IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Annual Training Workshop on Method Validation and Quality Control for X-Ray Fluorescence Laboratories

Hosted by the

Government of the Austria

through the

Seibersdorf, Austria

9 - 13 June 2025

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Information Sheet

Introduction

Over the last 20 years the Nuclear Science and Instrumentation Laboratory (NSIL, formerly NSAL and Instrumentation Unit) has played a leading role worldwide in the effective use of nuclear instrumentation and nuclear spectrometry techniques, including the development of X-ray fluorescence (XRF) techniques and portable systems and analytical methodologies for in situ radiological and materials characterization in Member States priority areas, such as on-site environmental assessment, mineral prospecting and the study of cultural heritage objects. NSIL also operates a beam line in Institute Ruđer Bošković (Zagreb, Croatia) and an Ultra High Vacuum end-station at Elettra Synchrotrone (Trieste, Italy) and facilitates the access of IAEA Member States investigators for experimental work and adaptive research at such facilities. Supplementing these research activities and backstopping TC projects training in nuclear instrumentation have been provided to hundreds of fellows.NSIL has extensive experience in providing training and recommendations for Quality Management and Quality Assurance to laboratories implementing nuclear spectrometry techniques.

Two relevant training materials (IAEA-TCS-33/CD and IAEA-TCS-53/CD) have been published in the IAEA Training Course (CD-ROM) series to provide recommendations to laboratories working towards implementing Quality Management systems and seeking formal accreditation. More recently, an introductory course on Quality Assurance of X-ray Fluorescence Analysis of Airborne Particulate Matter has been developed and made available in the IAEA Open Learning Management System.Since 2002 NSIL has organized proficiency tests annually to enhance capability of interested MSs in effective utilization of nuclear and related analytical techniques and analytical services in industry, human health, agriculture, and in monitoring and evaluation of environmental pollution. The proficiency tests are designed to identify analytical problems, to support IAEA MSs laboratories to improve the quality of their results, to maintain their accreditation and to provide a regular forum for discussion and technology transfer in this area. About 90 laboratories using x-ray fluorescence techniques in more than 50 IAEA Member States have participated in these exercises.Since 2015 the PTs coordinated by NSIL comply with ISO 17043:2008 concerning the organization and terminology adopted when running an interlaboratory exercise, and since 2020 the data of the NSIL PT are processed in compliance with ISO 13528:2015.A review of the accuracy of the results submitted within the last five exercises indicate that some XRF laboratories still face difficulties during the implementation and validation of the used analytical procedures and require additional training to improve the accuracy of the reported results. One of the recommendations from ISO 17043 is that of “where appropriate for the purpose of the proficiency testing scheme, the proficiency testing provider shall provide expert commentary on the performance of participants”.

Objectives

The Workshop is planned to highlight, review, and discuss issues related to the implementation of XRF methodologies, including addressing recommendations for compliance to technical requirements of ISO17025 and EURACHEM CITAC Guide to Quality in Analytical Chemistry (an Aid to Accreditation). The following topics are expected to be included in the programme: Method validation of in XRF analysis; Uncertainty estimation of XRF results; Internal and External Quality control activities.

Target Audience

The Workshop is aimed at XRF laboratories needing further support to enhance the quality of their analytical results. Specifically, it targets laboratories preparing to participate in upcoming Proficiency Testing (PT) exercises and requiring additional efforts to ensure the accuracy and reliability of their outcomes.

Working Language(s)

English

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **27 February 2025**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by the above deadline.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the Agency's Personal Data and Privacy Policy and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made using the **Grant Application Form (Form C)** which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **27 February 2025**.

Visas

Participants who require a visa to enter Austria should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of Austria.

Organization

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.