

GEOCHIMIE TEAM

LABORATORIES RULES

- 1st FLOOR -



Laboratories concerned by these regulations:

- 109: "Altération des minéraux" (Mineral alteration)
- 108: "Géochimie des sols et plantes" (Soil and plant geochemistry)
- 107: "Préparation Géochimie et terrain" (Field and geochemical preparation room)
- 103: "Laboratoire Chromatographie Gazeuse" (Gas chromatography)
- 106: "Analyses Géochimiques" (Geochemical analysis)
- 104: "Stockage Chimie" (Chemical storage room)
- 105: "Laboratoire Chimie des solutions " (Solution chemistry)

Head Team of Geochemistry : Géraldine Sarret – 1st floor – Phone number 04 76 63 51 99

Technical staff

Delphine Tisserand (lab. Head) –office 102 – phone number 04 76 63 51 87
Sarah Bureau –office 036 – phone number 07 68 23 93 00

AP (Prevention Agents):

Julien Carcaillet – office 362 – phone number 04 76 63 59 30
Glenn Cougoulat – phone number 04 76 63 52 28

ADMINISTRATIVE PROCEDURE

Before working in the Geochemistry laboratory, you had to read this document and engage yourself to respect it. **The activities in the Geochemistry laboratory which don't respect the health and safety general rules and the rules written in this document won't be realized.**

Upon arrival, you must:



- 1/** Register as an ISTerre employee with Jacques Pellet (human resources secretary, 2nd floor);
- 2/** Complete an application form with Jean Marc Nicole (2nd floor) to obtain your keys and electronic access badge;
- 3/** Declare your arrival to Delphine Tisserand who will: create your laboratory access document and attach it to the notice board, add your email address to the geochemistry mailing list and acquaint you with the laboratory regulations;
- 4/** Be allocated a work space (office, computer, lab notebook, bench, lab cabinet) by the laboratory manager with agreement from your direct head;
- 5/** Visit the laboratories and learn the laboratory safety rules.

LABORATORY RULES

Access:



Normal opening hours of the Maison des Geosciences are from Monday to Saturday, 7:00am to 08:30pm. From Monday to Saturday, 7:00am to 08:30pm, the alarm is disabled. The rest of the time the alarm is ON.

The working hours in the geochemistry laboratories are from Monday to Friday, 8:00am to 7:00pm.

It's strictly forbidden to work in the geochemistry laboratories outside of these working hours. It's forbidden to work in the laboratory during weekends and public holidays.

Pour les personnes extérieures à ISTerre ou les stagiaires, le travail dans les laboratoires de Géochimie ne pourra être fait durant ces horaires qu'en présence dans les laboratoires des ingénieurs ou accompagné du responsable hiérarchique (maitre de stage).

For external person of ISTerre and temporary workers in the lab, working in the geochemistry laboratories will be only possible during the working hours (from 8:00am to 7:00pm) only if one engineers is present in the laboratories or accompanied by its supervisor.

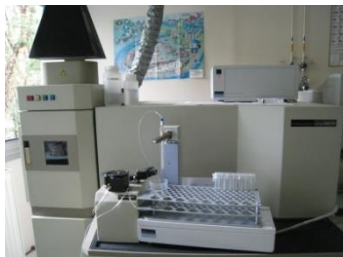
In case of absolute necessity to access the laboratory outside of normal working hours (including weekends and public holidays), a special request has to be made to the technical staff with a description of the planned work.

The decision will be taken by the technical staff together with the student supervisor. The head team and the ISTerre director will be informed by the student supervisor.

If someone needs to work outside of normal working hours, **she/he has to be accompanied by a French speaking person.**

In contrast to the rules applying to the geochemistry laboratory, it is allowed to be present in the building outside of normal working hours (working on computer,..). In this case, ask Jean Marc Nicole to know how to access to the building.

Analytical instruments and equipment / Chemicals in the laboratory:



1/Booking of the analytical instruments of geochemistry

Booking has to be done on www.Labagenda.com (see with your supervisor). Reservations will be confirmed only after agreement from technical staff depending on the compatibility between samples, devices and availability. The prices for analyses are displayed on the door to room n° 106.

