

Product Information Sheet

F3222

f/2 Guillard's Marine Enriched Seawater

Synonym: f/2

Properties:

Form: Fine to Coarse Powder
 Appearance: Cream to Orange
 Application: Marine diatom culture
 Solubility: Partially Soluble in Seawater (Sodium metasilicate is partially insoluble in aqueous solution)
 Typical Working Concentration: 0.10 g/L
 Storage Temp: 2-6°C
 Storage Temp of Stock Solution: 2-6°C
 Biological Assay: Biologically tested with *Nannochloropsis oculata*

Formula (mg/L):

Sodium Nitrate	75.0	Sodium Phosphate, Monobasic	5.00
Cobalt Chloride•6H ₂ O	0.01	Sodium Metasilicate, Anhydrous	12.94
Cupric Sulfate•5H ₂ O	0.01	Zinc Sulfate•7H ₂ O	0.022
EDTA, disodium salt	4.36	Biotin	5.0 x 10 ⁻⁴
Ferric Chloride, Anhydrous	1.90	Vitamin B12	5.0 x 10 ⁻⁴
Manganese Chloride•4H ₂ O	0.18	Thiamine HCl	0.10
Molybdic Acid, disodium salt	0.006		

Application Notes:

f/2 Guillard's Marine Enriched Seawater is a powder formulation of the vitamins, macro- and trace-element solutions to be dissolved in seawater (S7650). This formulation utilizes EDTA and Ferric Chloride in molar equivalents (NCMA, Guillard and Ryther, 1962). The medium also contains silicon in the form of metasilicate, which has been well documented as a basic nutrient for diatoms and their external frustule (Lund, 1950; Paasche, 1973).

To make 1L of medium: Dissolve 0.10 g in 0.99L of seawater (S7650) and adjust the pH to the desired range using HCl or KOH. The original formulation, according to Guillard, used a pH of 7.2 +/- 0.1 (Guillard, 1962). Bring the final volume to 1.0L with seawater and autoclave the medium.

Upon usage, it is recommended to agitate the solution to disperse the sodium metasilicate within the medium.

References:

- Guillard, R.R.L, and J.H. Ryther (1962) "Studies of Marine Planktonic Diatoms: I. *Cyclotella nana* Hustedt, and *Detonula confervacea* (Cleve) Gran." *Canadian Journal of Microbiology* 8, 229-239.
- Lund, J.W.G. (1950) "Studies on Asterionella. 2. Nutrient depletion and the spring maximum." *Journal of Ecology* 38, 1-35.
- NCMA. Provasoli-Guillard, National Center for Marine Algae and Microbiota. Available: <https://ncma.bigelow.org/node/79>

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Paasche, E. (1973) "Silicon and the ecology of marine plankton diatoms. I. *Thalassiosira pseudonana* (*Cyclotella nana*) grown in a chemostat with silicate as limiting nutrient." *Marine Biology* 19 (2) pg 117-126.

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