

TRIZMA[®] base

Product Number **T1503**

Store at Room Temperature

Product Description

Molecular Formula: $C_4H_{11}NO_3$

Molecular Weight: 121.1

CAS Number: 77-86-1

$pK_a(20\text{ }^\circ\text{C})$: 8.3¹

Melting Point: 171-172 °C¹

Synonyms: 2-Amino-2-(hydroxymethyl)-1,3-propanediol, tris(hydroxyamino)methane, THAM, Tris base, Trometamol

TRIZMA is the registered trademark for tris(hydroxymethyl)aminomethane, commonly called Tris. Sigma Technical Bulletin 106B contains additional information on temperature and concentration effects, and on the use of pH electrodes with TRIZMA buffers.

Tris is an established basimetric standard and buffer used in biochemistry and molecular biology.¹ It may be used by itself as a buffer or as a component of mixed buffer formulations.² These different buffer formulations include:

- Tris-EDTA (TE) buffer
- Tris magnesium buffer
- Tris-acetate-EDTA (TAE) buffer
- Tris-borate-EDTA (TBE) buffer
- Tris-buffered saline (TBS)
- Tris-buffered saline with dextrose (TBS-D)
- Tris-glycine buffer
- Tris-phosphate EDTA buffer
- Tris-SDS buffer
- Tris-sucrose
- Tris-Tricine-SDS buffer

Tris salts are used in protein crystallization at various pH values (Product Nos. 82009, 70437, 75403, 86684, 73513).^{3,4,5,6} The use of low-ionic strength Tris buffers in the formation of intermediate filaments of lamin from *Caenorhabditis elegans* has been described.⁷

Tris has been utilized in studies of double stranded complexes of peptide nucleic acids (PNA) and their complementary DNA sequences, by use of anion exchange HPLC.⁸ The use of Tris in capillary electrochromatography and UV analysis of tocopherols and tocotrienols has been reported.⁹

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (666 mg/ml), yielding a clear, colorless solution.

Storage/Stability

TRIZMA solutions can be autoclaved. Tris has a significant temperature coefficient:

- From 5 °C to 25 °C, the pH decreases an average of 0.03 pH units per °C.
- From 25 °C to 37 °C, the pH decreases an average of 0.025 pH units per °C.

When preparing Tris solutions at a given pH and temperature, it is necessary to choose the proper mixture to give the desired final pH at the desired temperature.

References

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3. Brzozowski, A. M., et al., Structural analysis of a chimeric bacterial α -amylase. High-resolution analysis of native and ligand complexes. *Biochemistry*, **39(31)**, 9099-9107 (2000).
4. Knapp, S., et al., Crystallization and preliminary crystallographic analysis of an amylopullulanase from the hyperthermophilic archaeon *Pyrococcus woesei*. *Proteins*, **23(4)**, 595-597 (1995).
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8. Lesignoli, E., et al., Recognition and strand displacement of DNA oligonucleotides by peptide nucleic acids (PNAs). High-performance ion-exchange chromatographic analysis. *J. Chromatogr. A.*, **922(1-2)**, 177-185 (2001).
9. Abidi, S. L., and Rennick, K. A., Capillary electrochromatographic evaluation of vitamin E-active oil constituents: tocopherols and tocotrienols. *J. Chromatogr. A.*, **913(1-2)**, 379-386 (2001).

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