

## Product Information

### Tetramethylammonium hydroxide pentahydrate

Product Number **T 7505**  
Store at Room Temperature

#### Product Description

Molecular Formula:  $C_4H_{13}NO \cdot 5H_2O$   
Molecular Weight: 181.2  
CAS Number: 10424-65-4  
Melting point: 63 °C<sup>1</sup>  
Synonym: TMAOH, TMAH,  
N,N,N-trimethylmethanaminium hydroxide<sup>1</sup>

Tetramethylammonium hydroxide (TMAOH) is an ion pairing agent that is commonly used in analytical chemistry. TMAOH is utilized in gas chromatography/mass spectrometry (GC/MS), capillary isotachopheresis and capillary zone electrophoresis, and liquid chromatography. TMAOH has been used in the analysis of marine compounds by TLC-pyrolysis-GC/MS and thermal desorption/capillary GC/inductively coupled plasma mass spectrometry.<sup>2,3</sup> The use of TMAOH in a capillary zone electrophoresis technique for the separation of inorganic anions has been described.<sup>4</sup> A study has been reported on oligonucleotide reassociation in the presence of TMAOH.<sup>5</sup>

The use of TMAOH in the synthesis of organic and inorganic compounds, such as vinyl halides and tetramethylammonium dithiocarboxylates, has been described.<sup>6,7</sup> TMAOH has been utilized in the preparation of iron oxide nanoparticles for application as magnetic resonance imaging contrast agents.<sup>8</sup>

#### Precautions and Disclaimer

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

#### Preparation Instructions

This product is soluble in water (100 mg/ml), yielding a clear, colorless solution.

#### References

1. The Merck Index, 12th ed., Entry# 9363.
2. Hudson, E. D., et al., Thin-layer chromatography-pyrolysis-gas chromatography-mass spectrometry: a multidimensional approach to marine lipid class and molecular species analysis. *J. Chromatogr. Sci.*, **39(4)**, 146-152 (2001).
3. Vercauteren, J., et al., Stir bar sorptive extraction for the determination of ppq-level traces of organotin compounds in environmental samples with thermal desorption-capillary gas chromatography-ICP mass spectrometry. *Anal. Chem.*, **73(7)**, 1509-1514 (2001).
4. Chen, Z., et al., Enhanced selectivity and sensitivity for inorganic anions using an ion-pairing reagent and sample stacking in capillary zone electrophoresis with direct UV detection. *Anal. Bioanal. Chem.*, **375(1)**, 182-187 (2003).
5. Maskos, U., and Southern, E. M., A study of oligonucleotide reassociation using large arrays of oligonucleotides synthesised on a glass support. *Nucleic Acids Res.*, **21(20)**, 4663-4669 (1993).
6. Trost, B. M., and Pinkerton, A. B., Formation of vinyl halides via a ruthenium-catalyzed three-component coupling. *J. Am. Chem. Soc.*, **124(25)**, 7376-7389 (2002).
7. Kato, S., et al., Heavy Alkali Metal Arenedithiocarboxylates: A Facile Synthesis, Dimeric structure, and nonbonding interaction between the metals and aromatic ring carbons. *Inorg. Chem.*, **38(3)**, 496-506 (1999).
8. Babes, L., et al., Synthesis of iron oxide nanoparticles used as MRI contrast agents: A parametric study. *J. Colloid Interface Sci.*, **212(2)**, 474-482 (1999).

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