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Product Information

Bis-Tris Cell Culture Tested

Product Number **B 4429**

Product Description

Molecular Formula: $C_8H_{19}NO_5$

Molecular Weight: 209.2

CAS Number: 6976-37-0

pK_a : 6.5 (25 °C)

Synonyms: 2-bis(2-hydroxyethyl)amino-2-(hydroxymethyl)-1,3-propanediol, bis(2-hydroxyethyl)amino-tris(hydroxymethyl)methane, 2,2-bis(hydroxymethyl)-2,2',2''-nitrilotriethanol

This product is cell culture tested (4.2 mg/ml) and is designated as Biotechnology Performance Certified. It is tested for endotoxin levels and for the absence of nucleases and proteases.

Bis-Tris is a zwitterionic buffer that is used in biochemistry and molecular biology research. It is structurally analogous to the Good buffers that were developed to provide buffers in the pH range of 6.15 - 8.35 for wide applicability to biochemical studies.¹ The useful pH range of Bis-Tris is 5.8 - 7.2.

A protocol for the agarose gel electrophoresis of glyoxylated RNA that uses Bis-Tris in the electrophoresis buffer has been described.² The use of Bis-Tris in polyacrylamide gels for the in-gel derivatization of proteins for cysteine-specific cleavages and MS analysis has been reported.³ An investigation of various pK-matched running buffers for gel electrophoresis, including a Bis-Tris/ACES formulation, has been published.⁴ A multiphasic buffer system for the SDS-PAGE analysis of proteins and peptides in the molecular weight range of 1-100 kDa that incorporates Bis-Tris as a counterion in the stacking phase has been described.⁵ A discontinuous SDS-PAGE system that uses Bis-Tris in the separating and stacking buffers for the zymogram analysis of bacterial autolysins has been reported.⁶

Bis-Tris buffer has been utilized in a study of λ *cro* repressor self-assembly and dimerization.⁷ An investigation of the ligand binding properties of the human hemoglobin variant (Hb Hinsdale) has used Bis-Tris buffer.⁸

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 to very faint yellow 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. 7.26-7.30.
3. Thevis, M., et al., In-gel derivatization of proteins for cysteine-specific cleavages and their analysis by mass spectrometry. *J. Proteome Res.*, **2(2)**, 163-172 (2003).
4. Liu, Q., et al., pK-matched running buffers for gel electrophoresis. *Anal. Biochem.*, **270(1)**, 112-122 (1999).
5. Wiltfang, J., et al., A new multiphasic buffer system for sodium dodecyl sulfate-polyacrylamide gel electrophoresis of proteins and peptides with molecular masses 100,000-1000, and their detection with picomolar sensitivity. *Electrophoresis*, **12(5)**, 352-366 (1991).
6. Strating, H., and Clarke, A. J., Differentiation of bacterial autolysins by zymogram analysis. *Anal. Biochem.*, **291(1)**, 149-154 (2001).

7. Darling, P. J., et al., Coupled energetics of λ *cro* repressor self-assembly and site-specific DNA operator binding I: analysis of *cro* dimerization from nanomolar to micromolar concentrations. *Biochemistry*, **39(37)**, 11500-11507 (2000).
8. Bonaventura, C., et al., Chloride masks effects of opposing positive charges in Hb A and Hb Hinsdale (β^{139} Asn \rightarrow Lys) that can modulate cooperativity as well as oxygen affinity. *J. Mol. Biol.*, **239(4)**, 561-568 (1994).

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