

University of Florida - IFAS
Soil and Water Science Department Core Laboratories
Pedology and Mineralogy Laboratory

Mission Statement - This core laboratory will maintain Departmental capability to provide basic physical, chemical, and mineralogical analyses for soils and sediments.

Location - G158 and G166 McCarty Hall

Contributing Faculty – Allan Bacon and Willie Harris

Equipment - X-ray Powder Diffractometer, UV-Visible Spectrophotometers (2), Temperature-Controlled Water Baths (2), Petrographic and Dissecting Microscopes (with digital camera), pH and Conductivity Meters, Centrifuges, Sample Shakers, Ovens, and Electronic Balances.

Procedures and Costs per Sample -

I. Soil Characterization Procedures:

1. **Particle-size analysis:**

(a) Percent sand, silt, and clay, terrestrial -	\$70
(b) Percent sand, silt, and clay, marine ¹ -	\$80
(c) Sand fractionation -	\$30

2. **Other procedures:**

(a) CEC by sum of cations -	\$50
(b) Effective CEC -	\$50
(c) Organic C -	\$25
(d) Soil pH -	\$2
(e) Electrical conductivity -	\$2
(f) Fe and Al extracted by acid oxalate, citrate-dithionite, or pyrophosphate	\$25
(g) Total C or Total N	\$5
(h) Organic matter by loss on ignition	\$5
(i) Selective dissolution of CaCO ₃ - soils	\$60
(j) Selective dissolution of CaCO ₃ – limestone	\$110
(k) Density separation	\$80

II. Soil Mineralogical Assessment via XRD²:

(a) Particle-size fractionation -	\$120
(b) ID of clay-sized minerals -	\$160
(c) ID of silt-sized minerals -	\$65
(d) ID of sand-sized minerals -	\$65

¹Procedures for marine soil samples differ from terrestrial soil samples

²See “Further breakdown of XRD powder scan costs” below

Note: Prices listed will be appropriately discounted for labor or materials provided from external sources. Use of the laboratory facilities by graduate students and post-doctoral associates will be accommodated to the extent possible.

For additional information contact:

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Basis for Establishing Pedology/Mineralogy Core Laboratory Analytical Prices

Prices for each procedure are established to cover the following costs on a per sample basis for the following:

- (i) Attrition of expendable materials (chemicals, glassware, etc.).
- (ii) Maintenance and operation costs of equipment required to conduct the procedure.
- (iii) Labor costs for the level of expertise required for the procedure. For example, some instrumentation (e.g., x-ray diffractometer) can only be safely operated by well-trained personnel. Also, radiation safety badges are required for operation of the diffractometer. These badges require a monthly fee and are only issued to authorized persons whose labor costs are higher than for student OPS labor.

Further Breakdown of XRD Powder Scan Costs

- Scans up to 60 degrees - \$35.00, with txt files of intensity versus 2 theta.
- Scans up to 80 degrees - \$40.00, with txt files of intensity versus 2 theta.
- PDF files with d-spacing labels on peaks - additional \$5.00
- Interpretations - additional \$20.00