

PERFORMANCE EVALUATION



Scheduled Study

WP15-2

25-Mar-2015 Through 08-May-2015

RT2179

RTC Labcode

VA01116

EPA Labcode

Participating Laboratory:

Coastal Bioanalysts, Inc
Pete DeLisle
6400 Enterprise Court
Gloucester VA 23061 US

Thank you for participating in study WP15-2. Additional information about this study may be found online at www.sigmaaldrich.com/pt.

Sigma-Aldrich RTC Inc.
2931 Soldier Springs Road
Laramie, WY 82070 USA
1-307-742-5452
www.sigmaaldrich.com

This report shall not be reproduced except in full, without written approval of the laboratory. The data and results reported in this document are the property of the participating laboratory and are confidential. If you wish to appeal an evaluation listed in this report, please call our QA Supervisor at (307) 742-5452 or email RTCreports@sial.com

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer Duhon".

Jennifer Duhon
Proficiency Testing Supervisor

Accreditors

Evaluations of this dataset will be sent to the accreditor(s) listed below using your laboratory's labcode listed above each accrediting agency. If any of the information listed below is incorrect, please contact RTC immediately.

Accredating Labcode

Commonwealth of Virginia DGS-DCLS

Lab Certification

600 North 5th St.

Richmond VA 23219-3691 US

RTC is accredited to perform PT programs for the scope of accreditation to ISO/IEC 17043 under ACLASS certificate AP-1469



Test Code 13 / EPA Method 2000

Method: EPA 2000.0 - Fathead minnow, 48-hr Acute, nonrenewal, MHSF 25°C (2002) [10213602]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Fathead Minnow Acute MHSF 25° - LC50 ^{1,2} 754 / WET013-1EA - Lot LRAA7495 /Analyst:/ Analysis Date: 2015-04-08	17.1 %	17.8	11.7 to 23.9	-0.23	Acceptable
	<i>Evaluation Criteria - 5</i>		<i>Evaluation Parameter - deviations:2</i>		

Test Code 15 / EPA Method 1000

Method: EPA 1000.0 - Fathead minnow, 7-day Chronic, daily renewal, MHSF 25°C (2002) [10214207]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Fathead Minnow Chronic MHSF - Survival NOEC ^{1,2} 756 / WET015-1EA - Lot LRAA7496 /Analyst:/ Analysis Date: 2015-04-14	25.0 %	25	12.5 to 50	0	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evaluation Parameter - a:1, b:0, c:0, d:6.25</i>		
Fathead Minnow Chronic MHSF - Growth IC25 (ON) ^{1,2} 808 / WET015-1EA - Lot LRAA7496 /Analyst:/ Analysis Date: 2015-04-14	22.0 %	35.4	0.8 to 69.9	-0.77	Acceptable
	<i>Evaluation Criteria - 5</i>		<i>Evaluation Parameter - deviations:2</i>		
Fathead Minnow Chronic MHSF - Growth NOEC (ON) ^{1,2} 810 / WET015-1EA - Lot LRAA7496 /Analyst:/ Analysis Date: 2015-04-14	12.5 %	25	12.5 to 50	-2	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evaluation Parameter - a:1, b:0, c:0, d:6.25</i>		

Test Code 19 / EPA Method 2002

Method: EPA 2002.0 - Ceriodaphnia dubia, 48-hr Acute, renewal, MHSF 25°C (2002) [10214809]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Ceriodaphnia Acute MHSF 25° - LC50 ^{1,2}	15.0 %	22.8	0 to 46.1	-0.67	Acceptable
764 / WET019-1EA - Lot LRAA7497 /Analyst:/ Analysis Date: 2015-04-06	<i>Evaluation Criteria - 5</i>		<i>Evalaution Parameter - deviations:2</i>		

Test Code 21 / EPA Method 1002

Method: EPA 1002.0 - Ceriodaphnia dubia, 7-day Chronic, daily renewal, MHSF 25°C (2002) [10215006]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Ceriodaphnia Chronic MHSF - Survival NOEC ^{1,2} 766 / WET021-1EA - Lot LRAA7498 /Analyst:/ Analysis Date: 2015-04-14	50.0 %	25	12.5 to 50	2	Acceptable <i>Evaluation Criteria - 8</i> <i>Evalaution Parameter - a:1, b:0, c:0, d:12.5</i>
Ceriodaphnia Chronic MHSF - Reproduction IC25 ^{1,2} 767 / WET021-1EA - Lot LRAA7498 /Analyst:/ Analysis Date: 2015-04-14	34.3 %	31.7	5.83 to 57.7	0.2	Acceptable <i>Evaluation Criteria - 5</i> <i>Evaluation Parameter - deviations:2</i>
Ceriodaphnia Chronic MHSF - Reproduction NOEC ^{1,2} 768 / WET021-1EA - Lot LRAA7498 /Analyst:/ Analysis Date: 2015-04-14	25.0 %	25	12.5 to 50	0	Acceptable <i>Evaluation Criteria - 8</i> <i>Evaluation Parameter - a:1, b:0, c:0, d:6.25</i>

