

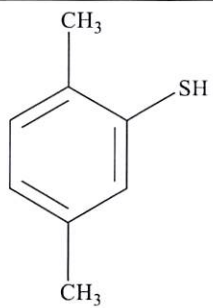
## Certificate of Analysis

Certificate No.: 20220818015

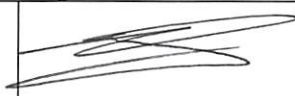

Date: August 18, 2022

Retest date: August 11, 2023

<b>Compound Name:</b> Vortioxetine Impurity 42	
<b>Synonyms:</b>	2,5-dimethylbenzenethiol
<b>TLC Catalogue Number:</b>	V-043050
<b>CAS Number:</b>	4001-61-0
<b>Molecular Weight:</b>	138.23
<b>Molecular Formula:</b>	C <sub>8</sub> H <sub>10</sub> S
<b>Source:</b>	TLC Pharmaceutical Standards
<b>Source Lot No.:</b>	5155-005A1
<b>Storage Conditions:</b>	Protect from air, store at -20 °C
<b>Solubility:</b>	DMSO



Test Description	Specifications	Results
<b>Visual Description</b>	Colorless liquid	<b>Conforms</b>
<b>Identification</b>		
<b>IR</b>	Conforms to structure	<b>Conforms</b>
<b>MS</b>	Conforms to structure	<b>Conforms</b>
<b><sup>1</sup>H NMR</b>	Conforms to structure	<b>Conforms</b>
<b>Purity (HPLC)</b>	Not less than 95.0%	<b>98.9%</b>
<b>Impurity (HPLC)</b>	RT 24.80, 1.09%	
<b>Residual Solvents (NMR)</b>	No residual solvent	
<b>Assay (qNMR)</b>	Not less than 90.0%	<b>98.9%</b>
<b>Recommendation:</b>	<b>Release.</b>	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		08 / 19 / 2022
Approved by:	Quality Assurance		08 / 19 / 2022

**Attachments:** HPLC, IR, MS and NMR spectra.