3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

ACES

Product Number **A 9758**
Store at Room Temperature

Product Description

Molecular Formula: $C_4H_{10}N_2O_4S$
Molecular Weight: 182.2
CAS Number: 7365-82-4
pK_a: 6.8 (25 °C)
Melting Point: 293 °C (with decomposition)[1]
Synonyms: N-(2-acetamido)-2-aminoethanesulfonic acid, N-(carbamoylmethyl)-2-aminoethanesulfonic acid, 2-(carbamoylmethylamino)ethanesulfonic acid, N-(carbamoylmethyl)taurine

ACES is a zwitterionic buffer 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 ACES and its physical properties.[1] The useful range of ACES buffer in aqueous solution is 6.1 - 7.5.

ACES has been utilized to develop buffers for both agarose and polyacrylamide gel electrophoresis.[2] The use of ACES in the isoelectric focusing of proteins has been described.[3,4] A protocol has been published on the use of ACES in the analysis of bacterial autolysins in a discontinuous SDS-PAGE system.[5]

The potential inhibition of ACES and other Good buffers in γ-aminobutyric acid receptor binding to rat brain synaptic membranes has been investigated.[6] The survival of a strain of *Listeria monocytogenes* Scott A tolerant to high hydrostatic pressure has been studied in ACES buffer.[7]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (50 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. Liu, Q., et al., pK-matched running buffers for gel electrophoresis. Anal. Biochem., **270(1)**, 112-122 (1999).
3. Righetti, P. G., et al., Immobilized pH gradients: effect of salts, added carrier ampholytes and voltage gradients on protein patterns. Electrophoresis, **9(2)**, 65-73 (1988).
4. Alonso, A., Human α-1-antitrypsin subtyping by hybrid isoelectric focusing in miniaturized polyacrylamide gel. Electrophoresis, **10(7)**, 513-519 (1989).
5. Strating, H., and Clarke, A. J., Differentiation of bacterial autolysins by zymogram analysis. Anal. Biochem., **291(1)**, 149-154 (2001).
6. Tunnicliff, G., and Smith, J. A., Competitive inhibition of γ-aminobutyric acid receptor binding by N-2-hydroxyethylpiperazine-N'-2-ε-ethanesulfonic acid and related buffers. J. Neurochem., **36(3)**, 1122-1126 (1981).
7. Karatzas, K. A., and Bennik, M. H., Characterization of a *Listeria monocytogenes* Scott A isolate with high tolerance towards high hydrostatic pressure. Appl. Environ. Microbiol., **68(7)**, 3183-3189 (2002).

GCY/RXR 7/03