Data Evaluation Report on the Chronic Toxicity of CLA (Novaluron degradate) to Freshwater Invertebrates - Daphnia sp.

PMRA Submission Number {.....} EPA MRID No. 50610202

Data Requirement:	PMRA Data Code	{.....}
	EPA DP Barcode	447937
	OECD Data Point	{.....}
	EPA MRID	50610202
	EPA Guideline	850.1300

Test material: **CLA (Novaluron degradate)** **Purity (%):** 98.9%
Common name: Not reported
Chemical name: IUPAC: Not reported
CAS name: Not reported
CAS No.: Not reported
Synonyms: 3-chloro-4-(1,1,2-trifluoro-2-trifluoromethoxyethoxy)aniline

Primary Reviewer: Elizabeth Krupka **Signature:** Elizabeth Krupka
Staff Scientist, CDM/CSS-Dynamac JV **Date:** 12/28/2018

Secondary Reviewer: Moncie V. Wright, Ph.D. **Signature:** Moncie V Wright
Environmental Scientist, CDM/CSS-Dynamac JV **Date:** 02/7/2019

Secondary Reviewer(s): N.E. Federoff **Signature:**
Wildlife Biologist/USEPA/OPP/EFED/ERB2 **Date:** 8/9/2019

EPA PC Code 124002

CITATION: Shaw, A.C. 2018. CLA – Full Life-Cycle Toxicity Test with Water Fleas, *Daphnia magna*, Under Flow-Through Conditions. Unpublished study performed by Smithers Viscient, Wareham, Massachusetts. Laboratory Study No. 14125.6124; Sponsor Protocol/Project No. R-38340. Study sponsored by ADAMA Makhteshim Ltd., Beer-Sheva, Israel. Study completed April 5, 2018.

This Data Evaluation Record may have been altered by the Environmental Fate and Effects Division subsequent to signing by CDM/CSS-Dynamac JV personnel. The CDM/CSS-Dynamac Joint Venture role does not include establishing Agency policies.

EXECUTIVE SUMMARY:

The 21-day-chronic toxicity of CLA (Novaluron degradate) to *Daphnia magna* was studied under flow-through conditions. Daphnids were exposed to nominal concentrations of 0 (negative and solvent controls), 0.019, 0.048, 0.12, 0.30, and 0.75 mg ai/L. The mean-measured concentrations were <0.0040 (<MDL, controls), 0.017, 0.064, 0.14, 0.32, and 0.75 mg ai/L.

Reproduction (number of live offspring and successful birth rate) and growth (length) were significantly affected in this experiment. No treatment-related effects were observed for survival, time to first brood, or dry weight. The most sensitive endpoints were reproduction (number of live offspring and successful birth rate), resulting in an overall NOAEC and LOAEC of 0.064 and 0.14 mg ai/L, respectively.

This study is scientifically sound and is classified as acceptable.

Results Synopsis

Test Organism Age (eg. 1st instar): 24 hours
Test Type (Flow-through, Static, Static Renewal): Flow-through

NOAEC: 0.064 mg ai/L
LOAEC: 0.14 mg ai/L

Endpoints affected: Reproduction (number of live offspring and successful birth rate) and growth (length)
Most sensitive endpoints: Reproduction (number of live offspring and successful birth rate)

I. MATERIALS AND METHODS

GUIDELINE FOLLOWED: The study protocol was based upon procedures outlined in OECD Guideline No. 211, Daphnia magna Reproduction Test (2008); U.S. EPA OCSPP Guideline No. 850.1300, Daphnid Chronic Toxicity Test; and U.S. EPA OCSPP No. 850.1000, Special Considerations for Conducting Aquatic Laboratory Studies (1996). The following deviations from OCSPP 850.1300 were noted:

1. The physicochemical properties of the test substance were not reported.
2. Dilution water parameters including particulate matter, total organic carbon, ammonia, chlorine, and pesticide concentrations were not reported.
3. The continuously monitored temperature ranged from 19 to 23°C which fell outside of the recommended temperature of 20 ± 1 °C.

These deviations do not impact the acceptability of the study.

COMPLIANCE: Signed and dated GLP, Quality Assurance, and Data Confidentiality claims statements were provided. This study was conducted in accordance with U.S. EPA GLP Standards as published in 40 CFR, Part 160 with the following exception: routine water and food contaminant screening analyses. It was reported that since the analyses were conducted following standard validated methods (U.S. EPA), this exception had no impact on the study results.

A. MATERIALS:

1. Test Material CLA (Novaluron degradate)

Description: Not reported

Lot No./Batch No. : 554-136-1

Purity: 98.9%

Stability of compound under test conditions: The test substance was stable under test conditions. The coefficients of variation ranged from 7 to 14%. *(OECD recommends stability in water and light)*

Physicochemical properties of CLA (Novaluron degradate).

Parameter	Values	Comments
Water solubility at 20°C	Not reported	
Vapor pressure	Not reported	
UV absorption	Not reported	
pKa	Not reported	
Kow	Not reported	

Storage conditions of test chemicals: Room temperature in a dark, ventilated cabinet in the original container

2. Test Organism:

Species: *Daphnia magna*
EPA and OECD recommend Daphnia magna.. EPA also allows the use of D. pulex.

Age at test initiation: <24 hours old at exposure initiation

EPA recommends that daphnids are in their first instar (≤24 hrs old)

Source: Smithers Viscient culture
EPA recommends all test organisms be from the same laboratory-reared culture.

B. STUDY DESIGN:

1. Experimental Conditions

a. Range-finding Study An 18-day preliminary range-finding test was conducted at Smithers Viscient under static renewal conditions. The test was conducted at nominal concentrations of 0.00010, 0.0010, 0.010, 0.10 and 1.0 mg/L using daphnids <24 hours old, with five replicate test exposure vessels per test concentration and one daphnid per replicate. The 18-day preliminary study resulted in a lack of mortality at all concentrations tested.

Based on the results of preliminary testing, nominal concentrations of 0.16, 0.31, 0.63, 1.3, 2.5 and 5.0 mg/L and a control were selected for the definitive static-renewal exposure. The definitive static renewal exposure was ended due to sampling analysis indicating decreasing solution concentrations. A nominal concentrations of 0.019, 0.048, 0.12, 0.30, and 0.75 mg/L, along with a control and solvent (DMF) control were selected for the definitive flow-through exposure.

b. Definitive Study

Table 1: Experimental Parameters

Parameter	Details	Remarks *Criteria*
Parental acclimation: Period: Conditions: (same as test or not) Feeding: Health (any mortality observed):	 Continuously cultured. Sexually mature daphnids isolated for 24 hours prior to test initiation. Similar to test conditions. Unicellular green algae, *Ankistrodesmus falcatus* (4 × 107 cells/mL) a suspension of YCT (yeast, cereal leaves, and flaked fish food) No ephippia were observed, offspring were released in the culture prior to day 12, mortality of culture adults was <20% during the 2 days prior to test initiation, ≥3 offspring/adult/day were produced 7 days prior to test initiation, and offspring were not used in a previous test.	 *The recommended acclimation period for brood daphnids, in 100-percent dilution water at dilution temperature, is a minimum of 48 hours prior to start of test. Daphnids should be fed the same food as used for the definitive test [for automatic feeding devices, a suggested rate is 5 to 7 mg food (either solids or algal cells, dry weight) per liter of dilution water or test solution; and for manual once-a-day feeding, a suggested rate is 15 mg food (dry weight) per liter of dilution water or test solution].* *Cultures should not contain ephippia and should produce young before Day 12 and produce at least 3 young per adult per day within 7 days prior to test. Pretest mortality should be <20% 48 hours prior to testing.*
Test condition: static renewal/flow-through: Type of dilution system- for flow through method. Renewal rate for static renewal	 Flow-through Intermittent-flow proportional diluter providing 6 volume replacements per 24 hours with a 90% replacement time of ~ 9 hours. N/A	 *EPA recommends consistent flow rate of ≥ 5 vol/24 hours, meter systems calibrated before study and checked twice daily during test period. Flow rates should not vary >10% between test chambers. For static-renewal: test dilution water should be replaced at least once every 3 days.*
Aeration, if any	None	

Parameter	Details	Remarks *Criteria*
		EPA recommends if aeration is needed to achieve DO level, it should be done before the addition of the test substance, and all treatment and control chambers should be given the same aeration treatment.
Duration of the test	21 days	*Recommended duration is 21 days.*
<u>Test vessel</u> Material: (glass/stainless steel Size (for growth and reproduction/survival test): Fill volume:	 Glass battery jars 1.6 L 1.4 L	*EPA recommends for static tests: 250 ml jars* *For flow-through tests: glass or stainless steel containers with stainless steel or nylon screen bottoms, and can be constructed using 250–mL beakers or other suitable containers equipped with screened overflow holes, standpipes, or V-shaped notches. Daphnids should always be submerged in at least 5 cm of test solution. OECD guideline recommends that parent animals be maintained individually; one per vessel, with 50 - 100 ml of medium in each vessel.*
Source of dilution water: <u>Quality of dilution water</u> Particulate matter: TOC or COD: Un-ionized ammonia: Residual chlorine: Total organophosphorus pesticides: Total organochlorine pesticides + PCBs: Organic chlorine: Hardness as $CaCO_3$: Specific conductivity: pH:	Laboratory well water Not reported Not reported Not reported Not reported Not reported Not reported Not reported 172 - 176 693 – 718 7.8 – 8.5	*Recommended source of dilution water is: surface or ground water, reconstituted water or dechlorinated tap water if daphnids will survive in it for the duration of the culturing, acclimation, and testing periods without showing signs of stress. Maximum allowable concentrations for water quality parameters are provided in EPA's 850.1300 guideline (https://www.epa.gov/test-guidelines-pesticides-and-toxic-substances/series-850-ecological-effects-test-guidelines).*
<u>Water quality during testing</u> pH Dissolved oxygen	 7.6 – 8.5 7.1 – 10 mg/L (79 – 114% of saturation)	Total organic carbon: 0.66 – 1.0 mg/L EPA Recommendations: *pH. OECD recommends that pH range be 6-9 and does not vary more than 1.5 units in any one test.*

