

Sodium tetraborate decahydrate

Product Number **B9876**

Store at Room Temperature

Product Description

Molecular Formula: $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$

Molecular Weight: 381.4

CAS Number: 1303-96-4

Melting Point: 75 °C (when rapidly heated),
100 °C (loses 5 H₂O), 150 °C (loses 9 H₂O),
320 °C (becomes anhydrous)¹

Synonyms: borax, sodium borate decahydrate,
sodium baborate decahydrate, sodium pyroborate
decahydrate¹

Sodium tetraborate is a reagent that is used in variety of large scale applications. These include the soldering of metals, the manufacture of glazes and enamels, tanning, protection against wood fungus, and the fireproofing of fabrics and wood.¹ It is also widely used as a buffer and a table for the preparation of sodium tetraborate-NaOH buffers has been published.²

Sodium tetraborate is also commonly utilized in chromatography and electrophoresis studies. An HPCE method for the analysis of α -galactosides in *Leguminosae* and *Brassicaceae* that uses a sodium tetraborate buffer has been published.³ A protocol on kanamycin analysis by electrophoretically mediated microanalysis coupled to in-capillary derivatization and UV detection has been described, where 30 mM sodium tetraborate (pH 10.0) is a component of the background electrolyte.⁴

A micellar electrokinetic capillary chromatography technique to separate the components of aminoglycoside antibiotics which incorporates 100 mM sodium tetraborate (pH 10.0) in the background electrolyte has been reported.⁵ The use of sodium tetraborate in the analysis of combinatorial chemistry libraries by micellar electrokinetic chromatography has been reported.⁶

Several protocols for the analysis of inorganic anions that incorporate sodium tetraborate have been published, using such methods as electrostatic ion chromatography.⁷ One capillary zone electrophoresis method 50mM uses sodium tetraborate in the presence of 5% methanol.⁸

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (66 mg/ml), with heat as needed.

References

1. The Merck Index, 12th ed., Entry# 8733.
2. Gomori, G., Preparation of buffers for use in enzyme studies. *Methods Enzymol.*, **1**, 138-146 (1955).
3. Andersen, K. E., et al., High-performance capillary electrophoresis with indirect UV detection for determination of alpha-galactosides in *Leguminosae* and *Brassicaceae*. *J. Agric. Food Chem.*, **51(22)**, 6391-6397 (2003).
4. Kaale, E., et al., Determination of kanamycin by electrophoretically mediated microanalysis with in-capillary derivatization and UV detection. *Electrophoresis*, **24(6)**, 1119-1125 (2003).
5. Wienen, F., and Holzgrabe, U., A new micellar electrokinetic capillary chromatography method for separation of the components of the aminoglycoside antibiotics. *Electrophoresis*, **24(17)**, 2948-2957 (2003).
6. Simms, P. J., et al., Analysis of combinatorial chemistry samples by micellar electrokinetic chromatography. *J. Comb. Chem.*, **3(5)**, 427-433 (2001).
7. Hu, W., et al., Analysis of inorganic anions by electrostatic ion chromatography using zwitterionic/cationic mixed micelles as the stationary phase. *Fresenius J. Anal. Chem.*, **367(7)**, 641-644 (2000).
8. Turnes Carou, M. I., et al., Capillary zone electrophoresis for the determination of light-absorbing anions in environmental samples. *J. Chromatogr. A*, **918(2)**, 411-421 (2001).

GCY/JRC 11/08

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