StockOptions™

Citric Acid Buffer Kit (pH 2.2 - 6.5)

HAMPTON RESEARCH
Solutions for Crystal Growth

User Guide **HR2-104**

StockOptions™ Citric Acid 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 Citric Acid buffer reagent is carefully titrated using Sodium hydroxide. StockOptions Citric Acid is comprised of 44 unique reagents covering the pH range of 2.2 to 6.5 in 0.1 pH unit increments.

Suggested Use

StockOptions Citric Acid 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 Index™. StockOptions Citric Acid reagents can also be used to create solutions for the refinement and optimization of preliminary crystallization conditions. Finally, StockOptions Citric Acid reagents can be used to create accurate, precise, reproducible, high quality solutions for the production of single crystals. Utilizing the reagents in the StockOptions Citric Acid buffer kit it is possible to formulate and screen 44 unique pH levels.

During crystallization experiments the Citric Acid 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 Citric Acid buffer solution 1:10 to achieve a final concentration of 0.1 M. For example, dilute 1 milliliter of StockOptions Citric Acid to a final volume of 10 milliliters to achieve a final concentration of 0.1 M Citric Acid.

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

Example 1

Index reagent 1: 0.1 M Citric acid pH 3.5 (Stock), 2.0 M Ammonium sulfate

Suggested Stock Solutions: 1.0 M Citric acid pH 3.5 (StockOptions Citric Acid), 3.5 M Ammonium sulfate.

To make 1 milliliter of this reagent:

1.) Pipet 328 µl of sterile filtered deionized water into the plate reservoir.
2.) Pipet 100 µl of 1.0 M Citric Acid pH 3.5 into the plate reservoir.
3.) Pipet 572 µl of 3.5 M Ammonium sulfate into the plate reservoir.
4.) Aspirate and dispense the solution until homogenous.

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 10 milliliters of a custom screen reagent:
30% PEG 3350, 0.1 M Citric acid pH 6.0

Suggested Stock Solutions: 50% w/v PEG 3350, 1.0 M Citric acid pH 6.0 (StockOptions Citric Acid).

1.) Pipet 3 milliliter of deionized, sterile filtered water into the tube.
2.) Pipet 1 milliliter of 1.0 M Citric acid pH 6.0 into the tube.
3.) Pipet 6 milliliters of 50% w/v PEG 3350 into the tube.

Seal the tube and mix until the solution is homogenous.

For Best Results

Use Hampton Research Optimize™ together with StockOptions reagents for best results.

Specifications

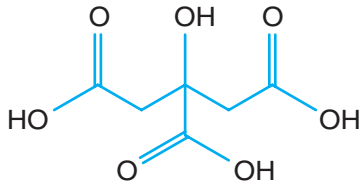
Buffer Reagent: Citric acid

$C_6H_8O_7$	M_r 192.13	CAS No [77-92-9]	EC No 201-069-1

Titrated with: Sodium hydroxide

NaOH	M_r 40.00	CAS No [1310-73-2]	EC No 215-185-5

Useful pH Range: 2.2 - 6.5



Technical Support

Inquiries regarding StockOptions Citric Acid buffer 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.

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pH	Buffer	Titrant
2.2	1.0 M Citric acid	Sodium hydroxide
2.3	1.0 M Citric acid	Sodium hydroxide
2.4	1.0 M Citric acid	Sodium hydroxide
2.5	1.0 M Citric acid	Sodium hydroxide
2.6	1.0 M Citric acid	Sodium hydroxide
2.7	1.0 M Citric acid	Sodium hydroxide
2.8	1.0 M Citric acid	Sodium hydroxide
2.9	1.0 M Citric acid	Sodium hydroxide
3.0	1.0 M Citric acid	Sodium hydroxide
3.1	1.0 M Citric acid	Sodium hydroxide
3.2	1.0 M Citric acid	Sodium hydroxide
3.3	1.0 M Citric acid	Sodium hydroxide
3.4	1.0 M Citric acid	Sodium hydroxide
3.5	1.0 M Citric acid	Sodium hydroxide
3.6	1.0 M Citric acid	Sodium hydroxide
3.7	1.0 M Citric acid	Sodium hydroxide
3.8	1.0 M Citric acid	Sodium hydroxide
3.9	1.0 M Citric acid	Sodium hydroxide
4.0	1.0 M Citric acid	Sodium hydroxide
4.1	1.0 M Citric acid	Sodium hydroxide
4.2	1.0 M Citric acid	Sodium hydroxide
4.3	1.0 M Citric acid	Sodium hydroxide
4.4	1.0 M Citric acid	Sodium hydroxide
4.5	1.0 M Citric acid	Sodium hydroxide
4.6	1.0 M Citric acid	Sodium hydroxide
4.7	1.0 M Citric acid	Sodium hydroxide
4.8	1.0 M Citric acid	Sodium hydroxide
4.9	1.0 M Citric acid	Sodium hydroxide
5.0	1.0 M Citric acid	Sodium hydroxide
5.1	1.0 M Citric acid	Sodium hydroxide
5.2	1.0 M Citric acid	Sodium hydroxide
5.3	1.0 M Citric acid	Sodium hydroxide
5.4	1.0 M Citric acid	Sodium hydroxide
5.5	1.0 M Citric acid	Sodium hydroxide
5.6	1.0 M Citric acid	Sodium hydroxide
5.7	1.0 M Citric acid	Sodium hydroxide
5.8	1.0 M Citric acid	Sodium hydroxide
5.9	1.0 M Citric acid	Sodium hydroxide
6.0	1.0 M Citric acid	Sodium hydroxide
6.1	1.0 M Citric acid	Sodium hydroxide
6.2	1.0 M Citric acid	Sodium hydroxide
6.3	1.0 M Citric acid	Sodium hydroxide
6.4	1.0 M Citric acid	Sodium hydroxide
6.5	1.0 M Citric acid	Sodium hydroxide

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