Test Code 32 / EPA Method 2021

Method: EPA 2021.0 - Daphnia magna, 48-hr Acute, nonrenewal, MHSF 25°C (2002) [10215415]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Daphnia Magna Acute MHSF 25° - LC50 ²	9.81 %	12.6	3.5 to 21.7	-0.61	Acceptable
788 / WET032-1EA - Lot LRAA7499 /Analyst:/ Analysis Date: 2015-04-06	<i>Evaluation Criteria - 8</i>		<i>Evalaution Parameter - a:1, b:0, c:0, d:4.55</i>		

Test Code 42 / EPA Method 2007

Method: EPA 2007.0 - Mysid, 48-hr Acute, nonrenewal, 40-fath SW, 25°C (2002) [10216009]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Mysid Acute 40 F 25° - LC50 ^{1,2} 798 / WET042-1EA - Lot LRAA7501 /Analyst:/ Analysis Date: 2015-04-09	28.7 %	30.2	24.9 to 35.5	-0.57	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evalaution Parameter - a:1, b:0, c:0, d:2.63</i>		

Test Code 43 / EPA Method 1007

Method: EPA 1007.0 - Mysid, 7-day Chronic, daily renewal, 40-fathoms SW 26°C (2002) [10254009]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Mysid Chronic 40 F Survival NOEC ² 799 / WET043-1EA - Lot LRAA7502 /Analyst:/ Analysis Date: 2015-04-07	100 %	100	50 to 100	0	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evalaution Parameter - a:1, b:0, c:0, d:25.0</i>		
Mysid Chronic 40 F Growth IC25 (ON) ² 816 / WET043-1EA - Lot LRAA7502 /Analyst:/ Analysis Date: 2015-04-07	>100 %	100	84.5 to 115	0	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evalaution Parameter - a:1, b:0, c:0, d:7.74</i>		
Mysid Chronic 40 F Growth NOEC (ON) ² 818 / WET043-1EA - Lot LRAA7502 /Analyst:/ Analysis Date: 2015-04-07	100 %	100	50 to 100	0	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evalaution Parameter - a:1, b:0, c:0, d:25</i>		

Test Code 46 / EPA Method 2004

Method: EPA 2004.0 - Sheepshead Minnow, 48-hr Acute, nonrenewal, 40-fathoms SW 20°C (2002) [10216601]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Sheepshead Minnow Acute 40 F 25° - LC50 ² 804 / WET046-1EA - Lot LRAA7503 /Analyst:/ Analysis Date: 2015-04-16	35.4 %	40.2	28.9 to 51.5	-0.85	Acceptable
		<i>Evaluation Criteria - 8</i>		<i>Evalaution Parameter - a:1, b:0, c:0, d:5.65</i>	

Test Code 47 / EPA Method 1004

Method: EPA 1004.0 - Sheepshead Minnow, 7-day Chronic, daily renewal, 40-fathoms SW 25°C (2002) [10216805]

Analyte	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Sheepshead Minnow Chronic 40 F - Survival NOEC ² 805 / WET047-1EA - Lot LRAA7504 /Analyst:/ Analysis Date: 2015-04-07	12.5 %	12.5	6.25 to 25	0	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evaluation Parameter - a:1, b:0, c:0, d:6.25</i>		
Sheepshead Minnow Chronic 40 F - Growth IC25 (ON) ² 820 / WET047-1EA - Lot LRAA7504 /Analyst:/ Analysis Date: 2015-04-07	16.5 %	15	7.5 to 22.5	0.4	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evaluation Parameter - a:1, b:0, c:0, d:3.75</i>		
Sheepshead Minnow Chronic 40 F - Growth NOEC (ON) ² 822 / WET047-1EA - Lot LRAA7504 /Analyst:/ Analysis Date: 2015-04-07	6.25 %	6.25	0 to 12.5	0	Acceptable
	<i>Evaluation Criteria - 8</i>		<i>Evaluation Parameter - a:1, b:0, c:0, d:6.25</i>		

