

MOPS

CAS Number: 1132-61-2

Storage Temperature: Room temperature

Product Description :

Appearance: Fine white crystalline powder

Molecular Formula: $C_7H_{15}NO_4S$

Molecular Weight: 209.27

Melting Point: 277 - 280 ° C

pKa: 7.0-7.4 (25 ° C)

Effective buffering range: pH 6.5 - 7.9

Synonyms: 3-morpholinopropanesulfonic acid, 3-(N-morpholino)propanesulfonic acid, MOPS

MOPS is a morpholino propanesulfonic acid, a structural analog to MES, the ethanesulfonic acid (first introduced by Good et al.) Both series of buffers were developed to meet the following criteria: midrange pKa, maximum water solubility and minimum solubility in all other solvents, minimal salt effects, minimal change in pKa with temperature, chemically and enzymatically stable, minimal absorption in visible or UV spectral range and reasonably easily synthesized.

MOPS is a zwitterionic buffer used as a running buffer for denaturing agarose gel electrophoresis of RNA. Having a buffering range from 6.5 - 7.9, MOPS works exceptionally well with formaldehyde gels at 20 mM concentration.

A buffer using MOPS free acid can be prepared by titrating the free acid with sodium hydroxide to the desired pH ($pK_a \pm 1$). Alternatively, volumes of equimolar MOPS free acid and sodium MOPS can be mixed to attain the desired pH.

Solubility / Solution Stability :

MOPS Free Acid is very soluble in water, at least to 33% (w/w), giving a clear colorless solution. The pH of a 0.1 M solution is generally 3.3-4.1 (temperature-dependent). Solutions should be stable at 2-8°C for at least six months. Sterilization should be done by filtration through 0.2 μ m filters. Autoclaving is not recommended for any sulfonic acid buffers. If buffers must be nuclease-free, it is best to treat the water, then add the buffer solids after autoclaving. When MOPS solutions have been autoclaved, they turn yellow (although pH does not change measurably). The identity of the yellow breakdown product is unknown.

Storage/Stability:

The solid is stable at room temperature for years. On standing, bulk material tends to compact and becomes quite hard, but chemically is still fine.

Precautions and Disclaimer :

For Laboratory Use Only. Not for drug, household or other uses.