Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

0630

Accredited to ISO/IEC 17025:2017

The Tintometer Limited

Issue No: 018 **Issue date:** 14 March 2023

Lovibond House
Sun Rise Way
Amesbury
SP4 7GR

Contact: Dr P Clarke
Tel: +44 (0)1980 664800
Fax: +44 (0)1980 625412
E-Mail: sales@tintometer.com
Website: www.tintometer.com

Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
			All calibrations are against reference transmittance standards
SPECTRAL TRANSMITTANCE	*Wavelength 380 nm to 780 nm* T <= 20% T > 20%	 (0.013T + 0.044) % (0.0032T + 0. 24) %	 Measured at intervals 1, 2, 5 or 10 nm
Luminous transmittance		0.0030	ASTM D1500
ISO 2049 A.2.2 Daylight Filter	*Wavelength 380 nm to 780 nm* T <= 20%: T > 20%	 (0.013T + 0.044) % (0.0032T + 0.24) %	Compliance derivation in accordance with A.2.2
ABSORBANCE	*Wavelength 380 nm to 780 nm*	T % uncertainty transformed to absorbance	T % to absorbance = $- \log_{10}(T\ \% / 100)$
Glass colour reference materials			
CIE tristimulus values derived from spectral transmittance data	*Wavelength 380 nm to 780 nm* X Y Z x y z L* a* b*	 0.30 0.30 0.30 0.00060 0.00060 0.00080 0.20 0.20 0.20	Mathematical derivation in accordance with CIE Document 15.2 and ASTM E308-08
UCS Judd rgb derived from CIE tristimulus values	*Wavelength 380 nm to 780 nm* r g b	 0.0010 0.0010 0.0010	
ASTM colour Saybolt	0.5 to 8 + 30 to - 16	0.10 1.0	Mathematical derivation in accordance with ASTM D6045
Gardner colour	1 to 18	0.10	Mathematical derivation in accordance with ASTM D6166

0630
Accredited to
ISO/IEC 17025:2017

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

The Tintometer Limited

Issue No: 018 **Issue date:** 14 March 2023

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
Liquid colour reference materials			
CIE tristimulus values	*Wavelength 380 nm to 780 nm* Y x y	 0.35 0.00070 0.00060	Mathematical derivation in accordance with CIE Document 15.2 and ASTM E308-08
ASTM colour Saybolt	0.5 to 8 + 30 to -16	0.10 1.0	Mathematical derivation in accordance with ASTM D6045
Gardner colour	1 to 18	0.10	Mathematical derivation in accordance with ASTM D6166
Platinum-Cobalt Colour	0 to 500	1.0	Mathematical derivation based on CIE tristimulus values
END			

Appendix - Calibration and Measurement Capabilities

Introduction

The definitive statement of the accreditation status of a calibration laboratory is the Accreditation Certificate and the associated Schedule of Accreditation. This Schedule of Accreditation is a critical document, as it defines the measurement capabilities, ranges and boundaries of the calibration activities for which the organisation holds accreditation.

Calibration and Measurement Capabilities (CMCs)

The capabilities provided by accredited calibration laboratories are described by the Calibration and Measurement Capability (CMC), which expresses the lowest measurement uncertainty that can be achieved during a calibration. If a particular device under calibration itself contributes significantly to the uncertainty (for example, if it has limited resolution or exhibits significant non-repeatability) then the uncertainty quoted on a calibration certificate will be increased to account for such factors.

The CMC is normally used to describe the uncertainty that appears in an accredited calibration laboratory's schedule of accreditation and is the uncertainty for which the laboratory has been accredited using the procedure that was the subject of assessment. The measurement uncertainty is calculated according to the procedures given in the GUM and is normally stated as an expanded uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k = 2$. An accredited laboratory is not permitted to quote an uncertainty that is smaller than the published measurement uncertainty in certificates issued under its accreditation.

Expression of CMCs - symbols and units

It should be noted that the percentage symbol (%) represents the number 0.01. In cases where the measurement uncertainty is stated as a percentage, this is to be interpreted as meaning percentage of the measurand.
Thus, for example, a measurement uncertainty of 1.5 % means $1.5 \times 0.01 \times q$, where q is the quantity value.

The notation Q[a, b] stands for the root-sum-square of the terms between brackets: $Q[a, b] = [a^2 + b^2]^{1/2}$