

# StockOptions™

## MES Buffer Kit (pH 5.2 - 7.1)

StockOptions™ MES 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 MES buffer reagent is carefully titrated using Sodium hydroxide. StockOptions MES is comprised of 20 unique reagents covering the pH range of 5.2 to 7.1 in 0.1 pH unit increments.

### Suggested Use

StockOptions MES 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 Cryo™, Crystal Screen Lite™, Natrix™, Nucleic Acid Mini Screen™, and Crystal Screen 2™. StockOptions MES reagents can also be used to create solutions for the refinement and optimization of preliminary crystallization conditions. Finally, StockOptions MES reagents can be used to create accurate, precise, reproducible, high quality solutions for the production of single crystals. Utilizing the reagents in the StockOptions MES buffer kit it is possible to formulate and screen 20 unique pH levels.

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

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

### Example 1

Crystal Screen 2 Reagent 22 (1 ml volume in a plate reservoir)

Solution composition: 12% w/v PEG 20,000 and 0.1 M MES pH 6.5

Suggested Stock Solutions: 30% w/v PEG 20,000, StockOptions MES reagent pH 6.5

- 1.) Pipet 500 microliters of sterile filtered deionized water into the plate reservoir.
- 2.) Pipet 100 microliters of 1.0 M MES pH 6.5 into the plate reservoir.
- 3.) Pipet 400 microliters of 30% PEG 20,000 into the plate reservoir.
- 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

A custom screen reagent of 30% PEG 8,000, 0.1 M MES pH 6.0 (10 ml)

Suggested Stock Solutions: 50% w/v PEG 8,000, StockOptions MES pH 6.0.

- 1.) Pipet 3 milliliters of deionized, sterile filtered water into the tube.
- 2.) Pipet 1 milliliter of 1.0 M MES pH 6.0 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: MES monohydrate

Synonyms: 2-(N-Morpholino)ethanesulfonic acid

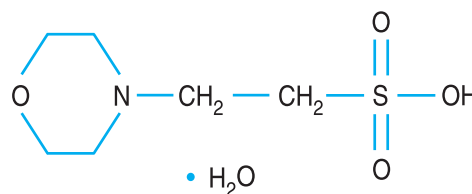
4-Morpholineethanesulfonic acid monohydrate

C <sub>6</sub> H <sub>13</sub> NO <sub>4</sub> S · H <sub>2</sub> O	Mr 213.25	CAS No [145224-94-8]
EC No 224-632-3		Beilstein Registry No 6350956

Titrated with: Sodium hydroxide

NaOH	Mr 40.00	CAS No [1310-73-2]	EC No 215-185-5
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Useful pH Range: 5.2 - 7.1



### Technical Support

Inquiries regarding StockOptions MES 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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