

GEOTECHNICAL / ENVIRONMENTAL & CORROSION TESTING SCHEDULE OF CHARGES

CLASSIFICATION & INDEX TESTS	
Atterberg Limits (ASTM D4318)	
Liquid & Plastic Limits	
Wet Prep method	308
Dry Prep method (CTL default)	215
Oven Dried Liquid Limit	161
Moisture Content (ASTM D2216)	28
Moisture & Density (ASTM D7263b)	
2.0 to 2.5" Diameter	32
3.0" Diameter	48
4.0" Diameter	117
6.0" Diameter	187
Chunk Density (ASTM D7263a)	118
Particle Size Analysis	
Bulk Sieve (if gravelly or >5Kg) add	95
Sieve Analysis (ASTM D 422)	143
with Hydrometer (ASTM D 422)	242
Sieve Analysis (ASTM D 6913)	155
with Hydrometer (ASTM D 7928)	255
#200 Sieve Wash (ASTM D 1140)	102
Specific Gravity (Particle Density)	
(ASTM D854) - #4 Sieve	125
(ASTM C127) + #4 Sieve	208
(ASTM C128) - #4 Sieve	233
Organic Content (ASTM D2974)	118
Fraction Organic Carbon (FOC)	
By Walkley Black (subcontracted)	75
Porosity	
Total (ASTM D7263 / API RP40)	
(Includes Moisture Content, Dry Density & Specific Gravity)	152
Effective (ASTM D6836m)	
(Includes Total Porosity, Moisture Content, Dry Density & Specific Gravity)	318

MOISTURE DENSITY RELATIONS	
Standard Proctor (ASTM D698)	
4-inch mold	345
6-inch mold	412
Modified Proctor (ASTM D1557)	
4-inch mold (w/ assumed Gs for rock corr.)	345
6-inch mold (w/ assumed Gs for rock corr.)	412
For Measured Gs for Rock Correction add	208
Insufficient quantity add per point	94
Cal-Impact (Caltrans 216)	464
Max Index Density (ASTM D4253)	
0.1 ft ³ mold	319
0.5 ft ³ mold	480
Minimum Density (ASTM D4254)	
0.1 ft ³ mold	160
0.5 ft ³ mold	319

STRENGTH TESTS	
Unconfined Comp. (ASTM D2166)	99
Direct Shear per point	
(CD) (ASTM D3080)	276
(UU) Modified ASTM	121
(CU) Modified ASTM	121
⇒ DSUU & DSCU are not ASTM approved	

TORSIONAL RING SHEAR	
(All prices are per point)	
* Overconsolidated Peak	433
* Fully Softened Peak (ASTM D7608)	407
* Residual (ASTM D6467)	407
* Residual Additional Points, per	378
⇒ Torsional tests can be run on intact (undisturbed) or reconstituted specimens. All above tests are Drained.	
⇒ Reconstituted samples are typically tested near the liquid limit and are prepared over the #40 sieve.	
⇒ For the Stark method of testing only the -#200 material, Per Envelope add 67	

TRIAXIAL COMPRESSION	
(All prices are per point for 2-3" diameter samples)	
Unconsolidated-Undrained	
ASTM D2850 (TX-UU)	176
Back Press. Saturated	add 119
Consolidated-Undrained	
ASTM D4767 Modified (TX-ICU)	319
Consolidated-Undrained w/pp	
ASTM D4767 (TX-ICU-PP)	617
Consolidated-Drained	
ASTM D7181 (TX-ICD)	789

Confining Stress Conditions	
Isotropic	default
Anisotropic	add to above prices 223
K _o	add to above prices 345
Large Scale Triax Testing (w/ remolding):	
4.0" diameter Triax per point	add 698
6.0" diameter Triax per point	add 1458
Large Scale Triax (undisturbed)	
4.0" diameter Triax per point	add 453
6.0" diameter Triax per point	add 755
Triaxial Consolidation on large samples will be limited to a maximum consolidation phase of 5 days, unless requested otherwise. Over 5 days add-per-day 88	

TRIAx (continued)	
Staged Tests multiply the price of a single point by two for a two or three point envelope. (for all triaxial tests above)	
Before and After Test Photos	
per sample	add 63

