



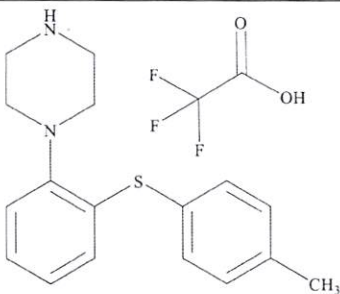
TLC PHARMACEUTICAL STANDARDS

Certificate of Analysis



Certificate No.: 20250124506

Date: January 24, 2025

Retest date: January 22, 2028

Compound Name:	Vortioxetine Impurity 3 Trifluoroacetate	
Synonyms:	1-(2-(<i>p</i> -tolylthio)phenyl)piperazine, 2,2,2-trifluoroacetic acid (1:1)	
TLC Catalogue Number:	V-043004	
CAS Number:	508233-82-7 (free base)	
Molecular Weight:	284.42 114.02	
Molecular Formula:	C ₁₇ H ₂₀ N ₂ S. C ₂ HF ₃ O ₂	
Source:	TLC Pharmaceutical Standards	
Source Lot No.:	4802-071A3	
Storage Conditions:	Store at 2-8 °C	
Solubility:	Methanol, DMSO, DMF	

Test Description	Specifications	Results
Visual Description	Off-white solid	Conforms
Identification		
IR	Conforms to structure	Conforms
MS	Conforms to structure	Conforms
¹ H NMR	Conforms to structure	Conforms
¹⁹ F NMR	Conforms to structure	Conforms
Elemental Analysis	Conforms to structure	Conforms
Purity (HPLC)	Not less than 95.0%	99.6%
Impurity (HPLC)	RT 0.93, 0.12%; RT 4.56, 0.28%	
Water Content (KF)	N/A	0.2%
Residual Solvents (NMR)	0.2% isopropyl ether	
Assay (%)	Not less than 90.0%	99.2%
Recommendation:	Release.	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		01/24/2025
Approved by:	Quality Assurance		01/24/2025

Attachments: Peak Attribution Table, HPLC, IR, MS and NMR spectra.