# FDEP Biology Lab - Toxicity Section
## Test Instrument Serial Number Page

Method: EPA 821-R-02-012



| METER / DEVICE | ID | SOP | Parameter | Method | Benchsheet Code |
|---|---|---|---|---|---|
| YSI Model 58 Dissolved Oxygen Meter | 90H018262 | TA-06.04 | Dissolved Oxygen | SM 4500 O G | DO1 |
| Thermoscientific Orion Star A213 | SN X49117<br>Probe: 019059 | TA-06.39 | Dissolved Oxygen | SM 4500 O G | DO2 |
| Accumet AR-10 pH Meter | 93312105 | TA-06.23 | pH | SM 4500 H+ | PH1 |
| Fisherbrand FE150 | SN 2753630<br>Probe: 01X218988 | TA- 06.37 | pH | SM 4500 H+ | PH2 |
| Mettler-Toledo SevenMulti Conductivity Meter | SN: 1225117049<br>Probe: H04257 | TA-06.25 | Conductivity Salinity | SM 2510 B<br>SM 2520 B | COND1 |
| Traceable Bench Conductivity Meter | SN 170814827 | TA-06.36 | Conductivity Salinity | SM 2510 B<br>SM 2520 B | COND2 |
| Hach Ammonia Mid-Range Kit for freshwater | Kit Lot # A6070 | TA-06.33 | Ammonia | SM 4500 NH3 | $NH_3$2 |
| Hach Ammonia Kit NI-SA for saltwater | Kit Lot # A6055 | TA-06.33 | Ammonia | SM 4500 NH3 | $NH_3$1 |
| Hach Ammonia Nitrogen Pocket Colorimeter II | Kit Lot # A8051 | TA-06.35 | Ammonia | SM 4500 NH3 | $NH_3$4 |
| Traceable Thermometer | #12 - SN 200815417<br>Probe SN 200815417 | TA-06.13 | Temperature | SM-2530B modified<br>&<br>DEP SOP-001/01<br>FT1400 | #12 |
| Traceable Thermometer | #13- SN 210217473<br>Probe SN 210217473 | TA-06.13 | Temperature | SM-2530B modified<br>&<br>DEP SOP-001/01<br>FT1400 | #13 |
| Traceable Thermometer | #14- SN 210233584<br>Probe P1/P2 SN<br>210233584 | TA-06.13 | Temperature | SM-2530B modified<br>&<br>DEP SOP-001/01<br>FT1400 | #14 |
| Hach Chlorine Pocket Colorimeter II | #2-05050C026378 | TA-06.22 | Total Residual Chlorine | EPA 330.5<br>SM 4500 CL G | #2 |
| Alkalinity (Hach Kit) | No SN | TA-06.08 | Alkalinity | SM 2320 B | ALK1 |
| Hardness (Hach Kit) | No SN | TA-06.08 | Hardness | SM 2340 C | HARD1 |
| Mettler Toledo XA105 | B314195659 | BB-36 | Weight | - | BAL1 |
| Mettler Toledo MS403TS/00 | B815673069 | TA-06.34 | Weight | - | BAL3 |
| S-Weights | BIO-S-WEIGHTS-01 | NA | Balance check | - | S01 |

SM-2503B modified to allow use of electrionic and non-mercury filled thermometers.
Insert other device information in blank spaces as needed.

# FDEP Biology Lab - Toxicity Section
## Test Instrument Serial Number Page

Method: EPA 821-R-02-012



| METER / DEVICE | ID | SOP | Parameter | Method | Benchsheet Code |
|---|---|---|---|---|---|
| Fisher Scientific Timer | SN 80686096 | - | Time | - | T-A |
| Fisher Scientific Timer | SN 80686202 | - | Time | - | T-B |
| Fisher Scientific Timer | SN 200757674 | - | Time | - | T-C |
| Fisher Scientific Timer | SN 20075766 | - | Time | - | T-D |
| Mechanical Pipet - C. dubia 200 µL | M634224 | TA-06.32 | Volume | - | P1 |
| Mechanical Pipet - Artemia 200 µL | GH41872 | TA-06.32 | Volume | - | P2 |
| Mechanical Pipet - Artemia 1000 µL | F23899 | TA-06.32 | Volume | - | P3 |
| Mechanical Pipet - AGP 100 µL | T50346 | TA-06.32 | Volume | - | P4 |
| Mechanical Pipet - AGP 1000 µL | GH45893 | TA-06.32 | Volume | - | P5 |
| Mechanical Pipet - AGP 200-1000 µL | V18439 | TA-06.32 | Volume | - | P6 |

