

BOWSER-MORNER, INC. - GEOTECHNICAL LABORATORY

2009 Laboratory Testing Fees - Soil and Rock

AASHTO/ISO 17025 ACCREDITED

Add 20% for samples recovered from C or D level hazard sites. Samples recovered from A or B sites will be considered on a case by case basis.

Miscellaneous Fees

Sampling - Time	\$58.00/Hour
Sampling - Mileage	\$0.60/Mile
Consultation, Senior Geologist/Engineer	\$120.00/Hour

Texture Plasticity, and Density Properties

1. Moisture Content (D 2216)	\$9.50
2. Atterberg Limits	
a. Plasticity Index (D 4318)	\$86.00
b. Liquid Limit or Plastic Limit Only	\$70.00
c. Shrinkage Limit (D 427)	\$400.00
3. Specific Gravity (D 854)	\$68.00
4. Particle-Size Analysis (jar sample, D 422, D 1140)	
a. Sieve & Hydrometer (cohesive soils)	\$132.00
b. Sieve Only - thru No. 200 (granular soils)	\$80.00
c. Sieve Only - thru No. 635 Sieve	\$120.00
d. Bank run samples (bag sample, long-graded)	\$160.00
5. Compaction Characteristics	
a. Standard Proctor - 5 Points (D 698)	\$185.00
b. Modified Proctor - 5 Points (D 1557)	\$185.00
c. One Point Verification (D 698, D 1557)	\$80.00
d. Relative Density (D 4253 & D 4254)	\$360.00
6. Unit Weight (includes Moisture Content & Extrusion)	
a. Direct Measurement (D 7263 - Method B)	\$60.00
b. Paraffin Method (D 7263 - Method A)	\$76.00

Identification and Classification

7. USCS Classification (D 2487)	
a. Cohesive Soils (incl. D 422, D 2216, D 4318)	\$196.00
b. Granular Soils (incl. D 422, D 2216)	\$80.00
8. Visual Description	
a. Quick-jar	\$20.00
b. Shelby Tube-log, moisture, extrusion	\$40.00

Structural Properties

9. Unconfined Compression - incl. Extrusion, Unit Wt., Load Curve (D 2166)	\$84.00
10. One-Dimensional Consolidation (D 2435) incl. Specific Gravity (D 854)	
a. E log p curve, incl. Time-settlement curves	\$540.00
b. Rebound and Reload - additional	\$180.00
11. One-Dimensional Swell or Settlement Potential (D 4546)	
a. Swell Pressure	\$800.00
b. Percent Swell	\$800.00
12. 3D Consolidation (Triaxial Method)	\$1,000.00
13. California Bearing Ratio, CBR (D 1883), one point each additional point	\$220.00 \$120.00
14. Direct Shear Testing, per 3 pts, incl. Extrusion, unit wt, & moisture	
a. Direct Shear, Drained (D 3080)	\$620.00
b. Residual Direct Shear (EM-1110-2-1906, IXA)	\$1,200.00
15. Triaxial Testing, per 3 points, incl. Extrusion, Unit Wt., and Moisture	
a. Unconsolidated-Undrained (Q, UU), (D 2850)	\$420.00
b. Consolidated-Undrained (R, CU, CUPP), (D 4767) includes: back pressure saturation and pore pressure	\$920.00
c. Remolding specimens, per set of 3	\$300.00

Hydraulic Properties

16. Laboratory Hydraulic Conductivity (Permeability)	
a. Flexible-Wall, Cohesive Soils (D 5084)	
i. Undisturbed	\$310.00
ii. Remolded	\$380.00
iii. With confining pressure, additional	\$40.00
b. Rigid-Wall, granular soils (D 2434) incl. Remolding	\$280.00
17. Gradient Ratio (D 5101)	\$1,000.00

