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Institute for Reference Materials and Measurements

The mission of the JRC-IRMM is to promote a common and reliable European measurement system in support of EU policies.

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Use of reference materials and the estimation of measurement uncertainty

Training course

Joint Research Centre
Institute for Reference Materials and Measurements
Geel, Belgium

6-7 October 2009

Institute for Reference Materials and Measurements

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Training course - Use of reference materials and the estimation of measurement uncertainty

Aim

- Measurement uncertainty and traceability of measurement results are essential for the evaluation of measurement results.
- Reference materials are key tools for achieving traceability of measurements, proving accuracy of methods and demonstrating proficiency of laboratories.
- This course provides participants with the theoretical basis for the estimation of measurement uncertainty and establishment of traceability. This knowledge is applied to the proper selection and use of reference materials**.**

Who should attend?

- Laboratory managers and practitioners in analytical laboratories who use reference materials for statistical quality control, method validation and calibration and need to assess measurement uncertainties on customer's demand or as requirement of ISO 17025.
- ISO 17025 auditors who need to assess the estimation of measurement uncertainties and the correct application of certified reference materials.

Prerequisites

- A postgraduate level in chemistry and knowledge of concepts such as uncertainty, traceability, error propagation and general analytical measurements is needed.
- MS-Excel is used during the exercises. Familiarity with this program as well as knowledge of basic statistical concepts (e.g. mean and standard deviation) are required to make full use of the exercises.
- Ability to discuss and interact in English.

Organisation

Prof Dr Hendrik Emons

Contact

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Topics tackled

Uncertainty estimation
- What are the basic principles?
- How to estimate uncertainty from validation data?
- How can I use reference materials to estimate my measurement uncertainty?

Establishing traceability
- What do I have to do to make my results traceable?
- How can I establish traceability with reference materials?

Reference material selection
- Where can I find reference materials?
- Which material is the right one for me?

Reference material handling
- How much of each material must I use?
- How should I store my materials?
- How do I correct for moisture?

Reference materials use
- How can I demonstrate trueness?
- How can I demonstrate my method proficiency?

Making full use of available information
- What do the terms on a certificate mean?
- What can I do with a certification report?

Intensive practice in small groups

This course strongly emphasises practical application of the theoretical concepts. To this end, each lecture is accompanied by exercises in small groups (5-6 people) during which the concepts are put into practice. Each group is supported by a trainer who helps in asking the right questions and guides the group to a successful conclusion. About half of the time of the course is devoted to these exercises.

Participants can bring their own laptops to facilitate the exercises.

Participants will have the opportunity to visit JRC-IRMM's facilities for reference material processing and storage.

Practical information

Timing
The course will start on 6 October 2009 at 9:00 and it will finish on 7 October 2009 at 15:00 (or 16:00 for those visiting the processing and storage facilities).

Accommodation
Reservations will be made by the JRC-IRMM in a hotel close by.

Transfers
Transfer from the airport to the hotel upon arrival at your own convenience. Transfer from the hotel to the JRC-IRMM and back to the hotel will be organised. Transfer from the JRC-IRMM to the airport will be organised.

Location
European Commission
Joint Research Centre
Institute for Reference Materials and Measurements
Retieseweg 111, 2440 Geel, Belgium

Registration
Please send an e-mail to
jrc-irmm-rm-course@ec.europa.eu

The number of participants is restricted to approximately 30. Registrations will be handled on the basis of "first come, first served".

Deadline for registration: 20 September 2009

Registration fee
€ 300 – including lunches, social dinner on the 6 October 2009 and the transport between the hotel and the JRC-IRMM as well as transport from JRC-IRMM to the airport on the 7 October 2009. Accommodation costs are not included in the registration fee.