

Estimating Measurement Uncertainty

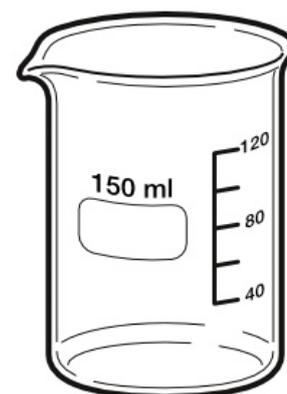
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ISO/IEC 17025:2005 requires the use of procedures for estimating the measurement uncertainty of test results to evaluate the performance of test methods and assess their suitability to meet client requirements. Increasingly requirements for uncertainty in test results are becoming part of testing standards and customer requirements

This workshop is designed for practitioners in chemical and microbiological testing methods. It looks at the requirements of the standard and at the guidance available. The general approach advocated is the simplified model using estimates of reproducibility and bias from method validation. However, this needs to be justified in each case and the summation of individual sources of uncertainty is also described. The arithmetic of uncertainty calculations is fully explained. Some consideration is given to the proper reporting of uncertainties, particularly where they are needed to interpret compliance of test results with specifications or regulations.

The approaches described are based on materials drawn from the Eurachem Guide on the subject for Chemistry and similar sources for Microbiology. This information is then explained and illustrated in contexts and applications that will be understood by laboratory staff. This workshop is complimented by others offered by **Savant Technologies** on Statistical Tools and Method Validation.

The workshop is structured into short presentations and example exercises. Materials are available for use in Microsoft Excel where delegates have access to computers. Workbooks are provided that contain notes on the presentations, example exercises and answers and useful references.



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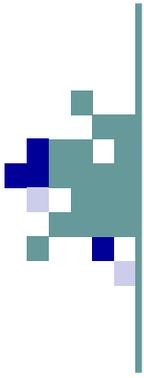
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Estimating Measurement Uncertainty

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WORKSHOP CONTENTS

Definitions and Guidance

- ◇ Definition of measurement uncertainty and Requirements of ISO/IEC 17025:2005
- ◇ Overview of approaches
- ◇ Guidance Documents

Building an Uncertainty Budget

- ◇ Identifying sources of uncertainty
- ◇ Estimating magnitudes of sources
- ◇ Minimising uncertainty

Arithmetic with Standard Deviations

- ◇ Common arithmetic operations—working with variances
- ◇ Pooling, combining and totalling uncertainties

Harmonising Uncertainties

- ◇ Transforming ranges to standard deviations
- ◇ Normalising uncertainties

Using Precision and Bias

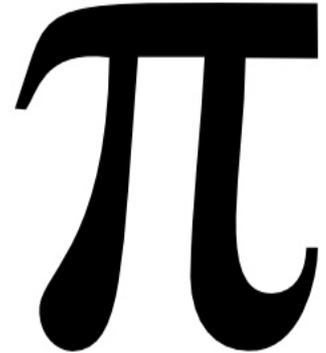
- ◇ Uncertainty from precision data
- ◇ Uncertainty from bias data
- ◇ Data from Proficiency Testing schemes
- ◇ Estimating overall uncertainty

The Common Sense Check

- ◇ Using professional judgement to assess statistical values

Reporting Uncertainties

- ◇ Expression of Uncertainty
- ◇ Compliance with specifications
- ◇ Decision Rules



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