Physico-Chemical Properties

18. pH (D 4972)	\$40.00
19. a. CEC; EPA Method 9080A (Ammonium Acetate)	\$180.00
b. CEC; EPA Method 9081A (Sodium Acetate)	\$180.00
20. a. Percent Organic - Loss on Ignition (D 2974)	\$58.00
b. Wet Combustion; Potassium Dichromate (T 194)	\$160.00
21. Total Organic Carbon (EPA Method 9060A)	
a. EPA Method 9060A	\$80.00
b. Walkley-Black Method	\$80.00
22. Resistivity, Lab (G 187, T 288)	\$200.00
23. Water Soluble Sulfate Ion (AASHTO T 290)	\$70.00
24. Water Soluble Chloride Ion (AASHTO T 291)	\$70.00
25. Sample Prep for items 23 & 24	\$60.00
26. Agricultural Analysis	\$160.00
27. X-Ray Diffraction/Mineralogy	\$200.00

MSE Wall Parameters

28. Particle-Size Analysis (ASTM C 136, D 422, D 1140 or AASHTO T 27, T 88)	\$80.00
29. Compaction Characteristics, Std. Proctor (D 698 or T 99)	\$185.00
30. Direct Shear Testing, per 3 pts, incl. remolding (D 3080 or T 236)	\$620.00
31. Hydraulic Conductivity (Permeability), (D 2434 or T 215)	\$280.00
32. Resistivity, Lab (ASTM G 187 or AASHTO T 288)	\$200.00
33. pH (D 4972 or T 289)	\$40.00
34. Water Soluble Sulfate Ion (ASTM D 516, AASHTO T 290)	\$70.00
35. Water Soluble Chloride Ion (ASTM D 512, AASHTO T 291)	\$70.00
36. Sample Prep for items 34 & 35	\$60.00
37. Loss on Ignition (LOI) (ASTM D 2974, AASHTO T 267)	\$58.00
38. Plasticity Index (ASTM D 4318, AASHTO T 89, T 90)	\$86.00
39. 4-Cycle Magnesium Sulfate Soundness (req'd by FHWA)	\$330.00

Rock Mechanics

40. Compressive Strength (D 2938)	\$80.00
41. Splitting Tensile Strength (D 3967)	\$120.00
42. Indirect Diametrical Strength (Brazilian)	\$120.00
43. Cut/Prep Core Specimen (D 4543)	\$60.00

Rock Weathering (Riprap/Armor Stone)

44. Slake Durability (D 4644)	\$86.00
45. Jar Slake Durability (KM 64-514)	\$42.00
46. Freeze Thaw (D 5312, CRD-C 144)	\$800.00
47. Wet Dry (D 5313, CRD-C 169)	\$800.00
48. Soundness-Slab Method (D 5240)	\$800.00
49. Petrographic Examination (C 295)	\$1,400.00
50. Specific Gravity/Absorption (C 127)	\$120.00
51. Adsorption/Absorption Ratio	\$120.00
52. Sample Prep for items 46 & 47 (cut/ trim slabs)	\$300.00

Soil-Cement/Cement Treated Base/Lime-Stabilized Mixes

53. Mix Design (5 Percentages), incl 15 strength spec's	\$1,800.00
54. Wet-Dry Durability (D 559)	\$1,400.00
55. Freeze-Thaw Durability (D 560)	\$1,400.00
56. Compressive Strength (D 558), per specimen	\$60.00

Mailing Address:

Bowser-Morner, Inc.
P.O. Box 51
Dayton, Ohio 45401-0051
Attn: Department 21

Shipping Address:

Bowser-Morner, Inc.
4518 Taylorsville Rd
Dayton, Ohio 45424
Attn: Department 21

Contact Person:

Karl A. Fletcher
Assistant Lab Manager
Ph: 937-236-8805, ext. 322
kfletcher@bowser-morner.com

Alternate Contacts:

James W. Fletcher, Vice President
Director of Laboratory Services
937-236-8805, ext. 235
jwfletcher@bowser-morner.com

Kelly Pryfogle
Office Manager
937-236-8805, ext 333
kpryfogle@bowser-morner.com

BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY
2009 Laboratory Testing Fees - Mineral Aggregates
AASHTO/ISO 17025 ACCREDITED

