

**Cantest Ltd.**  
603230044 (X13)

**Rainbow Trout Bioassay**  
**96-h LC50 %v/v: >100%**

**Vizon SciTec Inc.**

3850 Westbrook Mall  
Vancouver, BC  
Canada V6S 2L2  
tel: (604) 224-4331  
fax: (604) 224-0540  
web: <http://VizonSciTec.com>

Vizon Sample #: 060323H-01				Report #: 2-11-200-040-06-010			
Sample Taken:	Mar. 21, 2006	Sample pH:	7.3				
Sample Collected By:	NA	Sample Dissolved Oxygen:	10.2 mg/L				
Sample Received:	Mar. 23, 2006	Sample Temperature:	9.3 °C				
Start Date/Time:	Mar. 23, 2006 3:30 PM	Sample Conductance:	1431 µmho/cm				

Conc. (%v/v)	Cond. (µmho/cm)	Temp.		pH		D.O.		Percent Mortality				Number of Mortalities
		Initial (°C)	Final (°C)	Initial	Final	Initial (mg/L)	Final (mg/L)	24 hr	48 hr	72 hr	96 hr	
0	46	15.0	15.5	7.6	7.5	9.9	9.6	0	0	0	0	0
10	242	14.7	15.4	7.6	7.8	9.9	9.7	0	0	0	0	0
18	354	15.0	15.4	7.6	7.8	10.0	9.6	0	0	0	0	0
32	570	14.8	15.5	7.5	8.1	10.0	9.6	0	0	0	0	0
56	896	14.8	15.5	7.4	8.3	10.0	9.7	0	0	0	0	0
100	1440	15.0	15.4	7.3		10.0	9.6	0	0	0	0	0

**Comments:**

The final pH in the 100% concentration was accidentally not recorded. All fish appeared and behaved normally during the test. PO# 15266.

**Test Conditions:**

Organisms per Replicate: 10  
Test Volume: 18 L  
Loading Density: 0.38 g/L

Preaeration Time: 30 min.  
Rate of aeration: 6.5 ml/min/L

**Test Organism:** Rainbow Trout (*Oncorhynchus mykiss*)

Weight (Mean + SD): 0.68 ± 0.22 g  
Weight (Range): 0.28– 1.16 g

Length (Mean + SD): 4.4 ± 0.4 cm  
Length (Range): 3.5– 5.2 cm

**Reference Toxicant:** Phenol

Test was conducted on: 03/08/2006  
Test gave a 96-h LC50 of 10.86 (7, 13) mg/L

**Dilution Water:** Vancouver Tapwater hardened and dechlorinated

EDTA Hardness: 16 mg CaCO<sub>3</sub>/L  
Other parameters available on request

**Test Method:** Biological Test Method: Reference Method for Determining Acute Lethality of Effluent to Rainbow Trout, EPS 1/RM/13, Second Edition, December 2000.

Analyst

Verified By

GOLDER ASSOCIATES-NORTH VANCOUVER LABORATORY  
RAINBOW TROUT ACUTE TOXICITY TEST DATA SUMMARY

Client Contest  
Lab Project No. 04-1424-016  
Lab Work Order No. 0600246

Lab Analysts LOC.SRS. J.W. RIE  
Test Type 96-h LC50  
Test Initiation Date 13-Jun-06

SAMPLE

Identification 606090040 X5  
Amount Received 2x20L  
Date Collected 8-Jun-06  
Date Received 9-Jun-06  
Other ---

DILUTION/CONTROL WATER (Initial water quality)

Fresh Water (dechlorinated)   
Temperature (°C) 15.0  
pH 7.3  
Dissolved Oxygen (mg/L) 10.2  
Conductivity (µS/cm) 35  
Hardness (mg/L as CaCO<sub>3</sub>) 12  
Alkalinity (mg/L as CaCO<sub>3</sub>) 10  
Other ---

