

Terms of use for the electron microprobe laboratory

The Electron Microscope Laboratory (abbreviated to Microscope Laboratory) is part of the Institute of Applied Geosciences at KIT Karlsruhe. The laboratory is used for scientific research.

The user regulations are binding for all users of the Microscope Laboratory.

By using the facility, you agree to the following terms and conditions:

1. Laboratory equipment

The AGW-KIT microprobe laboratory enables microanalyses to be taken using the electron probe **JXA 8200**. The device is available to users for their research.

2. Services provided by the microprobe laboratory

The type of analyses that can be performed depends on the available equipment and its operational readiness.

3. User group

The users of the microprobe laboratory are predominantly geoscientists or researchers working in the field of materials science. EPMA offers the opportunity to perform chemical analyses of solids with high spatial resolution. Users from other research areas who require microanalysis are also welcome

4. Access to the microprobe laboratory

All scientists who wish to use the facility must contact the head of the microprobe laboratory. The head of the laboratory will endeavour to provide measurement times as soon as possible. Appointment requests are processed in the order in which they are received.

In case of urgent need for measurements, the laboratory staff may decide to cancel assigned measurement appointments and allocate them to other users.

Analysis times may be cancelled by the laboratory staff if the laboratory is not operational due to technical defects or staff shortages. Replacement appointments for cancelled analysis times will preferably be allocated against regular appointments. If a user is unable to attend an appointment at the laboratory, they must cancel the appointment at least two working days

in advance. If this obligation is not met, the laboratory time will still be charged if the appointment cannot be reallocated at short notice.

5. Performing measurements & supporting users

The extent to which laboratory users are supported by laboratory staff in carrying out analyses depends on the complexity of the analysis and the users' knowledge of the equipment. In principle, it is desirable for users to carry out their analysis activities independently.

Attending a seminar on microanalysis is not sufficient to learn how to use the equipment. Personal instruction in the use of the microprobe by the laboratory staff on site and several hours of training on site are prerequisites for operating the equipment independently.

Measurements for less extensive research projects that would not justify comprehensive training can be carried out together with the laboratory staff. The user is supervised by the laboratory staff for a maximum of seven hours per day. All work requiring the presence of the user and the laboratory staff must be completed within this time. The period during which the user can avail of the support of the laboratory staff is from Monday to Friday (working days) between 9 a.m. and 4 p.m.

Extended analysis time on site may be possible, but must be agreed with the laboratory staff. A decision is made on a case-by-case basis.

These regulations do not apply to measurements for pre-stored analyses. If point and line measurements or measurements of element distribution maps are created during the presence of laboratory staff, they can be analysed automatically during the rest of the day and night. On-site measurements are not possible during the weekend. However, previously stored points, lines or element distribution maps can be analysed at the weekend. In both cases, the measurements must be completed by the start of the new working day.

6. Safety

Users of the microprobe laboratory will be instructed in the safety regulations before beginning their work in the laboratory. The laboratory may only be used after safety training has been provided by the laboratory staff. Users must acknowledge the operating instructions, risk assessments and rules of use for the laboratory by signing them.

7. General rules for laboratory use

Users must follow the instructions of the laboratory staff and handle all laboratory equipment with care.

The use of external storage media on the laptop connected to the device is allowed. The installation of personal software on the laboratory computers is strictly prohibited. Copying software from the laboratory computers is strictly prohibited. Changing configuration files and initialisation files on the laboratory computers is strictly prohibited.

Any violation of the user regulations, laboratory regulations or occupational safety regulations may result in permanent exclusion from use of the laboratory.

8. Liability

AGW-KIT strives to provide high-quality data. Nevertheless, AGW-KIT accepts no liability in the event that results from the facility are subsequently revised. Furthermore, we accept no responsibility for samples lost in transit.

If damage to the laboratory equipment is caused by incorrect operation or negligence on the part of the user, this must be remedied by the user.

9. Data protection

Users of the microprobe laboratory are committed to data protection. Data from other users stored on the laboratory computers may not be evaluated, copied or published.

The primary data/raw data obtained in the laboratory (e.g. measurement data, calibration values) shall be archived on separate data carriers. However, this does not release users from their obligation to back up their own data.

10. Publication of data

Unless otherwise agreed in writing, the data obtained in the microprobe laboratory will be used by the user for at least one peer-reviewed manuscript to be published in international scientific literature.

Manuscripts to be submitted for publication should be sent to the laboratory staff in good time. The staff member will review the sections on microprobe analysis and make suggestions for improvement if necessary. If the improvements concern scientific aspects of the manuscript, the head of the laboratory may also take the opportunity to comment on this part of the manuscript.

The laboratory must be specified in every publication:

- If a user is unable to carry out their analysis activities independently, or if the laboratory manager has made a scientific contribution to the work (e.g. by developing analysis routines or evaluating data), the laboratory manager must be named as a co-author.

- If the user carries out independent laboratory work without any scientific contribution from the laboratory staff, the microprobe laboratory must be mentioned in the acknowledgements section of the publication.

A copy of the publication (in electronic or printed form) must always be made available to the laboratory staff.

In addition, users undertake to comply with the DFG recommendations on the publication of scientific data ("Good scientific practice", German Research Foundation).

11. Cost structure

A fixed price is charged for coating the sample(s) with carbon, calibrating the elements required for the planned analyses, and loading the samples. Carbon coating should be carried out at KIT-AGW to ensure that the carbon layer thickness of a sample corresponds to that of the standard material.

One day of personnel costs must be purchased to cover personal instruction in the microprobe by the laboratory staff on site and on-site training.

The price for an analysis day depends on the equipment and effort required to perform the planned measurements, as well as the need for personal support from the laboratory staff.

We only offer analysis times on a daily basis, as there is always preparatory and follow-up work to be done. The daily flat rate can be provided on request; please contact Kirsten Drüppel.

12. Sample preparation prior to analysis

The user is responsible for ensuring that their analysis time is properly prepared. This means that they must ensure that

- a. the sample(s) fit into the sample holder
- b. the sample(s) are well polished (final step of polishing with 0.25 μ m diamond or corundum paste), have a clean, flat and even surface
- c. the user is familiar with the sample(s) from previous light or scanning electron microscope examinations
- d. areas of interest are marked on the back (or top, if applicable) of the sample, and images taken of these areas guide the user or laboratory staff to the areas of interest

If the user is unable to fulfil any of the above points, AGW-KIT is not responsible for the analysis day ending without measurements being taken. The price for an analysis day is independent of the objectives achieved.

Karlsruhe, 11 March 2025

K. Drüppel