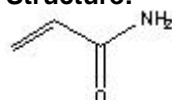


TECHNICAL INFORMATION

Catalog Number: 150256, 193982, 814320, 814323, 814326, 814329, 814340, 814343, 814346, 814349, 821830, 821833
Acrylamide

NOTE: ACRYLAMIDE IS AN EXTREMELY HAZARDOUS SUBSTANCE IN EITHER THE POWDER FORM OR LIQUID FORM. ONCE POLYMERIZED, THE POLYACRYLAMIDE IS CONSIDERED SAFE TO HANDLE UNDER NORMAL LABORATORY CONDITIONS.

Structure:



Molecular Formula: C₃H₅NO

Molecular Weight: 71.1

CAS # : 79-06-1

Synonym: 2-Propenamamide

Physical Description: White crystalline powder

Stability: Acrylamide should be kept protected from light. It has indefinite stability at room temperature if kept in the dark and cool. It will readily polymerize at its melting point (84.5°C), in solution or under ultraviolet light.¹

Solubility: Soluble in water (to at least 40% w/v, but has been reported to be soluble in water up to 215 g/100 ml at 30°C.1), methanol (155 g/100 ml), ethanol (86 g/100 ml), alcohol, acetone (63.1 g/100 ml); only minimally soluble in benzene or heptane. ¹ Solutions should be kept at +4°C in the dark and can be kept for up to one year.

Description: Acrylamide is a monomer used in a variety of synthetic processes to form polymers and copolymers. It polymerizes in the presence of free radicals in aqueous solutions. It is usually used to prepare polyacrylamide gels for electrophoresis separation of biomolecules. Common reaction initiators are riboflavin and ammonium persulfate; varying the ratio of acrylamide to crosslinking agent permits the formation of a gel with predictable average pore size and texture. Acrylamide tends to hydrolyze under acidic or basic conditions to form acrylic acid.

Acrylic acid and any ionic impurities in the acrylamide can have significant effects on the performance of the acrylamide gel formed, since the voltage across the gel is affected by the ionic charge of the gel and usage buffers.

Typical procedures for preparing polyacrylamide gels can be found in references 2 through 7.

Typical Stock Solution Preparation:⁷

For a 30% stock solution dissolve 29 grams acrylamide and 1 g of N,N'-methylene-bis- acrylamide in a total volume of 60 ml distilled deionized water. Heat the solution slightly (approximately 37°C) and stir until the acrylamide and bisacrylamide are dissolved. Bring the volume to 100 ml with distilled, deionized water and stir. Sterilize the solution by filtration through a Nalgene filter (0.45 micron pore size). Check the pH of the solution and make sure it is at 7.0 or less.

For a 40% stock solution dissolve 380 grams acrylamide and 20 g of N,N'-methylene-bis- acrylamide in a total volume of 600 ml distilled deionized water. Heat the solution slightly (approximately 37°C) and stir until the acrylamide and bisacrylamide are dissolved. Bring the volume to 1000 ml with distilled, deionized water and stir. Sterilize the solution by filtration through a Nalgene filter (0.45 micron pore size). Check the pH of the solution and make sure it is at 7.0 or less.

Typical Recipe for Polyacrylamide Gels (PAGE gels):³

Stock Solution	For a final acrylamide concentration in the separating gel (%) use volume in ml									
	5%	6%	7%	7.5%	8%	9%	10%	12%	13%	15%
30% acrylamide/ bisacrylamide solution (as above)	2.50	3.00	3.50	3.75	4.00	4.50	5.00	6.00	6.50	7.50
4X Tris-HCl/SDS solution, pH 8.8	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
Distilled, deionized water	8.75	8.25	7.75	7.50	7.25	6.75	6.25	5.25	4.75	3.75
10% (w/v) ammonium persulfate solution	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TEMED	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Add the acrylamide, Tris and water together and stir until completely mixed. Degas the solution under a vacuum for

approximately 10 to 15 minutes (solution must be thoroughly degassed otherwise polymerization may not occur). Add the ammonium persulfate solution and TEMED and mix. Use immediately.

Availability:

Catalog Number	Description	Size
150256	Acrylamide	100 g 500 g 1 kg
814320 814323 814326 814329 821830 821833	Acrylamide, Ultra Pure, 3X crystalline, Acrylic acid content < 0.001%	100 g 250 g 500 g 1 kg 2.5 kg 5 kg
193982	Acrylamide, Molecular Biology Reagent, purity > 99%, Acrylic acid content < 0.001%	25 g 100 g 500 g 1 kg
814340 814343 814346 814349	Acrylamide, Electrophoresis Grade, purity > 99%, Acrylic acid content < 0.01%	100 g 250 g 500 g 1 kg

Also Available:

Powders

Catalog Number	Description	Size
800657 800656	Acrylamide/Bis Premix, powder, premix ratio 19:1. For the 30 g size, addition of 73.5 ml of deionized water will prepare 100 ml of stock solution. For the 200 g size, addition of 490 ml deionized water will prepare approximately 665 ml of stock solution.	30 g 200 g
800657 800658	Acrylamide/Bis Premix, powder, Premix ratio 29:1	30 g 200 g
800659 800660	Acrylamide/Bis Premix, powder, Premix ratio: 37.5:1	30 g 200 g
800650	Acrylgel Page Starter Kit: contains: Acrylamide, ultra pure (100 g) N,N-Methylenebis acrylamide (10 g) Ammonium persulfate (5 g) TEMED (5 g)	1 kit

