

# CERTIFICATE OF ANALYSIS

Material No: **183785**  
 Name: **Nicotine**  
 Quality: **USP/Ph.Eur.**

Lot No: **11291157**  
 CAS No: **54-11-5**  
 Formula: **C10H14N2**  
 Molecular weight: **162.2**

Manufacturing date: **03-Aug-2011**  
 Retest date: **03-Aug-2015**  
 Actual specification: **13-Apr-2011**

Test	Method	Specification	Result
Description	BE-183785	colourless to yellow or brownish liquid	conforms
IR-Spectrum	IR-183785	in accordance with the standard spectrum	conforms
Clarity of solution	KLA-183785	NMT 3 FTU; clear (5 % m/V in methanol)	0.3 FTU
Clarity of solution	KLB-183785	NMT 3 FTU; clear (10 % m/V in water)	0.8 FTU
Colour	FAA-183785	6 - 9 on scale Y or B (of the substance)	9
Colour of solution	FAB-183785	NLT 5 on scale BY, Y or R (10 % m/V in water)	7
Specific rotation	SDA-183785	-143 - -132 ° at 20°C in ethanol 96 % (calculated on the anhydrous basis)	-137.4 °
Specific rotation	SDB-183785	-143 - -130 ° at 25°C in ethanol 96 % (calculated on the anhydrous basis)	-136.3 °
Specific rotation	SDC-183785	-152 - -140 ° in ethanol abs. (calculated on the anhydrous basis)	-148.0 °
Arsenic	GPAS-183785	NMT 2 ppm	<1 ppm
Cadmium	PLCD-183785	NMT 0.5 ppm	<0.20 ppm
Heavy metals (Pb)	SM-183785	NMT 20 ppm	<10 ppm
Water (KF)	KF-183785	NMT 0.5 %	0.02 %
UV-Spectrum	UVA-183785	in accordance with the standard spectrum	conforms
UV-Absorbance	UVA-183785	315 - 365 A (1%;1cm) at 259 nm	336.2
Absorbance	UVB-183785	NMT 0.05 (A 420 nm; 1 cm) (5 % m/V in methanol)	<0.01
Assay (Non-aqu. titr.)	TIG-183785	99.0 - 101.0 % (calculated on the anhydrous basis)	99.4 %
Related substances (HPLC)	LCV-183785	NMT 0.15 % cotinine	<0.05 %
Related substances (HPLC)	LCV-183785	NMT 0.3 % myosmine	<0.05 %
Related substances (HPLC)	LCV-183785	NMT 0.10 % FAB (N-(4-oxo-4-pyridin-3-yl-butyl)-formamide)	<0.05 %
Related substances (HPLC)	LCV-183785	NMT 0.15 % nicotine N-oxide	<0.05 %
Related substances (HPLC)	LCV-183785	NMT 0.15 % nornicotine	<0.05 %
Related substances (HPLC)	LCV-183785	NMT 0.15 % anatabine	<0.05 %
Related substances (HPLC)	LCV-183785	NMT 0.10 % β-nicotyrine	<0.05 %