



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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Europe & Metrology in Turkey,
(EMIT) workshop:
Principles and application of isotopic
methodology and metrology in
chemistry to inorganic reference
measurements.

Event code: EMIT So2-01

TÜBİTAK National Metrology Institute UME,
Gebze, Kocaeli, Istanbul, Turkey

15-17 (morning) March, 2011



Robust science for policy making

OUR MISSION

The mission of the Joint Research Centre is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of European Union policies. As a service of the European Commission, the Joint Research Centre functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.



EMIT workshop So2-01: Principles and application of isotopic methodology and metrology in chemistry to inorganic reference measurements

Aim

- To provide information on isotopic research and principles behind isotopic reference measurements (isotopic ratios, isotope dilution)
- To provide information on isotope ratio measurements by ICPMS, from sample introduction to correction for biases and data processing
- To provide information on metrology in chemistry applied to inorganic reference measurements
- To provide information on uncertainty estimation for isotopic measurements and validation of isotopic methodology
- To provide information about the possibility of combining research activities with the metrological requirements of ISO/IEC-17025 for chemical analytical measurements
- To improve the quality of analytical results and contribute to the strengthening of the measurement infrastructure in Turkey by providing this training and promoting state-of-the-art practice in metrology in chemistry

Who should attend?

- Professors teaching measurement sciences at universities (scope: environment, food, health and consumer protection, energy etc.)
- Scientists working with isotopic tools (isotopic signatures, isotope dilution) via ICPMS;
- Scientists interested in increasing knowledge about inorganic chemical reference measurements
- Scientists and laboratory managers interested in an example of a research laboratory under ISO/IEC-17025 flexible scope conditions

Prerequisites

A general knowledge in chemistry and ICP mass spectrometry, and basic knowledge of quality assurance concepts in general analytical measurements is needed. Ability to discuss and interact in English.

Topics tackled

- ❑ *Isotopic methodology – isotope dilution ICP mass spectrometry:*
 - Definitions and main principles;
 - Typical fields of application;
 - IDMS for reference values;
 - Traceability of results
- ❑ *Sample introduction for and matrix effects during ICP mass spectrometry measurements:*
 - Liquid sample introduction systems;
 - Sources of interferences;
 - Correcting for non spectral interferences
- ❑ *Calibration and correction for instrumental biases during isotope ratio ICP measurements:*
 - ICPMS for isotope ratio measurements;
 - Simultaneous isotope ratio measurements; corrections specific to multiple collection ICPMS;
 - Isotopic CRMs and standards: calibration and traceability related issues
- ❑ *Method validation and uncertainty of measurements – application to isotope ratio results:*
 - Purpose of method validation and measurement uncertainty;
 - Terminology;
 - Practical implementation for isotope ratio results
- ❑ *Traceable reference values by ID-ICP mass spectrometry – a case study:*
 - Trace element content in food by ID-ICPMS
 - Uncertainty estimation
- ❑ *Accreditation SO-IEC-17025 flexible scope and research activities – the IRMM example:*
 - Definitions and main principles;
 - Flexible scope of accreditation;
 - Practical implementation
- ❑ *Exercises:*

This workshop strongly emphasizes practical application of the theoretical concepts. Exercises will be proposed during which participants can check if they are able to put theory into practice. The trainers will help in finding the right questions and will guide the participants to successful conclusions.

Practical information

Timing:

The workshop will take place on 15-16 March, 2011 from 9:00 until 17:00, and 17 March, 2011 from 9:00 until 12:00.

Accommodation:

Trainees from public institutions are welcome to reserve guest accommodation at the TÜBİTAK UME Institute. Limited availability so reservations best made early *via* email: Oktay.CANKUR@ume.tubitak.gov.tr
Trainees from private organisations need to book their own hotel in the area.

Location:

TÜBİTAK National Metrology Institute UME, PK.54 Gebze, KOCAELİ, 41470, TURKEY.

Registration: This event (with typically 40-50 participants) will be open to the main beneficiaries, universities, accredited laboratories, other institutes and industry.

Registration will be possible from the 25 January, 2011 via the JRC Events Registration System (<https://jrc-meeting-registration.jrc.ec.europa.eu/>).

Deadline for registration: 25 February, 2011.

Certain rules for event registration will apply:

Phase 1 - Reserved: 15% of the possible places for TÜBİTAK and TAEK.

Phase 2 - Open: 70% open to all other (Turkish) EMIT stakeholders / end-users.

Phase 3 - Confirmation: an applicant's place is confirmed by the event organiser.

Registration fee: none

For late registrations or supplementary information requests, please send an e-mail to JRC-IRMM-TURKEY-METROLOGY@ec.europa.eu

The EMIT Project description can be found via <http://irmm.jrc.ec.europa.eu/Turkey>