



Starna scientific
'Setting the Standard'

Quality Assurance in the Analytical Laboratory

Spectrophotometer UV and Visible Absorbance Qualification

Metal-on-Quartz filters

Purpose

This Reference Material can be used to qualify the Absorbance scale, in the ultra-violet and visible region of the spectrum (250 nm to 850 nm) of spectrophotometers with spectral bandwidths not exceeding 6.5 nm.

Description and Discussion

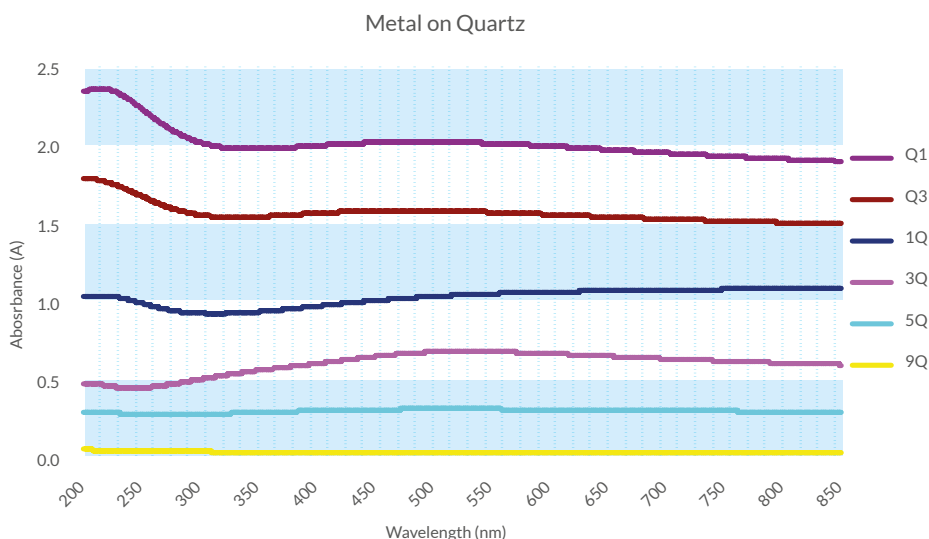
These filters are equivalent to NIST SRM 2013a. A metallic coating is deposited on to a quartz plate at a thickness that determines the transmission characteristics of the filter are determined by the thickness of a metallic coating deposited on a quartz plate. The metallic surface is overlaid by an optically bonded cover plate, to protect it from oxidation, contamination, or physical degradation.

Note that SRM 2013a is no longer available from NIST, having been replaced by SRM 2013b, that differs from the prior series by using an evaporated silicon dioxide protective overcoating rather than a protective cover plate in the construction. We consider the bonded cover plate to be more durable than the overcoating method and have therefore retained the earlier design. The filters are mounted



in stress-free black-anodized aluminium alloy holders, with front and rear sliding covers that protect the filters when not in use. All individual references and sets are supplied with an empty filter holder for use as a measurement reference.

The spectrum of these filters is essentially flat from 250 nm to 850 nm.



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Absorbance and Transmittance values are certified at 250, 280, 340, 360, 400, 465, 500, 546.1, 590 and 635 nm.

These filters are based on a NIST SRM series whose values follow a sequence of Transmission rather than Absorbance values. Approximate values available are: 90% T (0.04 A), 50% T (0.3 A), 30% T (0.5 A), 10% T (1.0 A), 3%T (1.5 A) and 1% T (2.0A)

Instruments to be qualified should have a bandwidth of 5nm or less.

Note: The measurement values given in this document are **for guidance only. The Calibration Certificate accompanying the Reference Material gives the actual values measured at a bandwidth of 1nm.**

As these filters attenuate the incident radiation partly by reflection, inter-reflections could be generated within the sample compartments of some spectrophotometers. This could affect the accuracy of measurements, and it is recommended that potential purchasers contact the manufacturer of their instrument to check its compatibility with metal-on-quartz filters.

Certification and Documentation

A Certificate of Validation 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.

Accreditation

Starna Scientific is accredited to both ISO Guide 34 (4001) as a Reference Material producer, and ISO 17025 (0659) as a Calibration Laboratory for optical reference measurements. Starna Scientific's manufacturing facility is accredited to the ISO 9001 Quality Management System with BSI.

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 |
|--|------------------|
| Metal-on-Quartz Filter set, NIST SRM 2013a 10, 30 & 90%T & blank filter holder | RM-1Q3Q9Q |

The references are also available individually. Nominal certified transmission/absorbance values and catalogue number are given below. Any combination of references can be ordered as a set by combining the catalogue numbers as in the example above. An empty filter holder is supplied with each reference or set of references to be used as a measurement blank.

| Nominal Transmittance and Absorbance Values | CATALOGUE NUMBER |
|---|------------------|
| 90% T (0.04 A) | RM-9Q |
| 50% T (0.3 A) | RM-5Q |
| 30% T (0.5 A) | RM-3Q |
| 10% T (1.0 A) | RM-1Q |
| 3%T (1.5 A) | RM-Q3 |
| 1% T (2.0A) | RM-Q1 |



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