The following laboratory equipment requires reservation:

- room 106 :
 - ICP-AES Varian (Multi elemental analysis)
 - HPLC-ICP-AES (Speciation of As)
 - NanoZS (ZetaSizer) + Titrator MPT-2 (Malvern)
 - UV-VIS spectrophotometer Perkin Elmer
 - TOC-VCSN Shimadzu (carbon analyser)
 - HPLC-UV-VIS (Elemental sulfur analyser)

- room 107 :
 - AMA-254 (mercury analyser)
 - CV-AFS Tekran (mercury analyser)

- room 105 :
 - Glove Box Jacomex
 - Freeze drier

NB: Room 103 is equipped with a gas chromatograph which is dedicated to particular experiments. This device is not to be used for routine analysis.

2/ Using and borrowing of equipments and chemicals reagent

GEOCHEMISTRY EQUIPMENT:

Contact the technical staff if you want to use lab equipment. They will approve or not their using according to availability, experimental safety and sample toxicity. If the equipment has to go outside of the geochemistry lab, it has to be written down on the borrowing book in room 105.

Equipment borrowed has to come back in the same state. If it not the case, the borrower has to pay the price to fix it or replace it.

This point concerns:

- All preparation equipment / sample treatment / experimental equipment located in the geochemistry laboratories (e.g. titrators, grinders, glass wear, pipettes, pellet maker, ovens, autoclave, balances, sand batch etc) as well as any field sampling or analytical equipment stored outside of the main laboratories.
- The small laboratory equipment (glassware, pipettes ...)

CHEMICALS :

Chemicals inventory of available products in the lab is available on www.Quartzy.com (see with your supervisor). Update this inventory if you enter a new product in the lab or if you finish one (see with technical staff).

Chemicals belonging to the environmental geochemistry team are identified with a **YELLOW** sticker. All new chemicals received by the team must be labelled with these stickers (available in Delphine's office or in the lab).

For any order of a new chemical, compulsory give to Delphine Tisserand your request and the safety data sheet (fds) of the chemical.

For any handling of a chemical, you previously have to take note of its safety data sheet, to take note of all associated risks related to this chemical and to previously have defined with your supervisor : its adapted storage, its handling and the elimination of chemical liquid and solid wastes generated. After the latter, you will inform Delphine who will validate or not the integration of the product at the lab and its use.

Ask for elimination of toxic and CMR chemicals that you won't used anymore, to avoid unnecessary long-term storage at the lab.

Storage at 4°C (only if needed – see fds): toxic or CMR products that need to be stored at 4°C are put **only in the fridge dedicated for that in room 107**. All other products (non toxic and non CMR) that need to be stored at 4°C are put in the fridge located in room 105.

Pictograms:



Corrosive



Pressurised Gas



- Poisonous at high concentrations
- Irritant
- Can cause skin allergy
- Can cause drowsiness or vertigo



Explosive



Poisonous at low concentrations



- Can cause cancer
- Can affect fertility or foetus development
- Can modify working of some organs
- Can cause hazardous effects on lungs
- Can cause respiratory allergy
- Peut provoquer des allergies respiratoires



Combustive



Harmful effects to aquatic organisms



Flammable

General rule: Always store chemical reagents in their correct place (never leave unused chemicals on lab benches):

- Non Toxic salts : room 105, classified by alphabetical order
- Organic powders : room 105, “organic products”
- Toxic salts : room 104, two dedicated cupboards
- Toxic and CMR solvents : room 104, under fume hood
- Flammable solvents : room 104, dedicated cupboard
- Harmful solvents : room 104, under fume hood
- Chemicals that need to be stored at 4°C : fridge in room 107
- Other chemicals : fridge or freezer or glove box (to be defined following fds)

Use of chemicals by external scientists: All requests concerning the usage or borrowing of chemicals has to be made to technical staff. Borrowed chemicals must be recorded in the dedicated book (room 105) and returned to their correct place as soon as you have finished using them. General health and safety rules must be followed at all times.

