

Certificate of Analysis

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Product Name: Spermine tetrahydrochloride

Catalog No.: 0958

Batch No.: 4

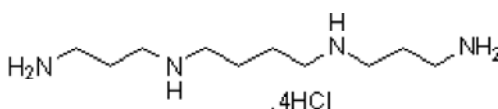
CAS Number: 306-67-2

EC Number: 206-189-8

IUPAC Name: *N,N'*-Bis(3-aminopropyl)-1,4-butanediamine tetrahydrochloride

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₁₀H₂₆N₄.4HCl
Batch Molecular Weight: 348.19
Physical Appearance: White solid
Solubility: water to 100 mM
Storage: Desiccate at +4°C
Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.7% purity
¹H NMR: Consistent with structure
Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	34.5	8.68	16.09
Found	34.32	8.76	16.08

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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IUPAC Name: *N,N'*-Bis(3-aminopropyl)-1,4-butanediamine tetrahydrochloride

Description:

Spermine tetrahydrochloride is a polyamine which produces a variety of modulatory effects on the NMDA receptor channel, acting through a specific site on the complex which can cause both agonist and antagonist effects.

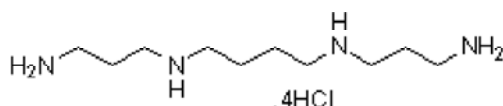
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Storage: Desiccate at +4°C

Solubility & Usage Info:

water to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Doyle and Shaw (1998) Investigation of the actions and antagonist activity of some polyamine analogues *in vivo*. Br.J.Pharmacol. **124** 386. PMID: 9641557.

Johnson (1996) Modulation of channel function by polyamines. TiPS **17** 22. PMID: 8789355.

Benveniste and Mayer (1993) Multiple effects of spermine on N-MthD.-aspartic acid receptor responses of rat cultured hippocampal neurones. J.Physiol. **464** 131. PMID: 8229795.

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