Mineral Laboratory

METROPOLITAN STATE COLLEGE of DENVER

DEPARTMENT of EARTH & ATMOSPHERIC SCIENCES

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SPECIAL OFFER

FREE MINERAL SPECIMEN IDENTIFICATION

Participants will aid in the education of future Geoscientists!

The Department of Earth & Atmospheric Sciences Mineral Laboratory at the Metropolitan State College of Denver offers free non-destructive & certain destructive mineral identification services as part of their geoscientist training program. Samples will be assigned to students in Mineralogy & Optical Mineralogy during Fall & Spring semesters and analyzed under supervision by the instructing professor according to the clients specification. Clients will be presented with a full analytical report by the end of the semester and non-destructive tested specimens will be returned upon request (Please provide SASE or pick-up at the Earth Science laboratories at MSCD).

SERVICES

NON DESTRUCTIVE TESTS

☐ **Basic Mineral Identification (Free):** Mineral will be laboratory tested for hardness[1], density, streak, magnetic & UV-response, radiation, possible optical properties & crystal habits and other as applicable and complete report compiled. *Note: While many minerals can be closely approximated with this test, some may NOT unambiguously distinguished without further testing. Destructive testing on a small sample chip is recommended for clarification. Call for details.*

☐ **Scanning Electron Microscopy (SEM)(For this test we are asking for a $25 tax-deductible donation to the MSCD Earthscience Foundation for consumables & equipment maintenance):** This test is very specific for identifying possible crystal habits in fine grained or granular specimens. Sample should be no larger than 1". SEM photomicrograph will be provided with report.

DESTRUCTIVE TESTS

☐ **Chemical Qualitative Analysis (Free):** A sample fraction will be subjected to destructive qualitative chemical analysis, aiding in interpretation & identification. Recommended for small sample fraction in conjunction with Basic Mineral Identification above.

☐ **Precious Metals Chemical Qualitative Analysis (Free):** Testing a small sample fraction for the presence of Gold, Silver and/or Platinum. This is a QUALITATIVE test only and will NOT be indicative of amounts (NO quantitative assay).

☐ **Optical Thin Section Investigation (For this test we are asking for a $15 tax-deductible donation to the MSCD Earthscience Foundation for consumables & equipment maintenance):** Sample will be mounted to a glass slide and ground to the thickness of a human hair in order to specifically test for optical mineral properties. Best suited for minerals in a rock matrix.

☐ **X-ray diffraction (XRD) analysis (For this test we are asking for a $80 tax-deductible donation to the MSCD Earthscience Foundation for consumables & equipment maintenance):** Most precise but unfortunately expensive test for unambiguous mineral identification. Usually used for professional, industrial & research applications. Mineral will be powdered to a few microns and subjected to an x-ray beam. Resulting x-ray dispersive pattern is indicative of a specific mineral (almost like a fingerprint). Computerized database with over 40,000 minerals will be searched for closest match and the mineral will thus be exactly identified.

To submit samples or for further information contact Dr. Richard Kackstaetter as indicated above.
All samples for identification should be received by first week in September or last week in January.

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[1]Hardness testing may be slightly damaging to the specimen. While the test will be performed in an inconspicuous part of the sample, scratching may occur. It is best to include an inferior secondary sample of the same material for analysis.

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MAIL SAMPLES WITH COMPLETED FORM TO:

Metro State College, Dep. Of Earth & Atmospheric Sciences
Minerals Lab; Attn: Dr. Kackstaetter
1201 5th Street
Denver, CO 80217

MINERAL IDENTIFICATION REQUEST FORM
(Please attach to specimen! Use additional forms for each submitted specimen)

CLIENT INFORMATION (Please Print Clearly):

Last Name:	First Name, MI:	Date:
Address:	City:	State, ZIP
Phone:	Email:	

MINERAL SAMPLE INFORMATION & ANALYTICAL REQUEST (Please Print Clearly):

Short Mineral Description (what does the mineral look like you want identified; especially important for minerals in rock matrix):	
Where found (approx. location o.k.):	
Requested Laboratory Tests (Check all that apply) *Suggestion: For destructive sample testing, please submit additional secondary sample chips of same material* ☐ BASIC MINERAL IDENTIFICATION - NON DESTRUCTIVE ☐ SCANNING ELECTRON MICROSCOPY - NON DESTRUCTIVE ☐ CHEMICAL QUALITATIVE ANALYSIS - DESTRUCTIVE ☐ PRECIOUS METALS CHEMICAL QUALITATIVE ANALYSIS - DESTRUCTIVE ☐ OPTICAL THIN SECTION INVESTIGATION - DESTRUCTIVE ☐ X-RAY DIFFRACTION ANALYSIS - DESTRUCTIVE	Price *(Suggested Donation)* FREE $25.00 FREE FREE $15.00 $80.00
Comments: ☐ Please Return Sample: ☐ SASE included or ☐Will pick up. ☐ Discard sample after analysis: ☐ Just mail report or ☐Will pick up report	Total: *(Make Checks payable to MSCD Earth Science Foundation)*

By submitting the mineral sample for analysis I agree to following terms and condition: Neither Metropolitan State College of Denver, the Department of Earth & Atmospheric Science nor its affiliates, professors and students shall be liable for any loss or damage to submitted mineral samples nor for any damages, including but not limited to injuries, loss of property or profits, or incidental, consequential, exemplary, special or other damages that may result from use of reported analytical results.

Do NOT write here! For internal use only:

Assigned Geoscientist:	Date Sample Received:
☐ Report completed and mailed/picked up: Date: _____	