

Model Photopolymerizable Antifouling Coating Formulations

Containing Acrylated Glyphosate as a Biocide

Viktoriya A. Piunova, Daniel Berger[‡], Douglas C. Neckers*

*Center for Photochemical Sciences[#], Bowling Green State University, Bowling Green,
OH 43403*

George S. Bullerjahn, Robert M. McKay

*Department of Biological Sciences, Bowling Green State University, Bowling Green, OH
43403*

Andrei V. Fedorov*

*Wright Photoscience Laboratory, Bowling Green State University, Bowling Green, OH,
43403*

Supporting Information

F/2 Medium Composition

For 1 L of medium:

1 mL	NaNO ₃	75 g/L dH ₂ O
1 mL	NaH ₂ PO ₄ · H ₂ O	5 g/L dH ₂ O
1 mL *	Na ₂ SiO ₃ · 9H ₂ O*	30 g/L dH ₂ O*
1 mL	f/2 trace metal solution	(see recipe below)
0.5 mL	f/2 vitamin solution	(see recipe below)

Add 950 ml filtered sea water

f/2 Trace Metal Solution To 950 mL dH₂O add:

Quantity	Compound	Stock Solution
3.15 g	FeCl ₃ · 6H ₂ O	-
4.36 g	Na ₂ EDTA · 2H ₂ O	-
1 mL	CuSO ₄ · 5H ₂ O	9.8 g/L dH ₂ O
1 mL	Na ₂ MoO ₄ · 2H ₂ O	6.3 g/L dH ₂ O
1 mL	ZnSO ₄ · 7H ₂ O	22.0 g/L dH ₂ O
1 mL	CoCl ₂ · 6H ₂ O	10.0 g/L dH ₂ O
1 mL	MnCl ₂ · 4H ₂ O	180.0 g/L dH ₂ O

f/2 Vitamin Solution To 950 mL dH₂O add:

Quantity	Compound	Stock Solution	Molar Concentration in Final Medium
1 mL	Vitamin B ₁₂ (cyanocobalamin)	1.0 g/L dH ₂ O	1 x 10 ⁻¹⁰ M
10 mL	Biotin	0.1 g/L dH ₂ O	2 x 10 ⁻⁹ M
200 mg	Thiamine · HCl	-	3 x 10 ⁻⁷ M

Compositions of Solutions for Copolymerization Experiments.

The water solubility of N-acryloylglycosate (AA) was found to be between 0.5 and 0.6 g in one mL of water; however, AA can be swelled by water as well as by water-soluble acrylate monomers such as hydroxyethyl acrylate (HEA) and dimethylaminoethyl acrylate (DMA). A water/AA mixture was prepared that was only 42% water by weight, though the AA was not fully dissolved. Water was also needed for dissolution of AA with HEA and DMA, as detailed in Table 1:

Table S1. Concentrations of AA achieved in mixtures with water, HEA.

Mass of AA, g	Mass of HEA, g	Mass of Water, g	Composition by Mass
1.027		0.75	58% AA, 42% water
0.803	0.428	1.00	40% AA, 22% HEA, 38% water