Effective Date: 3/18/2022
Revision Date: 3/16/2022
Revision Author(s): B. Cesaroni

# FDEP Biology Laboratory - Toxicity Section
## Acute Bioassay Facility Bench Sheet

Method: EPA-821-R-02-012

TA-ACUTE-BENCH-1.4

**Sample Collection:** **Date:**_____**Time:**_____ **Test 1 of 2 Start Date:**_____ **Time:**_____ **Test 1 of 2 End Date:**_____ **Time:**_____
**Hold Time Start:** **Date:**_____**Time:**_____ **Test 2 of 2 Start Date:**_____ **Time:**_____ **Test 2 of 2 End Date:**_____ **Time:**_____

**Facility:**_____
_____
**Address:**_____
_____
**County:**_____
**NPDES Permit #: FL** _____
**Contact/District:** _____
**LIMS Job #:**_____**LIMS Sample #:**_____
**LIMS Entry:**_____**Verified:**_____
**Reviewer:**_____

| Test Type |
|---|
| ☐ Screen |
| ☐ Definitive |
| ☐ Static |
| ☐ Flow-through |

| Test Duration |
|---|
| ☐ 48 hours |
| ☐ 96 hours |
| ☐ ___ hours |

## Initial Sample Handling:

| pH adjustment: | | Aeration: | | Dechlorination: | | Salinity: | |
|---|---|---|---|---|---|---|---|
| Yes | No | Yes | No | Yes | No | Yes | No |

| Initial pH: | Initial DO: | Initial TRC: | Initial Salinity: |
|---|---|---|---|
| _____ | _____mg/L | _____ mg/L | _____ ppt |

| NaOH: | Final DO: | _____ mL of 0.025 N Sodium Thiosulfate per liter of sample. | Final Salinity: |
|---|---|---|---|
| _____N | _____mg/L | | _____ ppt |

| Hcl: | Duration: | Final TRC: | Salts Hypersaline brine |
|---|---|---|---|
| _____N | _____minutes | _____mg/L | |

| | Rate: |
|---|---|
| _____Drops ml | ~ _____ bubbles per min |

**Final pH:**
_____

## Sample Validation:

| | | |
|---|---|---|
| **Temperature Shipped ≤ 6°C:** | **Yes** | **No** |
| **If Hand Delivered, Cooling:** | **Yes** | **No** |
| **Received:** _____ °C **Collected:** _____ ° | | |
| **Holding Time ≤ 36 Hours:** | **Yes** | **No** |

**(Composite: End of collection; Grab: When collected; 4 in 24: Time last sample collected)**

## *Artemia* Batch #'s

**0 hr** _____
**24 hr** _____
**48 hr** _____
**72 hr** _____

***Artemia* Lot #** _____

| Food | Days Used |
|---|---|
| YCT Batch # _____ | |
| YCT Batch # _____ | |
| ***P. subcapitata*** **Batch #** _____ | |
| ***P. subcapitata*** **Batch #** _____ | |

