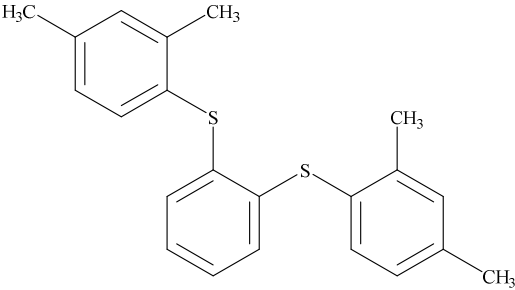


Certificate of Analysis

Certificate No.: **20181114001**

Date: November 14, 2018

Retest date: November 12, 2021

Compound Name:	Vortioxetine Impurity 17	
Synonyms:	1,2-Bis((2,4-dimethylphenyl)thio)benzene	
TLC Catalogue Number:	V-043018	
CAS Number:	N/A	
Molecular Weight:	350.54	
Molecular Formula:	C ₂₂ H ₂₂ S ₂	
Source:	TLC Pharmaceutical Standards	
Source Lot No.:	3214-039A3	
Storage Conditions:	Store at 2-8 °C.	
Solubility:	Methanol	

Test Description	Specifications	Results
Visual Description	White to off-white solid	Conforms
Identification		
MS	Conforms to structure	Conforms
¹ H NMR	Conforms to structure	Conforms
Purity (HPLC)	Not less than 95.0%	99.3%
Impurity (HPLC)	RT 5.75, 0.1%; RT 8.64, 0.2%; RT 10.95, 0.5%	
Water Content (KF)	N/A	0.1%
Residual Solvents (NMR)	No residual solvent	
Assay (%)	Not less than 90.0%	99.2%
Recommendation:	Released.	

Name	Department	Signature	Date
Reviewed and approved by:	Analytical Services		
Approved by:	Quality Assurance		

Attachments: HPLC, MS and NMR spectra.