

# Primary trace metal stocks

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## Abstract

Preparation of trace metal stock solutions for cyanobacteria trace metal mixture (CTMM)

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## Guidelines

Prepare stock trace metal solutions using the amounts below for 100 mL or (50 mL) volumes:

2.30g (1.15g)  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$   
1.19g (0.595g)  $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$   
17.81g (8.905g)  $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$   
0.726g (0.636g)  $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$   
1.73g (0.865g)  $\text{Na}_2\text{SeO}_3$   
2.38g (1.19g)  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$

## Before start

Before culturing cyanobacteria, read the publication by L.R. Moore et. al. (2007) Limnol. Oceanogr. 5: 353-362.

Purchase the highest quality chemicals to avoid trace metal contamination.

Acid-wash all re-uesable containers.

## Protocol

### Step 1.

Using dust-free weigh paper, weigh out:

2.30g $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$
1.19g $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$
17.81g $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$
0.726g $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$
1.73g $\text{Na}_2\text{SeO}_3$
2.38g $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$

## 📌 NOTES

**Bonnie Poulos** 30 Nov 2015

Before culturing cyanobacteria, read the publication by LR Moore et al. (2007) Limnol. Ocenogr. 5:353-362.

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All reagents used for culturing cyanobacteria should be the highest quality to avoid contamination by trace metals. Do not use metal spatulas for dispensing the chemicals (use plastic, teflon, or dust-free weighing paper to dispense). Store reagents in acid-washed teflon or polycarbonate containers.

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Use the highest quality chemicals that are dedicated for cyanobacteria work.

Do not use metal spatulas to transfer chemicals; use plastic or teflon spatulas or dust-free weigh paper to weigh out chemicals.

All re-useable glassware or plastic should be acid-washed and then autoclaved.

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Do not use metal spatulas; use plastic or teflon spatulas or dust-free weigh paper to weigh out chemicals and purchase the highest quality chemicals

## **Step 2.**

Transfer each trace metal into separate 100mL volumetric flasks containing about 60 mL Milli-Q water

## **🔗 NOTES**

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Do not use metal spatulas; use plastic or teflon spatulas or dust-free weigh paper to weigh out chemicals and purchase the highest quality chemicals

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Alternatively, if prepaing 50 mL volumes, use half the amount of chemical listed and adjust volume to 50 mL mark with Milli-Q water

## **Step 3.**

Dissolve contents by placing stopper in top and inverting flask several times

## **Step 4.**

Adjust volume to 100 mL mark with Milli-Q water

## **Step 5.**

Store each stock in acid-washed Teflon or polycarbonate (i.e., Nalgene) bottles at 4°C