Health and safety – general rules:

Visible pictograms inside Geochemical laboratories :



Compulsory protection of airways



Compulsory protection of eyes



Lab coat compulsory



Compulsory protection of hands



First aid equipment



Eye rinse



Safety shower

The design of any new experiment must be discuss with the technical staff that will decide whether it can or cannot be done. In case of danger, the experiment will be done only after validation of your supervisor, of Delphine (with possible agreement of the AP) and of head of the team. The experiment will be done only in presence of the student supervisor, a technical staff and / or the AP.

In general, a competent person must always accompany you for all experiments and at least one of the 2 persons speaks french. You have to be trained to set up and to follow your experiment.

In case of emergency, you must contact first the emergency services (number on the laboratory door 2111, a phone is available in room 2109):

EMERGENCY	15
FIREMEN	18
EUROPEAN EMERGENCY NUMBER	112
POLICE	17
Poison control center	04 72 11 69 11
Campus Guards	04 76 82 55 54
Defibrillator:	Cafeteria 1st floor ISTerre
Building :	ISTerre Maison des Géosciences
Address :	1381 rue de la piscine 38400 Saint Martin d'Hères

In case of problem, there is a sheet present on each door with the names of the competent persons that you can contact with their professional and personal phones numbers.

1/ It's forbidden to handle in the geochemistry laboratories before being previously trained by a skilled person.

2/ Identification of your workspace: contact the technical staff to create an experiment identification sheet which must be displayed on your lab bench at all times (name of the student-supervisor, kind of experiment, chemical hazards...).

3/ PROTECTION: **always** wear a lab coat and appropriate personal protection equipment (glasses, gloves, mask)

4/ CHEMICALS : compulsory familiarise yourself with hazards associated with all reagents before using them. Material safety data sheets are available from Sigma-Aldrich website : <http://www.sigmaaldrich.com/france.html> and the Institut National de Recherche et de Sécurité website http://www.inrs.fr/hm/la_fiche_de_donnees_de_securite.html . **Use toxic and CMR product only with a competent person.**

5/ TOXIC GASES (acids, bases, solvents and others...): Must be handled **under the fume hood.**

6/ COMPULSORY IDENTIFICATION of samples (**NAME** or initials, **DATE, CONTENT**): all non identified samples will be disposed of. Sheets are available on door 105 (otherwise, ask you supervisor to print some).

7/ LIQUID WASTE: special plastic containers are available for liquid wastes in room 104. It is mandatory to use them, contaminated solutions should never be poured down the sink.

8/ SOLID WASTE: for solid waste (paper, gloves, Pasteur pipettes...) contaminated by toxic agents, contact technical staff.

9/ CLEANING REGULARLY your working area (at minimum once a week): never leave a bench dirty. Once a trimester, all lab users must participate to a one-day cleaning of the lab.

10/ CLEAN your own equipment (glassware or other material):

Step 1: Rinse with pure water or other (diluted acid) if needed

Step 2: Wash in washing machine

Step 3: Dry on drying rack

Step 4: Return to correct place

Thank you for respecting **ALL** of these steps.

A washing schedule may be implemented. Please respect this schedule. Even when a washing schedule is in place you are still responsible for cleaning your own experimental equipment.

If any equipment appears contaminated (e.g. oxidation spots, calcite) after a full cleaning cycle, please contact technical staff.

11/ BALANCES: Please clean balances after each use.

12/SOLID SAMPLES: to avoid cross contamination in other rooms, solid sample preparation (soils, sediments, plants...) must be done **in room 108 only**.

13/ FREEZE DRYER: it is forbidden to use the freeze dryer during the week end and the public holiday.

14/ PROTECT YOURSELF AND ALSO PROTECT ALL OTHER LABUSERS ! On the lab are available: fume hood, safety hood to weight or handle nanoparticles/CMR and other toxic powders, individual protection equipment (glasses, gloves, labcoat).

Other rules of the laboratory:



1/ Drinking or eating inside the laboratories is forbidden.

2/ Equipment must be kept in its correct place.

3/ Samples must be kept in order.

4/ when you open a new reagent, note the date of opening on the bottle.

5/ Fe^{2+} salts must be stored in the glove box (and not in the fridge). This rule also applies to any other compounds which may oxidize in contact with the atmosphere.

