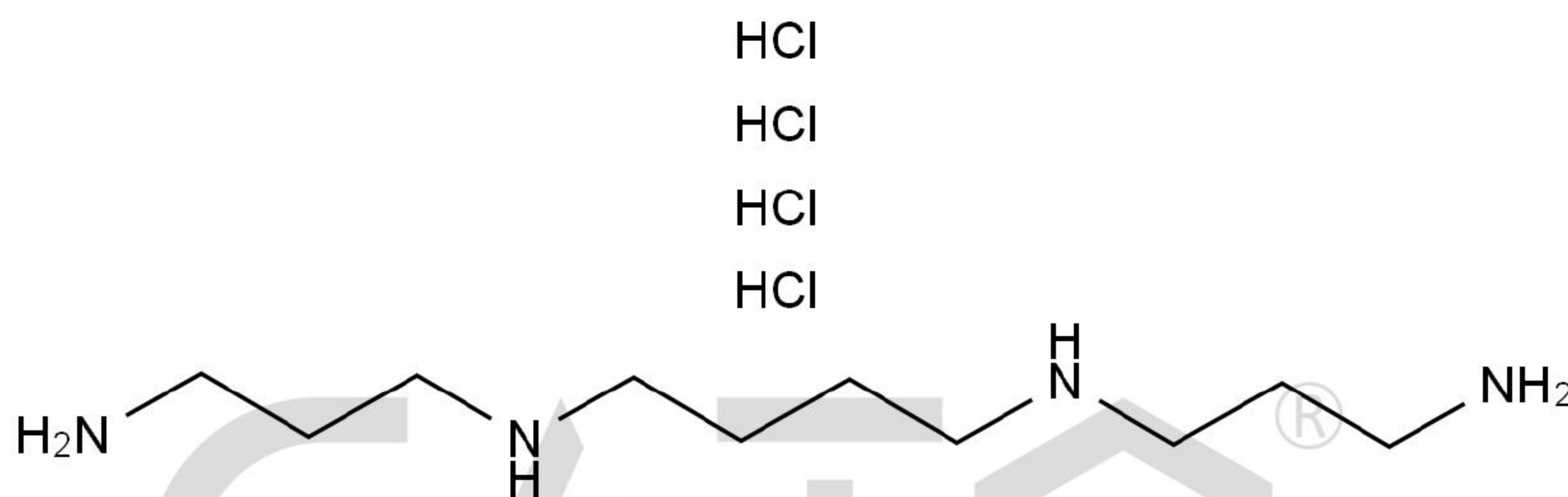


Certificate of Analysis

Reference Material

Product Name:	Spermine Tetrahydrochloride	Catalogue Number:	CCAD300421
Chemical Name:	N/A	Lot Number:	1222-RD-0002
CAS Number:	306-67-2	Expiry Date:	Dec 19, 2026
Molecular Formula:	C10H26N4 4*HCl	Storage:	Room Temp Protected from light and Sealed
Molecular Weight:	202.34 4*36.46		

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White Powder
Identification	LCMS&HNMR	Confirmed
Purity	ELSD	100.000%
Loss On Drying	TGA	0.0665%
Assay		99.9%
Uncertainty		±2.0%

Comment:

1. The calculation of the 100% method follows the formula (calculated on the non-dried basis):

$Assay (\%) = (100\% - Loss\ On\ Drying) * Purity\ ELSD (\%) / 100\%$

Loss On Drying is considered as absolute effect, ELSD purity is considered as relative effect.

2. The uncertainty values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Signature:

Prepared by:

Yuki

Reviewed by:

Debia

Aporoved by General manager:

David

Date: Dec 20, 2022

Date: Dec 22, 2022

Date: Dec 22, 2022

