Standard Operating Procedure

Magnetic Susceptibility (MS)

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| **Department:** | Earth and Environmental Sciences |
| **Date SOP was written:** | 9/19/2013 |
| **Date SOP was approved by PI/lab supervisor:** | 9/19/2013 |
| **Principal Investigator:** | Steven Goodbred |
| **Internal Lab Safety Coordinator/Lab Manager:** | Richard Bradshaw |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | S. Goodbred (615) 322-4511 (campus phone: 2-4511) Bradshaw (615) 343-0839 (campus phone: 3-0839) |
| **Emergency Contact:** | S. Goodbred (615) 916-9259  R. Bradshaw (208) 260-2792 |
|  |
| **Location(s) covered by this SOP:** | *SC1108B* |
| *(Building/Room Number)* |

**Type of SOP:** ☒ Process ☐Hazardous Chemical ☐ Hazardous Class

**Purpose**

**Personal Protective Equipment (PPE)**

**Respirator Protection**

**Eye Protection**

ANSI approved, tight-fitting safety glasses/goggles and/or face shield.

**Body Protection**

Remove any loose jewelry around your neck or any jewelry on your hands and wrists. Tightly secure long hair in ponytail.

**Ear Protection**

Ear protection in the form of ear muffs or ear plugs must be worn during operation.

**Engineering Controls**

**Medical Emergency**

To contact the [Vanderbilt University Police Department](http://police.vanderbilt.edu/) in an emergency:

* Call **911** from any campus phone.
* Call **(615) 421-1911** from any other phone.

**Protocol/Procedure**

**Report any problems or abnormalities with the equipment immediately to the PI or LM.**

**\*\*\*NEVER leave the machine unattended while operating\*\*\***

1. Place samples in bags (clear plastic) out on table and organize according to depth. Flatten the surface of the bags (use a hammer and flat plate for stiff samples). Take a picture of core samples.
2. Turn on MR machine, set dial to 0.1 (this means 10 sec measurement) and SI (indicate in your notes you are using SI units, as opposed to cgs).
3. With no sample under the detector, zero the machine by pressing Z and wait for digital display to read 000.0.
4. Check the calibration by placing the standard sample disk under the detector, and using the auto adjustment dial, lower the detector until it is firmly touching the sample (i.e., no air space between the sample and detector). Press M and wait for measurement to appear on the digital display. Make sure measurement is approximately equal to that noted on standard disk (NOTE standard = 535 for cgs, 672 for SI). If the reading is far off, re-zero the machine (Step 3) and repeat measurement (press M).
5. Once the calibration is complete, you can lift the detector manually or use the auto adjustment dial to raise and lower the detector. Replace the standard with your first sample (in bag). Again, make sure the dectector is flat against the sample with no space between the sample and detector (use a Post-It Note stack or other object to prop up/level sample, if necessary).
6. Press M and wait for measurement to appear on the digital display. The machine will beep when the measurement is complete. Record reading. Repeat twice for each sample (2 on 1 side of bag, 1 on the other - for a total of 3 readings per sample).
7. Repeat steps 5 and 6 until all samples are complete.
8. Turn off machine and clean up work space.
9. In excel spreadsheet, list the 3 MS readings recorded and average them per sample.

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with the Magnetic Susceptibility, LM or designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP.
* The Principal Investigator must ensure that their laboratory personnel have attended appropriate laboratory safety training and are current with any refresher training required.

I have read and understand the content of this SOP:

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| **Name** | **Signature** | **Identification** | **Date** |
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