Miscellaneous Fees	
Sampling - Time	\$58.00/Hour
Sampling - Mileage	\$0.60/Mile
Consultation, Senior Geologist/Engineer	\$120.00/Hour

Concrete & Asphalt Aggregates	
1. Necessary Sample Preparation	
a. Ledge Rock, etc., crush to test specimens	\$58.00/Hour
b. Rock Core, split & archive representative half	\$3.80/ft.
c. Rock Core, crush to test specimens	\$3.80/ft.
d. Geologist Log	\$3.80/ft.
e. Rock Core, log, split, crush (items 1b, 1c, & 1d)	\$8.00/ft.
2. Sieve Analysis; Gradation (C 136)*	
a. Coarse Aggregate (6 Sieves)	\$68.00
b. Fine Aggregate (6 Sieves)	\$68.00
c. Long-graded Aggregate, ie base, subbase, etc. Includes decant (3/4" x #200)	\$135.00
3. Material Passing No. 200 Sieve/Decantation (C 117)*	
	\$58.00
4. Crush Count; Percent Fractured (D 5821)*	
a. One-Face	\$70.00
b. Two-Face	\$90.00
5. Unit Weight (C 29)*	
	\$62.00
6. Five Cycle Soundness (C 88)*	
a. Sodium Sulfate (5 Size Fractions Max.)	\$320.00
b. Magnesium Sulfate (5 Size Fractions Max.)	\$330.00
c. Long-graded Aggr, Sodium or Magnesium (10 Size Fractions Max.)	\$510.00
d. IDOT/ PennDOT Method (AASHTO T 104, Mod.)	\$330.00
7. Aggregate Durability Factor Rapid Freeze-Thaw (C 666 A & B, CRD-C C114)	
a. Procedure A, USACE, 300 cycles, Dur. Factor	\$2,300.00
b. Procedure B, DOT, 350 cycles, Expansion & DF	\$2,300.00
c. each additional beam over 3 per set above	\$500.00
8. 50 Cycle Freeze-Thaw (AASHTO T 103)	
	\$430.00
9. 25 Cycle Freeze-Thaw (INDOT 209-94)	
	\$430.00
10. Los Angeles Abrasion (C 131, C 535)*	
	\$134.00
11. Micro-Deval Abrasion (ASTM D 6928)	
	\$240.00
12. Aggregate Durability Index (D 3744)	
	\$215.00
13. Specific Gravity and Absorption (C 127, C 128)*	
a. Short-graded	\$86.00
b. Long-graded	\$134.00
14. Lightweight Particles (C 123); coal & lignite, chert*	
	\$224.00
15. Visual Deleterious; a) soft pcs, shale, F&E, etc.*	
b. IDOT Delet., incl's soft/unsound/lt. wt. chert	\$330.00
c. USCOE Table 5 Deleterious Airfield Parameters	\$2,000.00
16. Clay Lumps & Friable Particles (C 142)*	
	\$76.00
17. Flat & Elongated Particles (D 4791)*	
	\$76.00
18. Angularity Index (C 1252) incl. Spec. grav. (C128)	
	\$154.00
19. Organic Impurities (C 40)*	
	\$58.00
20. Effect of Organics (C 87)	
	\$1,800.00
21. Sand Equivalency (D 2419)	
	\$92.00
22. Insoluble Residue; Acid Solubility (D 3042)	
	\$130.00
23. Moh's Hardness	
a. Plus No. 4 Material	\$64.00
b. Minus No. 4 Material, include prep	\$150.00