TEST SPECIES INFORMATION

Source Rainbow Springs  
Collection Date/Batch 053106  
Control Fish Size (mean, SD and range measured at end of test)  
Date Measured 17-Jun-06  
Fork Length (mm) 31 ± 2 (27-34)  
Wet Weight (g) 0.29 ± 0.04 (0.24-0.36)  
Reference Toxicant SDS  
Current Reference Toxicant Result  
Reference Toxicant Test Date June 13/06  
Duration of Acclimation (days) 13  
96-h LC50 (and 95% CL) 18 (15 and 22)  
Reference Toxicant Warning Limits (mean ± 2SD) and CV  
29 ± 13 mg/L SDS CV: 22%

TEST CONDITIONS

Dissolved Oxygen Range (mg/L) 9.8-10.2  
Temperature Range (°C) 14.0-15.0  
pH Range 6.5-7.8  
Conductivity Range (µS/cm) 35-1173  
Aeration Provided? (give rate) 6.5 L/min/L  
Photoperiod (L:D h) 16:8  
No. Organisms/Volume 10/10L  
Loading Density (g/L) 0.29  
Acclimation Before Testing (days) 12  
Mortality In Previous Week of Acclimation (%) 0.2  
Other ---

TEST RESULTS

The estimated LC50 value is greater than 100% (N).

Data Verified By

B Park

Date Verified

6-Jul-06

GOLDER ASSOCIATES-NORTH VANCOUVER LABORATORY  
 RAINBOW TROUT ACUTE TOXICITY TEST DATA

WHOLE SAMPLE WATER QUALITY

Temp. (°C)	pH	pH Adjustment <sup>1</sup>	After 30-min Pre-aeration
14			14
7.4			7.4
10.0			10.1
11.63			11.63

<sup>1</sup> Document pH adjustment procedure (if used) under "Comments".

Client Can-test  
 Lab Project No. 04-1424-016  
 Lab Work Order No. 0600246  
 Trout Batch No. and 7-d Acclimation Mortality 053106 / 0.21  
 No. Fish/Volume 10/10L  
 Sample ID 606091040 (X-5)  
 Date/Time Collected 8-June (MA)  
 Test Initiation Date/Time 13-June 2010

Total Pre-Aeration Time 30 min

Concentration	Number of Survivors (1 to 96 hours)						Dissolved Oxygen (mg/L)						Temperature (°C)						pH						Conductivity (µS/cm)		
	1	2	4	24	48	72	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96		
1. Control	10	10	10	10	10	10	10.2	10.0	10.2	10.0	10.1	10.0	10.1	15	15	15	15	15	7.3	7.0	7.0	7.0	7.0	7.3	7.0	72.0	96
6.25	10	10	10	10	10	10	10.2	10.0	10.2	10.0	10.1	10.0	10.1	15	15	15	15	15	7.3	7.0	7.0	7.0	7.0	7.3	7.0	72.0	96
12.5	10	10	10	10	10	10	10.2	10.0	10.2	10.0	10.1	10.0	10.1	15	15	15	15	15	7.4	7.5	7.5	7.5	7.5	7.4	7.5	72.0	96
25	10	10	10	10	10	10	10.2	10.0	10.2	10.0	10.1	10.0	10.1	15	15	15	15	15	7.4	7.5	7.5	7.5	7.5	7.4	7.5	72.0	96
50	10	10	10	10	10	10	10.2	10.0	10.2	10.0	10.1	10.0	10.1	15	15	15	15	15	7.4	7.5	7.5	7.5	7.5	7.4	7.5	72.0	96
100	10	10	10	10	10	10	10.2	10.0	10.2	10.0	10.1	10.0	10.1	15	15	15	15	15	7.4	7.5	7.5	7.5	7.5	7.4	7.5	72.0	96
Technician Initials																											

WQ Instruments Used: Temperature Calibrated by the manufacturer DO I-A-14 Conductivity I-A-030306  
 Sample Description: colorless clear liquid  
 Comments: Dosed pri: I-A-01050  
 Test Set Up By: LOC Date Verified By: B. Buck Date Verified: 6-22-06

