GFZ Helmholtz-Zentrum POTSDAM

Elements and Minerals of the Earth Laboratory (ElMiE-Lab)

Terms and Conditions (Nutzerordnung)

Version: 1.0
29. April 2020

The Elements and Minerals of the Earth Laboratory (ElMiE) is part of the section 3.1 "Inorganic and Isotope Geochemistry" at the Helmholtz Centre Potsdam GFZ - German Research Centre for Geosciences. By using our facilities, you agree to the following terms and conditions:

1. Laboratory Equipment

The ElMiE-Lab offers analyses of geological or environmental samples for element concentrations and mineralogy using the following routine methods:

- Quantitative and qualitative mineralogy is determined with a PANalytical powder X-ray Diffractometer (XRD) equipped with a copper tube. The XRD can optionally be equipped with a humidity chamber with adjustable moisture (range 5 % - 90 % relative humidity) and temperature settings (range: 25 °C – 90 °C).
- Major and (some) trace elements can be determined with a PANalytical AXIOS Advanced XRF.
- Following sample dissolution major and (ultra) trace elements can be analysed as follows: Major elements are measured with an Agilent 5110 ICP OES. (Ultra) trace elements are measured with a Thermo Fischer Elements 2XR HR-ICP MS.
- Major anions in aqueous solutions (Cl^-, F^-, Br^-, SO_4, NO_3^-) can be analysed with Ion Chromatography (IC) using a Thermo Scientific Dionex ICS-1100.

In addition, we may offer PGE and REE extraction/enrichment and subsequent measuring with ICP MS or OES. Due to the experimental set up the REE and PGE extraction is only performed with a multiple of ten samples.

2. Type of service & preparation of samples

The GFZ offers whole procedural analyses ranging from (a) grinding and milling of the solid rock samples, (b) chemical preparation, (c) analysis and analytical evaluation. If sample material is already provided as a sample powder, please make sure grain size is <62 µm and that the powder has not been processed with a tungsten mortar. In case digested samples are provided, please state type of acid and sample concentration plus the method. In these cases, please also provide a procedural blank and a suitable certified reference material.
For quantitative XRD analysis the sample powder needs to be <10 µm. For the analysis of clay minerals please contact the respective laboratory manager in advance.

Major and (ultra) trace analysis with ICP:

- Solid samples are dissolved prior to analysis. The type of digestion will depend on sample material. We accept most types of (solid) samples. Depending on the type, preparation time may vary.
- A minimum of 3 g sample powder is required and > 5 g is preferred. All analyses are performed in bulk and it is the responsibility of the applicant to ensure this sample amount is homogenous and representative of the investigated material (e.g., rock sample).

Knowledge of the estimated sample composition/ mineralogy is required and needs to be stated for every sample.
If you wish to collect the remaining sample material please tell us in advance. The sample

needs to be collected within two months after analysis. After that time, we do not guarantee the storage of the remaining sample material.

3. Analysis application

Applicants will have to fill in the application form that can be found online or upon request with the lab managers. Applicants will have to provide an informal abstract explaining the aim of the study and all meta data, including coordinates of sampling. The lab managers will evaluate the application based on these data. For the time-consuming applications (PGE-, REE extraction/enrichment, quantitative XRD evaluation) we will carefully evaluate the study aim and might suggest other methods or number of samples.
Samples are processed in the order of application. Exceptions can be made if similar sample material is strategically grouped.

4. Access to the lab

Preparation and analytical work is usually performed by the laboratory staff.
In some cases, guests (users) may perform analyses themselves. Guests are required to adhere to the general laboratory and safety regulations, and are required to undergo an onsite training on how to operate the machines and/or use the laboratory facilities. Afterwards, guests may work independently but will be supervised by the lab staff. It is up the laboratory staff whether such a guest status is granted.

5. Work safety issues

The users of the laboratories are instructed in the safety regulations before starting their work. The use of the laboratory may only take place after safety training by the laboratory staff. The user has to acknowledge with a signature the reading of the operating instructions, the hazard assessments and the user regulations of the laboratory.
Any breach of the terms and conditions, Laboratory Regulations or Occupational Health and Safety Regulations may lead to permanent exclusion from the laboratory use.