Concrete & Asphalt Aggregates	
24. Pore Index (KM 64-623)	\$165.00
25. Stain Test (C 641)	\$240.00
26. Complete Quality Analysis (C 33) - Includes all above tests marked with an asterisk (*)	
a. Coarse Aggregate (20% Discount)	\$1,050.00
b. Fine Aggregate (20% Discount)	\$760.00
c. Long-graded Aggregate (20% Discount)	\$1,050.00
d. DOT Parameters, Additional	\$125.00
27. Alkali Silica Reactivity (ASR)	
a. 6 Month Mortar Bar Method (C 227)	\$1,000.00
b. Chemical Method (C 289)	\$800.00
c. 14 Day Mortar Bar Method (C 1260)	\$800.00
d. Remediation Trials with Fly Ash, Slag (C 1567)	\$800.00
e. FAA EB 70 Pot. Acetate Method (De-Icer) (C 1260)	\$800.00
f. 3-Point Remediation Curve (C1567)	\$2,200.00
g. 12 Month(+) Prism Method (C 1293)	\$2,000.00
h. 13 Week ICAR Modified (C 1293)	\$1,000.00
i. 3-Point Remediation Curve (C 1293)	\$5,000.00
28. Alkali Carbonate Reactivity (ACR)	
a. Rock-Cylinder Method (C 586)	\$1,000.00
b. Prism Method (C 1105)	\$1,800.00
29. Petrographic Examination (C 295)	
a. Coarse Aggregate	\$1,800.00
b. Fine Aggregate	\$2,200.00

(* see 2009 Petrography Fee Schedule for Specific Petrographic Analyses)

Rock Mechanics	
30. Compressive Strength (D 2938)	\$80.00
31. Splitting Tensile Strength (D 3967)	\$120.00
32. Indirect Diametrical Strength (Brazilian)	\$120.00
33. Cut/Prep Core Specimen (D 4543)	\$60.00
34. Density, porosity, void ratio (EM -1110-2-1906 app. II)	\$60.00

Rock Weathering (Riprap/Armor Stone)	
35. Slake Durability (D 4644)	\$86.00
36. Jar Slake Durability (KM 64-514)	\$50.00
37. Freeze Thaw - 5 slabs (D 5312, CRD-C 144)	\$800.00
38. Wet Dry - 5 slabs (D 5313, CRD-C 169)	\$800.00
39. Soundness-Slab Method (D 5240)	\$800.00
40. Petrographic Examination (C 295)	\$1,400.00
41. Specific Gravity/Absorption (D 6473)	\$120.00
42. Adsorption/Absorption Ratio	\$120.00
43. Sample Prep for items 37 & 38 (cut/ trim slabs)	\$300.00

Chemistry	
44. Basic Elemental Analysis (C 25) incl.: Al ₂ O ₃ , Fe ₂ O ₃ , Ca, CaO CaCO ₃ , Mg, MgO, MgCO ₃ , SiO ₂	
	\$135.00
Additional Element Charge	
	\$27.00
45. Loss on Ignition - LOI (C 25)	
	\$27.00
46. Calcium Carbonate Equivalent-CCE (C 25) (Total Neutralizing Power - TNP)	
	\$55.00
47. Limestone Reactivity Test (ABB-FGD)	
	\$800.00
48. Prep Bulk Sample, crush and or pulverize (C 50)	
	\$60.00
49. Prep for Fine Aggregate, pulverize to - #60 (C 50)	
	\$27.00
50. Water Soluble Chloride Ion (D 1411 or T 291)	
	\$180.00
51. Water Extractable Chloride Ion (C 1524)	
	\$180.00

(refer to 2009 Lime & Limestone Fees for additional parameters)

MSE Wall Select Backfill testing parameters are presented on the "2009 Soil & Rock Fee Schedule."