6/ Never store solutions in centrifugation Beckman tubes or in volumetric flasks.

7/ Anticipate the need for gases/equipment/chemicals: if a product starts to run out, notify the technical staff. **To initiate an order: compulsory note the reference, supplier, quantity** of the gas/equipment/chemical and **name of the person** to whom the order is done the white board.

8/ GASES:

Users of nitrogen gas (glove box...) and other gas (Argon for ICP, argon for benches , air for TOC ...) are responsible to check the level of gas in the storage room located downstairs. **If you want to connect a new gas bottle, you cannot simply do it yourself, you need to be previously trained by the technical staff.** When a user connects a new bottle, he/she should inform the technical staff, in order to order a new one. **If gaz is not use, bottles AND gaz valves that arrive in the lab have to be closed.**

9/ FIELD SAMPLING AND ANALYSIS EQUIPMENT:

After each field sampling trip, **ALL equipment** (aluminium boxes and all equipment from the laboratories) should be returned to their correct places after having been **CLEANED and RECALIBRATED** (e.g. multiparameter VTW multi 340i and micropipettes).

10/ Any equipment failure must be mentioned to the technical staff.

11/ BROKEN DAMAGED EQUIPMENT: contact technical staff to change/fix it quickly.

To make an order :

How to order consumables or chemicals ?

Common (gloves, filters, tubes, acid,...) –

credit : CHIM 1

Register the name of the lacking product on the whiteboard, specify the reference if the product does not appear in the file « tableau commande »

Order on Mondays every 15 days by the technical staff (date on the whiteboard)

If emergency, deadline is one week

Otherwise, do it by yourself

Specific products for a project

Ask an estimated to the supplier (No necessity for chemicals from Sigma).

Chemical : ask advises to the technical staff if it is a new product. Archive estimate on the common space : devis_fournisseur_consommables_UMMAA

Chemicals : Read the safety data sheet (fds) and archive it on the common space,

Ask your supervisor which credit to use

Fill the form « Request of order form »

Cmd_Fournisseur_UMMAA

Send by e-mail to the secretariat (Christelle.adoult@univ-grenoble-alpes.fr) the request of order form and estimate

DELIVERY

If partial delivery, to put one "OK" next to the product arrived in the file Cmd_Fournisseur_UMMAA

When everything arrived, to change the name of the form: Cmd_Fournisseur_UMMAA_OK

Chemicals : Fill the database on www.Quartzy.com

Tidy up your products

Sign the delivery slip and return it to Christelle

Only the delivery slip of LINDE and MULTILAB will be archived by the technical staff (make a copy)

Where to find the information on the orders?

\\ist-shares\data\geochimie\commandes

- Address and phone number of the suppliers : tableau commande
- Price of the annual offers by supplier : tableau commande
- Model of request of order form : Cmd_Fournisseur
- Archive orders and estimate : Année/Mois/ Cmd_Fournisseur_UMMAA_OK et devis_fournisseur_consommable_UMMAA
- Offers annual of the suppliers: in the directory of the corresponding year

Where to find safety data sheet ?

\\ist-shares\data\geochimie\Hygiene_Securite

- Archive the safety data sheet in the tab fds: fds_NomProduit

Before your final departure:

IMPORTANT: In order to enrich the scientific exchanges within our group, all internship students are asked to give an oral presentation of their research before leaving. This should be organized through the person responsible for the intern.

1/ EMPTY your cupboard, **organise** your samples which are in the laboratory (lab bench, fume hoods, fridges, freezer...) **AND SELECT** samples to be kept with your supervisor and technical staff. Store them in room 2110 or in the fridge if necessary.

2/ Return your lab notebook to Delphine Tisserand.

3/ Return your keys and electronic access badge to Jean Marc Nicole.

NB: These regulations are displayed on the door 105 and are online on the ISTerre website (<http://isterre.fr/moyens-techniques/chimie-mineralogie/preparation-des-echantillons/article/geochimie-de-l-environnement>). For the safety of all lab users, please respect it and all rules listed above.

If someone doesn't respect these rules, he/she could be forbidden to access the laboratory for a while.

