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FILE:TARGET/1601098.RTL

DATE: 03 February 2016

TO: John B. Giraud
Target Technologies Int. Inc.
8535 Eastlake Drive
Burnaby, BC
V5A 4T7

REPORT ON: RAINBOW TROUT BIOASSAY RESULT

SAMPLE DESCRIPTION:

IRC Sample ID No.:	1601098
Sample Name:	**PRO-MAX 37 TPE Infill**
Sample collected by:	Lauralee Porter
Date collected:	21 January 2016
Date, time received:	22 January 2016; 0950 hrs.
Collection Method:	Grab
Amount, Container:	10 lbs in plastic zip-loc bags.
Physical description:	Green Rubber Pellets
Date, time tested:	29 January 2016; 1355 hrs.

RAINBOW TROUT 96 HR RESULTS:
The 96 hour LC_{50} (static) was greater than 13.8% (v/v sample) test material by volume. This 96 hour LC_{50} can also be reported as greater than 137533 mg (dry weight)/L
0% trout mortality in the highest concentration tested (13.8%).

The LC_{50} is defined as the median lethal concentration or the concentration at which there is 50% fish mortality. Results are calculated following the methods described in "Guidance Document on Statistical Methods for Environmental Toxicity Tests" EPS 1/RM/46 – March 2005 (with June 2007 amendments), using the software CETIS, ver 1.8.7E (2014).

The method used for this test was as per the IRC laboratory "Standard Operating Procedure for Rainbow Trout Holding and Testing" RTver5. This procedure follows the "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" EPS 1/RM/13, Second Edition – December 2000 (with May 2007 amendments). 1L Range finding tests were conducted testing 4 concentrations ranging from 1 g/L to 20 g/L. Three fish were exposed per concentration. A five concentration range was then identified based on the amount of sample received. Testing was carried out using under gravel filtration system. Test volume was 15 litres with 10 fish exposed per test vessel. Aeration was by forced air through airstones at a rate of approximately 6.5 ± 1 ml/L/min. Aeration into the filter drew water through the solids resulting in a constant flow of water through the test material. The highest concentration tested (13.8% v/v) was equal to 137533 mg/L. The sample was not pH adjusted or filtered prior to testing.

The initial dissolved oxygen level in the highest concentration tested (13.8%) was 10.1 mg/L at 15.0°C, the conductivity was 46 µS/cm and the initial pH was 7.3. After pre-aerating the sample for 90 minutes, the dissolved oxygen level was 10.0 mg/L. As the dissolved oxygen level was greater than 70% saturation and less than 100% saturation the test was initiated at this time. The test set-up technicians were CW and DC.

Please call should you have any questions.

IRC Integrated Resource Consultants Inc.

Ditty Kakkassery
Laboratory Biologist
b476
enclosure

RANGE FINDING RESULTS:
Test volume: 1000 ml

TEST CONCENTRATION		HOUR(S) 1	24	48	72	96
20 g/L	Percent Survival	100%	100%	100%	100%	100%
	Symptoms	1	1,2	1,2	1	1
10 g/L	Percent Survival	100%	100%	100%	100%	100%
	Symptoms	1	1,2	1,2	1	1
5 g/L	Percent Survival	100%	100%	100%	100%	100%
	Symptoms	1	1,2	1,2	1	1
1 g/L	Percent Survival	100%	100%	100%	100%	100%
	Symptoms	1	1,2	1,2	1	1
	Technician	DC	RC	RC	RC	RC

KEY TO SYMPTOMS:

1 = no apparent effect
2 = fish showing signs of stress
3 = loss of equilibrium

RAW DATA:

TEST CONCENTRATION		HOURS 0	24	48	72	96
13.8% 137533 mg/L	Percent Survival	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	10.0	9.6	9.4	9.4	9.2
	Temperature (°C)	15.0	15.0	15.0	15.0	15.0
	pH	7.2	7.3	7.4	7.6	7.5
	Conductivity (µS/cm)	46				105
	Symptoms	1	2	2	2	2
	Loading Density (g/L)	0.32	0.32	0.32	0.32	0.32
7.5 % 75000 mg/L	Percent Survival	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	10.0	9.4	9.4	9.4	9.1
	Temperature (°C)	15.0	15.0	15.0	15.0	15.0
	pH	7.2	7.3	7.4	7.5	7.5
	Conductivity (µS/cm)	45				102
	Symptoms	1	2	2	2	2
	Loading Density (g/L)	0.32	0.32	0.32	0.32	0.32
5% 50000 mg/L	Percent Survival	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	10.0	9.5	9.4	9.6	9.4
	Temperature (°C)	15.0	15.0	15.0	15.0	15.0
	pH	7.2	7.3	7.4	7.6	7.6
	Conductivity (µS/cm)	46				101
	Symptoms	1	2	2	2	2
	Loading Density (g/L)	0.32	0.32	0.32	0.32	0.32
2.5% 25000 mg/L	Percent Survival	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	10.0	9.5	9.5	9.5	9.3
	Temperature (°C)	15.0	15.0	15.0	15.0	15.0
	pH	7.1	7.2	7.5	7.5	7.3
	Conductivity (µS/cm)	45				104
	Symptoms	1	2	2	2	2
	Loading Density (g/L)	0.32	0.32	0.32	0.32	0.32
1.1% 11000 mg/L	Percent Survival	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	10.0	9.2	9.2	9.0	8.4
	Temperature (°C)	15.0	15.0	15.0	15.0	15.0
	pH	7.1	7.2	7.5	7.4	7.1
	Conductivity (µS/cm)	45				100
	Symptoms	1	1,2	1,2	1,2	1,2
	Loading Density (g/L)	0.32	0.32	0.32	0.32	0.32
CONTROL	Percent Survival	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	9.8	9.6	9.4	9.5	9.3
	Temperature (°C)	15.0	15.0	15.0	15.0	15.0
	pH	7.1	7.1	7.3	7.2	6.9
	Conductivity (µS/cm)	43				44
	Symptoms	1	1	1	1	1
	Loading Density (g/L)	0.32	0.32	0.32	0.32	0.32
	Technician	CW	RC	MH	WB	WB

