Policies and Procedures for using the Geochemistry Labs in Berthoud 406

Student and faculty users of the Geochemistry Labs (Berthoud Hall 406) are required to adhere to policies and procedures that create a collegial work environment and that ensure the safety of all users. The following policies have been developed to be in compliance with school-wide chemical hygiene policies administered by Environmental Health and Safety (EHS).

Each lab in Berthoud 406 has a Lab Supervisor and permission to use facilities in these areas should go through these individuals:
406B - Humphrey;
406A, D, E, and central lab - Wendlandt; and
406C - Kelly.
The Department Head assumes overall responsibility for adherence to safety policies and procedures in all labs.

A user agreement must be executed by all lab users and, in the case of undergraduate and graduate students, by their advisors: this agreement allows the Department to have accurate records of the types and locations of chemicals and their hazards, documents appropriate waste disposal, ensures that EHS and each Lab Supervisor conducts proper user training, ensures that users are fully aware of the health and safety issues pertaining to their research, and emphasizes the shared responsibilities of students, advisors, and lab supervisors.

Use of the Geochemistry Lab, BH 406

Because our general purpose geochemistry lab (406) is small and serves diverse teaching as well as research needs, we have to enforce the access and equipment policies listed below:

• Priority for student use of general lab space in 406 is as follows:
  a. Teaching
  b. Students/post-docs on funded grants advised by GE Faculty
  c. Students/post-docs without funding advised by GE Faculty
  d. Other users

• Completion of EHS Safety and Hazardous Materials training is required prior to working in the lab.

• Faculty are expected to provide all the equipment, chemicals, and other supplies needed by their project. A research-quality balance, small amounts of general purpose glassware and several drying ovens are available for communal use, however specialized equipment and necessary supplies, including refrigerator space exceeding about ½ shelf, must be obtained by individual investigators.

• De-ionized water is not provided in BH 406. Each investigator is responsible for providing their supply of water, including the container.
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• Each individual must maintain a safe environment that does not present a hazard to other lab users, particularly when a work area is left unattended, when experiments are in progress, and after completion of experiments.

• The labs are inspected at unannounced intervals by EHS, the Golden Fire Department, the Lab Supervisor (Wendlandt), and Department Manager (Humphrey) for compliance with departmental and EHS guidelines.

• All users will execute an agreement, below, signed by the user, faculty advisor (or faculty sponsor in the case of post-docs and visitors), and the lab supervisor, which will include the particular details of their lab use. In the case of students, this agreement will include a check-out procedure that must be completed when the work is completed and prior to graduation. A copy of this agreement will be placed on file with the Department Manager and a second copy will be placed in the lab being used.

• Oversight of all aspects of student (undergraduate and graduate) use of the lab by faculty advisors is required.

• Depending on the duration of the requested lab work, BlasterCard access to BH406 may or may not be granted.

• Faculty hosting visitors on sabbatical leave are responsible for checking lab space availability before the visitor arrives and confirming that lab supervisors are willing to conduct necessary training and oversight of the visitor.
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LABORATORY SAFETY TRAINING PROVIDED BY EHS

• **Graduate Student Safety Seminar** (Mandatory). All incoming graduate students who work in laboratories and shops are required to attend. EHS provides the training on two occasions at the beginning of each semester. The presentation takes about 100 minutes.

• **Hazardous Materials Training** (Mandatory). All campus personnel who procure regulated materials or who generate regulated chemical waste must attend this training on an annual basis. This includes faculty members, staff members, graduate students and some undergraduate students. This training is required by federal and state law and is offered by the EHS Department at the beginning of each semester. The EHS Department maintains a list of persons who have received the training within the last year and are thereby "authorized" to handle regulated materials. Unauthorized persons who request chemical procurement or waste disposal service are notified that service has been denied because their training is no longer current.

• **Hazard Communication in Laboratories.** OSHA prescribes the implementation of a "Chemical Hygiene Program" for laboratories. A primary component of this program is "Hazard Communication." This means that all personnel should be informed of the properties of hazardous materials in the lab and should be informed of hazards and safety procedures associated with lab equipment and processes. One of the ways this is done at CSM is by posting MSDS’s on a clipboard which is mounted in the hallway outside each lab. Most CSM labs have such clipboards. The CSM Safety Officer checks the accuracy of laboratory MSDS files during annual building inspections. In addition, each time the EHS Department issues a chemical from our Central Storage and Distribution Facility, the recipient is reminded to review the MSDS for the chemical. If the recipient does not have an MSDS, one is provided.