GOLDER ASSOCIATES-NORTH VANCOUVER LABORATORY  
RAINBOW TROUT ACUTE TOXICITY TEST DATA SUMMARY

Client Canstest  
Lab Project No. 04-1424-016  
Lab Work Order No. 0600246

Lab Analysts LOC.SRS. J.W. RIE  
Test Type 96-h LC50  
Test Initiation Date 13-Jun-06

SAMPLE

Identification 60690041 X13  
Amount Received 2 x 20L  
Date Collected 8-Jun-06  
Date Received 9-Jun-06  
Other -

DILUTION/CONTROL WATER (initial water quality)

Fresh Water (dechlorinated) ✓  
Temperature (°C) 15.0  
pH 7.3  
Dissolved Oxygen (mg/L) 10.2  
Conductivity (µS/cm) 35  
Hardness (mg/L as CaCO<sub>3</sub>) 12  
Alkalinity (mg/L as CaCO<sub>3</sub>) 10  
Other -

TEST SPECIES INFORMATION

Source Rainbow Springs  
Collection Date/Batch 053106  
Control Fish Size (mean, SD and range measured at end of test)  
Date Measured 17-Jun-06  
Fork Length (mm) 31 ± 3 (27-36)  
Wet Weight (g) 0.30 ± 0.05 (0.21-0.35)  
Reference Toxicant SDS  
Current Reference Toxicant Result  
Reference Toxicant Test Date June 13/06  
Duration of Acclimation (days) 13  
96-h LC50 (and 95% CL) 18 (15 and 22)  
Reference Toxicant Warning Limits (mean ± 2SD) and CV  
29 ± 13 µg/L SDS CV: 22%

TEST CONDITIONS

Dissolved Oxygen Range (mg/L) 10.0 - 10.2  
Temperature Range (°C) 14 - 15  
pH Range 6.7 - 8.0  
Conductivity Range (µS/cm) 35 - 1503  
Aeration Provided? (give rate) 6.5 L/min per L  
Photoperiod (L:D h) 16:8  
No. Organisms/Volume 10/10L  
Loading Density (g/L) 0.30  
Acclimation Before Testing (days) 13  
Mortality in Previous Week of Acclimation (%) 0.2  
Other -

TEST RESULTS

The estimated LC50 value is greater than 100% (N)

Data Verified By

B. P. [Signature]

Date Verified

6-Jul-06

**GOLDER ASSOCIATES-NORTH VANCOUVER LABORATORY  
RAINBOW TROUT ACUTE TOXICITY TEST DATA**

**WHOLE SAMPLE WATER QUALITY**

Temp (C)	pH	pH Adjustment <sup>1</sup>	Initial	After 30-min Pre-aeration
14	7.2			14
7.5	9.2			7.5
10.2	1503			10.2
1503				1503

1. Document pH adjustment procedure (if used) under "Comments".

Client Canfest  
 Lab Project No. 04-1424-016  
 Lab Work Order No. 0600246  
 Trout Batch No. and 7-d Acclimation Mortality 053106 / 0.21  
 No. Fish/Volume 60/60L  
 Sample ID (X13) 606090041  
 Date/Time Collected 8 June 19A  
 Test Initiation Date/Time 13 June 06 / 1300h

