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ProductInformation

Boric acid

Product Number **B 6768**
Store at Room Temperature

Product Description

Molecular Formula: H_3BO_3
Molecular Weight: 61.83
CAS Number: 10043-35-3
Melting point: approximately 171 °C[1]

This product is designated as Molecular Biology grade and is suitable for molecular biology applications. It has been analyzed for the presence of nucleases and proteases.

Boric acid is commonly used in biochemistry in buffer solutions. Boric acid forms complex equilibria in solution, with the tetraborate ion ($B_4O_7^{2-}$) being the predominant species. Several references discuss the preparation of borate buffers.[2,3,4]

The use of borate buffers in discontinuous electrophoresis and in capillary electrophoresis systems for the separation of proteins and nucleic acids has been reviewed.[5,6] A general review of the analysis of boron and boric acid in biological samples has been published.[7]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (40 mg/ml), yielding a clear, colorless solution. Powdered boric acid may dissolve more slowly in water than a crystalline product, but with gentle warming, it will dissolve to give a clear solution. Boric acid has also been reported to be soluble in alcohol (1 part in 16) and in 85% glycerol solution (1 part in 4).[8]

Storage/Stability

A 1 M solution of boric acid in water will have a pH of 3.5 - 6.0 at 20 °C. Solutions of boric acid are stable at room temperature and may be sterile-filtered or autoclaved.

References

1. The Merck Index, 12th ed., Entry# 1354.
2. Stoll, V. S. and Blanchard, J. S., Buffers: Principles and Practice. Methods Enzymol., **182**, 24-38 (1990).
3. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), pp. 438-440.
4. Molecular Cloning: A Laboratory Manual, 3rd ed., Sambrook, J. F., et al., Cold Spring Harbor Laboratory Press (Cold Spring Harbor, NY: 2001), p. A1.17
5. Allen, R. C., and Doktycz, M. J., Discontinuous electrophoresis revisited: a review of the process. Appl. Theor. Electrophor., **6(1)**, 1-9 (1996).
6. Chen, F. T., and Sternberg, J. C., Characterization of proteins by capillary electrophoresis in fused-silica columns: review on serum protein analysis and application to immunoassays. Electrophoresis, **15(1)**, 13-21 (1994).
7. Downing, R.G., et al., Considerations in the determination of boron at low concentrations. Biol. Trace Elem. Res., **66(1-3)**, 3-21 (1998).
8. Martindale: The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, England: 1996), pp. 1680-1681.

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