

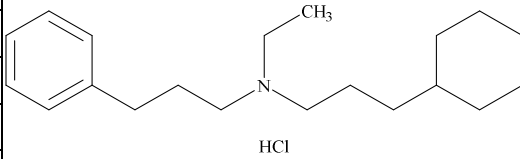
# Certificate of Analysis

Certificate No.: **20200318028**

Date: March 18, 2020

Retest date: March 10, 2023

<b>Compound Name:</b> Alverine EP Impurity D HCl	
<b>Synonyms:</b>	3-cyclohexyl-N-ethyl-N-(3-phenylpropyl)propan-1-amine, hydrochloride (1:1)
<b>TLC Catalogue Number:</b>	A-5411
<b>CAS Number:</b>	N/A
<b>Molecular Weight:</b>	287.49 36.46
<b>Molecular Formula:</b>	C <sub>20</sub> H <sub>33</sub> N. HCl
<b>Source:</b>	TLC Pharmaceutical Standards
<b>Source Lot No.:</b>	3815-022A4
<b>Storage Conditions:</b>	Store at 2-8 °C
<b>Solubility:</b>	Methanol, DMSO, DMF



Test Description	Specifications	Results
<b>Visual Description</b>	White to off-white solid	<b>Conforms</b>
<b>Identification</b>		
IR	Conforms to structure	<b>Conforms</b>
MS	Conforms to structure	<b>Conforms</b>
<sup>1</sup> H NMR	Conforms to structure	<b>Conforms</b>
<b>Purity (HPLC)</b>	Not less than 95.0%	<b>100.0%</b>
<b>Impurity (HPLC)</b>	N/A	
<b>Water Content (KF)</b>	N/A	<b>0.2%</b>
<b>Residual Solvents (NMR)</b>	No residual solvent	
<b>Assay (%)</b>	Not less than 90.0%	<b>99.8%</b>
<b>Recommendation:</b>	<b>Released.</b>	

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

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