6. Liability

GFZ continually strive to provide high-quality data. Nonetheless, GFZ shall not be held liable in the event that results from our facility are subject of subsequent revision. Furthermore, we will not be held responsible for samples lost in transit.
GFZ shall not be responsible to the user for any indirect or consequential loss or similar damage such as, but not limited to, loss of profit, loss of revenue or loss of contracts, provided such damage was not caused by a wilful act.
If damage to the laboratory equipment is caused by faulty operation or negligence of the user, the damage must be remedied timely by the user.

7. Data protection

The results will be handed out to the applicant/guest after evaluation by the lab staff. The results will be sent to the applicant/user. Due to the availability of the software, XRD results may also be looked at and saved from a designated computer. The user may not access data from other users on any laboratory computer, nor copy or duplicate them.
The results and raw data of all measurements are stored on a central server which is only to be accessed by the laboratory staff. This does not release the user from the obligation to store

their own results.
The use of external storage media is prohibited at all times on any of the laboratory computers.

8. Charging structure

a. Collaborative projects:

In case of a collaborative project the GFZ becomes a partner in the research project. Beyond preparation, analysis and evaluation of data the GFZ staff will help in interpretation, planning and co-authoring. The GFZ will not charge for the analysis within a collaborative project. However, we accept contribution to laboratory supplies, consumables or technical maintenance.
REE and PGE extraction (or enrichment) are very time and supply consuming applications. Please carefully evaluate the sample number. For these methods particular, we appreciate (voluntary) financial subsidy.

b. Commercial projects:

This applies to non-academic institutions, industry partners.
The applicant may choose whether they prefer a purely commercial (for some instruments) or collaborative project. In the case of a commercial project, the ELMIE-Lab will prepare a quotation. Charges may vary depending on the type of analyses. This includes preparation, analysis and evaluation of data.

Funded research projects:

The upkeep (staff, maintenance, supplies etc.) of the ElMiE-Lab is cost-intensive. If you are planning to analyse samples at the ElMiE-Lab within third party funding, we kindly ask you to consider us in financial planning. We can provide you with quotations and advice on financial or scientific planning. Please contact the lab managers in advance.

9. Publishing of data

a. Collaborative projects:

The data produced in this lab are collaborative, i.e. the lab manager(s) is (are) co-author on the publication of the results, unless otherwise agreed upon in written. The laboratory staff is to be mentioned in the acknowledgements. The manuscript needs to be seen by the respective laboratory manager before submission. Publications shall indicate that laboratory work was done at the "Elements and Minerals of the Earth Laboratory (ElMiE-Lab) at GFZ Potsdam".
The analysed data must be published within two years in an international peer reviewed journal. After two years, if the data has not been published, the applicant/user must contact the laboratory staff and report the status of the data. The lab manager may extend the time for up to another year. After two years (or three at the latest) the GFZ will publish the data as Scientific Technical Report Data (STR Data) in the GFZ data repository. In this STR the applicant/user will be recognized as author and the data set will be given a citable Digital Object Identifier (DOI). Thereafter, the data needs to be cited following scientific practice.
Users agree to follow the DFG recommendations for the publication of scientific data ('Guidelines for Safeguarding Good Research Practice', Deutsche Forschungsgemeinschaft, 2019).

GFZ
Helmholtz-Zentrum
POTSDAM

b. Commercial projects:

If the data was produced as part of a purely commercial project the applicant is not required to publish the data. Yet, publishing is still welcome. In case the data is published, the GFZ needs to be acknowledged in the methodology (or comparable) section.
The laboratory staff should be mentioned in the acknowledgements.

Further questions and analysis application, please contact:
email to: jessica.stammeier@gfz-potsdam.de (ICP MS, ICP OES)
email to: anja.schleicher@gfz-potsdam.de (XRF, XRD, IC)