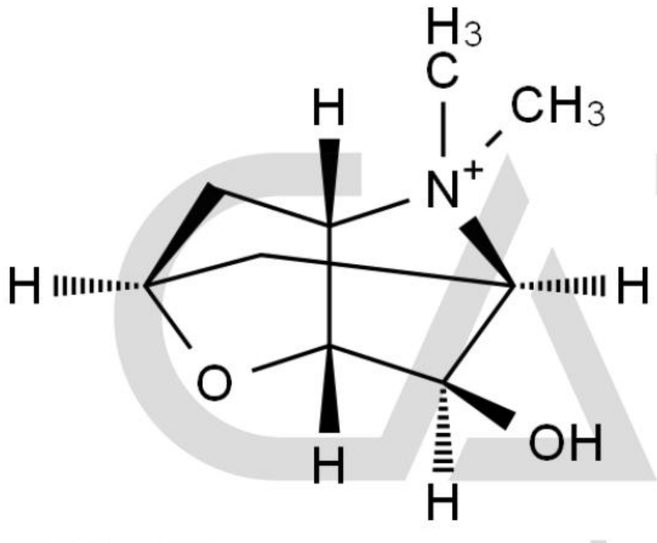
Certificate of Analysis

Reference Material & Standard

Product Name:	Tiotropium Bromide EP Impurity H (Mixture of Enantiomers)	**Catalogue Number:**	C4X-17648
Synonyms:	N/A	**Lot Number:**	1113-RE-0033
CAS Number:	1044148-31-3	**Expiry Date:**	Sep 20, 2030
Molecular Formula:	$C_9H_{16}NO_2$ Br	**Storage:**	-20°C±5°C Protected from light and Sealed
Molecular Weight:	170.23 79.90	**Shipping Condition:**	Shipping with Ice Packs
		Warning:	

Chemical Structure:



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Test Items	Method	Results
Appearance	Visual inspection	White Solid
Identification	LCMS&CNMR&HNMR	Confirmed
Purity	HPLC	100.0000%
Loss on Drying	TGA	0.177%
Assay		99.8%

Comment:

The calculation of the mass balance method follows the formula (calculated on the non-dried basis):
*Assay (%) = (100%-Loss on Drying) * Purity HPLC (%) /100%*
Loss on Drying is considered as absolute effect, HPLC purity is considered as relative effect.

Signature:

Prepared by: Koji Date: Sep 21, 2026

Reviewed by: Hinlam Date: Sep 21, 2026

Approved by General Manager: David Date: Sep 21, 2026

CATO Research Chemicals Inc.