Sample Information

Fathead Minnow, 7Day, MHSF

WET015-1EA / Lot LRAA7496

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Fathead Minnow Chronic MHSF - Survival NOEC ^{1,2} 756 Test Code 15 / EPA Method 1000	%	25	0	0
Fathead Minnow Chronic MHSF - Growth IC25 (ON) ^{1,2} 808 Test Code 15 / EPA Method 1000	%	32.5	35.4	17.3
Fathead Minnow Chronic MHSF - Growth IC25 (SN) ^{1,2} 809 Test Code 15 / EPA Method 1000	%	35.4	0	0
Fathead Minnow Chronic MHSF - Growth NOEC (ON) ^{1,2} 810 Test Code 15 / EPA Method 1000	%	25	0	0
Fathead Minnow Chronic MHSF - Growth NOEC (SN) ^{1,2} 811 Test Code 15 / EPA Method 1000	%	25	0	0

Fathead Minnow Acute MHSF 25°C

WET013-1EA / Lot LRAA7495

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Fathead Minnow Acute MHSF 25° - LC50 ^{1,2} 754 Test Code 13 / EPA Method 2000	%	18	17.8	3.04

Ceriodaphnia Acute MHSF 25°C

WET019-1EA / Lot LRAA7497

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Ceriodaphnia Acute MHSF 25° - LC50 ^{1,2} 764 Test Code 19 / EPA Method 2002	%	22.3	22.8	11.7

Ceriodaphnia Chronic MHSF

WET021-1EA / Lot LRAA7498

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Ceriodaphnia Chronic MHSF - Survival NOEC ^{1,2} 766 Test Code 21 / EPA Method 1002	%	25	34.6	24.3
Ceriodaphnia Chronic MHSF - Reproduction IC25 ^{1,2} 767 Test Code 21 / EPA Method 1002	%	34.5	31.7	13
Ceriodaphnia Chronic MHSF - Reproduction NOEC ^{1,2} 768 Test Code 21 / EPA Method 1002	%	25	0	0

Daphnia Magna Acute MHSF 25°C

WET032-1EA / Lot LRAA7499

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Daphnia Magna Acute MHSF 25° - LC50 ² 788 Test Code 32 / EPA Method 2021	%	12.6	0	0

Mysid Acute 40 Fathoms Seawater 25°C

WET042-1EA / Lot LRAA7501

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Mysid Acute 40 F 25° - LC50 ^{1,2} 798 Test Code 42 / EPA Method 2007	%	30.2	0	0

Mysid Chronic 40 Fathoms Seawater

WET043-1EA / Lot LRAA7502

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Mysid Chronic 40 F Survival NOEC ² 799 Test Code 43 / EPA Method 1007	%	100	0	0
Mysid Chronic 40 F Growth IC25 (ON) ² 816 Test Code 43 / EPA Method 1007	%	100	0	0
Mysid Chronic 40 F Growth IC25 (SN) ² 817 Test Code 43 / EPA Method 1007	%		0	0
Mysid Chronic 40 F Growth NOEC (ON) ² 818 Test Code 43 / EPA Method 1007	%	100	0	0
Mysid Chronic 40 F Growth NOEC (SN) ² 819 Test Code 43 / EPA Method 1007	%		0	0

Sheepshead Minnow Acute 40 Fathoms Seawater 25°C

WET046-1EA / Lot LRAA7503

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Sheepshead Minnow Acute 40 F 25° - LC50 ² 804 Test Code 46 / EPA Method 2004	%	40.2	0	0

Sheepshead Minnow Chronic 40 Fathoms Seawater

WET047-1EA / Lot LRAA7504

Analytes	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Sheepshead Minnow Chronic 40 F - Survival NOEC ² 805 Test Code 47 / EPA Method 1004	%	12.5	0	0
Sheepshead Minnow Chronic 40 F - Growth IC25 (ON) ² 820 Test Code 47 / EPA Method 1004	%	15±0.150	0	0
Sheepshead Minnow Chronic 40 F - Growth IC25 (SN) ² 821 Test Code 47 / EPA Method 1004	%		0	0
Sheepshead Minnow Chronic 40 F - Growth NOEC (ON) ² 822 Test Code 47 / EPA Method 1004	%	6.25±0.25	0	0
Sheepshead Minnow Chronic 40 F - Growth NOEC (SN) ² 823 Test Code 47 / EPA Method 1004	%	12.5	0	0

Definitions and Interpretation of Statistical Analysis:

Assigned Value: Value attributed to a particular quantity and accepted, sometimes by convention, as having an uncertainty appropriate for a given purpose. See ISO/IEC 17043 for additional information. In general the assigned value is the value used to assess proficiency and may or may not be the made to value (gravimetric value).

Accept. Window: The range of values that constitute acceptable performance for a laboratory participating in this PT study.

