

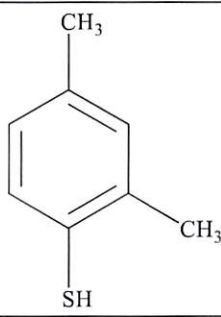
Certificate of Analysis

Certificate No.: **20220728015**

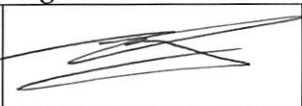

Date: July 28, 2022

Retest date: July 20, 2025

Compound Name: Vortioxetine Impurity 31	
Synonyms:	2,4-dimethylbenzenethiol
TLC Catalogue Number:	V-043034
CAS Number:	13616-82-5
Molecular Weight:	138.23
Molecular Formula:	C ₈ H ₁₀ S
Source:	TLC Pharmaceutical Standards
Source Lot No.:	5155-001A1
Storage Conditions:	Store at 2-8 °C
Solubility:	Methanol, DMSO, Acetonitrile



Test Description	Specifications	Results
Visual Description	Colorless liquid	Conforms
Identification		
IR	Conforms to structure	Conforms
MS	Conforms to structure	Conforms
¹ H NMR	Conforms to structure	Conforms
Purity (HPLC)	Not less than 95.0%	99.3%
Impurity (HPLC)	RT 7.26, 0.11%; RT 22.07, 0.54%	
Residual Solvents (NMR)	No residual solvent	
Assay (qNMR)	Not less than 90.0%	98.7%
Recommendation:	Release.	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		07 / 29 / 2022
Approved by:	Quality Assurance		07 / 29 / 2022

Attachments: HPLC, IR, MS and NMR spectra.