



# Spectrophotometer UV Absorbance Qualification

## Starna Nicotinic Acid Solution References

### Purpose

This Reference Material can be used to qualify the accuracy and linearity of the absorbance scale of spectrophotometers with bandwidth less than 2 nm in the far ultraviolet region of the spectrum (210 nm – 260 nm). It is accepted for this purpose by most pharmacopoeias and other regulatory bodies.

### Description and Discussion

Nicotinic acid solutions with concentrations from 6 to 24 mg/l in dilute (0.1 M) hydrochloric acid, sealed in high quality far UV quartz cells. Supplied with a 0.1 M hydrochloric acid blank.

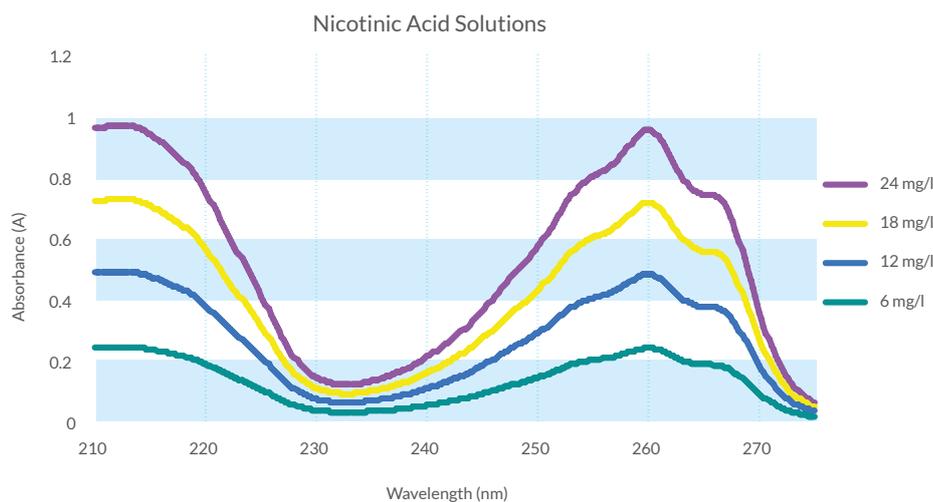
The spectrum of nicotinic acid, when prepared in acid solution, has characteristic peaks at approximately 213 nm and 261 nm. Within the concentration range 6-24 mg/l, if the absorbance scale of a narrow bandwidth (<2 nm) spectrophotometer is linear, the apparent absorbance of a series of concentrations measured at these peaks will be a linear function of concentration.

Solutions are available at higher concentrations giving absorbance values up to 2.4A. Starna do not recommend the use of Nicotinic Acid for linearity measurements above 1.0A



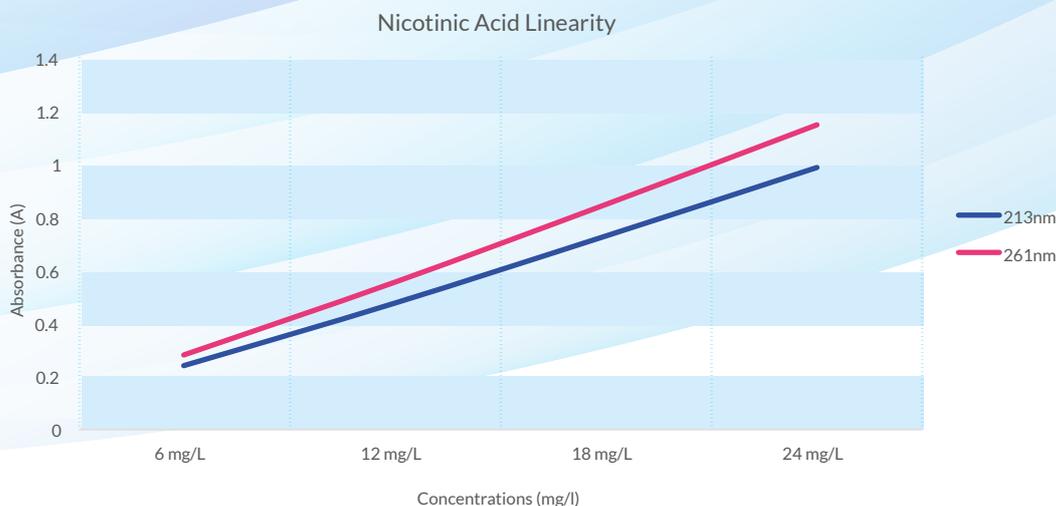
Typical absorbance values at these wavelengths for the different concentrations are as follows:

Concentration	Absorbance at Certified Wavelength	
	213nm	261nm
6 mg/L	0.240	0.281
12 mg/L	0.477	0.556
18 mg/L	0.730	0.849
24 mg/L	0.988	1.149



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Note: The above values are for guidance only. Because the absorption bands are asymmetric, measured values will be spectral bandwidth dependent. The Calibration Certificate accompanying the references gives actual values measured at a bandwidth of 1.0 nm, and only these certified values should be used for instrument qualification. On request, Starna can provide certified values at other bandwidth values.

## Certification and Documentation

A Certificate of Calibration and Traceability and full instructions for use are provided with each Reference Material. The certificate is supplied in electronic format, on a USB drive in the same box as the references, allowing hard copy to be produced on demand and giving easy interface to the user's own IT systems. Certification

measurements are made on a reference spectrophotometer that has been qualified using Standard Reference Materials (SRMs) certified by the National Institute of Standards and Technology (NIST) in the USA, or against primary physical references such as elemental emission lines.

## Accreditation

Starna Scientific is accredited to both ISO 17034 as a Reference Material producer, and ISO/IEC 17025 as a Calibration Laboratory for optical reference measurements. Starna Scientific's manufacturing facility is accredited to the ISO 9001 Quality Management System with BSI. For details see [www.starna.com/accreditations](http://www.starna.com/accreditations).

## How to Order

These references are available in a convenient set containing four concentrations and a hydrochloric acid blank cell:

### CATALOGUE NUMBER

**Nicotinic Acid Linearity Set** 6, 12, 18 & 24 mg/l & Blank Cell **RM-06A12A18A24A**

References are also available individually. Catalogue numbers and nominal certified values are given below. Any combination of references can be ordered as a set by combining the catalogue numbers as in the example above. A hydrochloric acid blank cell is supplied with each reference or set of references.

Concentration	Absorbance at Certified Wavelength		CATALOGUE NUMBER
	213nm	261nm	
6 mg/l	0.244	0.233	<b>RM-06A</b>
12 mg/l	0.489	0.466	<b>RM-12A</b>
18mg/l	0.727	0.694	<b>RM-18A</b>
24mg/l	0.968	0.924	<b>RM-24A</b>

## Warranty

STARNA offers a Lifetime Guarantee on all Starna Certified Reference Materials (CRMs), unless otherwise stated, such that any reference material that moves outside its published uncertainty budget will be replaced free of charge. This guarantee is subject to the reference materials being re-certified at least every two years and that the references have not been physically, thermally or optically abused. The STARNA UKAS accredited Calibration Laboratory aims to re-certify and despatch references within five working days from receipt.



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'Setting the Standard'

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