Z: A Z-Score tells how a single data point compares to normal data. A Z-Score says not only whether a point was above or below average, but how unusual the measurement is. Generally, a method result with a Z-Score less than |2| is considered to be in control, a Z-Score between |2| and |3| is considered 'Questionable', but still within control and a Z greater than |3| is considered not acceptable and the method is out of control. For WS studies, a z-score greater than |2| is unacceptable. Calculated as **Z = (Reported Value - Assigned Value) / Proficiency Std. Dev.**

Proficiency Std. Dev.: Standard deviation calculated based on **Evaluation Criteria.**

Study Mean: Statistical study mean calculated using a robust statistical model (RTC employs the 'Biweight Program'). Robust statistical techniques to minimize the influence that extreme results can have on estimates of the mean and standard deviation. NOTE - These techniques assign less weight to extreme results, rather than eliminate them from a data set.

Study Std. Dev.: Standard deviation calculated from study data using robust statisticals (Biweight).

Gravimetric Value: The 'prepared to' value, determined by gravimetric means. The uncertainty associated to this value is standard uncertainty and based on RTC's gravimetric tolerances.

Evaluation Criteria:

1 - Regression Equation - Acceptance windows based on TNI adopted equation of proficiency value +/- 3 proficiency standard deviations and check limits of proficiency value +/- 2 proficiency standard deviations. Proficiency value and proficiency standard deviation are calculated from gravimetric variables a, b, c, & d as proficiency value = a * gravimetric + b and proficiency standard deviation = c * gravimetric + d.

2 - Study Robust Mean and c,d regression - Acceptance windows based on TNI adopted equation of proficiency value +/- 3 proficiency standard deviations and check limits of proficiency value +/- 2 proficiency standard deviations. Proficiency value and proficiency standard deviation calculated from robust study mean and variables c & d as proficiency value = robust mean and proficiency standard deviation = c * proficiency value + d.

3 - Fixed Limits - Acceptance windows based on span of gravimetric percentage from gravimetric as gravimetric +/- gravimetric * percentage.

4 - Adjustable Fixed Limits - Acceptance windows base on a span of gravimetric percentage from gravimetric as gravimetric +/- gravimetric * lowPercentage where gravimetric < break and gravimetric +/-

gravimetric * highPercentage where gravimetric >= break.

5 - Study Statistics - Acceptance windows based on a number of standard deviations span from the study mean as study mean +/- (deviations * standard deviation).

6 - Log Transform Statistics - Acceptance windows based on lognormal distributed data. Acceptance windows = mean(lognormal) +/- span * standard deviation(lognormal).

7 - Reserved

8 - Regression Equation 2SD - Acceptance windows based on EPA equation of proficiency value +/- 2 proficiency standard deviations. Proficiency value and proficiency standard deviation are calculated from gravimetric variables a, b, c, & d as proficiency value = a * gravimetric + b and proficiency standard deviation = c * gravimetric + d. Generally reserved for drinking water studies.

Proficiency Test Item Preparation, Homogeneity and Stability Assessment - RTC uses proprietary and published methods for the manufacture, homogeneity and stability testing of proficiency test items. RTC's proficiency test materials meet requirements of ISO Guide 34. For more information contact RTC. Additionally RTC complies with TNI Volume 3 'General Requirements for Environmental Proficiency Test Providers', EL-V3-2009, 2009 for all TNI Fields of Proficiency Testing analytes.

Metrological Traceability - All preparations are made using balances calibrated annually traceable to NIST standards. Where appropriate analytical measurements are traceable through an unbroken chain to NIST standards, or a Certified Reference Material manufactured under ISO Guide 34 in conjunction with ISO/IEC 17025.

Statistical Analysis - RTC uses robust statistics to calculate study means and standard deviations - Reference - Kafadar, K, A Biweight Approach to the One-Sample Problem, Journal of the American Statistical Association, Vol. 77, No. 378, June, 1982, pp. 416-424.

Additional Information - Go to www.rt-corp.com/reporting for additional information on summary statistics for specific methods, advice on the interpretation of the statistical analysis, and additional comments/recommendations. If you failed an analyte it may be required to perform a corrective action and/or retest. RTC recommends that you contact your accreditation body for specific instruction.

Program analyte accrediting footnotes

¹ NELAC Compliant, covered by RTC's ACLASS Proficiency Testing Provider accreditation, Cert. AP-1469

² ISO 17043 Accredited, covered by RTC's ACLASS Proficiency Testing Provider accreditation, Cert AP-1469

Authorizing Officer:  _____

Date: 5/19/2015

Patrick Brumfield, ASQ CQA
QA Manager

This section of the report is for informational purposes only. If you are unsure about specific accreditation requirements, please contact your state coordinator.

UNACCEPTABLE ANALYTES

PASS RATE

Number of Reported Results:	17
Number of Passing Results:	17
Pass Rate:	100%