Total Pre-Aeration Time 30 min

Concentrations	Number of Survivors (1 to 96 hours)						Dissolved Oxygen (mg/L)						Temperature (°C)						pH						Conductivity (µS/cm)				
	1	2	4	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96
7. Control				10	10	10	10	10.2	10.0	10.1	10.0	10.0	15	15	15	15	15	7.3	7.0	6.7	6.9	6.8	73	73	70	72	70	35	38
6.25				10	10	10	10	10.2	10.0	10.1	10.0	10.0	14	15	15	15	15	7.7	7.1	6.8	7.0	7.0	77	77	71	70	70	141	145
12.5				10	10	10	10	10.2	10.0	10.1	10.0	10.0	14	15	15	15	15	7.5	7.2	7.0	7.1	7.2	75	75	73	74	75	260	260
25				10	10	10	10	10.2	10.0	10.1	10.0	10.1	14	15	15	15	15	7.5	7.5	7.3	7.4	7.5	75	75	73	74	75	481	486
50				10	10	10	10	10.2	10.0	10.1	10.0	10.2	14	15	15	15	15	7.5	7.7	7.7	7.8	7.8	75	75	77	78	78	831	847
100				10	10	10	10	10.2	10.0	10.1	10.0	10.0	14	15	15	15	15	7.5	7.9	7.9	8.0	8.0	75	75	79	80	8.0	1503	1460
Technician Initials				✓	SP	7-7	REW																						

WQ Instruments Used Temperature calibrated by parameter DO I-A-14  
 Sample Description colorless, clear liquid pH I-A-0101/02  
 Comments Omni I-A-92050

Test Set Up By Loc Data Verified By B. Fisher Date Verified 5 Jul 06

**Cantest Ltd.**  
**Burnaby**  
 609110241 - (X5P)

**Rainbow Trout Bioassay**  
**96-h LC50 %v/v: >100%**

**Vizon SciTec Inc.**

3650 Westbrook Mall  
 Vancouver, BC  
 Canada V6S 2L2  
 tel: (604) 224-4331  
 fax: (604) 224-0540  
 web: <http://vizonscitech.com>

Vizon Sample #: 060912J-03				Report #: 2-11-200-040-06-043			
Sample Taken:	Sep. 7, 2006	Sample pH:	8.1				
Sample Collected By:	Anvil Range	Sample Dissolved Oxygen:	10.4 mg/L				
Sample Received:	Sep. 12, 2006	Sample Temperature:	14.2 °C				
Start Date/Time:	Sep. 13, 2006 12:04 PM	Sample Conductance:	1313 µmho/cm				

Conc. (%v/v)	Cond. (µmho/cm)	Temp.		pH		D.O.		Percent Mortality				Number of Mortalities
		Initial (°C)	Final (°C)	Initial	Final	Initial (mg/L)	Final (mg/L)	24 hr	48 hr	72 hr	96 hr	
0	82	14.3	14.3	7.9	8.1	9.6	10.6	0	0	0	0	0
10	258	14.2	14.1	8.0	8.1	9.6	10.7	0	0	0	0	0
32	556	14.1	14.1	8.0	8.0	9.8	10.8	0	0	0	0	0
56	844	14.1	14.3	8.0	7.9	9.5	10.8	0	0	0	0	0
100	1314	14.0	14.3	8.1	7.6	9.9	10.8	0	0	0	0	0

**Comments:**

All fish appeared and behaved normally during the test. PO#: 57.

**Test Conditions:**

Organisms per Replicate:	10	Preaeration Time:	97 min.
Test Volume:	22 L	Rate of aeration:	6.5 ml/min/L
Loading Density:	0.35 g/L		

**Test Organism:** Rainbow Trout (*Oncorhynchus mykiss*)

Weight (Mean + SD):	0.77 ± 0.23 g	Length (Mean + SD):	4.3 ± 0.4 cm
Weight (Range):	0.28– 1.49 g	Length (Range):	3.1– 5.4 cm

**Reference Toxicant:** Phenol

Test was conducted on: 08/30/2006  
 Test gave a 96-h LC50 of 9.65 (8.34, 10.9) mg/L

**Dilution Water:** Vancouver Tapwater hardened and dechlorinated

EDTA Hardness: 33 mg CaCO<sub>3</sub>/L Other parameters available on request

**Test Method:**

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

Analyst

Verified By



**Cantest Ltd.**  
**Burnaby**  
 609110242 - (X13)

**Rainbow Trout Bioassay**  
**96-h LC50 %v/v: >100%**

**Vizon SciTec Inc.**

3650 Westbrook Mall  
 Vancouver, BC  
 Canada V6S 2L2  
 tel: (604) 224-4331  
 fax: (604) 224-0540  
 web: <http://vizonscitec.com>