*C. dubia* fed 0.2 ml of *YCT and and *P. subcapitata* in a 1:1 ratio**

C. leedsi, P. promelas, M. beryllina, and A. bahia fed 0.2 ml of Artemia.

*YCT= yeast, cereal leaves and trout chow
** Pipet P1 used for C. dubia feeding

**Reviewer**_____

**Comments:**

# FDEP Biology Laboratory- Toxicity Section
## Acute Bioassay Water Quality Information Sheet

Method: EPA-821-R-02-012

**LIMS Sample #:** _____

| Water Quality Parameters | MHWCD<br>LIMS ID # _____<br>Batch # _____ | MHWCD<br>LIMS ID # _____<br>Batch # _____ | MHW<br>LIMS ID # _____<br>Batch # _____ | MHW<br>LIMS ID # _____<br>Batch # _____ | ASW<br>LIMS ID # _____<br>Batch # _____ | Sample<br>LIMS # _____ | SOP | Measured By: | Transcription Checked by: |
|---|---|---|---|---|---|---|---|---|---|
| **Field Total Residual $Cl_2$** (mg/L) | N/A | N/A | N/A | N/A | N/A | | | | |
| **Lab Total Residual $Cl_2$** (mg/L) | | | | | | | TA-06.22 | | |
| **Alkalinity** (mg/L as $CaCO_3$) | | | | | | | TA-06.08 | | |
| **Hardness** (mg/L as $CaCO_3$) | | | | | | | TA-06.08 | | |
| **Total Ammonia** (mg/L as N) | | | | | | | TA-06.35 or TA-06.33 | | |
| **Conductivity** □ µmhos □ mmhos | | | | | | | TA-06.36 | | |
| **Salinity** (ppt) | | | | | | | TA-06.36 | | |
| **Days Used** | | | | | | | | | |

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Acute Bioassay Information Sheet

Method: EPA-821-R-02-012



**Test 1 of 2**

**LIMS Sample #:** _____

**Start Date:** _____ **Time:** _____

**End Date:** _____ **Time:** _____

| Concentrations Prepared by:_____ | Diluent | Batch #/LIMS # | Days Used |
|---|---|---|---|
| | | | |
| **Test Loaded by:**_____ | | | |
| | | | |
| **Loading Verified by:**_____ | | | |

**Chamber Size** _____**mL**

**Test Volume** _____**mL**

| Test Species | |
|---|---|
| ☐ | *Ceriodaphnia dubia* (SOP: TA-07.01) |
| ☐ | *Cyprinella leedsi* (SOP: TA-07.02) |
| ☐ | *Pimephales promelas* (SOP TA-07.02) |
| ☐ | *Menidia beryllina* (SOP TA-07.04) |
| ☐ | *Americamysis bahia* (SOP TA-07.03) |

**Batch #:**_____ **Age:** _____

**Randomizer #** _____

| Feeding Times | |
|---|---|
| **AM** | **PM** |
| **0 hr *** _____ | **0 hr** _____ |
| **24 hr**_____ | **24 hr**_____ |
| **48 hr *** _____ | **48 hr** _____ |
| **72 hr** _____ | **72 hr** _____ |

***0 hr AM is prior to test and 48 hr AM is prior to renewal**

**Temperature Range** (°C)

**Incubator #**_____

**Min.**_____ **Max.**_____

**Test**

**Min.**_____ **Max.**_____

**Room B246**

**Min.**_____ **Max.**_____

**Test Results**

| Method: EPA | | 95% Confidence Intervals | | % mortality in 100% |
|---|---|---|---|---|
| **Statistics:** | **LC50** | **Lower** | **Upper** | |
| **48 hour:** | | | | |
| **96 hour:** | | | | |

**Test Validation**

| | | |
|---|---|---|
| **Control Survival ≥ 90%:** | **Yes** | **No** |
| **Temperature Range ≤ 3° C:** | **Yes** | **No** |

**Stats Calculated by/Date:**_____ **Stats Verified by/Date:**_____

**Comments:**

# FDEP Biology Laboratory -Toxicity Section
## Acute Bioassay Survival Sheet
Method: EPA-821-R-02-012



**Test 1 of 2**

**LIMS Sample #:** ____________________

| Concentration (%) | Replicate | Chamber # | Test Hour<br>0 hr | 24 hr | 48 hr BR | 48 hr AR | 72 hr | 96 hr |
|---|---|---|---|---|---|---|---|---|
| Control | | | | | | | | |
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| Organisms loaded by: _____ | | Checked by: | | | | | | |

**Verified by:** _____

**Concentrations at 48 hrs by:** _______

**BR = before renewal** **AR = after renewal** **hr = hour** **M = missing**

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Acute Bioassay Parameter Sheet



Method: EPA-821-R-02-012

**Test 1 of 2**

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) **circle one** | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 0 Hours | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 24 Hours | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 48 Hours Before Renewal | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Acute Bioassay Parameter Sheet

Method: EPA-821-R-02-012



| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) **Circle one** | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 48 Hours After Renewal | Control | | | | | | |
| | | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 72 Hours | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 96 Hours | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Test Instrument Page
Method: EPA-821-R-02-012



**Test ID:** **Dates:**

| METER / DEVICE | Instrument Code |
|---|---|
| DO Meter | |
| pH Meter | |
| Conductivity Meter | |
| Ammonia Kit | |
| Traceable Thermometer | |
| Chlorine Kit | |
| Alkalinity Kit | |
| Hardness Kit | |
| | |
| | |

