

Certificate of Analysis

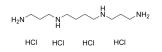
Spermine (tetrahydrochloride)

| Cat. No.: | HY-B1777A |
|----------------|-------------------------------------------------------------------|
| CAS No.: | 306-67-2 |
| Batch No.: | 255247 |
| Chemical Name: | 1,4-Butanediamine, N1,N4-bis(3-aminopropyl)-, hydrochloride (1:4) |

PHYSICAL AND CHEMICAL PROPERTIES

| Molecular Formula: | $C_{10}H_{30}Cl_4N_4$ |
|--------------------|---------------------------------------------------------------------|
| Molecular Weight: | 348.18 |
| Storage: | 4°C, protect from light |
| | * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light) |

Chemical Structure:



ANALYTICAL DATA

| Appearance: | White to off-white (Solid) |
|------------------------------|-------------------------------------------------------------------------|
| ¹ H NMR Spectrum: | Consistent with structure |
| Purity (NMR): | ≥98.0% |
| Conclusion: | The product has been tested and complies with the given specifications. |

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

9 E-mail: tech@MedChemExpress.com