Vizon Sample # : 060912J-04 Report # : 2-11-200-040-06-042

Sample Taken:	Sep. 7, 2006	Sample pH:	7.6
Sample Collected By:	Anvil Range	Sample Dissolved Oxygen:	9.1 mg/L
Sample Received:	Sep. 12, 2006	Sample Temperature:	14.4 °C
Start Date/Time:	Sep. 13, 2006 10:57 AM	Sample Conductance:	1527 µmho/cm

Conc. (%v/v)	Cond. (µmho/cm)	Temp.		pH		D.O.		Percent Mortality				Number of Mortalities
		Initial (°C)	Final (°C)	Initial	Final	Initial (mg/L)	Final (mg/L)	24 hr	48 hr	72 hr	96 hr	
0	83	14.7	14.4	7.9	8.0	10.0	10.8	0	0	0	0	0
10	256	14.6	14.3	7.8	7.9	10.3	10.8	0	0	0	0	0
32	636	14.6	14.3	7.7	7.7	10.1	9.4	0	0	0	0	0
56	971	14.5	14.3	7.5	7.3	10.0	10.5	0	0	0	0	0
100	1541	14.3	14.3	7.4	7.0	9.5	10.9	0	0	0	0	0

**Comments:**

All fish appeared and behaved normally during the test. PO#: 57

**Test Conditions:**

Organisms per Replicate:	10	Preaeration Time:	42 min.
Test Volume:	22 L	Rate of aeration:	6.5 ml/min/L
Loading Density:	0.35 g/L		

**Test Organism:** Rainbow Trout (*Oncorhynchus mykiss*)

Weight (Mean + SD):	0.77 ± 0.23 g	Length (Mean + SD):	4.3 ± 0.4 cm
Weight (Range):	0.28– 1.49 g	Length (Range):	3.1– 5.4 cm

**Reference Toxicant:** Phenol

Test was conducted on: 08/30/2006  
 Test gave a 96-h LC50 of 9.65 (8.34, 10.9) mg/L

**Dilution Water:** Vancouver Tapwater hardened and dechlorinated

EDTA Hardness: 33 mg CaCO<sub>3</sub>/L Other parameters available on request

**Test Method:**

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

Analyst

Verified By



**Cantest Ltd.**  
**Burnaby**  
**X5P (701040243)**

**Rainbow Trout Bioassay**  
**96-h LC50 %v/v: >100%**

**CANTEST Ltd.**

3650 Wesbrook Mall  
 Vancouver, BC  
 Canada V6S 2L2  
 tel: 604 224 4331  
 fax: 604 224 0540  
 web: <http://cantest.com>

*Resample for Dec 2006*

Cantest Sample #: 070105K-02		Report #: 2-11-200-040-07-002	
Sample Taken:	Jan. 2, 2007	Sample pH:	7.4
Sample Collected By:	L. McKinnon/ R. Meers	Sample Dissolved Oxygen:	10.1 mg/L
Sample Received:	Jan. 5, 2007	Sample Temperature:	16.0 °C
Start Date/Time:	Jan. 5, 2007 2:40 PM	Sample Conductance:	1648 µmho/cm

Conc. (%v/v)	Cond. (µmho/cm)	Temp.		pH		D.O.		Percent Mortality				Number of Mortalities
		Initial (°C)	Final (°C)	Initial	Final	Initial (mg/L)	Final (mg/L)	24 hr	48 hr	72 hr	96 hr	
0	76	14.7	15.8	7.6	7.6	10.0	9.8	0	0	0	0	0
10	273	15.2	16.1	7.9	8.1	9.8	9.7	0	0	0	0	0
18	441	15.0	16.2	7.8	8.0	9.9	9.7	0	0	0	0	0
32	648	14.8	16.3	7.7	8.2	9.9	9.3	0	0	0	0	0
56	1066	14.9	16.3	7.6	8.4	9.8	9.6	0	0	0	0	0
100	1664	14.9	16.9	7.8	8.5	9.7	9.5	0	0	0	0	0

**Comments:**

All fish appeared and behaved normally during the test.

