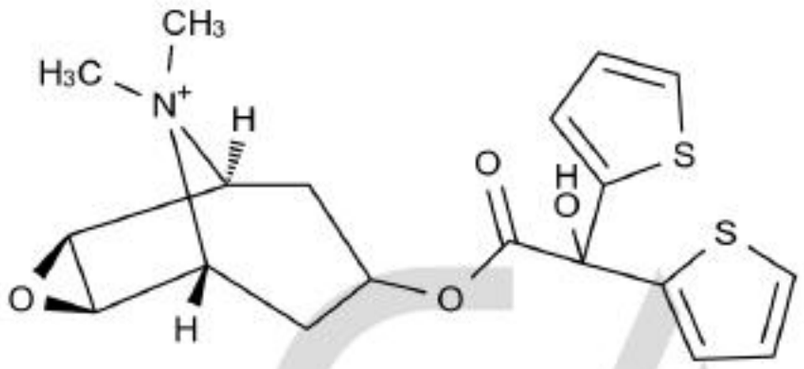
Certificate of Analysis

Reference Material & Standard

Product Name:	(1A,2A,4A,5A,7A)-7-[(Hydroxydi-2-thienylacetyl)oxy]-9,9-dimethyl-3-oxa-9-azoniatri-cyclo[3.3.1.02.4]nonane bromide (1a,2,4,5a,7)-7-[(2-Hydroxy-2,2-di-2-thienylacetyl)oxy]-9,9-dimethyl-3-oxa-9-azoniatricyclo[3.3.1.02,4]nonane bromide 186691-13-4 7-((Hydroxybis(2-thienyl)acetyl)oxy)-9,9-dimethyl-3-oxa-9-azoniatricyclo(3.3.1.0(2,4))nonane bromide 7-{[hydroxy(dithiophen-2-yl)acetyl]oxy}-9,9-dimethyl-3-oxa-9-azoniatricyclo[3.3.1.02,4]nonane bromide BA 679 BR BA 679BR BA-679 BR BA-679-BR D0P1WA Spiriva Spiriva (TN) Spiriva Handihaler Spiriva Respimat TIOTROPIUM BROMIDE Tiotropium Tiotropium bromide [USAN:INN]	**Catalogue Number:**	C1432335
Synonyms:	N/A	**Lot Number:**	0517-SA-7734
CAS Number:	186691-13-4	**Expiry Date:**	May 16, 27
Molecular Formula:	$C_{19}H_{22}NO_4S_2$	**Storage:**	2°C ~ 8°C Protected from light and Sealed
Molecular Weight:	392.51	**Warning:**	

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	Solid
Identification:	LC&HNMR	Confirmed
Purity:	HPLC	97.199%

CATO Research Chemicals Inc.

Signature:

Prepared by: Lisa — Date: May 17, 23

Reviewed by: Yuki — Date: May 17, 23

Approved by General Manager: David — Date: May 17, 23

CATO Research Chemicals Inc.

Directions:

1. Intended use: This product is suitable for identification and quantification of the analyte(s), instrument calibration, method development and quality control in analytical and R&D applications. It is not intended for administration to humans or animals, and shall not be used to diagnose, treat or cure any diseases.

2. Minimum sample size: 1mg is recommended as the minimum sample size.

3. Metrological traceability: This product meets the requirements of ISO 17034 and is traceable to NMI through an unbroken chain of comparisons.

4. Instructions for handling and correct use: Handling in a well-ventilated place.

Document Version:

Revision No.	Date	Reason for Revision
01	May 17, 23	First release.

CATO Research Chemicals Inc.