

Spectrophotometer UV Resolution (Bandwidth) Qualification for Derivative Spectroscopy

Toluene in Methanol Reference

instrument, which describes the range of wavelengths coming from the exit slit of the instrument's monochromator. The accuracy of the measured absorbance will depend on the ratio of the SBW to the natural bandwidth (NBW) of the absorbing substance. The most widely used reference for qualifying the bandwidth of a spectrophotometer is a solution

of toluene in hexane.

When scanned in an ultraviolet spectrophotometer, the spectrum shows a maximum absorbance at 269 nm and a minimum at 267 nm.

The ratio of the peak maximum at 269 nm to the minimum at 267 nm gives a measure of the resolution of the instrument. Typical ratios for different bandwidths (at 20°C) are:

Spectral Bandwidth (nm)	0.5	1.0	1.5	2.0	3.0
Ratio	2.4 - 2.5	2.0 - 2.1	1.6 - 1.7	1.3 - 1.4	1.0 - 1.1

Note: The ratio values given in this document are for guidance only. The Calibration Certificate accompanying the Reference material gives the actual value measured at a bandwidth of 1.50 nm. Guidance is also given on the values to be expected at different bandwidths (0.5, 1.0, 1.5, 2.0 and 3.0 nm) and temperatures (20, 25 and 30 °C). To comply with Pharmacopoeia requirements, the instrument to be tested should have a spectral bandwidth not exceeding 1.8 nm.

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 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 Certified Reference Materials, 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.

How to Order

	CATALOGUE NUMBER
Toluene in hexane cell with hexane blank cell	RM-TX



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