Parameter	Details	Remarks *Criteria*
Temperature Other measurements Photoperiod: Interval of water quality measurements:	Daily: 20 - 22°C Continuous: 19 to 23°C 16 hours light and 8 hours dark with 15- to 30-minute transition periods At test initiation and weekly thereafter in alternating replicate exposure vessels	*Dissolved oxygen: 60-105% saturation. Temperature: 20±1°C. OECD recommends a range of 18 - 22°C; temperature should not vary > ±2°C.* *Photoperiod: 16 hours light and 8 hours darkness, with a 15 to 30–min transition period.* *DO, temperature, and pH should be measured at the beginning of the test and on days 7, 14, and 21 in at least two chambers of the high, middle, low, and control test concentrations.*
Number of replicates Negative control: Solvent control: Treatments:	 4 4 4	 *Static-renewal: 10 or more replicates of one daphnid each.* *Flow-through: four replicates of equal number of daphnids.*
Number of organisms per replicate: For growth and reproduction: For survival test:	 10 10	 *For each test concentration and control group (negative and solvent, if used);* *For static tests, EPA and OECD recommend a minimum of 10 daphnids held individually..* *For flow-through tests, 20 daphnids total divided equally into four replicates at each concentration and control.*
Treatment Concentrations: nominal: mean-measured:	 0 (negative and solvent controls), 0.019, 0.048, 0.12, 0.30, and 0.75 mg ai/L <0.0040 (<MDL, controls), 0.017, 0.064, 0.14, 0.32, and 0.75 mg ai/L	*Treatment concentrations should include a geometric series at a separation factor of 1.5 to 2 of at least five concentrations plus a control/solvent control. The variability of measured concentrations between replicates of the same concentration should not exceed ±20%.* *Concentration of test substance in each test chamber should be measured at a minimum before the test and on days 7, 14 and 21, and in the appropriate chamber after a malfunction.* *OECD recommends that at least 5 test concentrations and a control be used in a geometric series with a separation factor not exceeding 3.2.*
Solvent (type, percentage, if used)	Dimethylformamide (DMF,	

Parameter	Details	Remarks *Criteria*
	CAS No. 68-12-2) 0.10 mL/L	*Solvent concentration should not exceed 0.1 ml/L. Recommended solvents include dimethylformamide and triethylene glycol, but acetone and ethanol can be used if necessary.* *OECD recommends <0.1 ml/L of solvent.*
Recovery of the chemical: Frequency of determination Level of Quantitation Level of Detection	 <0.0001 mg ai/L <0.0040 mg ai/L (MDL)	
Positive control {if used, indicate the chemical and concentrations}	N/A	
Other parameters, if any	None	

2. Observations:

Table 2: Observations

Parameters	Details	Remarks *Criteria*
Parameters measured including the sublethal effects/toxicity symptoms	- Parental immobility (mortality) - Other parental sub-lethal effects - Time of first brood release - Offspring production - Survival of first-generation daphnids - Terminal length and dry weight of surviving P-generation daphnia	*Recommended endpoints measured:* *- survival of first-generation daphnids (F_0);* *- number of offspring produced per female;* *- time to first brood;* *- dry weight and length (optional) of each first generation daphnid alive at the end of the test (F_0);* *- survival of offspring (F_1) and successful birthrate;* *- incidence and description of morphological abnormalities and behavioral effects;* *- observations of other effects or clinical signs.*
Observation intervals	All test vessels were examined daily for survival and sublethal effects. Offspring were removed, counted, and discarded at the first renewal interval after the first observation of brood release in any	*The number of immobilized daphnids in each chamber should be recorded on day 21 of the test. After offspring are produced, they should be counted and removed from the test chambers every 2 or 3 days.*

Parameters	Details	Remarks
		Criteria
	exposure vessel (day 8) and daily throughout the remainder of the test. Growth measurements were determined on Day 21.	
Were raw data included?	Yes	
Other observations, if any	None	

II. RESULTS AND DISCUSSION

A. MORTALITY AND SUB-LETHAL EFFECTS:

Survival was 90% in the negative and solvent controls and ranged from 80 to 98% in the groups exposed to the test material.

Table 3: Effect of CLA (novaluron degradate) on Growth, Reproduction, and Survival of Daphnia sp.[a]

Mean	Adult Survival	Time to First	Mean (±SD)	Mean (±SD)	Length of	Dry Weight

[a] Data reported in Table 8 on page 42 of the study report.
[b] MDL = <0.0040 mg ai/L
[c] Calculated by the reviewer.
[*]Significant reduction compared to the control, based on Dunnett's Multiple Comparison Test.

Measured (and Nominal) Treatment Concentrations (mg ai/L)	No.	%	Brood (Days)[c]	Total No. of Offspring per Surviving Female (Day 21)	Total No. of Offspring per Female per Reproductive Day (Day 21)	Surviving Adults (±SD) (mm)	of Surviving Adults (±SD) (mg)
Negative Control (<MDL)[b]	36	90	7.0	172 ± 11	11 ± 0.41	5.07 ± 0.060	1.22 ± 0.12
Solvent Control	36	90	7.5	158 ± 8.7	10 ± 0.33	5.01 ± 0.061	1.15 ± 0.059
0.017 (0.019)	32	80	7.3	185 ± 5.0	12 ± 0.39	5.06 ± 0.12	1.27 ± 0.14
0.064 (0.048)	38	95	7.8	163 ± 27	11 ± 1.5	4.94 ± 0.12	1.19 ± 0.056
0.14 (0.12)	39	98	7.3	131 ± 19*	8.7 ± 1.2*	4.78 ± 0.10*	1.07 ± 0.12
0.32 (0.30)	35	88	7.5	137 ± 13*	8.7 ± 1.2*	4.88 ± 0.16	1.21 ± 0.19
0.75 (0.75)	36	90	8.0	38 ± 7.9*	2.5 ± 0.52*	4.51 ± 0.15*	1.04 ± 0.096
NOAEC, mg ai/L	0.75		N/A	0.064	0.064	0.32	0.75
LOAEC, mg ai/L	>0.75			0.14	0.14	0.75	>0.75
EC_{50} (95% CI), mg ai/L	>0.75			0.51 (0.46 - 0.55)	0.51 (0.43 - 0.55)	>0.75	>0.75

B. EFFECT ON REPRODUCTION: The reported first brood release occurred on approximately Day 7 in the controls and most treatment levels except for the highest level where it occurred on Day 8.

The successful birth rate averaged 11 and 10 offspring/female/reproductive day in the negative and solvent controls, respectively, as compared to 2.5 to 12 offspring/female/reproductive day in the groups exposed to the test material.

Mean total body length averaged 5.07 and 5.01 mm in the negative and solvent controls, respectively, as compared to 4.51 to 5.06 mm in the treated groups.

Mean total dry weight averaged 1.22 and 1.15 mg in the negative and solvent controls, respectively, as compared to 1.04 to 1.27 in the groups exposed to the test material.

C. REPORTED STATISTICS: Data that were statistically analyzed included organism survival (i.e., immobilization), reproduction (cumulative number of offspring produced per surviving female and cumulative number of offspring produced per female per reproductive day), distribution of first broods, and growth (as total body length and dry weight).

All statistical analyses were conducted at the 95% level of certainty, except tests to assess normality and homogeneity of variance, where the 99% level of certainty was applied. The highest test concentration that elicited no statistically significant difference between the exposed organisms and the control (NOAEC) was determined. The lowest test concentration that elicited a statistically significant effect on organism performance is defined as the LOAEC. NOAEC and LOAEC values for growth and reproduction were determined using Dunnett's Multiple Comparison Test.

Daphnid survival data were analyzed before reproduction and growth data using Cochran-Armitage Trend Step-Down Test. If any treatment level survival was found to be significantly different from the appropriate control survival data, this treatment level was not included in the comparison statistical analyses for the remaining endpoints.

If at least one test concentration caused a ≥ 10, 20, or 50% reduction of survival, reproduction, or growth in the test population, then CETIS Version 1.8 was used to calculate the ECx values and 95% confidence intervals. If no test concentration caused ≥ 10, 20, or 50% reduction of survival, reproduction, or growth of the test population, then ECx values were empirically estimated to be greater than the highest mean measured concentration tested.

CETIS Version 1.8 and the mean-measured concentrations were used to perform the statistical computations.

Parental Survival
LC_{50} (21 d): >0.75 mg ai/L 95% C.I.: N/A
NOAEC: 0.75 mg ai/L
LOAEC: >0.75 mg ai/L

Reproduction (offspring/surviving female)
EC_{50} (21 d): 0.51 mg ai/L 95% C.I.: 0.46 to 0.55 mg ai/L
NOAEC: 0.064 mg ai/L
LOAEC: 0.14 mg ai/L

Successful birth rate (offspring/female per reproductive day)
EC_{50} (21 d): 0.51 mg ai/L 95% C.I.: 0.43 to 0.55 mg ai/L
NOAEC: 0.064 mg ai/L
LOAEC: 0.14 mg ai/L

Production Rate of first broods
EC_{50} (21 d): >0.75 mg ai/L 95% C.I.: N/A
NOAEC: 0.75 mg ai/L
LOAEC: >0.75 mg ai/L

Total Length
EC_{50} (21 d): >0.75 mg ai/L 95% C.I.: N/A
NOAEC: 0.32 mg ai/L
LOAEC: 0.75 mg ai/L

Dry Weight
EC_{50} (21 d): >0.75 mg ai/L 95% C.I.: N/A
NOAEC: 0.75 mg ai/L
LOAEC: >0.75 mg ai/L

D. VERIFICATION OF STATISTICAL RESULTS:

Statistical Method: The reviewer assessed the parental survival, growth, and reproduction endpoints using CETIS version 1.9.5.3 statistical software with database backend settings updated by EFED on 07/25/17.

