f/2 + Si (Guillard's medium for diatoms)

Stocks

		per 200 ml
(1)	$NaNO_3$	15 g
(2)	$NaH_2PO_4.2H_2O$	1.13 g

(3) Trace elements (x10 concentration):	**per 200 ml**
Na_2EDTA	8.32 g
$FeCl_3.6H_2O$	6.30 g
$CuSO_4.5H_2O$	0.02 g
$ZnSO_4.7H_2O$	0.044 g
$CoCl_2.6H_2O$	0.02 g
$MnCl_2.4H_2O$	0.36 g
$Na_2MoO_4.2H_2O$	0.012 g

(4) Vitamin mix:

	per litre
Cyanocobalamin (Vitamin B_{12})	0.0005 g
Biotin	0.0005 g
Thiamine HCl (Vitamin B_1)	0.1g

For ease of measuring, first prepare primary stock solutions and divide into 1ml aliquots to be frozen for later use.

Component	Primary Stock solution	Quantity	Molar Concentration in final medium
Thiamine HCl (B_1)	-	100mg	2.96×10^{-7}
Biotin	0.1g L^{-1} dH_2O	5ml	2.05×10^{-9}
Cyanocobalamin (B_{12})	0.1g L^{-1} dH_2O	5ml	3.69×10^{-10}

(5) Sodium metasilicate **per 200 ml**
$Na_2SiO_3.9H_2O$ 6 g
(Silicate can react with glass, ensure this stock solution is stored in plastic bottles).

Medium

	per litre
Stock solution 1	1.0 ml
Stock solution 2	1.0 ml
Stock solution 3 (Trace elements)	0.1 ml
Stock solution 4 (Vitamin mix)	1.0 ml
Stock solution 5	1.0 ml

Make up to 1 litre with filtered natural seawater. Adjust pH to **8.0** with 1M NaOH or 1M HCl prior to autoclaving. For agar, add 15 g per litre Bacteriological Agar. Autoclave at 15 psi for 15 minutes.

f/2 + Si Modified

This medium uses additional sodium metasilicate. The higher concentration of metasilicate has been observed to help some *Coscinodiscus* cultures to grow better and slow down size reduction.

To make this medium, omit stock 5 and instead add 0.1705 g of sodium metasilicate ($Na_2SiO_3.9H_2O$) per litre of medium.

Reference

Guillard RRL & Ryther JH (1962) Studies of marine planktonic diatoms. I. *Cyclotella nana* Hustedt and *Detonula confervaceae* (Cleve) Gran. Can. J. Microbiol. 8: 229-239. – adapted for CCAP

Reviewed 17th January 2025