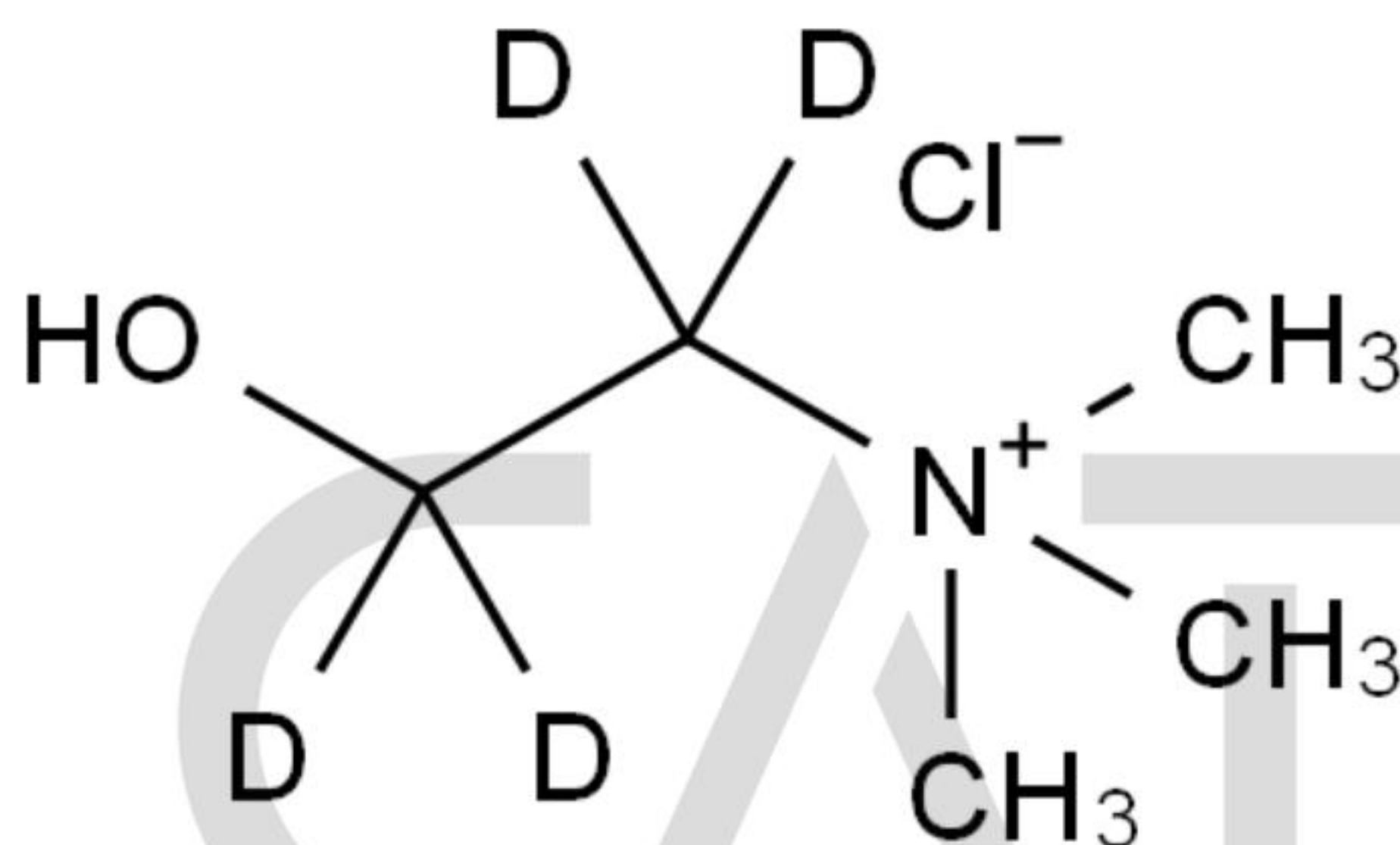


Certificate of Analysis

Reference Material & Standard

Product Name:	Choline-1,1,2,2-d4 Chloride	Catalogue Number:	CCFD200899
Synonyms:	N/A	Lot Number:	0323-RH-0134
CAS Number:	285979-70-6	Expiry Date:	Mar 18, 2029
Molecular Formula:	C ₅ H ₁₀ D ₄ NO Cl	Storage:	2°C ~ 8°C Protected from light and Sealed
Molecular Weight:	108.20 35.45	Shipping Condition:	Shipping at Room Temperature

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White Solid
Identification	LCMS&HNMR	Confirmed
Chemical Purity	NMR	98.0%
Isotopic Purity		99.1%
Uncertainty		±0.4%

Comment:

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:

Lisa

Reviewed by:

Jim

Approved by General Manager:

David

Date: Mar 24, 2026

Date: Mar 24, 2026

Date: Mar 24, 2026