CONSOLIDATION TESTS	
Consolidation (ASTM D2435)	497
<i>Includes full curve with 3 points on the virgin curve, timed readings and rebound.</i>	
Preliminary Reports Add	20
Rebound-Reload, per load	52
Client Provided Loads Add	50
Triaxial K_o Consolidation measured lateral pressure (2-3" diam.) 849	
Large Scale K _o (For sample diameter larger than 2-3" see large Scale Triaxial Testing)	

EXPANSION / COLLAPSE TESTS	
Expansion Pressure Curve (ASTM D3877m) 204	
Multi point expansion pressure curve to free swell.	
Shrink-Swell (ASTM D3877m) 204	
⇒ Multi point volume change curve including field, saturated, air-dried and oven dried conditions.	
Shrink-Swell w/Expansion Pressure Curve (ASTM D3877m) 370	
⇒ This procedure was originally developed for lime treated soils. We have found it to be useful for untreated soils. There are many different types of expansion tests. In our opinion this procedure is the most comprehensive and thorough procedure. This is our default expansion test procedure.	
⇒ Air dried prior to test add 38	
Expansion Index (ASTM D4829) 518	
⇒ This test is run at 48-52% saturation.	
ISRM (swelling tests for rock)	
Part-2	426
Part-4*	713
⇒ *More than 10 loads add per load 52	
One Dimensional Swell/Collapse of Soils (ASTM D4546)	
Part-A (4 point curve, loaded-wetted)	1116
Part-B (rebound-reload upon request only)	425
Part-C (wetted-loaded)	480

EXPANSION / COLLAPSE TESTS (continued)	
% Collapse (ASTM D5333)	227
⇒ <i>Incrementally loaded to requested surcharge pressure. Includes 4 load increments.</i>	
⇒ <i>Additional loads, per point</i>	52

HYDRAULIC CONDUCTIVITY & PERMEABILITY TESTS

Constant Head Rigid Wall (ASTM D2434) 2-3" diameter samples	422
⇒ <i>(For clean sand and gravel with less than 10% fines and a K value > 10⁻³ cm/sec).</i>	

Falling Head Rising Tail Water (ASTM D5084) 2-3" diameter samples	422
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Large Scale Falling Head Permeability (ASTM D5084) Undisturbed Core Samples	
4" Diameter	875
6" Diameter	1177
Remolded Samples:	
4" Diameter	1120
6" Diameter	1880

Large Scale Constant Head Permeability (ASTM D2434) includes remolding	
6" Diameter Cell	555
Bio-retention	555
SFPUC Method for Bio-retention	832
12" Diameter Cell (can test up to 2" rock)	1109
(There is no ASTM procedure for >0.75" rock)	

Air Permeability (ASTM D6539)	
Effective (In-Situ Moisture)	555
Intrinsic (air-dried)	609
Either Test Includes:	
Moisture Content	
Volumetric Air & Water Content	
Bulk Density	
Large Scale Undisturbed or Core Samples:	
4" Diameter	add 453
6" Diameter	add 755
Large Scale Remolded Samples:	
4" Diameter	add 698
6" Diameter	add 1458

ROCK TESTS

Unconfined Strength of Rock w/ Young's Modulus (ASTM D7012-d)	291
Before and After test photos	add 63

Point Load Strength Index of Rock Core (ASTM D5731)	104
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Slake Durability (ASTM D4644)	257
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Splitting Tensile Strength-Brazilian Splitting Test (ASTM D3967), Per Point	145
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REQUIRED LIME CONTENT

Soil-Lime Proportion (ASTM D6276)	370
⇒ 6 point curve to determine optimum lime content of soil lime mixtures.	