The statistical endpoints included F_0 survival, F_0 growth (dry weight and length), and reproduction (number of live offspring, successful birth rate, and time to first brood). An Equal Variance T-test was used to compare the negative and solvent controls. No significant differences were observed for the endpoints tested with the exception of successful birth rate, in which response was significantly reduced in the solvent control ($p<0.05$). All subsequent comparisons were made using the negative control only.

The parental survival and reproduction (number of live offspring, successful birth rate, and time to first brood) data were confirmed to be normally distributed and have homogeneous variances using Shapiro-Wilk's and Bartlett's tests, respectively, and were therefore analyzed using ANOVA followed by Dunnett's test.

The assumption tests could not be run in CETIS for parental growth (length and dry weight) data because only group means were reported by the study author and the reviewer could only consider one replicate per control and treatment group. The data were analyzed using the Jonckheere-Terpstra Step-Down test and visual interpretation of the data, which was limited due to the lack of 95% confidence limits.

Parental Survival
NOAEC: 0.75 mg ai/L
LOAEC: >0.75 mg ai/L

No. of Live Offspring
NOAEC: 0.064 mg ai/L
LOAEC: 0.14 mg ai/L

Total Length
NOAEC: 0.32 mg ai/L
LOAEC: 0.75 mg ai/L

Dry Weight
NOAEC: 0.75 mg ai/L
LOAEC: >0.75 mg ai/L

Successful Birth Rate
NOAEC: 0.064 mg ai/L
LOAEC: 0.14 mg ai/L

Time to First Brood
NOAEC: 0.75 mg ai/L
LOAEC: >0.75 mg ai/L

Endpoints affected: Reproduction (number of live offspring and successful birth rate) and growth (length)
Most sensitive endpoints: Reproduction (number of live offspring and successful birth rate)

E. STUDY DEFICIENCIES:

No deficiencies were noted.

F. REVIEWER'S COMMENTS:

The reviewer's and the study author's results were in complete agreement. The reviewer's results are reported in the Executive Summary and Conclusions sections of this DER, because the reviewer additionally analyzed time to first brood.

All validity requirements were met. Specifically, 1) ≤20% of the control organisms appeared to be immobilized, stressed, or diseased during the test; 2) each surviving control daphnid produced an average of >60 young; 3) no ephippia were produced by control animals; and 4) the coefficient of variation around the mean number of living offspring produced per parent animal in the control(s) was <25%.

The experimental phase of the definitive study was conducted from November 29 to December 20, 2017.

G. CONCLUSIONS: Reproduction (number of live offspring and successful birth rate) and growth (length) were significantly affected in this experiment. The most sensitive endpoints were reproduction (number of live offspring and successful birth rate), resulting in an overall NOAEC and LOAEC of 0.064 and 0.14 mg ai/L, respectively.

NOAEC: 0.064 mg ai/L
LOAEC: 0.14 mg ai/L

Endpoints affected: Reproduction (number of live offspring and successful birth rate) and growth (length)
Most sensitive endpoints: Reproduction (number of live offspring and successful birth rate)

III. REFERENCES:

Mount, D.I. and W.A. Brungs, 1967. A simplified dosing apparatus for fish toxicological studies. *Water Research* 1: 21-29.

Sprague, J.B. 1969. Measurement of pollutant toxicity to fish. 1. Bioassay methods for acute toxicity. *Water Research*. 3: 793-821.

All other references were standard guidelines and methodologies.

OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**			
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water		
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**			
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture	**Age:**	
Sample ID:	15-8671-3606	**Code:**	50610202	**Project:**	Insecticide		
Sample Date:	29 Nov-17	**Material:**	CLA (Novaluron degradate)	**Source:**	ADAMA Makhteshim, Ltd		
Receipt Date:		**CAS (PC):**		**Station:**			
Sample Age:	n/a	**Client:**	CDM Smith - E. Krupka				

PC Code 124002 MRID 50610202 mean-measured concentrations

'F0 Dry Weight' endpoint...
The minimum possible P level for the Wilcoxon/Mann-Whitney test is 0, therefore a significant difference cannot be detected with the number of groups and replicates selected at the specified alpha level.

Either there is no detectable variance, insufficient replication or too many groups selected to complete the Mann-Whitney U Two-Sample Test. You may need to reduce the number of groups tested or manually select a different method since your data cannot be run with the current configuration.

'F0 Length' endpoint...
The minimum possible P level for the Wilcoxon/Mann-Whitney test is 0, therefore a significant difference cannot be detected with the number of groups and replicates selected at the specified alpha level.

Either there is no detectable variance, insufficient replication or too many groups selected to complete the Mann-Whitney U Two-Sample Test. You may need to reduce the number of groups tested or manually select a different method since your data cannot be run with the current configuration.

SIngle Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
18-9943-3487	F0 Mortality	Equal Variance t Two-Sample Test	1.0000	Solvent Blank passed f0 mortality	1
15-5104-4204	F0 Survival	Equal Variance t Two-Sample Test	1.0000	Solvent Blank passed f0 survival	1
14-1231-7388	n Live Offspring	Equal Variance t Two-Sample Test	0.2897	Solvent Blank passed n live offspring	1
05-7134-4762	Successful Birth Rate	Equal Variance t Two-Sample Test	0.0445	Solvent Blank failed successful birth rate	1
06-6153-3803	Time to First Brood	Equal Variance t Two-Sample Test	0.1340	Solvent Blank passed time to first brood	1

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
00-8157-3257	F0 Dry Weight	Jonckheere-Terpstra Step-Down Test		0.75	>0.75	n/a		n/a	1
13-8805-6733	F0 Length	Jonckheere-Terpstra Step-Down Test		0.064	0.14	0.09466		n/a	1
14-7300-7991	F0 Survival	Dunnett Multiple Comparison Test		0.75	>0.75	n/a		15.8%	1
05-4712-0630	F0 Survival	Williams Multiple Comparison Test		0.75	>0.75	n/a		12.2%	1
15-6319-7030	n Live Offspring	Dunnett Multiple Comparison Test		0.064	0.14	0.09466		16.4%	1
18-5365-6527	n Live Offspring	Williams Multiple Comparison Test		0.064	0.14	0.09466		12.7%	1
10-0678-0215	Successful Birth Rate	Dunnett Multiple Comparison Test		0.064	0.14	0.09466		15.5%	1
21-2483-4572	Successful Birth Rate	Williams Multiple Comparison Test		0.064	0.14	0.09466		12.0%	1
14-1889-0662	Time to First Brood	Dunnett Multiple Comparison Test		0.75	>0.75	n/a		11.0%	1
20-8282-4405	Time to First Brood	Williams Multiple Comparison Test		0.75	>0.75	n/a		8.55%	1

OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

F0 Dry Weight Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	1	1.15			1.15	1.15	0	0	0.00%	0.00%
0	N	1	1.22			1.22	1.22	0	0	0.00%	-6.09%
0.017		1	1.27			1.27	1.27	0	0	0.00%	-10.43%
0.064		1	1.19			1.19	1.19	0	0	0.00%	-3.48%
0.14		1	1.07			1.07	1.07	0	0	0.00%	6.96%
0.32		1	1.21			1.21	1.21	0	0	0.00%	-5.22%
0.75		1	1.04			1.04	1.04	0	0	0.00%	9.57%

F0 Length Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	1	5.01			5.01	5.01	0	0	0.00%	0.00%
0	N	1	5.07			5.07	5.07	0	0	0.00%	-1.20%
0.017		1	5.06			5.06	5.06	0	0	0.00%	-1.00%
0.064		1	4.94			4.94	4.94	0	0	0.00%	1.40%
0.14		1	4.78			4.78	4.78	0	0	0.00%	4.59%
0.32		1	4.88			4.88	4.88	0	0	0.00%	2.59%
0.75		1	4.51			4.51	4.51	0	0	0.00%	9.98%

F0 Mortality Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	4	0.1000	0.0000	0.2299	0.0000	0.2000	0.0408	0.0817	81.65%	0.00%
0	N	4	0.1000	0.0000	0.2299	0.0000	0.2000	0.0408	0.0817	81.65%	0.00%
0.017		4	0.2000	0.0701	0.3299	0.1000	0.3000	0.0408	0.0817	40.82%	11.11%
0.064		4	0.0500	0.0000	0.1419	0.0000	0.1000	0.0289	0.0577	115.47%	-5.56%
0.14		4	0.0250	0.0000	0.1046	0.0000	0.1000	0.0250	0.0500	200.00%	-8.33%
0.32		4	0.1250	0.0000	0.3252	0.0000	0.3000	0.0629	0.1258	100.66%	2.78%
0.75		4	0.1000	0.0000	0.2299	0.0000	0.2000	0.0408	0.0817	81.65%	0.00%

F0 Survival Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	4	0.9000	0.7701	1.0000	0.8000	1.0000	0.0408	0.0817	9.07%	0.00%
0	N	4	0.9000	0.7701	1.0000	0.8000	1.0000	0.0408	0.0817	9.07%	0.00%
0.017		4	0.8000	0.6701	0.9299	0.7000	0.9000	0.0408	0.0817	10.21%	11.11%
0.064		4	0.9500	0.8581	1.0000	0.9000	1.0000	0.0289	0.0577	6.08%	-5.56%
0.14		4	0.9750	0.8954	1.0000	0.9000	1.0000	0.0250	0.0500	5.13%	-8.33%
0.32		4	0.8750	0.6748	1.0000	0.7000	1.0000	0.0629	0.1258	14.38%	2.78%
0.75		4	0.9000	0.7701	1.0000	0.8000	1.0000	0.0408	0.0817	9.07%	0.00%

n Live Offspring Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	4	1424	1206	1641	1219	1498	68.23	136.5	9.59%	0.00%
0	N	4	1543	1298	1787	1343	1686	76.77	153.5	9.95%	-8.38%
0.017		4	1474	1291	1657	1339	1619	57.5	115	7.80%	-3.53%
0.064		4	1536	1258	1813	1289	1692	87.34	174.7	11.38%	-7.87%
0.14		4	1274	987.1	1562	1075	1512	90.3	180.6	14.17%	10.47%
0.32		4	1192	917.2	1468	952	1335	86.5	173	14.51%	16.23%
0.75		4	339.2	265	413.5	271	374	23.32	46.64	13.75%	76.17%

Successful Birth Rate Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	4	10.25	9.755	10.74	10	10.7	0.1555	0.3109	3.03%	0.00%
0	N	4	10.9	10.25	11.55	10.4	11.4	0.2041	0.4082	3.75%	-6.34%
0.017		4	12.02	11.41	12.64	11.5	12.4	0.1931	0.3862	3.21%	-17.32%
0.064		4	10.6	8.215	12.99	8.6	11.8	0.7494	1.499	14.14%	-3.41%
0.14		4	8.675	6.682	10.67	7.2	10.1	0.6263	1.253	14.44%	15.37%
0.32		4	8.7	6.734	10.67	7.4	9.9	0.6178	1.236	14.20%	15.12%
0.75		4	2.525	1.689	3.361	1.8	3	0.2626	0.5252	20.80%	75.37%

OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Time to First Brood Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	S	4	7	7	7	7	7	0	0	0.00%	0.00%
0	N	4	7.5	6.581	8.419	7	8	0.2887	0.5774	7.70%	-7.14%
0.017		4	7.25	6.454	8.046	7	8	0.25	0.5	6.90%	-3.57%
0.064		4	7.75	6.954	8.546	7	8	0.25	0.5	6.45%	-10.71%
0.14		4	7.25	6.454	8.046	7	8	0.25	0.5	6.90%	-3.57%
0.32		4	7.5	6.581	8.419	7	8	0.2887	0.5774	7.70%	-7.14%
0.75		4	8	8	8	8	8	0	0	0.00%	-14.29%

OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

F0 Dry Weight Detail

Conc-mg ai/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S	1.15			
0	N	1.22			
0.017		1.27			
0.064		1.19			
0.14		1.07			
0.32		1.21			
0.75		1.04			

F0 Length Detail

Conc-mg ai/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S	5.01			
0	N	5.07			
0.017		5.06			
0.064		4.94			
0.14		4.78			
0.32		4.88			
0.75		4.51			

F0 Mortality Detail

Conc-mg ai/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S	0.1000	0.0000	0.1000	0.2000
0	N	0.0000	0.1000	0.1000	0.2000
0.017		0.1000	0.3000	0.2000	0.2000
0.064		0.1000	0.1000	0.0000	0.0000
0.14		0.0000	0.0000	0.1000	0.0000
0.32		0.1000	0.3000	0.1000	0.0000
0.75		0.1000	0.1000	0.2000	0.0000

F0 Survival Detail

Conc-mg ai/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S	0.9000	1.0000	0.9000	0.8000
0	N	1.0000	0.9000	0.9000	0.8000
0.017		0.9000	0.7000	0.8000	0.8000
0.064		0.9000	0.9000	1.0000	1.0000
0.14		1.0000	1.0000	0.9000	1.0000
0.32		0.9000	0.7000	0.9000	1.0000
0.75		0.9000	0.9000	0.8000	1.0000

n Live Offspring Detail

Conc-mg ai/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S	1498	1493	1484	1219
0	N	1637	1686	1505	1343
0.017		1619	1339	1455	1482
0.064		1614	1692	1289	1547
0.14		1075	1512	1277	1234
0.32		1335	952	1300	1183
0.75		349	374	363	271

OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Successful Birth Rate Detail

Conc-mg ai/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S	10.2	10	10.7	10.1
0	N	10.9	11.4	10.4	10.9
0.017		12	12.2	11.5	12.4
0.064		11.8	11.7	8.6	10.3
0.14		7.2	10.1	9.2	8.2
0.32		9.9	7.4	9.6	7.9
0.75		2.5	2.8	3	1.8

Time to First Brood Detail

Conc-mg ai/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S	7	7	7	7
0	N	8	8	7	7
0.017		7	7	7	8
0.064		7	8	8	8
0.14		8	7	7	7
0.32		7	8	8	7
0.75		8	8	8	8

OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	00-8157-3257	**Endpoint:**	F0 Dry Weight	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Nonparametric-Control vs Ord. Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	0.75	>0.75	n/a	

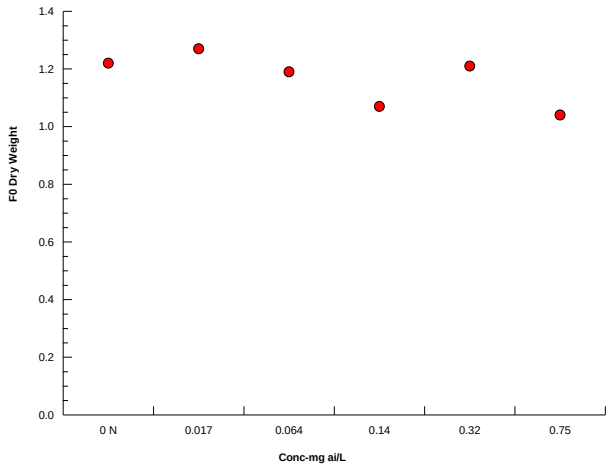
Jonckheere-Terpstra Step-Down Test

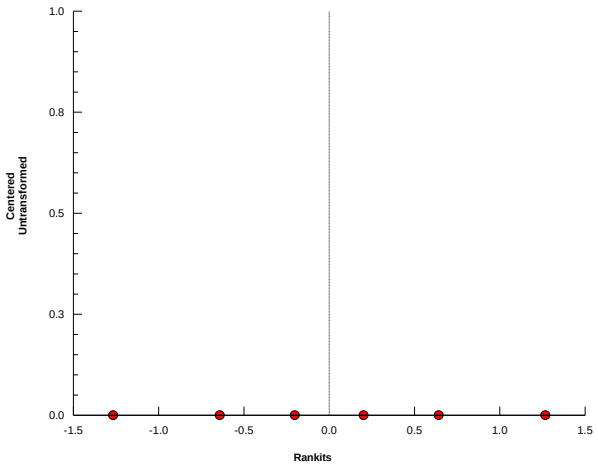
Control vs	Conc-mg ai/L	Test Stat	Critical	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	0	n/a	Exact	0.5000	Non-Significant Effect
	0.064	2	n/a	Exact	0.5000	Non-Significant Effect
	0.14	5	n/a	Exact	0.2417	Non-Significant Effect
	0.32	7	n/a	Exact	0.2417	Non-Significant Effect
	0.75	12	n/a	Exact	0.0681	Non-Significant Effect

F0 Dry Weight Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	1	1.22			1.22	1.22	1.22	0	0.00%	0.00%
0.017		1	1.27			1.27	1.27	1.27	0	0.00%	-4.10%
0.064		1	1.19			1.19	1.19	1.19	0	0.00%	2.46%
0.14		1	1.07			1.07	1.07	1.07	0	0.00%	12.30%
0.32		1	1.21			1.21	1.21	1.21	0	0.00%	0.82%
0.75		1	1.04			1.04	1.04	1.04	0	0.00%	14.75%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	13-8805-6733	**Endpoint:**	F0 Length	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Nonparametric-Control vs Ord. Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	0.064	0.14	0.09466	

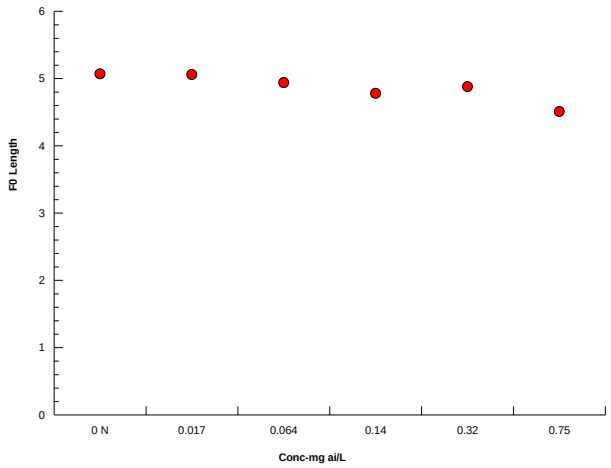
Jonckheere-Terpstra Step-Down Test

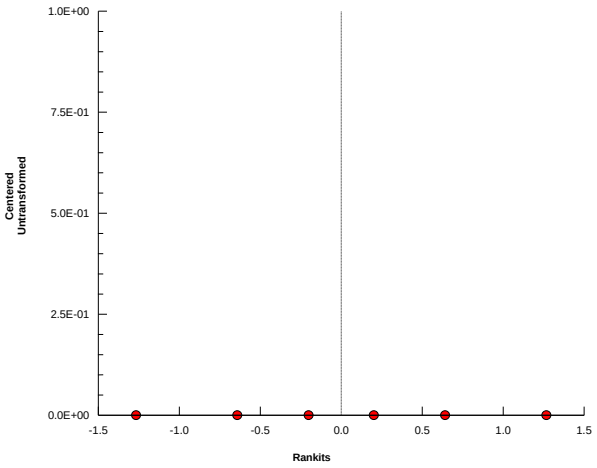
Control vs	Conc-mg ai/L	Test Stat	Critical	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	1	n/a	Exact	0.5000	Non-Significant Effect
	0.064	3	n/a	Exact	0.1667	Non-Significant Effect
	0.14*	6	n/a	Exact	0.0417	Significant Effect
	0.32*	9	n/a	Exact	0.0417	Significant Effect
	0.75*	14	n/a	Exact	0.0083	Significant Effect

