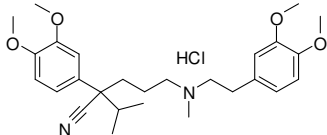


Certificate of Analysis

Axon Catalogue ID:	3452	Batch Number:	1
Product Name:	Verapamil hydrochloride		
Alternative Name(s):	N.A.		
IUPAC Name:	5-((3,4-Dimethoxyphenethyl)(methyl)amino)-2-(3,4-dimethoxyphenyl)-2-isopropylpentanenitrile hydrochloride		
Structure:			Amount:
CAS number(s):	52-53-9 (parent), 152-11-4 (HCl (1:1))		
Molecular Formula:	C ₂₇ H ₃₈ N ₂ O ₄ .HCl	Molecular Weight:	491.06
Batch Molecular Formula:	C ₂₇ H ₃₈ N ₂ O ₄ .HCl	Batch Molecular Weight:	491.06
Appearance:	White solid	Observed mp:	>143 °C (decomp)
TLC (R_f):	0.65	DCM/MeOH (9:1)	
Chemical Purity:	99.9%		
Optical Purity (ee):	N.A.		
¹H-NMR:	Analytical data confirm chemical structure		
Mass Spec:	Analytical data confirm chemical structure		
Microanalysis:	Calculated: C 66.04, H 8.01, N 5.70; Found: C 66.05, H 8.13, N 5.69		
Storage Conditions:	Desiccate at -20 °C		
Solubility Data:	Solvent	Solubility (mg/ml)	Solubility (mM)
	Water	19.1	38.9
	0.1N NaOH (aq)		Not Tested
	0.1N HCl (aq)		Not Tested
	DMSO	28.2	57.5
	EtOH	10.8	22.0
Remarks:			
QC Date:	10-9-2021		

The purity of Axon Ligands is confirmed by HPLC, MS, NMR and/or microanalysis. Analytical data are available upon request. Request can be submitted by e-mail to info@axonmedchem.com indicating Catalogue ID and Batch number.

Caution: Not fully tested. For research purposes only