IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Training Workshop on Good Practices in X-Ray Fluorescence: From Sample Preparation and Experiments to Results Analysis and Interpretation

Hosted by the

Government of the Austria

through the

Seibersdorf, Austria

1 – 12 June 2026

Ref. No.: EVT2504064

Information Sheet

Introduction

X-ray fluorescence (XRF) is a widely applied, non-destructive analytical technique for the qualitative and quantitative determination of elemental composition in a broad range of materials. Its versatility, cost-effectiveness, and minimal sample preparation requirements make it particularly valuable for laboratories in Member States seeking to expand their analytical capabilities with conventional laboratory equipment. This two-week training workshop is designed to provide participants with a comprehensive introduction to the practical aspects of conducting XRF studies. The course will integrate lectures with extended hands-on laboratory sessions, guiding participants through the complete analytical workflow — from sample preparation to data interpretation and validation of results. Emphasis will be given to the analysis of environmental samples, in particular soil and food samples.

The Nuclear Science and Instrumentation Laboratory (NSIL) of the IAEA is a premier facility providing expertise, training and support in the effective utilization of nuclear instrumentation and analytical techniques. NSIL serves as a key training hub for, among other analytical techniques, X-ray fluorescence (XRF) and is equipped with a comprehensive range of XRF spectrometers and

instrumentation for sample preparation. These include energy-dispersive XRF (both portable and laboratory-based) for accurate elemental quantification; wavelength-dispersive XRF, offering higher energy resolution ideal for complex multi-element systems; total reflection XRF, with extreme sensitivity enabling detection of trace elements at the parts-per-billion level; and micro-XRF, capable of achieving spatial resolutions down to 20 μm for mapping elemental distributions in heterogeneous samples, angle resolved XRF, useful for characterizing layered structures, mainly for material science samples.

Objectives

The training will equip participants with both theoretical knowledge and practical skills to perform reliable XRF analyses in their home laboratories. By the end of the course, participants will be able to:

- Understand the fundamental principles of XRF and its applications across different materials.
- Prepare and handle solid and/or liquid samples appropriately for XRF analysis.
- Build calibration for elements quantification using certified reference materials (CRMs).
- Perform measurements with XRF spectrometers
- Perform spectral deconvolution.
- Conduct quantitative analysis and validate results with reference data.
- Apply good laboratory practices to ensure data quality, reproducibility, and reliability.

Target Audience

The training is intended for laboratory scientists, technicians, and early-career researchers from Member States who are involved in material characterization, quality control, or environmental and industrial applications of XRF. The programme is particularly relevant for institutions seeking to strengthen or establish routine XRF capabilities using laboratory-based instruments.

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 **6 March 2026**. 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.

In addition to the Form A, applicants are requested to send a short CV with a brief justification statement why this training would be beneficial for their organization and their professional development.

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 **6 March 2026**.

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

Scientific Secretary

Ms Giuliana Aquilanti
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AUSTRIA

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Administrative Secretary

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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.

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Form A
EVT2504064

Participation Form

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Seibersdorf, Austria

1 to 12 June 2026

To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary, Ms Giuliana Aquilanti, Division of Physical and Chemical Sciences, Department of Nuclear Sciences and Applications (Email: G.Aquilanti@iaea.org) and to the Administrative Secretary, Ms Gaukhar Permetova, (Email: G.Permetova@iaea.org).

Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

Deadline for receipt by IAEA through official channels: 06 March 2026

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms
Institution:		
Full address:		
Tel. (Fax):		
Email:		
Nationality:	Representing following Member State/non-Member State/entity or invited organization:	
If/as applicable: Do you intend to submit a paper? Yes No Would you prefer to present your paper as a poster? Yes No Title:		

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. Further information can be found in the Data Processing Notice concerning IAEA InTouch+ platform.

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Form C

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Grant Application Form

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Deadline for receipt by IAEA through official channels: 6 March 2026

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yyyy/mm/dd):	Nationality:	

1. **Education (post-secondary):**

Name and place of institution	Field of study	Diploma or Degree	Years attended from	to

2. **Recent employment record (starting with your present post):**

Name and place of employer/ organization	Title of your position	Type of work	Years attended from	to

3. **Description of work performed over the last three years:**

4. **Institute's/Member State's programme in field of event:**

Date: _____ **Signature of applicant: _____**

Date: _____ **Name, signature and stamp of Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority**

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