Starna scientific
'Setting the Standard'

Spectrophotometer UV and Visible Wavelength Qualification

Holmium Oxide Solution Reference

Purpose

This Reference Material can be used to qualify the wavelength calibration, in the ultraviolet and visible regions of the spectrum (240 nm - 650 nm) of spectrophotometers with spectral bandwidths of 3 nm or less. It is accepted for this purpose by most Pharmacopoeias and Standardisation Bodies.

Description and Discussion

Holmium oxide (4% m/v) in 10% v/v perchloric acid, permanently sealed by heat fusion into a 10 mm far UV quartz cuvette.

The use of holmium oxide solvated in perchloric acid is an established and well recognised method for the validation of the wavelength scale of a spectrophotometer in the UV and visible regions. Aqueous perchloric acid solvent is used as the solvent as the resulting $Ho^{3+}aq$ species is relatively stable to changes in temperature and concentration.

When prepared in perchloric acid, holmium oxide gives a spectral scan containing a series of 14 characteristic and well-defined peaks covering the wavelength range from 240 to 650 nm.

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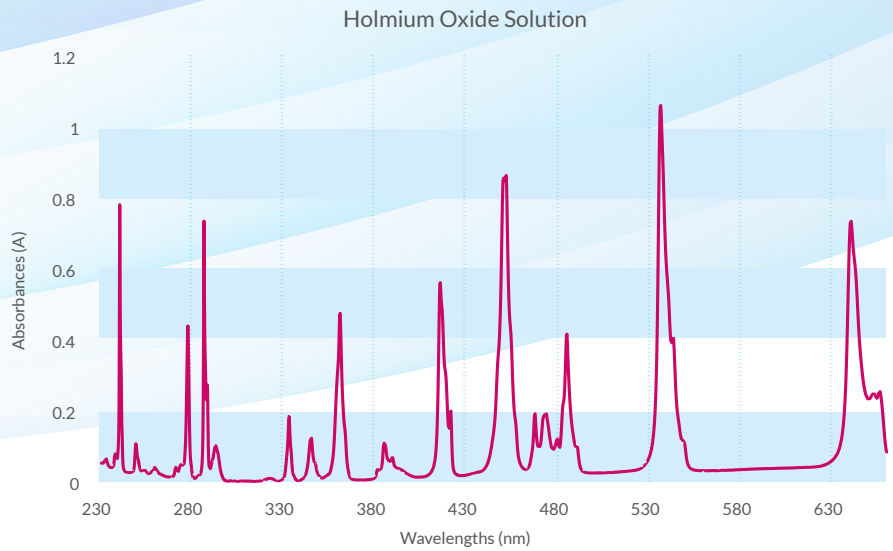

Approximate peak wavelength values (in nm) are:
241, 250, 278, 288, 334, 346, 361, 385, 417, 451, 468, 485, 537, 641

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 each Starna Holmium reference gives actual values measured at bandwidths of 0.10, 0.25, 0.50, 1.00, 1.50, 2.00, 3.00, 4.00 and 5.00 nm, and only these certified values should be used for instrument qualification. On request, Starna can provide certified values at other wavelengths and 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.

Warranty

STARNA offers a Lifetime Guarantee on all Starna Certified 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.

How to Order

	CATALOGUE NUMBER
Holmium oxide liquid cell	**RM-HL**

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