

HOAGLAND'S E+ (modified by J. Acreman, CPCC)

Reference: Cowgill, U.M. and Milazzo, D.P. 1989. Aquatic Toxicology and Hazard Assessment. 12th volume. ASTM STP 1027. pp. 379-391.

STOCK	STOCK SOLUTION	MEDIUM
1. MgSO ₄ •7H ₂ O	24.6 g/100 mL	2 mL/L
2. Ca(NO ₃) ₂ •4H ₂ O	23.6 g/100 mL	5 mL/L
3. KH ₂ PO ₄	13.6 g/100 mL	5 mL/L
4. KNO ₃	10.1 g/100 mL	10 mL/L
5. Fe-Na ₂ EDTA•2H ₂ O*	See below	20 mL/L
6. H ₃ BO ₃	2.86 g/L	1 mL/L
ZnSO ₄ •7H ₂ O	0.22 g/L	
Na ₂ MoO ₄ •2H ₂ O	0.12 g/L	
CuSO ₄ •5H ₂ O	0.08 g/L	
MnCl ₂ •4H ₂ O	3.62 g/L	
7. Sucrose		10.00 g/L
8. Yeast extract		0.10 g/L
9. Bacto-tryptone OR Bacto-peptone		0.60 g/L

For one litre of medium start with about 900 ml of distilled water and add each stock solution in the order above. The medium is then stirred until all the contents are dissolved. Adjust the pH to 4.60 with NaOH or HCl and bring volume up to 1 L with distilled water and autoclave. Stock solutions should be stored in the dark (i.e., dark amber or aluminum-covered bottles) due to potential photosensitivity. Stock solutions may be stored in the refrigerator for up to 6 months, provided that they are isolated from solvents or other potential contaminants. Monitor the Fe-Na₂EDTA solution for precipitate.

* Fe-Na₂EDTA solution:

To 1000 ml of distilled water add 1.5 g of Na₂EDTA•2H₂O and dissolve completely. Then add 0.48 g of FeCl₃•6H₂O and dissolve. This solution may be added directly together with the above stock solutions and autoclaved together with the medium. Alternatively, if medium forms precipitate then autoclave this solution separately and add aseptically after autoclaving both solutions.