**Entered by and date:**

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Acute Bioassay Information Sheet

Method: EPA-821-R-02-012

**Test 1 of 2**

**LIMS Sample #:** _____

**Start Date:** _____ **Time:** _____

**End Date:** _____ **Time:** _____

| Concentrations Prepared by:_____ | Diluent | Batch #/LIMS # | Days Used |
|---|---|---|---|
| | | | |
| Test Loaded by:_____ | | | |
| Loading Verified by:_____ | | | |

**Chamber Size** _____**mL**
**Test Volume** _____**mL**

| Test Species | |
|---|---|
| ☐ | *Ceriodaphnia dubia* (SOP: TA-07.01) |
| ☐ | *Cyprinella leedsi* (SOP: TA-07.02) |
| ☐ | *Pimephales promelas* (SOP TA-07.02) |
| ☐ | *Menidia beryllina* (SOP TA-07.04) |
| ☐ | *Americamysis bahia* (SOP TA-07.03) |

**Batch #:**_____ **Age:** _____

**Randomizer #** _____

| Feeding Times | |
|---|---|
| **AM** | **PM** |
| 0 hr * _____ | 0 hr _____ |
| 24 hr_____ | 24 hr_____ |
| 48 hr * _____ | 48 hr _____ |
| 72 hr _____ | 72 hr _____ |

*0 hr AM is prior to test and 48 hr AM is prior to renewal

**Temperature Range** (°C)

**Incubator #**_____
**Min.**_____ **Max.**_____

**Test**
**Min.**_____ **Max.**_____

**Room B246**
**Min.**_____ **Max.**_____

## Test Results

| Method: EPA | | 95% Confidence Intervals | | % mortality in 100% |
|---|---|---|---|---|
| Statistics: | LC50 | Lower | Upper | |
| 48 hour: | | | | |
| 96 hour: | | | | |

## Test Validation

| | | |
|---|---|---|
| Control Survival ≥ 90%: | Yes | No |
| Temperature Range ≤ 3° C: | Yes | No |

**Stats Calculated by/Date:**_____ **Stats Verified by/Date:**_____

**Comments:**

# FDEP Biology Laboratory -Toxicity Section
## Acute Bioassay Survival Sheet
Method: EPA-821-R-02-012



**LIMS Sample #:** ____________________

| Concentration (%) | Replicate | Chamber # | Test Hour: 0 hr | 24 hr | 48 hr BR | 48 hr AR | 72 hr | 96 hr |
|---|---|---|---|---|---|---|---|---|
| Control | | | | | | | | |
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| **Organisms loaded by: ____** | | **Checked by:** | | | | | | |

**Verified by: _____**

**Concentrations at 48 hrs by: _______**

**BR = before renewal** **AR = after renewal** **hr = hour** **M = missing**

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Acute Bioassay Parameter Sheet



Method: EPA-821-R-02-012

**Test 2 of 2**

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) **Circle one** | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 0 Hours | Control | | | | | | |
| | | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 24 Hours | Control | | | | | | |
| | | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 48 Hours Before Renewal | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Acute Bioassay Parameter Sheet

Method: EPA-821-R-02-012



| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) **Circle one** | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 48 Hours After Renewal | Control | | | | | | |
| | | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 72 Hours | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

| | **Concentration (%)** | **Test Replicate** | **pH** (SU) | **Temperature** (°C) | **DO** (mg/L) | **Conductivity** (umhos/mmhos) | **Salinity** (ppt) |
|---|---|---|---|---|---|---|---|
| 96 Hours | Control | | | | | | |
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| | **Measured by:** | | | | | | |
| | **Recorded by:** | | | | | | |

**Comments:**

# FDEP Biology Laboratory - Toxicity Section
## Test Instrument Page
Method: EPA-821-R-02-012



**Test ID:** **Dates:**

| METER / DEVICE | Instrument Code |
|---|---|
| DO Meter | |
| pH Meter | |
| Conductivity Meter | |
| Ammonia Kit | |
| Traceable Thermometer | |
| Chlorine Kit | |
| Alkalinity Kit | |
| Hardness Kit | |
| | |
| | |

**Entered by and date:**

**Comments:**