



National Measurement System Guidance Documents

Energy & Underpinning Metrology

For more information visit www.nmo.bis.gov.uk. Further support is available for UK industry via the NMI metrology helplines which provide up to two hours of consultancy, paid for by the NMS. Engineering measurement helpline: **01355 593870** or nmshelp@tuvnel.com ; Physical science measurement helpline: **020 8943 6880** or enquiry@npl.co.uk ; Chemistry and bio-sciences helpline: 020 8943 7393 or nmshelp@lgc.co.uk

Document Title and Hyperlink	Document Description
A beginner's guide to uncertainty in measurement.	The guide explains the concept and importance of measurement uncertainty, using examples from everyday life. It illustrates how to estimate uncertainty in real measurement situations, showing a detailed uncertainty calculation step by step.
Best Practice Guide for Generating Mass Spectra	The guide takes the user, step-by-step, through the process of generating mass spectra that are fit for purpose.
Callipers and micrometers.	This guide covers the use of callipers and micrometers for internal, external and depth measurements.
Clamp-on Transit Time Ultrasonic Flow Meters	This guidance document describes The Use of Clamp-on Transit Time Ultrasonic Flow Meters
CNG Flow Measurement Technologies	This guidance document describes CNG Flow Measurement Technologies
Determination of residual stresses by magnetic methods.	This guidance document describes determination of residual stresses by magnetic methods.
Determination of residual stresses by X-ray diffraction.	This guide is applicable to X-ray stress measurements on crystalline materials.
Drain Holes in Orifice Plates - Effect on the Discharge Coefficient	This guidance document describes Drain Holes in Orifice Plates - Effect on the Discharge Coefficient

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Effect of Control Valve Noise on Ultrasonic Gas Flow Meters	This guidance document describes Effect of Control Valve Noise on Ultrasonic Gas Flow Meters
Estimating uncertainties in testing	This guide presents principles and guidance for the estimation of measurement uncertainty.
Eurachem Guide: The Fitness for Purpose of Analytical Methods. A Laboratory Guide to Method Validation and Related Topics	A guide for laboratory managers responsible for setting up and evaluating validation studies, as well as for analysts carrying out validation work.
EURACHEM Guide: The selection and use of reference materials	This guide gives detailed guidance for the establishment of measurement traceability in quantitative chemical analysis and will assist laboratories in meeting the traceability requirements of ISO 17025.
Eurachem/CITAC Guide: Measurement uncertainty arising from sampling: A guide to methods and approaches	This Guide aims to describe various methods that can be used to estimate the uncertainties arising from the processes of sampling and the physical preparation of samples.
Eurachem/Citac Guide: Quality Assurance for Research and Development and Non-routine Analysis	This guide provides those working in the non-routine environment with advice on good practice to facilitate the implementation of quality systems.
Eurachem/Citac Guide: Quantifying Uncertainty in Analytical Measurement, 2nd Edition	This guide gives detailed guidance on the evaluation of uncertainty in quantitative chemical analysis, based on the approach taken in the ISO 'Guide to the Expression of Uncertainty in Measurement'.
EURACHEM/CITAC guide: Traceability in chemical measurement	This guide gives detailed guidance for the establishment of measurement traceability in quantitative chemical analysis and will assist laboratories in meeting the traceability requirements of ISO 17025.
Eurachem/CITAC Guide: Use of uncertainty information in compliance assessment	The guide is applicable to decisions on compliance with regulatory or manufacturing limits where a decision is made on the basis of a measurement result accompanied by information on the uncertainty associated with the result.

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Flow Measurement of Viscous Liquid	This guidance document describes Flow Measurement of Viscous Liquid
Flow Measurement Uncertainty and Data Reconciliation	This good practice guide describes Flow Measurement Uncertainty and Data Reconciliation
Force.	The guide aims to help anyone wishing to measure force in any industrial or laboratory environment. (not available to download, must be requested)
Fundamental good practice guide in the design and interpretation of engineering drawings for measurement processes	This good practice guide is written for engineers, designers and metrology technicians who wish to understand the basics of the interpretation of engineering drawings in relation to the measurement process.
Fundamental good practice in dimensional metrology.	This good practice guide is written for those who need to make dimensional measurements but are not necessarily trained metrologists.
Good practice guide to phase noise measurement.	This guidance document describes good practice in phase noise measurement.
Good Practice Guide: Introduction to Flow Meter Installation	This good practice guide describes Good Practice Guide: Introduction to Flow Meter Installation Effects
Guide to the Measurement of Humidity	A detailed guide to many aspects of humidity measurement. It covers humidity concepts and definitions, methods of measurement, instrument performance and calibration, and good measurement practices for humidity. (not available to download, must be requested)
How to Increase Confidence in Flow Measurement Data	This guidance document describes How to Increase Confidence in Flow Measurement Data

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Human factors in measurement and calibrations.	This guide takes as its central theme the impact of human strengths and weaknesses on the accuracy and efficiency of measurement calibration services.
Investigation of Venturi Flow Meter Performance in Wet Gas using Different Test Fluids	This guidance document describes Investigation of Venturi Flow Meter Performance in Wet Gas using Different Test Fluids
LNG Flow Measurement Technologies	This guidance document describes LNG Flow Measurement Technologies
LPG Flow Measurement Technologies	This guidance document describes LPG Flow Measurement Technologies
Mass & Weight -	This Guide offers valuable information about a wide range of issues affecting weighing from traceability to practical aspects of weighing. (not available to download, must be requested)
Measurement of Temperature in Flow Metering Installations	This guidance document describes Measurement of Temperature in Flow Metering Installations
Methodology for Research into the Effect of Contamination upon the Discharge Coefficient of Orifice Plates	This guidance document describes Methodology for Research into the Effect of Contamination upon the Discharge Coefficient of Orifice Plates
Preparation of Calibration Curves: A Guide to Best Practice	The aim of this guide is to highlight good practice in setting up calibration experiments, and to explain how the results should be evaluated.
Pressure & Vacuum.	This guide provides advice for those wishing to select and use instruments for measuring pressure or vacuum.. (not available to download, must be requested)

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Selecting a Flow Meter	This guidance document describes Selecting a Flow Meter
Steam Flow Meter Selection	This guidance document describes Steam Flow Meter Selection
The measurement of mass and weight.	This Good Practice Guide is intended as a useful reference for those involved in the practical measurement of mass and weight.
Ultrasonic Flow Metering for Single Phase	This guidance document describes Ultrasonic Flow Metering for Single Phase
Uncertainty and statistical modelling.	This guide provides best practice on the evaluation of uncertainties within metrology, and on the support to this topic given by statistical modelling.
Volume Correction Factors for LPG	This guidance document describes Volume Correction Factors for LPG
Wet Gas	This good practice guide describes the methods and techniques to measure wet gas flows.

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