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ProductInformation

MOPS sodium salt
SigmaUltra

Product Number **M5789**
Store at Room Temperature

Product Description

Molecular Formula: $C_7H_{14}NO_4SNa$
Molecular Weight: 231.2
CAS Number: 71119-22-7
pK_a: 7.2 (25 °C)
Effective buffering range: pH 6.5 - 7.9
$\Delta pK_a/\Delta T$: -0.015[1]
Synonyms: 3-morpholinopropanesulfonic acid sodium salt, 3-(N-morpholino)propanesulfonic acid sodium salt

Trace elemental analyses have been performed on the SigmaUltra MOPS sodium salt. The Certificate of Analysis provides lot-specific results. SigmaUltra MOPS sodium salt is for applications which require tight control of elemental content.

The zwitterionic buffer MOPS is a structural analog to the Good buffer MES. The Good buffers were developed in the 1960's for general use in biochemistry to meet the following criteria:
• midrange pK_a
• maximum water solubility and minimum solubility in all other solvents
• minimal salt effects
• minimal change in pK_a with temperature,
• chemical and enzymatic stability,
• minimal absorption in visible or UV range
• reasonable ease of synthesis.[2]
The pK_a of MOPS (7.2) is closer to physiological pH than that of MES (6.1), and thus MOPS may be more suitable as a physiologically relevant buffer.

MOPS buffer has been utilized in the culture of cells in such systems as *E. coli*, *Cryptococcus neoformans*, cultured human keratinocytes, and thermophilic methaogenic bacteria.[3,4,5,6] In protein studies, MOPS has been used in an X-ray crystallographic study of the ADP-binding site of succinyl-CoA synthetase from *E. coli*, in the characterization of the Rieske-type ferredoxin BphF, and in an electron microscopy analysis of the engineered protein betabellin-15D.[7,8,9]

An investigation of the interaction of various buffers, including MOPS, with plasmid sized DNA by free solution capillary electrophoresis has been reported.[10] A protocol describes the use of MOPS in an electrophoresis buffer for the separation of RNA in agarose gels.[11] A procedure for preparative-scale separation of proteins by displacement chromatography that incorporates MOPS buffer has been published.[12]

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

Preparation Instructions
This product is soluble in water (231 mg/ml).

Storage/Stability
Solutions of MOPS are not completely stable when autoclaved in the presence of glucose.[13] Solutions of MOPS turn yellow when autoclaved, indicating that MOPS is unstable to autoclaving.

References

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