CAL-TRANS / AGGREGATE TESTS

CBR (ASTM D1883)	
With compaction	1091
Compaction Provided by Client	679

R-value (Cal 301)	345
A) with batching of gravel	add 60
B) Admix (lime, cement etc.)	add 75

Sand Equivalent (CT 217)	145
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Durability Index (CT 229)	
A) Coarse	206
B) Fine	172

Class II AB Specification Tests Suite	
⇒ R-value	
⇒ Sieve Analysis	
⇒ Durability Index	
⇒ Sand Equivalent	
Cal Spec Package Price	1040

% Crushed Particles (CT 205)	
Hourly @	181

Cal impact (<i>see moisture-density relations</i>)	
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Sodium Sulfate Soundness (ASTM C88)	
(per fraction)	206

Cleanness Value (CT 227)	
1" x #4 (or finer)	257
1.5" x 3/4"	546
2.5" x 1.5"	872
Pit Run	319

LA Abrasion	
500 revolutions (ASTM C131/CT 211)	319
1000 revolutions (ASTM C535)	435

Clay Lumps & Friable Particles (ASTM C142)	155
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Flat & Elongated Particles (ASTM D4791)	
Hourly @	181

WATER TESTS

Particle Size Distribution (ASTM D3977c)	
full gradation curve	389

Total Suspended Solids (ASTM D3977b)	65
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Total Dissolved Solids (SM2540C)	65
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Total Solids (SM2540B)	65
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LIME / CEMENT TREATING

R-value	add	75
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Atterberg Limits	add	51
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Compaction Tests	add	111
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CBR with compaction	add	361
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OTHER TESTS

Total Solids for Sediments	44
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Pinhole Test (ASTM D4647)	561
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Double Hydrometer (ASTM D4221 & D422)	561
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Logging of Shelby Tubes	117
With digital photo	add 63

Lead Shot Characterization or Quantification (Call for quote)	
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X-Ray of samples (Three sample minimum)	257
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Thermal Conductivity (ASTM D5334)	
As Received	264
As Received & Air Dried	528
4 Point from As Received to Oven Dry	1056
6 Point from As Received to Oven Dry	1584

LABORATORY TIME

Lab Technician Per Hour:	
A) Junior Tech	145
B) Senior Tech	181
C) Principal	227

Sample Pickup (Bay Area)	113
⇒ <i>No charge for jobs over \$2000</i>	
⇒ <i>Long distance pickups call for quote</i>	
⇒ <i>Price subject to change</i>	

Witness Testing	90
per person, per hour	
<i>Due to the interruption of having outside personnel in the lab for witnessing testing, the above charge must be calculated into the overall project cost. From experience we have found that having witnesses in the lab during testing slows testing considerably and distracts other technicians working on other jobs. The more people, the more discussion that goes on, and the more slowly things go.</i>	

Minimum Charge	108
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⇒ <i>For samples delivered but not tested there will be a handling charge of \$2 per sample.</i>	
⇒ <i>Consult lab about tests not listed.</i>	

Corrosion Testing

CORROSION TESTS	Price	Standard	Sample Quantity (Excluding Gravel)
<u>Resistivity</u> (as received) <i>(Gravelly Samples: Class II AB, Drain Rock etc. add \$37)</i>	\$91	ASTM G57	500g
<u>Resistivity</u> (100% saturated) <i>(Gravelly Samples: Class II AB, Drain Rock etc. add \$37)</i>	91	ASTM G57	500g
<u>Resistivity</u> (minimum) <i>(Gravelly Samples: Class II AB, Drain Rock, etc. add \$100)</i>	194	CT 643/AASHTO T288	500g
<u>pH</u>	45	ASTM G51/CT 643/ AASHTO T289	150g
<u>Sulfate</u>	66	ASTM D4327/CT 417	150g
<u>Redox Potential / ORP</u>	63	ASTM G200	150g
<u>Chloride</u>	66	ASTM D4327/CT 422m	150g
<u>Sulfide</u>	56	Qualitative by Lead Acetate Paper	150g
Soil Corrosivity Packages (add \$50 for insufficient Sample)	Price	Package	Sample Quantity
<u>Minimum Resistivity, pH, Chloride and Sulfate</u>	\$326	Caltrans	1000g
<u>Resistivity (100% Sat.), pH, Chloride and Sulfate</u>	235	A	1000g
<u>Resistivity (As Received), pH, Chloride and Sulfate</u>	235	B	1000g
<u>Resistivity (As Received), pH, Chloride, Sulfate and Redox</u>	290	C	1000g
<u>Resistivity (100% Sat.), pH, Chloride, Sulfate and Redox</u>	290	D	1000g
<u>Resist. (100% Sat.), pH, Chloride, Sulfate, Sulfide and Redox</u>	340	PG&E Corrosion Pkg.	1000g

Test results for the pH, sulfate and redox potential tests can be affected by the way the samples are collected and handled. Ideally, samples should be collected in such a way as to minimize contact between the soil and the air. For example, collect a full brass liner of soil then quickly seal it with caps and tape. Because these tests can be affected by microbi- al activity it is best to keep the sample in a cooler with ice until it is delivered to our lab.