KEY TO SYMPTOMS:

1 = no apparent effect
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TEST FISH STOCK INFORMATION:

Date received:	05 January 2016	
Source:	Spring Valley Rainbow Trout Hatchery	
Species:	*Oncorhynchus mykiss* (Rainbow Trout)	
Fork Length:	Mean:	39.8 mm ± 1.6 mm
	Range:	37.0 mm – 42.0 mm
Wet weight:	Mean:	0.48 g ± 0.08 g
	Range:	0.35 g – 0.60 g
Condition Factor (100xWt/length^{3}cm):	0.76	

Acclimation History	
Acclimation temperature:	14.0 to 14.5 °CELSIUS
Treatments:	None
Water:	Dechlorinated tap water
Feeding:	BioVita Starter #1 Crum
Mortality:	0.00 %

RAINBOW TROUT REFERENCE TOXICANT DATA

Stock Arrival Date (y/m/d)	Test Date (y/m/d)	Toxicant	LC50 (mg/L)	95% Confidence Interval
14.07.30	14.08.14	Phenol	10.20	9.45 to 11.02
14.08.14	14.09.09	"	11.57	9.40 to 13.98
14.09.01	14.09.05	"	10.59	9.54 to 11.74
14.09.24	14.10.08	"	11.52	10.16 to 13.07
14.10.10	14.10.24	"	10.22	9.45 to 11.05
14.10.22	14.11.12	"	10.66	8.74 to 12.55
14.11.30	14.12.19	"	9.80	8.00 to 12.00
14.12.21	15.01.19	"	9.80	8.00 to 12.00
15.01.25	15.02.10	"	12.50	11.02 to 14.17
15.02.01	15.02.17	"	11.52	10.16 to 13.07
15.02.15	15.03.03	"	10.63	9.59 to 11.77
15.03.12	15.03.26	"	10.63	9.59 to 11.77
15.03.22	15.04.06	"	8.54	7.48 to 9.75
15.03.22	15.04.07	"	11.07	9.84 to 12.45
15.04.16	15.05.08	"	9.80	8.00 to 12.00
15.05.11	15.05.25	"	11.52	10.13 to 13.07
15.05.25	15.06.10	"	13.56	11.51 to 15.88
15.06.15	15.07.15	"	8.55	7.18 to 10.19
15.07.10	15.07.24	"	12.16	9.92 to 14.67
15.07.27	15.08.13	"	10.63	9.59 to 11.77
15.08.10	15.08.31	"	8.54	7.48 to 9.75
15.09.10	15.09.25	"	10.63	9.59 to 11.77
15.10.09	15.10.26	"	10.63	9.59 to 11.77
15.10.28	15.11.12	"	10.34	8.50 to 12.36
15.11.11	15.11.25	"	12.623	10.474 to 15.028
15.12.06B	15.12.29	"	10.203	9.448 to 11.019
15.12.06C	15.12.29	"	9.798	8.000 to 12.000
16.01.05	16.01.21	"	9.798	8.00 to 12.000
LAB GEOMETRIC MEAN ± 2 standard deviations:				11.040 mg/L ± 3.599
Warning Limits:				7.440 mg/L to 14.639 mg/L

CONTROL/DILUTION WATER QUALITY:

Hardness: 10 mg/L

Total Residual Chlorine: 04 µg/L

IRC

Integrated Resource Consultants Inc.

SAMPLE TRANSMITTAL AND CHAIN-OF-CUSTODY FORM

160-14480 River Road
Richmond, B.C.
V6V 1L4 CANADA
Tel: 604-278-7714
Fax: 604-278-7741
email: info@ircintegratedresource.com

Client Name:	Target Technologies Int. Inc.
Client Contact Name:	John B. Giraud
Shipping Date:	01.22.2016
Purchase Order:	
Sample Collected by:	Lauralee Porter

Ship to:	IRC
	160-14480 River Road
	Richmond BC
	V6V 1L4
Attn:	

Sample Identification	Collection Date/Time	Sample Collection Method (G=grab, C=composite)	Sample Container(s)[1]	Sample Condition Upon Receipt[2]	Analysis Requested: 96 hour LC50 Trout	96 hour LC50 Trout (RM/50-pH stabilized)	96 hour LT50 Trout	48 hour LC50 Daphnia	48 hour LT50 Daphnia	15 Min. Microtox	Ceriodaphnia (sub-lethal)	TSS		IRC ID
PRO-MAX 37 TPE Infill	01.21.2016		10lbs Bag	18.3°C	X									1601098

Comments

Released by:	
Name:	Date:
Affiliation:	Time:

Name:	Date:
Affiliation:	Time:

Received by:			
Name:	WB	**Date:** 22 Jan 16	**Time:** 0950
Affiliation:	IRC	**Courier:** Purolator	

Name:	**Date:**	**Time:**
Affiliation:	**Courier:**	

Distribution: original accompanies sample and is returned with results.
[1]indicate # of containers, and type of container: P=plastic; CG=clear glass jar; BG= brown glass jar; O=other (indicate type in comments section).
[2]to be filled in upon arrival, include temperature, container condition, and/or other observations.