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Product Information

Ethylene glycol-bis(2-aminoethylether)-N,N,N',N'-tetracetic acid

Product Number **E4378**
Store at Room Temperature

Product Description

pK_a: < 2, 2.7, 8.8, and 9.5¹
Melting Point: 241 °C, with decomposition
Synonym: EGTA

EGTA is a reagent that is used to chelate Ca²⁺ in the presence of Mg²⁺.²
EGTA chelates Ca²⁺ at a ratio of 1:1. The log (stability constants) for several cations are as follows:¹

Mg = 5.2
Ca = 11.0
Mn = 12.1
Fe = 11.8
Co = 12.3
Ni = 11.8
Cu = 17.7
Zn = 12.9

A protocol for the determination of free calcium in calcium-EGTA solutions has been reported.³ A procedure for making a calibration standard for calcium ion concentration, with detection accurate to 10 µM in a mixture of EGTA, HEDTA, and NTA has been reported.⁴

EGTA can be used as an anti-coagulant when dissolved at 1 g per 100 ml blood. EDTA is more commonly used for the same purpose; either agent chelates the calcium ion from blood.

Precautions and Disclaimer

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

Preparation Instructions

Solubility at:
pH 8.38 > 0.52 M
pH 5.4 > 0.48 M
pH 4.5 = 0.45 M
pH 4.2 = 0.42 M
pH 4.0 = 0.31 M

A saturated solution at room temperature was found to be 2 mM in EGTA and had a pH of 2.72. The solubility in 1 M NaOH was 10 g/90 ml, and yielded a clear, colorless solution.

References

1. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), pp. 404-405.
2. Schmid, R. W. and Reilley, C.N. New Complexon for Titration of Calcium in the Presence of Magnesium. *Anal. Chem.*, **29**, 264 (1957).
3. Berg, D. M., A simple method for the accurate determination of free [Ca] in Ca-EGTA solutions. *Am. J. Physiol.*, **242**, C404 (1982).
4. May, P.M., et al., Calibration of ionized calcium and magnesium with ligand mixtures for intracellular ion-selective electrode measurements. *Anal. Chem.*, **57**, 1511-1517 (1985).

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