**Test Conditions:**

Organisms per Replicate:	10	Preaeration Time:	82 min.
Test Volume:	15 L	Rate of aeration:	6.5 ml/min/L
Loading Density:	0.37 g/L		

**Test Organism:** Rainbow Trout (*Oncorhynchus mykiss*)

Weight (Mean + SD):	0.55 ± 0.1 g	Length (Mean + SD):	4 ± 0.2 cm
Weight (Range):	0.3– 0.8 g	Length (Range):	3.3– 4.4 cm

**Reference Toxicant:** Phenol

Test was conducted on: 01/08/2007  
 Test gave a 96-h LC50 of 10.62 (7, 13) mg/L

**Dilution Water:** Vancouver Tapwater hardened and dechlorinated

EDTA Hardness: 19 mg CaCO<sub>3</sub>/L      Other parameters available on request

**Test Method:**

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

Analyst

Verified By





**Cantest Ltd.**  
**Burnaby**  
X13 (701040244)

**Rainbow Trout Bioassay**  
**96-h LC50 %v/v: >100%**

**CANTEST Ltd.**

3650 Wesbrook Mall  
Vancouver, BC  
Canada V6S 2L2  
tel: 604 224 4331  
fax: 604 224 0540  
web: <http://cantest.com>

*Resample for Dec 2006*

Cantest Sample #: 070105K-03				Report #: 2-11-200-040-07-003			
Sample Taken:	Jan. 2, 2007	Sample pH:	7.4				
Sample Collected By:	L. McKinnon/ R. Meers	Sample Dissolved Oxygen:	9.9 mg/L				
Sample Received:	Jan. 5, 2007	Sample Temperature:	16.0 °C				
Start Date/Time:	Jan. 5, 2007 2:00 PM	Sample Conductance:	1645 µmho/cm				

Conc. (%v/v)	Cond. (µmho/cm)	Temp.		pH		D.O.		Percent Mortality				Number of Mortalities
		Initial (°C)	Final (°C)	Initial	Final	Initial (mg/L)	Final (mg/L)	24 hr	48 hr	72 hr	96 hr	
0	76	14.7	16.5	7.6	7.6	10.0	9.8	0	0	0	0	0
10	260	14.7	16.5	7.7	8.1	9.8	9.7	0	0	0	0	0
18	397	14.6	16.6	7.7	8.1	9.9	9.5	0	0	0	0	0
32	678	14.0	16.6	8.0	8.2	10.1	9.6	0	0	0	0	0
56	1138	14.0	16.6	7.8	8.4	10.0	9.4	0	0	0	20	2
100	1706	14.1	16.6	7.5	8.3	10.1	9.5	0	0	0	20	2

**Comments:**

All surviving fish appeared and behaved normally during the test.

**Test Conditions:**

Organisms per Replicate:	10	Preaeration Time:	40 min.
Test Volume:	15 L	Rate of aeration:	6.5 ml/min/L
Loading Density:	0.37 g/L		

**Test Organism:** Rainbow Trout (*Oncorhynchus mykiss*)

Weight (Mean + SD):	0.55 ± 0.1 g	Length (Mean + SD):	4 ± 0.2 cm
Weight (Range):	0.3– 0.8 g	Length (Range):	3.3– 4.4 cm

**Reference Toxicant:** Phenol

Test was conducted on: 01/08/2007  
Test gave a 96-h LC50 of 10.62 (7, 13) mg/L

**Dilution Water:** Vancouver Tapwater hardened and dechlorinated

EDTA Hardness: 19 mg CaCO<sub>3</sub>/L      Other parameters available on request

**Test Method:**

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

Analyst

Verified By

