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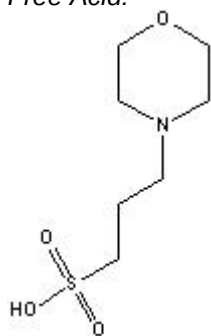
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TECHNICAL INFORMATION

Catalog Number: 102370, 190670, 194551, 194837, 227482
MOPS, free acid and sodium salt

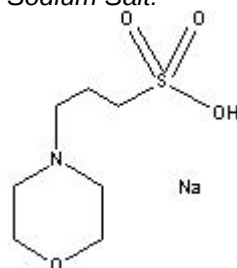
Structure:

Free Acid:



Molecular Formula: C₇H₁₅NO₄S
Molecular Weight: 209.3
CAS # 1132-61-2

Sodium Salt:



Molecular Formula: C₇H₁₄NO₄S . Na
Molecular Weight: 231.2
CAS # 71119-22-7

Synonym: 3-[N-Morpholino]propanesulfonic acid

Physical Description: White crystalline powder

pK_a: 7.2 @ 25°C

Effective Buffering Range: 6.5 - 7.9

DpKa/DT: -0.013 to -0.015^{1,2}

Solubility: Soluble in water (to approximately 33% w/w - clear, colorless solution). The pH of a 0.1 M solution of the sodium salt is approximately 10-12 and a 0.1 M solution of the free acid is approximately pH 2.5 to 4.0, depending on temperature. Solutions can be stored refrigerated for up to approximately 6 months. Solutions should not be autoclaved¹; sterilization of solutions should be done by filter sterilization through a 0.2 um filter.

Description: MOPS is a zwitterionic amino acid which acts as one of the "Good" buffers.¹ It is a structural analog to MES; however, MOPS is a more suitable biological buffer than MES because the pH range is closer to pH 7.4.

A buffer using MOPS free acid can be prepared by titrating the free acid with sodium hydroxide to the desired pH (pK_a ± 1), using about a half-equivalent of NaOH. A buffer using MOPS sodium salt can be made by mixing equimolar MOPS free acid and MOPS sodium salt solutions to attain a buffer of the desired pH. Titration of a solution of MOPS sodium salt with HCl results in a solution that will contain NaCl, so the ionic strength will be higher than appropriate for some applications. Concentrations higher than 20 mM should not be used with mammalian cell cultures.⁴

Availability:

Catalog Number	Description	Size
102370	MOPS, free acid	10 g 25 g 100 g 250 g 1 kg
190670	MOPS, Sodium Salt	25 g 100 g 250 g 1 kg
194551	MOPS, free acid, cell culture reagent	25 g 100 g 250 g
194837	MOPS, free acid, molecular biology reagent	25 g 100 g 500 g

References:

- Merck Index, **12th Ed.**, No. 6346
- Ellis, K.J. and Morrison, J.F., "Buffers of constant ionic strength for studying pH-dependent processes." *Methods in Enzymology*, **v. 87**, 405-426 (1982).
- Good, N.E., et al., *Biochemistry*, **v. 5**, 467-477 (1966).
- Eagle, H., *Science*, **v. 174**, 500-503 (1971).
- Thomas, J.M. and Hodes, M.E., *Analytical Biochemistry*, **v. 118**, 194-196 (1981).
- Sanker, M. and Bates, R.G., *Anal. Chem.*, **v. 50**, 1922 (1978).