• **Radiation Safety Training** (Mandatory). Faculty members and graduate students who wish to be qualified to independently handle licensed radioactive material must attend a 10-hour Radiation Safety Course. The course is offered by the Radiation Safety Officer each semester. Faculty supervisors of radiation-producing equipment (x-ray machines) are responsible to provide training for users of such equipment.
Policies and Procedures for using the Geochemistry Labs in Berthoud 406

1) Lab Supervisor________________________

2) User Name__________________________ User email contact________________________

3) Faculty Advisor/Sponsor________________

4) Department/Degree___________________ (for students only)

5) EHS training completed (see below)

   Graduate Student Safety Seminar  □
   Hazardous Materials Training  □

   ____________________________
   (Date of training)

6) Bench Space Assigned   Area __________ (assigned by Lab Supervisor)

   Start Date__________  Expected End Date________

7) Approval to install new equipment

   ____________________________
   (Date and initials of Laboratory Supervisor)

8) Check-out (all chemicals and waste removed, equipment returned, experimental materials removed from fume hood, refrigerator, shelves and drawers):

   ____________________________ (Lab Supervisor)  ____________________________ (date)
Policies and Procedures for using the Geochemistry Labs in Berthoud 406

9) **Project Description** *(provide a short description of the experiments to be done)*

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10) **Chemicals to be used** *(first entry provides examples)*

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
<th>Concentration</th>
<th>Hazards</th>
<th>Precautions to take</th>
<th>Disposal Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g., Nitric Acid; PbCl₂</td>
<td>e.g., 1 liter; 100 g</td>
<td>Dilute (&lt;5%) Intermediate (5-25%) Concentrated (&gt;25%)</td>
<td>e.g. Corrosive reactive, toxic, flammable carcinogenic</td>
<td>e.g., Gloves, glasses, lab coat, fume hood, respirator</td>
<td>e.g., Waste bucket for EHS pickup; consumed in experiment, neutralized</td>
</tr>
</tbody>
</table>

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Policies and Procedures for using the Geochemistry Labs in Berthoud 406

If work involves high hazard chemicals including carcinogens, reproductive toxins, or highly reactive or toxic chemicals, additional training may be required by the Lab Supervisor prior to use of the lab.

11) How will user exposure to these chemicals be assessed?

   Professional judgment of EHS/lab supervisor □
   Air sampling □
   Other ___________________

12) Is medical monitoring required for users of these materials? Yes  No

   If yes, provide details:

13) Where and how are the material(s) to be stored? Room ________________

   General storage □  Refrigerator/freezer □
   Flammables cabinet □  Corrosives cabinet □

14) User safety checklist

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>Yes/No/Not needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Equipment</td>
<td>Lab coat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proper gloves</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appropriate footwear</td>
<td></td>
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<tr>
<td></td>
<td>Eye protection</td>
<td></td>
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<tr>
<td></td>
<td>Respiratory protection</td>
<td></td>
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<tr>
<td></td>
<td>Dosimeter</td>
<td></td>
</tr>
<tr>
<td>Safety Equipment</td>
<td>Eyewash</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spill control equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fire extinguisher</td>
<td></td>
</tr>
<tr>
<td>Materials Handling</td>
<td>MSDS sheets reviewed and updated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SOPs reviewed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Safe handling training provided</td>
<td></td>
</tr>
<tr>
<td>Emergency Contact</td>
<td>Phone numbers visible in lab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>After hours work permitted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* permit included with this form</td>
<td></td>
</tr>
</tbody>
</table>
Policies and Procedures for using the Geochemistry Labs in Berthoud 406

15) Equipment to be provided by investigator (list)

16) Communal equipment to be used (list)

   A. Fume hood (check one) for experiments and storage □
      for storage only □
   B. Balance □
   C. Drying ovens □
   D. Other (please list) ________________________________

17) Training provided for communal equipment ____________________
    (Date and initials of lab supervisor)

18) Training provided for gas cylinder use and replacement ____________
    (Date and initials of lab supervisor)

I accept responsibility for the proper use of these materials in the labs named above and have received appropriate training and/or experience.

Lab User Signature ______________ Date ______________

A faculty advisor must sign if the lab user is an undergraduate or graduate student:

Faculty Advisor Signature ______________ Date ______________

Lab Supervisor Signature ______________ Date ______________
PERMIT FOR USE OF NON-STANDARD LABORATORY OR SPECIAL OPERATING PROCEDURES

This permit shall be utilized for all laboratory activities which do not follow standard or special operating procedures and which thus require pre-approval by the laboratory supervisor.

Location of Work: Building _____________ Room_____

Occurrence (date(s)): _________ to ________

Authorized Personnel: ______________ ________________

Unusual Circumstances:

___ Working alone
___ Working after hours
___ Unattended Operations
___ Other (explain): ____________________________________________________

Hazards Present:

___ Highly reactive chemicals
___ Highly toxic chemicals
___ Shock sensitive - explosive chemicals
___ Flammable chemicals
___ Other (explain): ____________________________________________________

Special Conditions Required:

___ Spill Containment
___ Designated area (secured from general access; hazards signage)
___ Regular communication with ______________
___ Other (explain): ____________________________________________________

Approved by (one signature required, copy to other person):

_______________________________________
Laboratory Supervisor/Chemical Hygiene Officer  Date