F0 Length Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	1	5.07			5.07	5.07	5.07	0	0.00%	0.00%
0.017		1	5.06			5.06	5.06	5.06	0	0.00%	0.20%
0.064		1	4.94			4.94	4.94	4.94	0	0.00%	2.56%
0.14		1	4.78			4.78	4.78	4.78	0	0.00%	5.72%
0.32		1	4.88			4.88	4.88	4.88	0	0.00%	3.75%
0.75		1	4.51			4.51	4.51	4.51	0	0.00%	11.05%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	18-9943-3487	**Endpoint:**	F0 Mortality	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:24	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C <> T	Solvent Blank passed f0 mortality	15.70%

Equal Variance t Two-Sample Test

Control vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	Solvent Blank	0	2.447	0.141	6	CDF	1.0000	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	0	1.0000	Non-Significant Effect
Error	0.04	0.0066667	6			
Total	0.04		7			

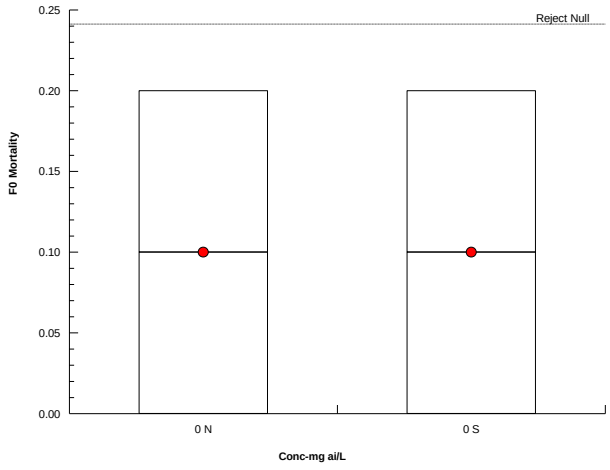
ANOVA Assumptions Tests

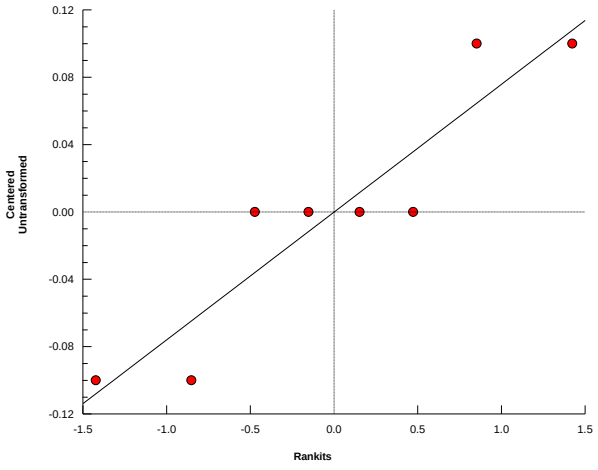
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test	1	47.47	1.0000	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.8489	0.6451	0.0929	Normal Distribution

F0 Mortality Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	4	0.1000	0.0000	0.2299	0.1000	0.0000	0.2000	0.0408	81.65%	0.00%
0	N	4	0.1000	0.0000	0.2299	0.1000	0.0000	0.2000	0.0408	81.65%	0.00%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	15-5104-4204	**Endpoint:**	F0 Survival	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:24	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C <> T	Solvent Blank passed f0 survival	15.70%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		Solvent Blank	0	2.447	0.141	6	CDF	1.0000	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	0	1.0000	Non-Significant Effect
Error	0.04	0.0066667	6			
Total	0.04		7			

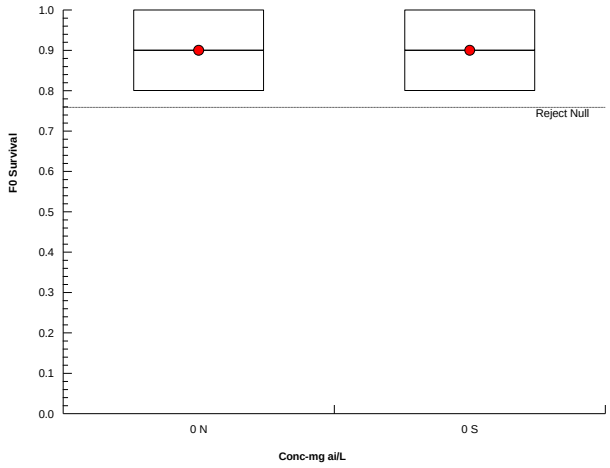
ANOVA Assumptions Tests

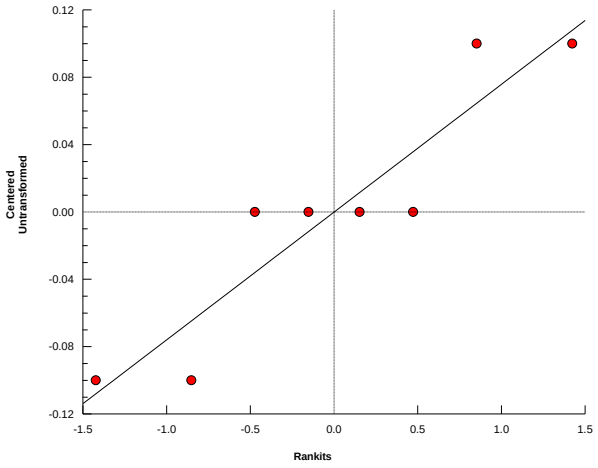
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test	1	47.47	1.0000	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.8489	0.6451	0.0929	Normal Distribution

F0 Survival Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	4	0.9000	0.7701	1.0000	0.9000	0.8000	1.0000	0.0408	9.07%	0.00%
0	N	4	0.9000	0.7701	1.0000	0.9000	0.8000	1.0000	0.0408	9.07%	0.00%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	14-7300-7991	**Endpoint:**	F0 Survival	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	0.75	>0.75	n/a		15.76%

Dunnett Multiple Comparison Test

Control vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	1.697	2.407	0.142	6	CDF	0.1705	Non-Significant Effect
	0.064	-0.8485	2.407	0.142	6	CDF	0.9742	Non-Significant Effect
	0.14	-1.273	2.407	0.142	6	CDF	0.9919	Non-Significant Effect
	0.32	0.4243	2.407	0.142	6	CDF	0.6799	Non-Significant Effect
	0.75	0	2.407	0.142	6	CDF	0.8333	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.075	0.015	5	2.16	0.1045	Non-Significant Effect
Error	0.125	0.0069444	18			
Total	0.2		23			

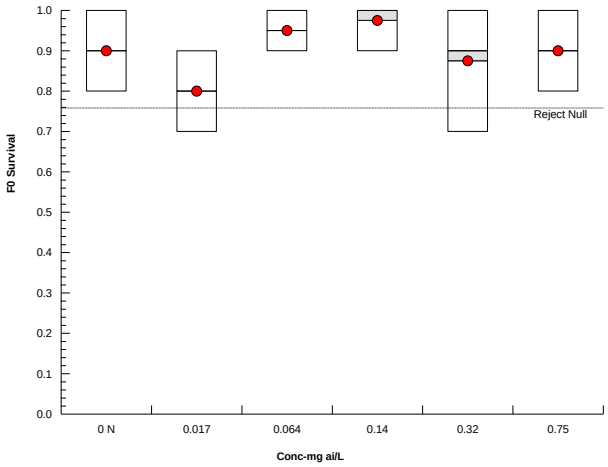
ANOVA Assumptions Tests

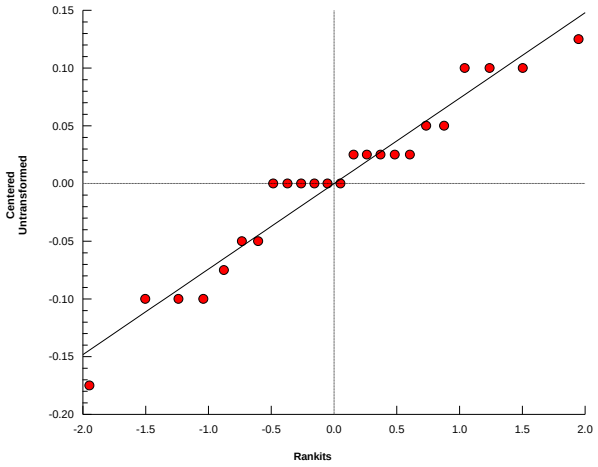
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.799	15.09	0.7310	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9484	0.884	0.2496	Normal Distribution

F0 Survival Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.9000	0.7701	1.0000	0.9000	0.8000	1.0000	0.0408	9.07%	0.00%
0.017		4	0.8000	0.6701	0.9299	0.8000	0.7000	0.9000	0.0408	10.21%	11.11%
0.064		4	0.9500	0.8581	1.0000	0.9500	0.9000	1.0000	0.0289	6.08%	-5.56%
0.14		4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	-8.33%
0.32		4	0.8750	0.6748	1.0000	0.9000	0.7000	1.0000	0.0629	14.38%	2.78%
0.75		4	0.9000	0.7701	1.0000	0.9000	0.8000	1.0000	0.0408	9.07%	0.00%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	05-4712-0630	**Endpoint:**	F0 Survival	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Parametric-Control vs Ord.Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	0.75	>0.75	n/a		12.22%

Williams Multiple Comparison Test

Control vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	1.697	1.734	0.102	6	CDF	>0.05	Non-Significant Effect
	0.064	0.4243	1.818	0.107	6	CDF	>0.05	Non-Significant Effect
	0.14	-0.1414	1.845	0.109	6	CDF	>0.05	Non-Significant Effect
	0.32	0.4243	1.859	0.11	6	CDF	>0.05	Non-Significant Effect
	0.75	0.2121	1.867	0.11	6	CDF	>0.05	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.075	0.015	5	2.16	0.1045	Non-Significant Effect
Error	0.125	0.0069444	18			
Total	0.2		23			

