Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0291

Accredited to ISO/IEC 17025:2017

H & D Fitzgerald Ltd

Issue No: 027 **Issue date:** 18 October 2024

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Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
DENSITY			
Liquids	650 kg/m^3 to 2000 kg/m^3 at temperatures between 5 °C and 55 °C	0.005 kg/m^3 The uncertainty is dependent on the nature of the liquid	Hydrostatic weighing using solid density standard
Hydrometers	550 kg/m^3 to 650 kg/m^3 650 kg/m^3 to 2000 kg/m^3 2000 kg/m^3 to 2800 kg/m^3	0.10 kg/m^3 0.050 kg/m^3 0.20 kg/m^3	Calibration by Cuckow's method
Density floats	650 kg/m^3 to 2000 kg/m^3	0.10 kg/m^3	Neutral buoyancy method
Mass (for verification) of above floats	0 to 500 mg	0.040 mg	Weighing in air against standards of known mass
DENSITY METERS Calibration with reference liquids	650 kg/m^3 to 2000 kgm^{-3}	0.020 kg·m^{-3}	If an integral temperature controller is present calibrations at 0 to 156 °C ± 0.050 °C otherwise at room temperature
VOLUME			
Solid volume standards	50 µl to 100 µl 100 µl to 500 µl 500 µl to 1 ml 1 ml to 10 ml	0.15 µl 0.20 µl 0.30 µl 0.50 µl	Neutral buoyancy method
END			

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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: $Q[a, b] = [a^2 + b^2]^{1/2}$