Environmental Testing Packages (prices for samples up to 3" diameter)

Vadose Zone-Package 1	Vadose Zone-Package 2	Hydrogeology-Package 1	Hydrogeology-Package 2
<u>Air Permeability</u> (k) ASTM D6539	---	<u>Effective Porosity</u> ASTM D6836m	---
<u>Total Porosity</u> (θ_t) ASTM D7263	<u>Total Porosity</u> (θ_t) ASTM D7263	<u>Total Porosity</u> (θ_t) ASTM D7263	<u>Total Porosity</u> (θ_t) ASTM D7263
<u>Grain Density</u> ASTM D854	<u>Grain Density</u> ASTM D854	<u>Grain Density</u> ASTM D854	<u>Grain Density</u> ASTM D854
<u>Moisture Content</u> ASTM D2216	<u>Moisture Content</u> ASTM D2216	<u>Moisture Content</u> ASTM D2216	<u>Moisture Content</u> ASTM D2216
<u>Volumetric Water Content</u> (θ_w)	<u>Volumetric Water Content</u> (θ_w)	<u>Volumetric Water Content</u> (θ_w)	<u>Volumetric Water Content</u> (θ_w)
<u>Volumetric Air Content</u> (θ_a)	<u>Volumetric Air Content</u> (θ_a)	<u>Volumetric Air Content</u> (θ_a)	<u>Volumetric Air Content</u> (θ_a)
<u>Bulk Density</u> (ρ_s) (wet & dry) ASTM D7263b	<u>Bulk Density</u> (ρ_s) (wet & dry) ASTM D7263b	<u>Bulk Density</u> (ρ_s) (wet & dry) ASTM D7263b	<u>Bulk Density</u> (ρ_s) (wet & dry) ASTM D7263b
<u>TOC Percent Organics</u> ASTM D2974 <u>OR FOC</u> (Walkley-Black) (TOC is CTL default)	<u>TOC Percent Organics</u> ASTM D2974 <u>OR FOC</u> (Walkley-Black) (TOC is CTL default)	<u>Hydraulic Conductivity</u> ASTM D5084 or ASTM D2434 depending on material type	<u>Hydraulic Conductivity</u> ASTM D5084 or ASTM D2434 depending on material type
<u>Grain Size</u> ASTM D422	<u>Grain Size</u> ASTM D422	<u>Grain Size</u> ASTM D422	<u>Grain Size</u> ASTM D422
<u>Soil Classification</u> by USCS—determined by grainsize not Atterberg Limits (USDA classification by request)	<u>Soil Classification</u> by USCS—determined by grainsize not Atterberg Limits (USDA classification by request)	<u>Soil Classification</u> by USCS - determined by grainsize not Atterberg Limits (USDA classification by request)	<u>Soil Classification</u> by USCS - determined by grainsize not Atterberg Limits (USDA classification by request)
\$980	\$480	\$927	\$742

NOTES & POLICY

All prices are based upon 2.0, 2.5 & 3.0" O.D. California and Modified California sample diameters unless noted otherwise.

If your company requires contracts on a per job basis add 5% to all listed prices. This surcharge attempts to offset the added overhead expenses related to the contracting process and complying with any special provisions, etc.

Unusual Sample Sizes under 3.0" diameter add \$16. Larger sample prices are listed under specific test types.

Remolding of 2 to 3" Dia. Samples
Per Point add 97

Rush testing add 50%. Rush only guarantees that your project will be given top priority.

Super Rush testing add 100%. Accepted only on a case by case basis after consultation with a lab manager. With this level of service you get a dedicated technician who will run the testing as fast as humanly possible.

Testing of (low level) Contaminated Samples
Add 50%. Samples will be returned to sender for proper disposal.