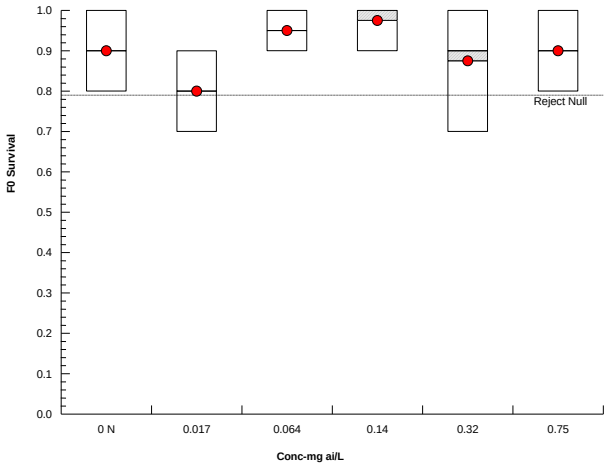
ANOVA Assumptions Tests

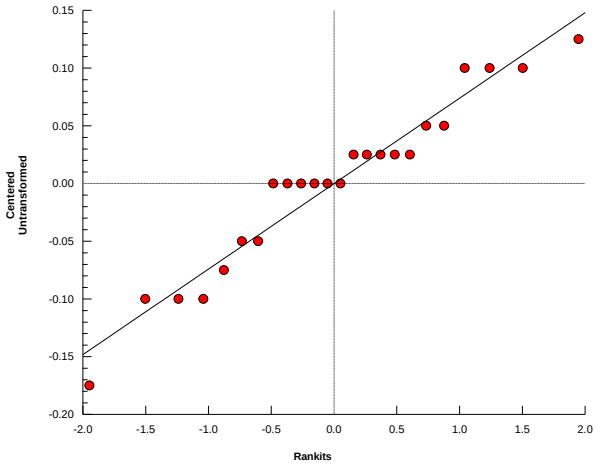
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.799	15.09	0.7310	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9484	0.884	0.2496	Normal Distribution

F0 Survival Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	0.9000	0.7701	1.0000	0.9000	0.8000	1.0000	0.0408	9.07%	0.00%
0.017		4	0.8000	0.6701	0.9299	0.8000	0.7000	0.9000	0.0408	10.21%	11.11%
0.064		4	0.9500	0.8581	1.0000	0.9500	0.9000	1.0000	0.0289	6.08%	-5.56%
0.14		4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	-8.33%
0.32		4	0.8750	0.6748	1.0000	0.9000	0.7000	1.0000	0.0629	14.38%	2.78%
0.75		4	0.9000	0.7701	1.0000	0.9000	0.8000	1.0000	0.0408	9.07%	0.00%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	14-1231-7388	**Endpoint:**	n Live Offspring	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:24	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C <> T	Solvent Blank passed n live offspring	16.29%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		Solvent Blank	1.161	2.447	251.3	6	CDF	0.2897	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	28441.1	28441.1	1	1.348	0.2897	Non-Significant Effect
Error	126590	21098.3	6			
Total	155031		7			

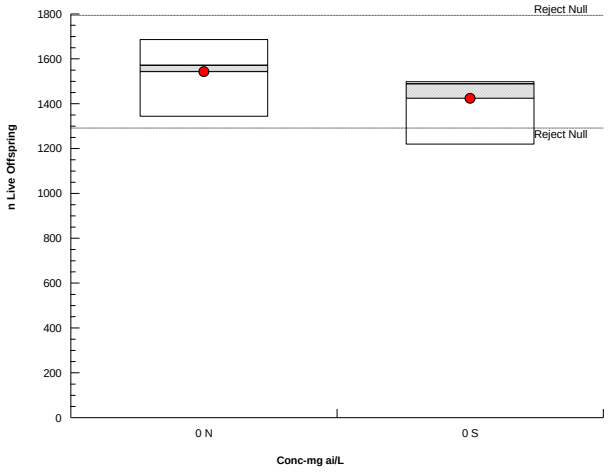
ANOVA Assumptions Tests

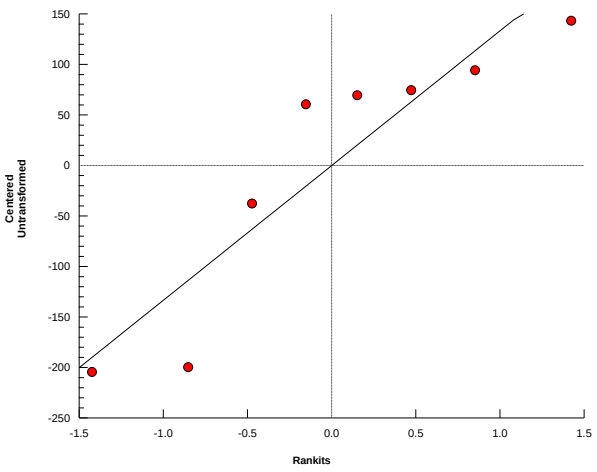
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test	1.266	47.47	0.8508	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.827	0.6451	0.0553	Normal Distribution

n Live Offspring Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	4	1424	1206	1641	1488	1219	1498	68.23	9.59%	0.00%
0	N	4	1543	1298	1787	1571	1343	1686	76.77	9.95%	-8.38%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	15-6319-7030	**Endpoint:**	n Live Offspring	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	0.064	0.14	0.09466		16.37%

Dunnett Multiple Comparison Test

Control vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	0.6578	2.407	252.5	6	CDF	0.5772	Non-Significant Effect
	0.064	0.06912	2.407	252.5	6	CDF	0.8122	Non-Significant Effect
	0.14*	2.557	2.407	252.5	6	CDF	0.0375	Significant Effect
	0.32*	3.339	2.407	252.5	6	CDF	0.0076	Significant Effect
	0.75*	11.47	2.407	252.5	6	CDF	2.7E-05	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4189200	837840	5	38.07	<1.0E-37	Significant Effect
Error	396123	22006.8	18			
Total	4585320		23			

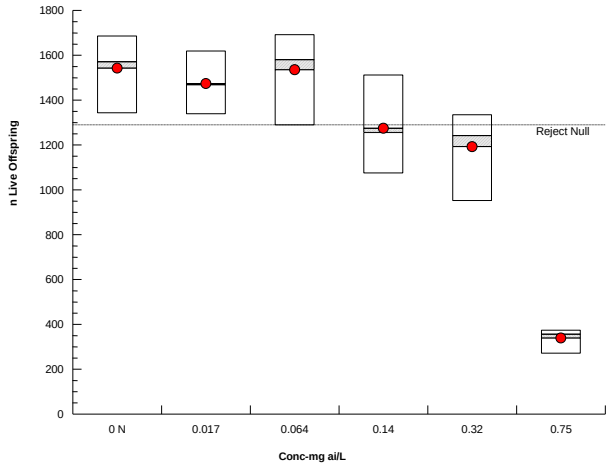
ANOVA Assumptions Tests

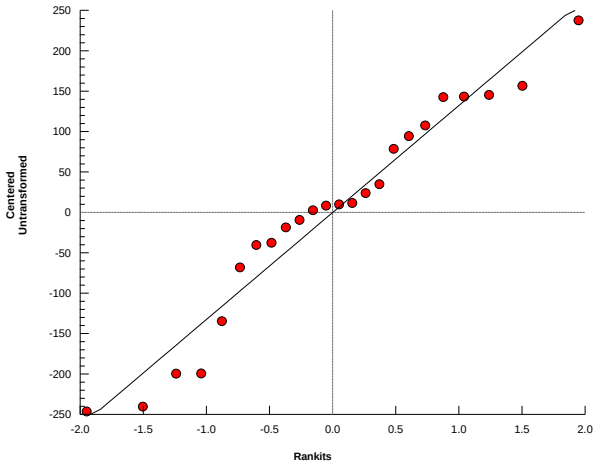
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	4.586	15.09	0.4685	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9501	0.884	0.2727	Normal Distribution

n Live Offspring Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1543	1298	1787	1571	1343	1686	76.77	9.95%	0.00%
0.017		4	1474	1291	1657	1468	1339	1619	57.5	7.80%	4.47%
0.064		4	1536	1258	1813	1580	1289	1692	87.34	11.38%	0.47%
0.14		4	1274	987.1	1562	1256	1075	1512	90.3	14.17%	17.39%
0.32		4	1192	917.2	1468	1242	952	1335	86.5	14.51%	22.70%
0.75		4	339.2	265	413.5	356	271	374	23.32	13.75%	78.01%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	18-5365-6527	**Endpoint:**	n Live Offspring	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Parametric-Control vs Ord.Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	0.064	0.14	0.09466		12.69%

Williams Multiple Comparison Test

Control	vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		0.017	0.6578	1.734	181.9	6	CDF	>0.05	Non-Significant Effect
		0.064	0.3635	1.818	190.7	6	CDF	>0.05	Non-Significant Effect
		0.14*	2.557	1.845	193.5	6	CDF	<0.05	Significant Effect
		0.32*	3.339	1.859	195	6	CDF	<0.05	Significant Effect
		0.75*	11.47	1.867	195.8	6	CDF	<0.05	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	4189200	837840	5	38.07	<1.0E-37	Significant Effect
Error	396123	22006.8	18			
Total	4585320		23			

