



INSTRUMENT USE SHEET

X-RAY DIFFRACTOMETER – SIEMENS D5000

General Information

Instrument: X-ray diffractometer

Brand: SIEMENS D5000

Location:

- CRIETT – Valleggio Anello
- Via Valleggio 11, Como
- Floor: basement level, geology facilities

Contact person:

- Dr. Cristina CORTI

Email: cristina.corti@uninsubria.it

Phone: +39 031 238 6491

List of users:

Prof. Andrea Cattaneo

Dr. Cristina Corti

Prof. Sandro Recchia

Dr. Nicola Schiaroli

Prof. Andrea Spinazzè

Training path: Yes*

* Autonomous use of the instrument is allowed starting from PhD level and above.
Practical training consists of one day of individual instruction.



Internal tickets can be viewed on the intranet page (access with university credentials): <https://intranet.uninsubria.it/areadocumenti/ticket-strumenti-criett-utenti-interni>

The fee schedule for external users can be viewed on the website:
www.uninsubria.it/criett

Traceability of CRIETT services in scientific publications (see CRIETT Regulation Art. 11): It is mandatory to acknowledge in scientific publications the large CRIETT instrumentation used, according to the following formula:

“The scientific support from CRIETT centre of University of Insubria (instrument code: XXX) is greatly acknowledged”.

Instrument code: MAC11

Access Mode

1. Direct Access (Self-Service)

Who: Only users who use the instrument continuously, have received specific training, and are authorized by the instrument contact person.
Mode: The trained user can independently operate the instrument, booking via the contact person.

2. Technical Scientific Service Access (Full Service)

Who: Research groups using the instrument occasionally, external users, or users without qualified personnel.
Mode: Access is provided through dedicated technical staff who manage booking and operation.

3. Occasional/Temporary user

May access the instrument through the contact person or an authorized user.

Description and Functionality

X-ray diffraction (XRD) instrument used for crystallographic analysis of powdered or bulk materials. It operates in a standard Bragg–Brentano θ – 2θ configuration using Cu K α

radiation and controlled measurement geometries for phase identification, crystal structure determination, and qualitative/quantitative analysis.

The instrument is equipped with Diffrac Plus software.

Technical Specifications

- X-ray tube with copper anode (Cu K α); $\lambda \approx 1.54060 \text{ \AA}$ (Cu K α 1)
- Bragg–Brentano θ – 2θ geometry for powder samples
- Single-sample stage with sample spinner

Safety Warnings

- Use only after completing the training program
- Strictly follow the start-up procedure indicated near the instrument, respecting waiting times
- Follow all safety procedures related to ionizing radiation
- Turn on the external warning light in the diffractometer room during operation
- Analyze only samples compatible with the sample holder and geometry
- Before starting analysis, ensure the chamber door is closed and moving parts do not interfere
- Wait at least 10 minutes after switching off the instrument before turning off the chiller
- Clean sample holders thoroughly with slightly damp paper after use
- In case of powder spills inside the instrument, clean immediately following safety procedures
- In case of malfunction or anomalies, stop operation immediately and contact the supervisor



Operational Notes

- Instrument booking is mandatory by contacting the supervisor
- Self-service use is allowed only for trained and authorized users
- Any malfunction must be promptly reported to CRIETT staff

Materials and accessories provided by CRIETT

- Sample holders
- Cleaning paper
- Glass slides for sample preparation

Materials and accessories provided by the user

- Spatulas
- Agate mortar and pestle for sample grinding if needed
- Anything not explicitly listed above

