



# **Training Workshop on Method Validation and Quality Control in X- Ray Fluorescence Techniques**

**Seibersdorf, Austria**

**5–9 September 2022**

**Ref. No.: EVT2103412**

## **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 Sincrotrone (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 meeting is targeting XRF laboratories that require of further work to improve the quality of their analytical results. Preference will be given to laboratories that have participated in the last PT exercises (reports available from [www.pt-nsil.com](http://www.pt-nsil.com)) and which require additional efforts to improve the quality of their results.

## **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 **01 July 2022**. 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 above deadline.

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

Please note that the IAEA is in a transition phase to manage the entire registration process for all regular programme events electronically through the new InTouch+ (<https://intouchplus.iaea.org>) facility, which is the improved and expanded successor to the InTouch platform that has been used in recent years for the IAEA's technical cooperation events. Through InTouch+, prospective participants will be able to apply for events and submit all required documents online. National authorities will be able to use InTouch+ to review and approve these applications. Interested parties that would like to use this new facility should write to: [InTouchPlus.Contact-Point@iaea.org](mailto:InTouchPlus.Contact-Point@iaea.org).

## 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 **01 July 2022**.

## 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.

## **Additional Information**

Due to the training nature of the meeting, participants are not required to submit any abstract nor contributions. The Training Workshop will consist of Lectures and Practical activities, provided by experts of the XRF group of NSIL laboratory. For the practical activities, several groups will be created to join participants according to the type of instrument used in their home laboratories.

The selection of candidates will consider a) the frequency of participation in the last five Proficiency Tests and, b) the need for training in the topics covered by the workshop, considered as proportional to the rate of outlier results to the number of reported results.

The official language of the meeting is English. No interpretation will be provided. It is expected that the workshop will start at 9:00 on Monday 5 and conclude by 16:00 on Friday 9 September.

# Organization

## Scientific Secretary

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