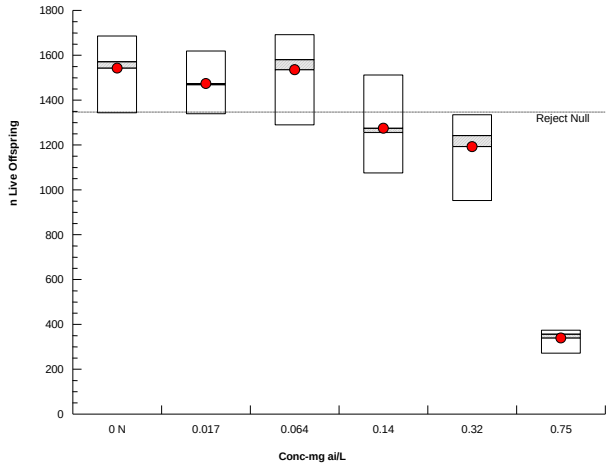
ANOVA Assumptions Tests

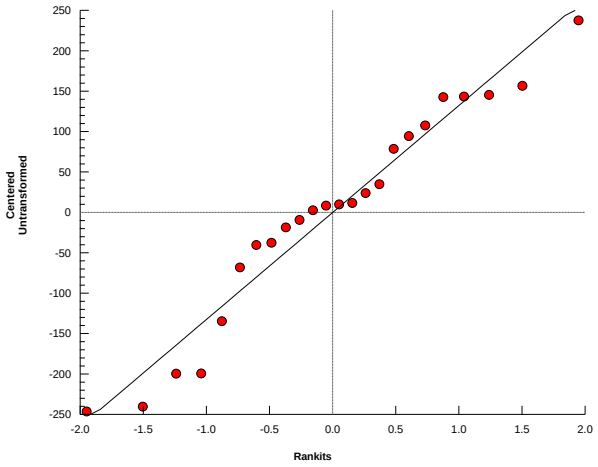
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	4.586	15.09	0.4685	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9501	0.884	0.2727	Normal Distribution

n Live Offspring Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1543	1298	1787	1571	1343	1686	76.77	9.95%	0.00%
0.017		4	1474	1291	1657	1468	1339	1619	57.5	7.80%	4.47%
0.064		4	1536	1258	1813	1580	1289	1692	87.34	11.38%	0.47%
0.14		4	1274	987.1	1562	1256	1075	1512	90.3	14.17%	17.39%
0.32		4	1192	917.2	1468	1242	952	1335	86.5	14.51%	22.70%
0.75		4	339.2	265	413.5	356	271	374	23.32	13.75%	78.01%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	05-7134-4762	**Endpoint:**	Successful Birth Rate	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:24	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C <> T	Solvent Blank failed successful birth rate	5.76%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		Solvent Blank*	2.533	2.447	0.628	6	CDF	0.0445	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.845	0.845	1	6.418	0.0445	Significant Effect
Error	0.79	0.131667	6			
Total	1.635		7			

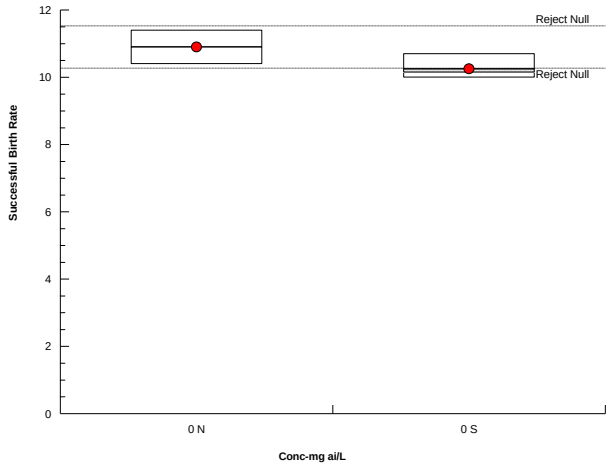
ANOVA Assumptions Tests

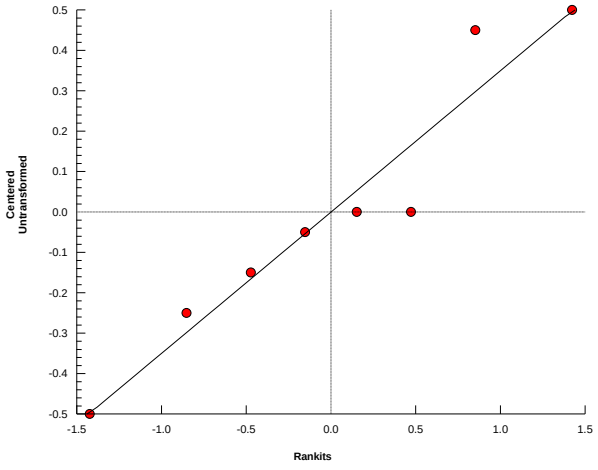
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test	1.724	47.47	0.6656	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9266	0.6451	0.4854	Normal Distribution

Successful Birth Rate Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	4	10.25	9.755	10.74	10.15	10	10.7	0.1555	3.03%	0.00%
0	N	4	10.9	10.25	11.55	10.9	10.4	11.4	0.2041	3.75%	-6.34%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	10-0678-0215	**Endpoint:**	Successful Birth Rate	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	0.064	0.14	0.09466		15.53%

Dunnett Multiple Comparison Test

Control vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	-1.6	2.407	1.693	6	CDF	0.9969	Non-Significant Effect
	0.064	0.4266	2.407	1.693	6	CDF	0.6789	Non-Significant Effect
	0.14*	3.164	2.407	1.693	6	CDF	0.0109	Significant Effect
	0.32*	3.128	2.407	1.693	6	CDF	0.0118	Significant Effect
	0.75*	11.91	2.407	1.693	6	CDF	2.7E-05	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	229.547	45.9094	5	46.42	<1.0E-37	Significant Effect
Error	17.8025	0.989028	18			
Total	247.35		23			

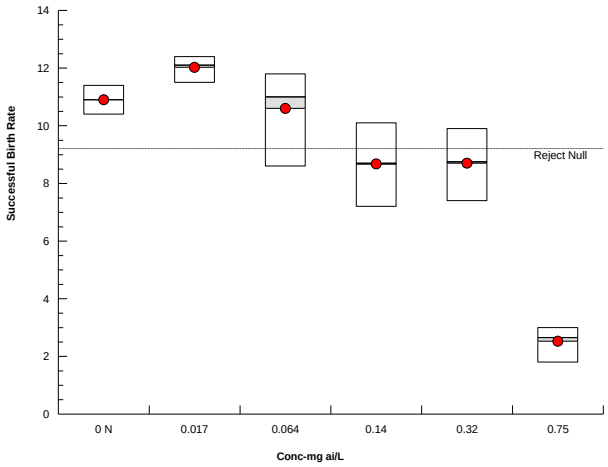
ANOVA Assumptions Tests

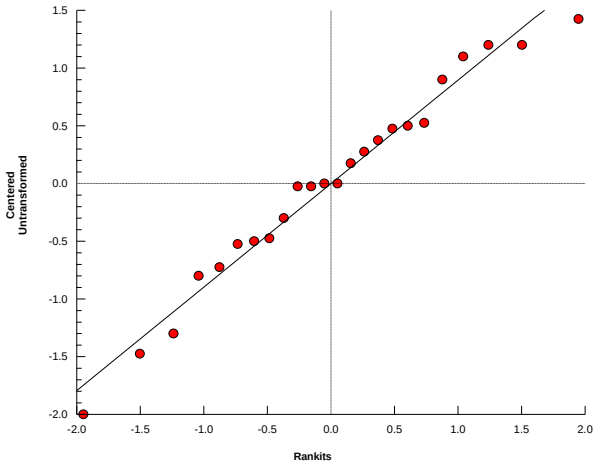
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	8.586	15.09	0.1267	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9723	0.884	0.7226	Normal Distribution

Successful Birth Rate Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	10.9	10.25	11.55	10.9	10.4	11.4	0.2041	3.75%	0.00%
0.017		4	12.02	11.41	12.64	12.1	11.5	12.4	0.1931	3.21%	-10.32%
0.064		4	10.6	8.215	12.99	11	8.6	11.8	0.7494	14.14%	2.75%
0.14		4	8.675	6.682	10.67	8.7	7.2	10.1	0.6263	14.44%	20.41%
0.32		4	8.7	6.734	10.67	8.75	7.4	9.9	0.6178	14.20%	20.18%
0.75		4	2.525	1.689	3.361	2.65	1.8	3	0.2626	20.80%	76.83%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	21-2483-4572	**Endpoint:**	Successful Birth Rate	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:25	**Analysis:**	Parametric-Control vs Ord.Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	0.064	0.14	0.09466		12.05%

Williams Multiple Comparison Test

Control	vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		0.017	-1.6	1.734	1.219	6	CDF	>0.05	Non-Significant Effect
		0.064	0.4266	1.818	1.278	6	CDF	>0.05	Non-Significant Effect
		0.14*	3.164	1.845	1.297	6	CDF	<0.05	Significant Effect
		0.32*	3.146	1.859	1.307	6	CDF	<0.05	Significant Effect
		0.75*	11.91	1.867	1.313	6	CDF	<0.05	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	229.547	45.9094	5	46.42	<1.0E-37	Significant Effect
Error	17.8025	0.989028	18			
Total	247.35		23			

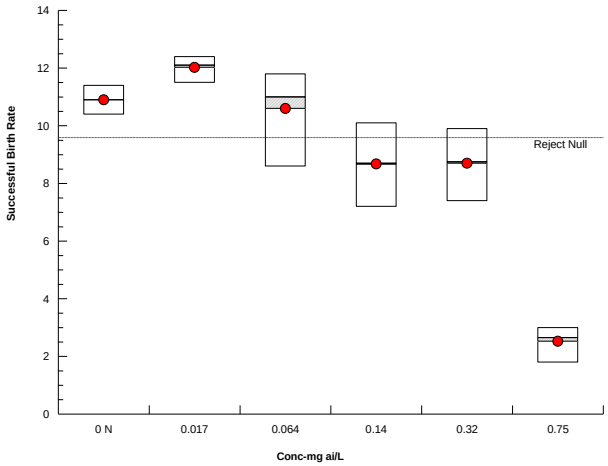
ANOVA Assumptions Tests

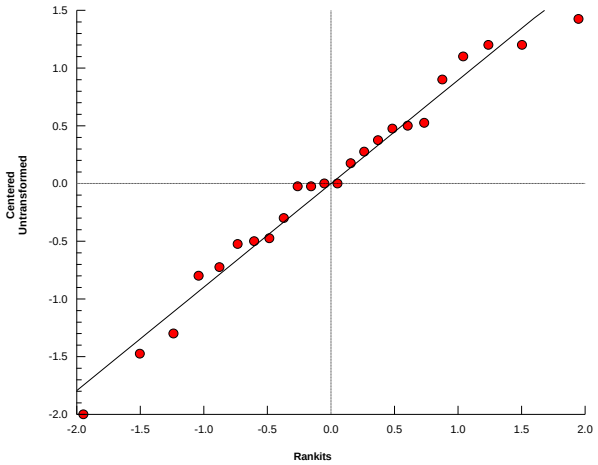
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	8.586	15.09	0.1267	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9723	0.884	0.7226	Normal Distribution

