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ProductInformation

ADA

Product Number **A 9883**
Store at Room Temperature

Product Description

Molecular Formula: $C_6H_{10}N_2O_5$
Molecular Weight: 190.2
CAS Number: 26239-55-4
pK_a: 6.6 (25 °C)
Synonyms: N-(2-acetamido)iminodiacetic acid, N-(carbamoylmethyl)iminodiacetic acid

ADA is a zwitterionic buffer used in biochemistry and molecular biology. 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 ADA and its physical properties.[1] The useful range of ADA buffer in aqueous solution is 6.0 - 7.2.

The effect of ADA on the activity of dog kidney $(Na^+ + k^+)$-ATPase activity has been investigated.[2] ADA has been used in a protein-free medium for supporting chick embryo fibroblasts.[3] Cardiac muscle contraction in various buffers, including ADA, has been studied.[4] The inhibition of γ-aminobutyric acid receptor binding to rat brain synaptic membranes by several Good buffers, including ADA, has been reported.[5] A study of the chelation of H^+, Ca^{2+} and Mg^{2+} to various buffers, including ADA, has been published.[6]

ADA has been shown to interfere with color development in the bicinchoninic acid assay for protein quantitation.[7] The use of ADA in the isoelectric focusing of proteins in immobilized pH gradients has been described.[8]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in 1 M NaOH (160 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. Robinson, J. D., and Davis, R. L., Buffer, pH, and ionic strength effects on the $(Na^+ + K^+)$-ATPase. Biochim. Biophys. Acta, **912(3)**, 343-347 (1987).
3. Pietrzkowski, Z., et al., Cellular activities associated with the transition of chick embryo fibroblasts from stationary to proliferation state. Folia Histochem. Cytobiol., **27(3)**, 183-196 (1989).
4. Bers, D. M., et al., Citrate decreases contraction and Ca current in cardiac muscle independent of its buffering action. Am. J. Physiol., **260(5 Pt 1)**, C900-C909 (1991).
5. Tunnicliff, G., and Smith, J. A., Competitive inhibition of γ-aminobutyric acid receptor binding by N-2-hydroxyethylpiperazine-N'-2-o-ethanesulfonic acid and related buffers. J. Neurochem., **36(3)**, 1122-1126 (1981).
6. Durham, A. C., A survey of readily available chelators for buffering calcium ion concentrations in physiological solutions. Cell. Calcium, **4(1)**, 33-46 (1983).
7. 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).
8. 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).

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