



Ti (III) Reagent

Steven Wilhelm¹

¹The University of Tennessee, Knoxville

[dx.doi.org/10.17504/protocols.io.iiscce](https://doi.org/10.17504/protocols.io.iiscce)

The Aquatic Microbial Ecology Research Group - AMERG (The Buchan, Zinser and Wilhelm labs)



Ashley Humphrey

University of Tennessee, Knoxv...



ABSTRACT

Used for washing off extracellular iron.

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

THIS PROTOCOL ACCOMPANIES THE FOLLOWING PUBLICATION

Modified Protocol from Limnology and Oceanography, 34(6), 1989, 1113-1120. Hudson & Morel.

PROTOCOL STATUS

Working

We use this protocol in our group and it is working

GUIDELINES

To prepare reagent, combine chelator solution and salts in a glass-stoppered bottle.

SAFETY WARNINGS

See SDS (Safety Data Sheet) for safety warnings and hazards.

BEFORE STARTING

Avoid stirring the solution for too long. Ti reacts with air very rapidly and will lose its reactivity.

When finished, fill airspace with N₂ before parafilming for storage.

Chelator Solution

- 1 Per 250 mL, add 4.65 g of Na₂EDTA into distilled or Milli-Q water.

 4.65 g Na₂EDTA

- 2 Add 3.68 g of Na₃ Citrate.

 3.68 g Na₃ Citrate

Salts

- 3 Add 2.5 mL of 0.1 M KCl.

 2.5 ml of 0.1 M KCl

- 4 Add 3.0 g of NaCl (s).

 **3 g NaCl**

- 5 Add 7.77 mL of 20% TiCl_3 while stirring after salts and chelator solution are combined in glass-stoppered bottle.

 **7.77 ml 20% TiCl_3**

Adjust pH

- 6 Using 10 M NaOH, adjust pH to 8. Add NaOH dropwise while stirring to attain desired pH, let equilibrate 30-60 minutes and re-check pH.

 **00:30:00 equilibration**

Preparing the Ti(III) Reagent

- 7 To prepare reagent, combine chelator solution and salts in a glass-stoppered bottle. This will be the step where the 20% TiCl_3 is added in while stirring.

EXPECTED RESULT

The final result should be a clear purple solution.



This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited