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ProductInformation

BES
Cell Culture Tested

Product Number **B4554**
Store at Room Temperature

Product Description

Molecular Formula: $C_6H_{15}NO_5S$
Molecular Weight: 213.3
CAS Number: 10191-18-1
pK_a: 7.1 (25 °C)
Melting Point: 153-155 °C[1]
Buffering range: pH 6.4 - 7.8 (25 °C)
Synonyms: N,N-bis(2-hydroxyethyl)taurine; N,N-Bis-(2-hydroxyethyl)-2-aminoethanesulfonic acid

This product is cell culture tested (0.426 mg/ml) and is designated as Biotechnology Performance Certified. It is tested for endotoxin levels and for the absence of nucleases and proteases.

BES is a zwitterionic buffer that is used in biochemistry and molecular biology research. It is one of the "Good" buffers developed in the 1960's to provide buffers in the pH range of 6.15 - 8.35 for wide applicability to biochemical studies. The pioneering publication by Good and co-workers describes the synthesis of BES and its physical properties.[1]

A protocol has been reported for the use of BES buffered saline in the calcium phosphate mediated transfection of eukaryotic cells with plasmid DNA.[2] An investigation has been published on the interaction of BES and other amine buffers with DNA and the measurement of these complexes by free solution capillary electrophoresis.[3]

The effect of BES and other zwitterionic buffers on the bicinchoninic acid (BCA) measurement of microgram quantities of protein has been studied. BES was found to diminish color development of the protein-BCA complex by 30-35% at 50 mM, and by <10% at 5 mM, measuring in the 1-10 µg range of BSA against protein-BCA complexes formed in water. This color loss may result from binding of Cu^{2+} to BES.[4]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (500 mg/ml), yielding a clear, colorless solution.

References

1. Good, N. E., et al, Hydrogen Ion Buffers for Biological Research. Biochemistry, **5(2)**, 467-477 (1966).
2. Molecular Cloning: A Laboratory Manual, 3rd ed., Sambrook, J. and Russell, D.W., CSHL Press (Cold Spring Harbor, NY: 2001), pp. 16.19-16.20.
3. Stellwagen, N. C., et al., DNA and buffers: are there any noninteracting, neutral pH buffers? Anal. Biochem., **287(1)**, 167-175 (2000).
4. Kaushal, V., and Barnes, L. D., Effect of zwitterionic buffers on measurement of small masses of protein with bicinchoninic acid. Anal. Biochem., **157(2)**, 291-294 (1986).

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