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Product Information

Trizma® base

Catalog Number **T4661**
Store at Room Temperature

CAS RN 77-86-1
Synonyms: Tris base, Tris(hydroxyamino)methane, 2-Amino-2-(hydroxymethyl)-1,3-propanediol, Tris(hydroxymethyl)aminomethane, THAM, Trometamol
Note: The "Tris" described in this document is **not** the "Tris" used to flame-proof fabric. That compound, Tris(2,3-dibromopropyl)phosphate, has been reported to be a cancer suspect agent.

Molecular Formula: $C_4H_{11}NO_3$
Molecular Weight: 121.14
pK_a (20 °C):[1] 8.3
Melting Point:[1] 171-172 °C

Product Description
Trizma® is the registered trademark of Sigma-Aldrich applied to various compounds of Tris(hydroxymethyl)-aminomethane that are prepared by Sigma-Aldrich.

This product meets all specifications for Catalog Number T1503, and all analytical and packaging requirements per the current United States Pharmacopoeia (USP). This product is not pyrogen-tested. Certificates of Analysis are available with lot-specific information.

Tris(hydroxyamino)methane, or “Tris” for short, 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

When preparing Trizma solutions at a given pH and temperature, it is necessary to choose the proper mixture of Trizma free base and a corresponding Trizma salt to give the desired final pH at the desired temperature.

Trizma has a significant temperature coefficient, which affects the pH of the solution. For a given concentration the following changes are observed:

- 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.

This product has been used in various studies and application fields, including:

- Transport properties of mucus[3]
- Enzymatic assays from cell extracts[4]
- Collagen analysis[5]
- Mitochondria preparation[6]

Precautions and Disclaimer
For research or further manufacturing use only. Not intended for direct use in humans or animals. TSCA-exempt use only in US. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

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

Storage/Stability
Trizma solutions can be autoclaved.

References

1. Gomori, G., Preparation of Buffers for Use in Enzyme Studies. *Methods Enzymol*., **1**, 138-146 (1955).
2. Sambrook, J., and Russell, D.W., *Molecular Cloning: A Laboratory Manual* (3rd ed.). Cold Spring Harbor Laboratory Press (Cold Spring Harbor, NY), pp. 5.8, 5.30, 5.43, 5.60, 5.76, 10.25-10.26, 12.75, 12.84, 12.87, 13.52, 16.29-16.31, A1.2-1.3, A1.7-A1.8, A1.17-A1.18, A1.22, A8.42-A8.43 (2001).
3. Odziomek, M. *et al.*, *Chem. Process Eng*., **38(2)**, 217-229 (2017).
4. Çağlayan, M. *et al*., *Bio. Protoc.*, **5(11)**, e1493 (2015).
5. Griffiths, M.M. et al., "Collagen-Induced Arthristis in Rats", in *Methods in Molecular Biology: Arthritis Research – Methods and Protocols*, Volume 2 (A.P. Cope, ed.). Humana Press (Totowa, NJ), Chapter 15, pp. 201-214 (2007).
6. Guo, R. *et al*., *Cell*, **170(6)**, 1247-1257 (2017).

GCY,MBK,RXR,MAM 12/18-1