

# Fraquil Media Version 3

Dr. Steven Wilhelm

## Abstract

Please contact Dr. Steven Wilhelm (wilhelm@utk.edu) for additional information regarding this protocol.

Adapted from the original publication Morel, F. M. M., J. C. Westall, J. G. Reuter & J. P. Chaplick, 1975. Description of the algal growth media 'Aquil' and 'Fraquil'. Water Quality Laboratory, Ralph Parsons Laboratory for Water Resources and Hydrodynamics, Massachusetts Institute of Technology, Technical Report 16, 33 pp.

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## Protocol

### Individual Salt Stock Solutions

#### Step 1.

Add 18.4 g  $\text{CaCl}_2 \cdot \text{H}_2\text{O}$  to 500 mL Milli-Q  $\text{H}_2\text{O}$  in a clean polyethylene bottle



#### REAGENTS

✓ Calcium Chloride by Contributed by users

#### Step 2.

Add 18.5 g  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$  to 500 mL Milli-Q  $\text{H}_2\text{O}$  in a clean polyethylene bottle



#### REAGENTS

✓ Magnesium sulfate heptahydrate by Contributed by users

#### Step 3.

Add 6.3 g  $\text{NaHCO}_3$  to 500 mL Milli-Q  $\text{H}_2\text{O}$  in a clean polyethylene bottle



#### REAGENTS

✓ Sodium bicarbonate [View](#) by [P212121](#)

#### Step 4.

Add 0.87 g  $\text{K}_2\text{HPO}_4$  to 500 mL Milli-Q  $\text{H}_2\text{O}$  in a clean polyethylene bottle



## REAGENTS



Potassium phosphate (dibasic) [View](#) by [P212121](#)

### Step 5.

Add 4.25 g  $\text{NaNO}_3$  to 500 mL Milli-Q  $\text{H}_2\text{O}$  in a clean polyethylene bottle



## REAGENTS



Sodium nitrate [View](#) by [P212121](#)

Trace Metals Mix (1  $\mu\text{M}$  Fe final stock)

### Step 6.

Add 443 mL Milli-Q  $\text{H}_2\text{O}$  to a clean polyethylene container

### Step 7.

Add 500  $\mu\text{L}$   $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$



## REAGENTS



Copper Sulfate [View](#) by [P212121](#)

### Step 8.

Add 500  $\mu\text{L}$   $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24} \cdot 4\text{H}_2\text{O}$



## REAGENTS

Ammonium molybdate (VI) tetrahydrate 12054-85-2 by [Fisher Scientific](#)

### Step 9.

Add 500  $\mu\text{L}$   $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$



## REAGENTS

Cobalt (II) chloride hexahydrate 7791-13-1 by [Fisher Scientific](#)

### Step 10.

Add 500  $\mu\text{L}$   $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$



## REAGENTS

Manganese chloride 7773-01-5 by [Fisher Scientific](#)

### Step 11.

Add 500  $\mu\text{L}$   $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$



## REAGENTS



Zinc sulfate by Contributed by users

### Step 12.

Add 5 mL Na<sub>2</sub>EDTA (0.5 M)



#### REAGENTS

✓ EDTA Disodium Salt [PubChem CID: 8759](#) by Contributed by users

#### Step 13.

Add 50 mL FeCl<sub>3</sub>\*7H<sub>2</sub>O



#### REAGENTS

Iron(III) chloride hexahydrate [44944](#) by [Sigma Aldrich](#)

#### F/2 Vitamin Solution

#### Step 14.

Add 1 L Milli-Q H<sub>2</sub>O to a clean bottle

#### Step 15.

Add 1 mL vitamin B<sub>12</sub> (1.0 g/L dH<sub>2</sub>O)

#### Step 16.

Add 10 mL Biotin (0.1 g/L dH<sub>2</sub>O)



#### REAGENTS

Ⓟ Biotin [View](#) by [P212121](#)

#### Step 17.

Add 200 mg Thiamine HCl



#### REAGENTS

Ⓟ Thiamine HCl [View](#) by [P212121](#)

#### Media additions

#### Step 18.

Add 993 mL Milli-Q H<sub>2</sub>O to a clean polycarbonate bottle

#### Step 19.

Add 1 mL CaCl<sub>2</sub>

#### Step 20.

Add 1 mL MgSO<sub>4</sub>

#### Step 21.

Add 1 mL  $\text{NaHCO}_3$

**Step 22.**

Add 1 mL  $\text{K}_2\text{HPO}_4$

**Step 23.**

Add 1 mL  $\text{NaNO}_3$

**Step 24.**

Add 1 mL Trace metal mix

**Step 25.**

Add 1 mL f/2 vitamin mix

**Step 26.**

Filter sterilize and dispense into acid-washed/microwave tyndalized polycarbonate tubes.