StockOptions™

Sodium Citrate Buffer Kit (pH 4.2 - 6.5)

StockOptions™ Sodium Citrate buffer kit is a preformulated, sterile filtered set of titrated buffer stocks. The StockOptions buffer stock reagents are supplied as 1.0 M stock solutions in 10 milliliter volumes. Each StockOptions Sodium Citrate buffer reagent is carefully titrated using Hydrochloric acid. StockOptions Sodium Citrate is comprised of 24 unique reagents covering the pH range of 4.2 - 6.5 in 0.1 pH unit increments.

Suggested Use

StockOptions Sodium Citrate is designed to help researchers improve the speed, accuracy, precision, and quality of the formulation of crystallization screen solutions and crystallization optimization solutions. Researchers can use the individual StockOptions reagents to conveniently formulate custom screen solutions or standard screen solutions from Hampton Research kits such as Crystal Screen™, Crystal Screen 2™, Crystal Screen Cryo™, Crystal Screen Lite™, and MembFac™. StockOptions Sodium Citrate reagents can also be used to create solutions for the refinement and optimization of preliminary crystallization conditions. Finally, StockOptions Sodium Citrate reagents can be used to create accurate, precise, reproducible, high quality solutions for the production of single crystals. Utilizing the reagents in the StockOptions Sodium Citrate buffer kit it is possible to formulate and screen 24 unique pH levels.

During crystallization experiments the Sodium Citrate buffer system is typically utilized at a 0.1 M final concentration during the screening, optimization, and production of biological macromolecular crystals. It is therefore recommended that one dilute the StockOptions Sodium Citrate buffer solution 1:10 to achieve a final concentration of 0.1 M. For example, dilute 1 milliliter of StockOptions Sodium Citrate to a final volume of 10 milliliters to achieve a final concentration of 0.1 M Sodium Citrate.

Please note the final pH of the solution created using StockOptions may vary based upon what other reagents are added to the StockOptions Sodium Citrate buffer.

Example 1

Crystal Screen 2 Reagent 19 (1 ml volume in a plate reservoir)
Solution composition: 2.5 M 1,6-Hexanediol,
                   0.1 M Sodium citrate tribasic dihydrate pH 5.6

Suggested Stock Solutions: 7.0 M 1,6-Hexanediol, (StockOptions Sodium Citrate) 1.0 M Sodium citrate tribasic dihydrate pH 5.6

1. Pipet 543 μl of sterile filtered deionized water into the plate reservoir.
2. Pipet 100 μl of 1.0 M Sodium citrate tribasic dihydrate pH 5.6 into the plate reservoir.
3. Pipet 357 μl of 7.0 M 1,6-Hexanediol
4. Aspirate and dispense the solution ten times or until homogeneous.

Note: Water has been added first to enhance subsequent reagent solubility. Also note that one of the larger volumes has been added last so the pipet is already set at a large volume to enhance mixing during aspiration and dispensing.

Example 2

Make a custom 10 milliliter screen reagent of 30% w/v Polyethylene glycol 8,000, 0.1 M Sodium citrate tribasic dihydrate pH 4.5

Suggested Stock Solutions: 50% w/v PEG 8,000, (StockOptions Sodium Citrate) 1.0 M Sodium citrate tribasic dihydrate pH 4.5

1. Pipet 3 milliliters of deionized, sterile filtered water into the tube.
2. Pipet 1 milliliter of 1.0 M Sodium citrate tribasic dihydrate pH 4.5 into the tube.
3. Pipet 6 milliliters of 50% w/v PEG 8,000 into a sterile screw top tube.

Seal the tube, and mix until the solution is homogeneous.

For Best Results

Use Hampton Research Optimize™ together with StockOptions reagents for best results. StockOptions reagents are stable at room temperature and are best if used within 12 months of receipt.
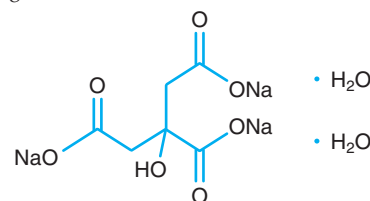
Specifications

Buffer Reagent: Sodium citrate tribasic dihydrate

$C_6H_5Na_3O_7 \cdot 2H_2O$	M_r 294.10	CAS No [6132-04-3]	EC No 200-675-3

Titrated with: Hydrochloric acid

HCl	M_r 36.46	CAS No [7647-01-0]	EC No 231-595-7

Useful pH Range: 4.2 - 6.5

Technical Support

Inquiries regarding StockOptions Sodium Citrate buffer kit reagent formulation, interpretation of screen results, optimization strategies and general inquiries regarding crystallization are welcome. Please e-mail, fax, or telephone your request to Hampton Research. Fax and e-mail Technical Support are available 24 hours a day. Telephone technical support is available 8:00 a.m. to 4:30 p.m. USA Pacific Standard Time.

pH	Buffer	Titrant
4.2	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
4.3	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
4.4	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
4.5	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
4.6	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
4.7	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
4.8	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
4.9	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.0	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.1	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.2	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.3	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.4	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.5	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.6	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.7	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.8	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
5.9	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
6.0	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
6.1	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
6.2	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
6.3	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
6.4	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid
6.5	1.0 M Sodium citrate tribasic dihydrate	Hydrochloric acid

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Solutions for Crystal Growth