



CERTIFICATE OF ANALYSIS

20 Martin Ross Avenue, North York, ON, M3J 2K8, CANADA
Tel: (416) 665-9696, Fax: (416) 665-4439
Email: orders.trc@lgcgroup.com Website: www.trc-canada.com

1. Identification

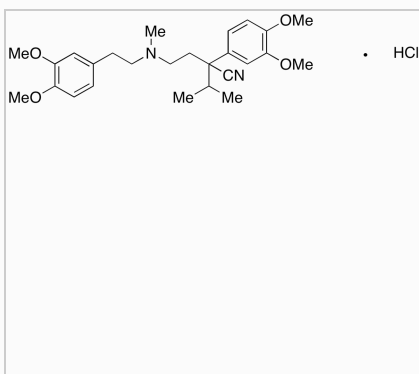
Catalogue Number: D100045

CAS Number: 1794-55-4

Product: D 517 Hydrochloride (Verapamil Impurity)

Synonym: α-[2-[[2-(3,4-Dimethoxyphenyl)ethyl]methylamino]ethyl]-3,4-dimethoxy-α-(1-methylethyl)benzeneacetonitrile Hydrochloride; 4-[[3,4-Dimethoxyphenethyl)methylamino]-

Structure:



Molecular Formula:

$C_{26}H_{36}N_2O_4 \cdot HCl$

Molecular weight:

440.58 + 36.46

Source of Product:

Synthetic

Solubility:

Methanol (Slightly), Water (Slightly, Heated)

Lot Number: 5-ANF-170-1

Purity: 97%

Shipping Condition: This Product Is Stable To Be Shipped At Room Temperature

Storage Condition: -20°C

2. Warning

Warning 1:

Warning 2:

Warning 3:

3. Analytical Information

Tests:	Specifications:	Results:
Appearance	Off-White to Brown Solid	Light Beige to Brown Solid
NMR	Conforms to Structure	Conforms
Elemental Analysis	Conforms	%C: 63.17, %H: 8.04, %N: 5.66
MS	Conforms to Structure	Conforms
Chloride Content	Report Result	7.4%
Specific Rotation	Report Result	-0.2° (c = 0.5, Methanol)
FT-IR	Conforms to Structure	Conforms
Water Content	Report Result	~3.5% based on Elemental Analysis
HPLC Purity	Report Result	98.07% (200 nm)

Additional Information: N/A

Purity is based on the analytical results of the tests performed. NMR and Elemental Analysis (if available) may have an accuracy of $\pm 2\%$. Isotopic purity is based on mass distribution observed. The contents of the specifications are subject to change without advance notice, and the specification values displayed here are the most up to date values.

4. Signatures

Reviewed By	Reviewed By	C of A Approved By	Test Date	Retest Date
Henry Tieu	Toni Rantanen	Chanell Chu	9/24/2021	9/22/2025
				