14		
1	15	14	14	14	14	14		
2	14	14	14	14	14	14		
3	15	15	15	15	14	14		
4	15	15	15	15	15	15		

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

Test Data

Client: NOR239
Reference: 08-0414-01-TRD

Number Alive:

Conc. (g/L)	control	0.0625	0.125	0.25	0.5	1.0		
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Day

0	10	10	10	10	10	10		
1	10	10	10	10	10	10		
2	10	10	10	10	10	10		
3	10	10	10	9	10	10		
4	10	10	10	9	10	9		

Mortality (%)

4	0	0	0	10	0	10		
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Biology Summary Tables:

Control Fish	Length (cm)	Wet Weight(g)
1	3.0	0.2
2	5.1	1.4
3	4.2	0.7
4	4.7	0.8
5	3.5	0.5
6	3.5	0.4
7	3.4	0.4
8	3.6	0.4
9	4.0	0.5
10	3.7	0.4

Conc. (%)	Group Wet Weight (g)
control	5.6
0.0625	5.7
0.125	5.6
0.25	5.7
0.5	5.0
1.0	4.7

average	3.9	0.6
sd	0.6	0.3
cv(%)	16.5	57.9

Notes: nd, not done; na, not applicable;
sd, standard deviation; cv(%), coefficient of variation

Comments/Statistics

Client: NOR239 Reference: 08-0414-01-TRD

Test Result Comments:

None

Data Analysis:

Endpoints for mortality could not be calculated. No effect occurred.

Protocol Deviations:

None