Successful Birth Rate Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	10.9	10.25	11.55	10.9	10.4	11.4	0.2041	3.75%	0.00%
0.017		4	12.02	11.41	12.64	12.1	11.5	12.4	0.1931	3.21%	-10.32%
0.064		4	10.6	8.215	12.99	11	8.6	11.8	0.7494	14.14%	2.75%
0.14		4	8.675	6.682	10.67	8.7	7.2	10.1	0.6263	14.44%	20.41%
0.32		4	8.7	6.734	10.67	8.75	7.4	9.9	0.6178	14.20%	20.18%
0.75		4	2.525	1.689	3.361	2.65	1.8	3	0.2626	20.80%	76.83%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) — **Smithers Viscient**

Analysis ID:	06-6153-3803	**Endpoint:**	Time to First Brood	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:24	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C <> T	Solvent Blank passed time to first brood	9.42%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control		Solvent Blank	1.732	2.447	0.706	6	CDF	0.1340	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.5	0.5	1	3	0.1340	Non-Significant Effect
Error	1	0.166667	6			
Total	1.5		7			

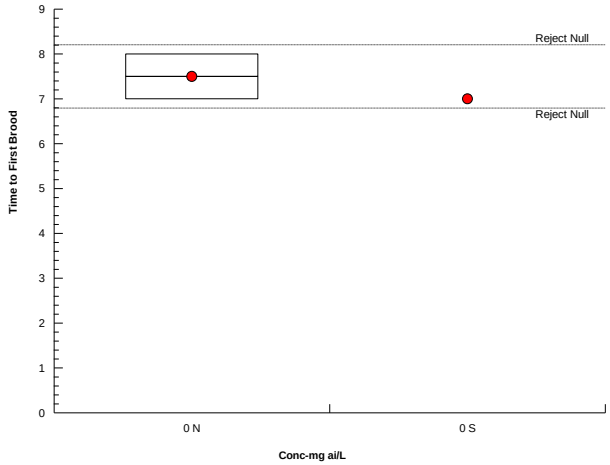
ANOVA Assumptions Tests

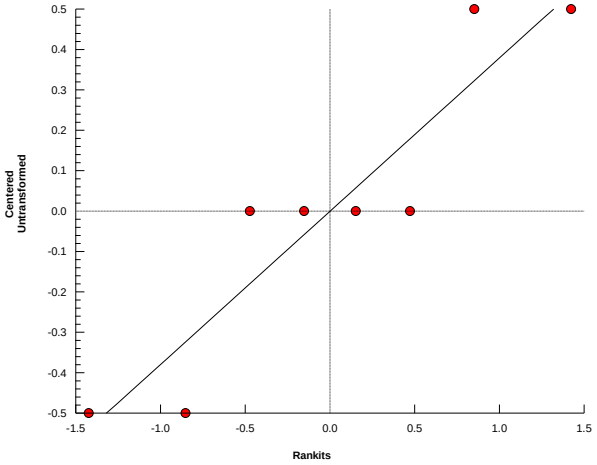
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Distribution	Shapiro-Wilk W Normality Test	0.8489	0.6451	0.0929	Normal Distribution

Time to First Brood Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	S	4	7	7	7	7	7	7	0	0.00%	0.00%
0	N	4	7.5	6.581	8.419	7.5	7	8	0.2887	7.70%	-7.14%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	14-1889-0662	**Endpoint:**	Time to First Brood	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:26	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C < T	0.75	>0.75	n/a		11.03%

Dunnett Multiple Comparison Test

Control vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	-0.7276	2.407	0.827	6	CDF	0.9649	Non-Significant Effect
	0.064	0.7276	2.407	0.827	6	CDF	0.5454	Non-Significant Effect
	0.14	-0.7276	2.407	0.827	6	CDF	0.9649	Non-Significant Effect
	0.32	0	2.407	0.827	6	CDF	0.8333	Non-Significant Effect
	0.75	1.455	2.407	0.827	6	CDF	0.2426	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.70833	0.341667	5	1.447	0.2556	Non-Significant Effect
Error	4.25	0.236111	18			
Total	5.95833		23			

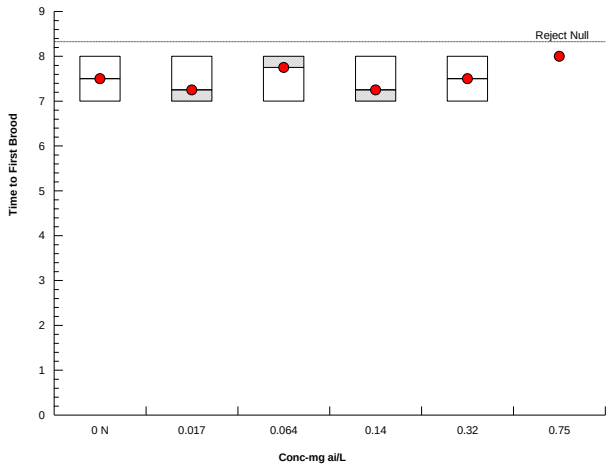
ANOVA Assumptions Tests

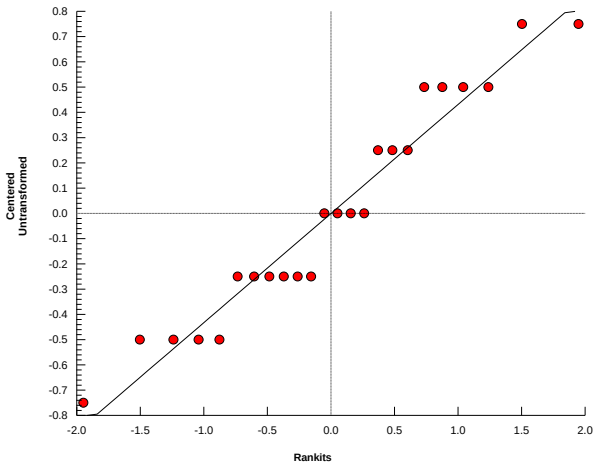
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	4.333	4.248	0.0092	Unequal Variances
	Mod Levene Equality of Variance Test	1.133	4.248	0.3786	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9389	0.884	0.1545	Normal Distribution

Time to First Brood Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	7.5	6.581	8.419	7.5	7	8	0.2887	7.70%	0.00%
0.017		4	7.25	6.454	8.046	7	7	8	0.25	6.90%	3.33%
0.064		4	7.75	6.954	8.546	8	7	8	0.25	6.45%	-3.33%
0.14		4	7.25	6.454	8.046	7	7	8	0.25	6.90%	3.33%
0.32		4	7.5	6.581	8.419	7.5	7	8	0.2887	7.70%	0.00%
0.75		4	8	8	8	8	8	8	0	0.00%	-6.67%

Graphics





OPPTS 850.1300 Chronic Invert (Daphnid) **Smithers Viscient**

Analysis ID:	20-8282-4405	**Endpoint:**	Time to First Brood	**CETIS Version:**	CETISv1.9.5
Analyzed:	03 Feb-19 19:26	**Analysis:**	Parametric-Control vs Ord.Treatments	**Status Level:**	1
Batch ID:	13-5791-3018	**Test Type:**	Chronic Daphnia (21-d)	**Analyst:**	
Start Date:	29 Nov-17	**Protocol:**	OPPTS 850.1300 Chronic Invert (Daphnid L	**Diluent:**	Fortified well water
Ending Date:	20 Dec-17	**Species:**	Daphnia magna	**Brine:**	
Test Length:	21d 0h	**Taxon:**	Branchiopoda	**Source:**	Lab In-House Culture **Age:**

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C < T	0.75	>0.75	n/a		8.55%

Williams Multiple Comparison Test

Control vs	Conc-mg ai/L	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Negative Control	0.017	-0.7276	1.734	0.596	6	CDF	>0.05	Non-Significant Effect
	0.064	0	1.818	0.625	6	CDF	>0.05	Non-Significant Effect
	0.14	-0.7276	1.845	0.634	6	CDF	>0.05	Non-Significant Effect
	0.32	-0.3638	1.859	0.639	6	CDF	>0.05	Non-Significant Effect
	0.75	0.1455	1.867	0.642	6	CDF	>0.05	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.70833	0.341667	5	1.447	0.2556	Non-Significant Effect
Error	4.25	0.236111	18			
Total	5.95833		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	4.333	4.248	0.0092	Unequal Variances
	Mod Levene Equality of Variance Test	1.133	4.248	0.3786	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9389	0.884	0.1545	Normal Distribution

Time to First Brood Summary

Conc-mg ai/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	7.5	6.581	8.419	7.5	7	8	0.2887	7.70%	0.00%
0.017		4	7.25	6.454	8.046	7	7	8	0.25	6.90%	3.33%
0.064		4	7.75	6.954	8.546	8	7	8	0.25	6.45%	-3.33%
0.14		4	7.25	6.454	8.046	7	7	8	0.25	6.90%	3.33%
0.32		4	7.5	6.581	8.419	7.5	7	8	0.2887	7.70%	0.00%
0.75		4	8	8	8	8	8	8	0	0.00%	-6.67%

Graphics