Client must provide fresh cement, bentonite or lime for admix testing. The manufacturers are always happy to send free product for admix testing. If the client requests us to use product on hand from other projects we do not take responsibility for bad product due to aging or hydration. The test results may be significantly affected due to aged or hydrated product.

We do not accept jobs that require 3rd party billing.

Payment terms are net 30 days. Once an invoice ages beyond 90 days the client is put on C.O.D. until the account is brought current.

Importing Foreign Soils add 15%

Our payment policy may conflict with consultants who do not pay until they have been paid by their client. We pay our subs even if we have not been paid and expect the same courtesy.

We expect to be notified prior to accepting the job if insurance certificates, or a subcontractors agreement, (or anything else that might slow payment to us) is needed. We would appreciate the courtesy of informing us of such policies.

Sample Storage Rates Per Sample:

<3" Diameter	\$0.05
3" Diameter	0.10
4" Diameter	0.15
Bulk (per bucket)	1.00

Samples will be stored for 30 days after the report goes out, unless otherwise requested. Bulk samples will be discarded after 5 days unless otherwise requested. Consult lab regarding the cost of long term storage.

When insufficient sample is delivered to the lab requiring extra time:
Per Sample add 65

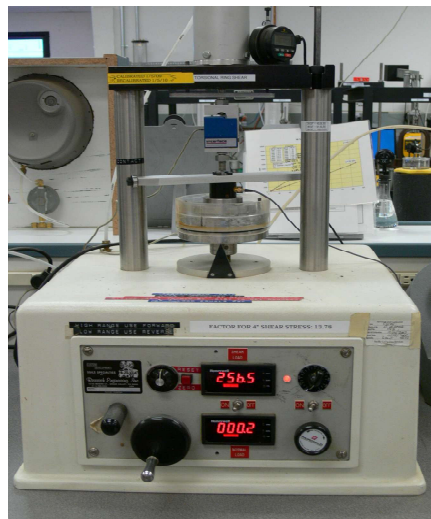
For clients who require invoices be submitted in a manner other than postal mail or email, an invoicing charge of up to \$50 will be added to your invoice.



Consolidation Stations



Large Scale Triaxial Stations



Torsional Ring Shear, Cooper, Stark, Riley



Torsional Ring Shear, Bromhead

Secure Online Reporting & Test Request

@
<http://www.coopertestinglabs.com>
Info At:
requests@coopertestinglabs.com

*Optimum Turn-Around-Times

* The turn-around times listed here are approximate under optimum circumstances. The time can vary greatly depending upon our workload and the number of tests requested. Consult lab when samples arrive.

TEST	Bus. DAYS
Compaction.....	3
Collapse.....	6+
Consolidation.....	11+
Direct Shear, drained.....	7+
Direct Shear, Undrained.....	3
Durability Index (Caltrans).....	4
Expansion Tests	
Shrink-Swell.....	6+
Expansion Pressure.....	6+
SS+Exp. Pressure.....	10+
The time can vary dramatically depending upon the plasticity of the material. A non-plastic soil may complete in 2-3 days while a plastic soil may take 2 weeks.	
Expansion Index.....	4+
Liquid & Plastic Limits	
Wet prep method.....	7+
Dry prep method.....	4
Moisture Density.....	3
Minimum Index Density.....	3
Maximum Index Density.....	3
Organics (TOC).....	3
Porosity	
Total.....	4+
Effective.....	10+
Permeability	
Constant Head (rigid wall).....	4
Falling Head (flex wall).....	5+
Sand Equivalent.....	3
Sieve Analysis.....	4
Sieve & Hydrometer.....	6
#200 Wash.....	4
Slake Durability.....	5
Specific Gravity.....	4
LA Abrasion.....	3
Cleaness Value.....	4
Sodium Sulfate Soundness	8
Pinhole	4
Thermal Conductivity.....	Call
Torsional Ring Shear (per pt).....	2
Triax (isotropic)	
UU.....	3
CU.....	5
CU-PP.....	5
CD.....	6+
*Anisotropic add 2 days per point	
*K ₀ add 2 to 4 days per point	
*High Confining Pressure add 2 days per point	