

CERTIFICATE OF ANALYSIS

FOR THE DEVELOP SPECIFICATION

Material No: **101857**
Name: **Nicotin Synth.**Lot No: **1912L025**
CAS No: **54-11-5**
Formula: **C10H14N2**
Molecular weight: **162.2**Manufacturing date: **05-Apr-2019**Actual specification: **21-Mar-2019****Not for Pharmaceutical Use**

Test	Specification	Result
Description	Colourless to yellow or brownish liquid	conforms
IR-Spectrum	In accordance with the reference spectrum	conforms
Clarity of solution	NMT 3 FTU, clear (10% m/V in water)	0.4 FTU
Colour of solution	NLT 5 on scale BY, Y or R (10% m/V in water)	7
Specific rotation	-152 - -140 ° in ethanol abs. (calculated on the anhydrous basis)	-147.6 °
Water (KF)	NMT 0.5 %	0.03 %
Assay (Non-aqu. titr.)	99.0 - 101.0 % (calculated on the anhydrous basis)	99.7 %
Identity (HPLC)	The retention time of the major peak corresponds to that of the reference	conforms
Related substances (HPLC)	NMT 0.15 % cotinine	<0.05 %
Related substances (HPLC)	NMT 0.15 % myosmine	0.15 %
Related substances (HPLC)	NMT 0.15 % nicotine N-oxide	<0.05 %
Related substances (HPLC)	NMT 0.15 % nornicotine	<0.05 %
Related substances (HPLC)	NMT 0.15 % anatabine	<0.05 %
Related substances (HPLC)	NMT 0.10 % β -nicotyrine	<0.05 %
Related substances (HPLC)	NMT 0.10 % anabasine	<0.05 %
Related substances (HPLC)	NMT 0.10 % greatest unknown impurity (no unknown impurity greater than 0.10%)	<0.06 %
Related substances (HPLC)	NMT 0.8 % sum of impurities	0.2 %
Related substances (HPLC)	NLT 99 area% S-Nicotine	99.5 area %
Residual solvents	ppm Toluol (only for information)	<10 ppm

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Release comment: **meets specification**

I hereby certify that the above information is authentic and accurate. This batch of product has been fabricated/manufactured including packaging and quality control in compliance with GMP requirements.

Released on: **15-May-2019**
on behalf of Siegfried Ltd
Released by: **J. Bobst**

This certificate of analysis is signed electronically.
It has been created automatically by the validated Siegfried Laboratory Information Management System (LIMS).