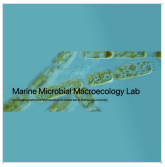

Aug 10, 2020

Preparation of oxalate reagent

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1 *Works for me* This protocol is published without a DOI.

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ABSTRACT

This protocol describes how to prepare oxalate reagent, which is used to remove surface adsorbed phosphorus, so that the intracellular phosphorus quotas in microalgae can be quantified.

AntonioTovar-Sanchez, Sergio A Sañudo-Wilhelmy, Manuel Garcia-Vargas, Richard S Weaver, Linda C Popels, David A Hutchins. A trace metal clean reagent to remove surface-bound iron from marine phytoplankton. Marine Chemistry. https://doi.org/10.1016/S0304-4203(03)00054-9

PROTOCOL CITATION

Zoe V Finkel 2020. Preparation of oxalate reagent. **protocols.io** https://protocols.io/view/preparation-of-oxalate-reagent-bhkvj4w6

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PROTOCOL INTEGER ID

38261

PARENT PROTOCOLS

In steps of
Particulate phosphorus in microalgae

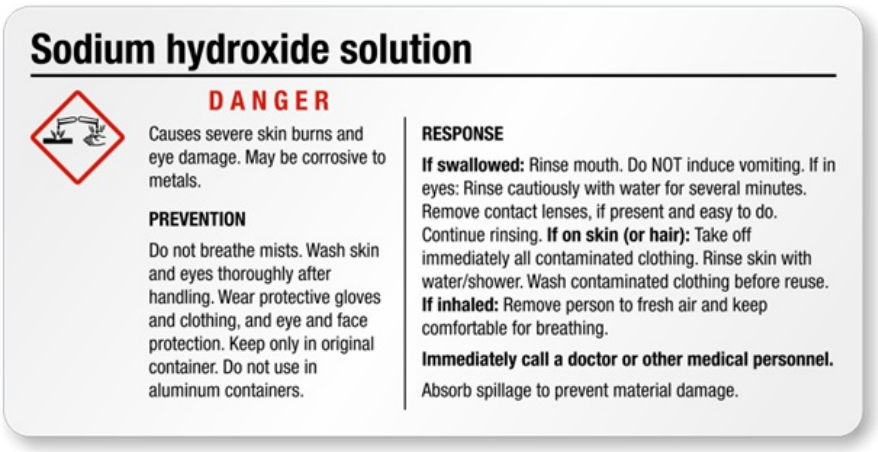
MATERIALS

NAME	CATALOG #	VENDOR
Potassium chloride	P3911-500G	Sigma Aldrich
EDTA disodium dihydrate	324503100	Fisher Scientific
Sodium citrate		
Sodium chloride	S671-3	Fisher Scientific
Sodium hydroxide	BP359-500	Fisher Scientific
Oxalic acid dihydrate	BDH4556-500G	VWR international Ltd

EQUIPMENT

NAME	CATALOG #	VENDOR
Sterile Disposable Filter Units with PES Membrane	5964520	Fisher Scientific

SAFETY WARNINGS



BEFORE STARTING

Glassware and instrument required in the protocol:

Stirrer with heater
1 L volumetric flask (Polypropylene)
100 mL volumetric flask
MilliQ water in squeeze bottle
1000 mL beaker X 1
250 mL beaker X 1
Thermo Scientific™ Nalgene™ Rapid-Flow™ Sterile Disposable Bottle Top Filters with PES Membrane
1 L PP bottle X1
250 mL PP bottle X1
Transfer pipet
Glass rod
Balance/weighting boat/spatulas

10 M NaOH solution

1 Add **50 mL** MilliQ water in a 250 mL beaker.

2 Weigh **40 g** NaOH and slowly pour into the beaker.

3 Use squeeze bottle to rinse the weighing boat and transfer rinse water into the same beaker.

Use glass rod to gently stir and fully dissolve NaOH.

4 The solution is very hot and corrosive. It can cause skin burn and eye damage.

5 Carefully transfer NaOH solution into 100 mL volumetric flask by using glass rod.

6 Rinse beaker with small amount of MilliQ water three times, transfer rinse water into the flask.

7 Mix the solution by gently shaking the capped volumetric flask and top to 100 mL with MilliQ water.

8 Transfer the prepared reagent into a 250 mL PP bottle.

9 Label the bottle with SDS pictogram.

Oxalate reagent

10 In a 1000 mL beaker with stir bar, add **600 mL** MilliQ water.

11 Add **18.6 g** EDTA, **14.7 g** sodium citrate, **0.74 g** KCl and **5 g** NaCl into the beaker, stir until all ingredients are dissolved. pH **5.7**

12 [M] **10 Molarity (M)** NaOH is added dropwise to bring pH to 6~7 by using a transfer pipet

13 Add **12.6 g** oxalic acid to the solution, stir the mixture while heating.

14 After oxalic acid is completely dissolved, stop heating and let it cool to room temperature (tap water bath can speed up cooling) pH **3.3**

15 Add [M] **10 Molarity (M)** NaOH dropwise to bring pH to pH **8**

16 Top to 1 L in volumetric flask with MilliQ water.

17 Filter oxalate reagent by rapid flow to a 1 L PP bottle.

Sterile Disposable Filter Units with PES Membrane

Thermo Scientific™ Nalgene™ Rapid-Flow™ 5964520

18 Label the bottle and keep it at **Room temperature** .