Liquid

Catalog Number	Description	Powder
800801	Liquabis, a 2% (w/v) solution of Ultra pure bis-acrylamide in deionized water	500 ml
800800	Liquacryl, a 40% (w/v) solution of ultra pure acrylamide in deionized water	500 ml
800802	Liqui-Gel 19:1, A 40% (w/v) solution of ultra pure acrylamide (38%) and bis-acrylamide (2%) in deionized water at a final ratio of 19:1	500 ml
800803	Liqui-Gel 29:1, A 40% (w/v) solution of ultra pure acrylamide (38.67%) and bis-acrylamide (1.33%) in deionized water at a final ratio of 29:1	500 ml
800804	Liqui-Gel 37.5:1, A 40% (w/v) solution of ultra pure acrylamide (38.96%) and bis-acrylamide (1.04%) in deionized water at a final ratio of 37.5:1	500 ml
802522 802523	Liqui-Gene 4%, a premixed liquid acrylamide denaturing gel mix containing bisacrylamide, 1X TBE as a buffer, and 7 M urea for use in PAGE gels.	5 × 100 ml 4 × 500 ml
802524 802525	Liqui-Gene 6%, a premixed liquid acrylamide denaturing gel mix containing bisacrylamide, 1X TBE as a buffer, and 7 M urea for use in PAGE gels.	5 × 100 ml 4 × 500 ml
802526 802527	Liqui-Gene 8%, a premixed liquid acrylamide denaturing gel mix containing bisacrylamide, 1X TBE as a buffer, and 7 M urea for use in PAGE gels.	5 × 100 ml 4 × 500 ml
802528 802529	Liquid-Pro 6%, a premixed liquid denaturing acrylamide gel mix for the discontinuous polyacrylamide gel electrophoresis of proteins containing 0.375 M Tris (pH 8.8), 0.1% SDS as a denaturing agent, and ultra pure acrylamide in filtered, distilled, deionized water. Additionally, each resolving mix is supplied with 4% acrylamide stacking gel made with 0.125 M Tris (pH 6.8).	5 × 100 ml 4 × 500 ml
802530 802531	Liquid-Pro 8%, a premixed liquid denaturing acrylamide gel mix for the discontinuous polyacrylamide gel electrophoresis of proteins containing 0.375 M Tris (pH 8.8), 0.1% SDS as a denaturing agent, and ultra pure acrylamide in filtered, distilled, deionized water. Additionally, each resolving mix is supplied with 4% acrylamide stacking gel made with 0.125 M Tris (pH 6.8).	5 × 100 ml 4 × 500 ml

802532 802533	Liquid-Pro 10%, a premixed liquid denaturing acrylamide gel mix for the discontinuous polyacrylamide gel electrophoresis of proteins containing 0.375 M Tris (pH 8.8), 0.1% SDS as a denaturing agent, and ultra pure acrylamide in filtered, distilled, deionized water. Additionally, each resolving mix is supplied with 4% acrylamide stacking gel made with 0.125 M Tris (pH 6.8).	5 × 100 ml 4 × 500 ml
802534 802535	Liquid-Pro 12%, a premixed liquid denaturing acrylamide gel mix for the discontinuous polyacrylamide gel electrophoresis of proteins containing 0.375 M Tris (pH 8.8), 0.1% SDS as a denaturing agent, and ultra pure acrylamide in filtered, distilled, deionized water. Additionally, each resolving mix is supplied with 4% acrylamide stacking gel made with 0.125 M Tris (pH 6.8).	5 × 100 ml 4 × 500 ml
821675 821676	Liqui-Pro 4% Stacking Gel, an acrylamide stacking gel (4%) for use with Liqui-Pro acrylamide mixes or with "hand-made" laboratory gels. It is made with 0.125 M Tris, pH 6.8	100 ml 500 ml

Additional Reagents:

Catalog Number	Description	Size
193997	N,N'-Methylene-bis-Acrylamide (bis-Acrylamide), Molecular Biology Reagent, purity 98+%	10 g 25 g 100 g 250 g
800172 800171 800706 800173 800175 800178	N,N'-Methylene-bis Acrylamide, ultra pure, purity approximately 99.9%	5 g 10 g 25 g 50 g 250 g 1 kg
190556	Ammonium Persulfate	100 g 250 g 500 g 1 kg
193858	Ammonium Persulfate, ACS Grade	100 g 500 g
193988	Ammonium Persulfate, Molecular Biology Reagent	25 g 100 g 500 g
802811 802829	Ammonium Persulfate, Electrophoresis Grade, purity > 99%	25 g 100 g
194019	N,N,N',N'-Tetramethylethylenediamine (TEMED), Molecular Biology Reagent, purity approximately 99%	25 ml 50 ml 100 ml
805613 805614	N,N,N',N'-Tetramethylethylenediamine (TEMED), Electrophoresis Grade, purity > 99%	5 ml 25 ml
195516	N,N,N',N'-Tetramethylethylenediamine (TEMED), purity approximately 98%	50 ml 100 ml 500 ml
102813	Riboflavin, purity approximately 98%	5 g 25 g 100 g 500 g 1 kg
800029 800033	Riboflavin, purity > 98%	25 g 100 g

Precast Acrylamide Gels also available. Enquire for availability.

References:

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- Ausubel, F.M., et al. (eds.), *Short Protocols in Molecular Biology*, Greene Publishing Associates and Wiley-Interscience: New York, pgs 285-296 (1989).
- Creighton, T.E. (ed.), *Protein Structure: A Practical Approach*, IRL Press, pgs 4-8, 36-38, 523-555, 79-80, 150-151, 233-234 (1990).
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- Sambrook, J., Fritsch, E.F. and Maniatis, T., *Molecular Cloning: A Laboratory Manual*, **2nd Ed.**, Cold Spring Harbor Laboratory Press, pgs. 6.39, 13.47, 13.48, B9 (1989)