



Starna scientific
'Setting the Standard'

Quality Assurance in the Analytical Laboratory

Starna 260/280 Reference

Starna DNACON Cell

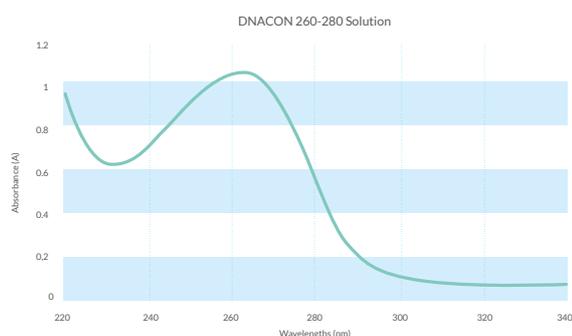
Purpose

This Reference Material can be used for quality control and assurance of nucleic acid purity measurements using the 260/280 nm ratio method. It is also available packaged for use with dedicated microvolume instruments.

Description and Discussion

The ratio of the UV absorbance values at 260 nm and 280 nm is an indication of the purity of nucleic acid preparations. Pure DNA and RNA solutions will have ratios of ≥ 1.8 and ≥ 2.0 , respectively. One potential problem with this method is that the 280 nm measurement is taken on a steep slope in the absorbance spectrum, so that a small variation in wavelength at 280 nm will have a large effect on the measured absorbance and hence the 260/280 ratio. It is important to note that a variation of ± 1 nm, i.e. within the wavelength specification tolerance of many spectrophotometers, can give rise to a significant difference in the 260/280 ratio.

Instrument qualification using Certified Reference Materials (CRMs) is an essential part of any quality control programme. Reliable reference materials using DNA solutions are difficult to produce, are inherently unstable, and the materials themselves are often difficult to characterize, handle, package, store and certify. The DNACON reference from Starna was developed as a reliable, stable and traceable reference material for the validation of this method. The reference consists of a solution of a synthetic material whose spectral characteristics closely mimic those of DNA, permanently heat-sealed in a far-UV quartz cell.



How to Order

By replicating an actual DNA sample, DNACON gives a reliable direct indication of the quality of the overall measurement process.

Absorbance values are certified at 260 nm, 280 nm and 330 nm for spectral bandwidths of 1.0, 2.0, 3.0, 4.0 and 5.0 nm. The value at 330 nm is used as a "background" correction, as in the normal methodology. From these values a corrected 260/280 ratio is calculated and reported for each bandwidth using the formula:

$$\text{Ratio} = \frac{(A_{260} - A_{330})}{(A_{280} - A_{330})}$$

The typical calculated ratio is 1.9

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.

Warranty

STARNA offers a Lifetime Guarantee on all Starna reference materials, unless otherwise stated, such that any reference material (CRMs) 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.



CATALOGUE
NUMBER

Starna DNACON 260/280 Reference

RM-DNA