Mailing Address:	Shipping Address:	Contact Person:	Alternate Contacts:	
Bowser-Morner, Inc.	Bowser-Morner, Inc.	Karl A. Fletcher	James W. Fletcher, Vice President	Kelly Pyrfogle, Office Mgr.
P.O. Box 51	4518 Taylorsville Road	Assistant Lab Manager	Director of Laboratory Services	937-236-8805 ext. 333
Dayton, Ohio 45401-0051	Dayton, Ohio 45424	937-236-8805 ext. 322	937-236-8805, ext. 235	Fax: 937-233-2016
Attn: Department 21	Attn: Department 21	kfletcher@bowser-morner.com	jfletcher@bowser-morner.com	kpyrfogle@bowser-morner.com

BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY
2009 Laboratory Testing Fees - Bituminous (Asphalt) Materials
AASHTO/ISO 17025 ACCREDITED

Miscellaneous Fees	
Sampling - Time	\$58.00/Hour
Sampling - Mileage	\$0.60/Mile
Consultation, Senior Geologist/Engineer	\$120.00/Hour

Aggregate Analysis	
1. Gradation (ASTM C 136)	\$68.00
2. Decantation (ASTM C 117)	\$58.00
3. Specific Gravity and Absorption (ASTM C 127, C 128)	\$86.00
4. Percent Crushed	
a. One-Face	\$70.00
b. Two-Face	\$90.00

Bituminous Mixtures (Asphaltic Concrete)	
5. Molding Marshall Pills from Hot Mix Sample: Density, Stability & Flow (Field Sample) (ASTM D 1559, D 2726)	\$300.00 set of 3
6. Density, Stability, & Flow Only (Specimens brought in from field) (ASTM D 1559, D2726)	\$40.00
7. Extraction & Gradation (ASTM D 2172, D 5444) - Includes Ash Correction	
a. Centrifuge (Method A)	\$140.00
b. Reflux (Method B)	\$220.00
c. Reflux without gradation, %AC only	\$120.00
8. Max. Theoretical Specific Gravity, Rice (ASTM D 2041)	\$100.00
9. Moisture & Volatile Distillates (ASTM D 1461)	\$310.00
10. Specific Gravity & Density-SSD Specimens (ASTM D 2726)	
a. Marshall Pills	\$40.00
b. Cores; Trimmed & Tested	\$50.00
11. Specific Gravity & Density-Paraffin (ASTM D 1188)	
a. Marshall Pills	\$60.00
b. Cores; Trimmed & Tested	\$70.00

Bituminous Mixtures (Asphaltic Concrete)	
12. Thickness of Asphalt Cores (ASTM D 3549)	\$20.00
13. Abson Recovery, Includes Viscosity (ASTM D 1856)	\$1,000.00
14 Release Agent Test (ODOT Procedure)	\$300.00

Mix Design	
15. Job Mix Formula Verification	\$4,200.00
16. Marshall Mix Design (JMF)	Quote
17. Retained Tensile (AASHTO T 283)	\$4600.00/mix

Liquid AC	
18. Penetration (ASTM D 5)	\$72.00
19. Specific Gravity (ASTM D 70)	\$72.00
20. Float Test (ASTM D 139)	\$115.00
21. Kinematic Viscosity (ASTM D 2170)	\$115.00
22. Vacuum Viscosity (ASTM D 2171)	\$115.00
23. Flash Point (ASTM D 92)	\$135.00
24. Solubility (ASTM D 2042)	\$115.00
25. Thin Film (ASTM D 1754)	\$270.00
26. Ductility (ASTM D 113)	\$270.00
27. Spot Test (AASHTO T 102)	\$135.00
28. Softening Point (ASTM D 36)	\$135.00

Emulsified Asphalts (ASTM D 244)	
29. Water Content (by distillation)	\$165.00
30. Residue & Oil Distillate	\$165.00
31. Residue by Evaporation	\$115.00
32. Particle Charge	\$115.00
33. Saybolt Furol Viscosity	\$135.00
34. Demulsibility	\$135.00
35. Settlement	\$115.00
36. Cement Mixing	\$135.00
37. Sieve Test	\$115.00

Mailing Address:	Shipping Address:	Contact Person:	Alternate Contacts:
Bowser-Morner, Inc. P.O. Box 51 Dayton, Ohio 45401-0051 Attn: Department 21	Bowser-Morner, Inc. 4518 Taylorsville Road Dayton, Ohio 45424 Attn: Department 21	Steven A. Miller, Supervisor Ph: 937-236-8805, ext. 222 Fax: 937-233-2016 kpryfogle@bowser-morner.com	James W. Fletcher, Vice President Director of Laboratory Services 937-236-8805, ext. 235 jfletcher@bowser-morner.com Karl A. Fletcher Assistant Lab Manager 937-236-8805, ext. 322 kfletcher@bowser-morner.com

BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY

2009 Laboratory Testing Fees - Filter Media

AASHTO/ISO 17025 ACCREDITED

Miscellaneous Fees

Sampling - Time	\$58.00/Hour
Sampling - Mileage	\$0.60/Mile
Consultation, Senior Geologist/Engineer	\$120.00/Hour

Filter Media; Sand, Gravel, Anthracite

1. Necessary Sample Preparation	\$58.00/Hour
2. Material Passing No. 200 Sieve; Decantation (ASTM C 117)	\$58.00
3. Unit Weight (ASTM C 29)	\$62.00
4. Five Cycle Soundness (ASTM C 88)	\$320.00
5. Los Angeles Abrasion; LA (ASTM C 131, C 535)	\$134.00
6. Lightweight Particles; Heavy Media Separation, (ASTM C 123)	
a. Sand/Anthracite Separation at 2.00 Specific Gravity	\$240.00
b. Anthracite/Anthracite Separation at 1.45 and 1.95 Specific Gravities	\$320.00
7. Visual Deleterious Materials, Soft Pieces, Flat & Elongated, Friable Particles, etc.	\$224.00
8. Organic Impurities (ASTM C 40)	\$58.00
9. Sieve Analysis (ASTM C 136); Includes Determination of Effective Size (D10) and Uniformity Coefficient (UC)	
a. Coarse (+ #4)	\$80.00
b. Fine (- #4)	\$80.00
10. Acid Solubility (AWWA B100-01, sec. 5.3.1)	
a. Silica Material	\$68.00
b. Carbonate Material	\$130.00
11. Caustic Solubility (ASTM D 1109)	\$100.00
12. Gravel Shape Test (AWWA B100, Sec. 5.3.2)	\$70.00
13. Specific Gravity (ASTM C 127, C 128)	\$86.00
14. MOH Hardness (AWWA B100-01, Sec. 5.3.5)	
a. Plus No. 4 Material	\$64.00
b. Minus No. 4 Material (Includes Specimen Prep)	\$150.00
15. Loss on Ignition (ASTM D 2974)	\$58.00
16. Porosity (ASTM C 29, C 127, C 128)	
a. Specific Gravity Previously Determined	\$62.00
b. Specific Gravity Required	\$120.00
17. Friability - Paint Can Method	\$90.00
18. Sphericity and Roundness (API RP 56)	\$90.00
19. Hardgrove Grindability Index (ASTM D 409)	\$120.00
20. Proximate Analysis (D 3172, D 5142)	\$140.00
21. Iodine Number (D 4607)	\$220.00
22. Turbidity	\$100.00

Sampling and testing is performed as specified by the current AWWA B100 specification as applicable.

Mailing Address:	Shipping Address:	Contact Person:	Alternate Contacts:	
Bowser-Morner, Inc.	Bowser-Morner, Inc.	Scott Ruhkamp, Supervisor	James W. Fletcher, Vice President	Kelly Pryfogle, Office Mgr.
P.O. Box 51	4518 Taylorsville Road	Special Projects	Director of Laboratory Services	937-236-8805, ext. 333
Dayton, Ohio 45401-0051	Dayton, Ohio 45424	937-236-8805, ext. 329	937-236-8805, ext. 235	fax: 937-233-2016
Attn: Department 21	Attn: Department 21	sruhkamp@bowser-morner.com	jfletcher@bowser-morner.com	kpryfogle@bowser-morner.com

BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY
2009 Laboratory Testing Fees - Concrete and Concrete Aggregates
AASHTO/ISO 17025 ACCREDITED

Miscellaneous Fees

Sampling - Time	\$58.00/Hour
Sampling - Mileage	\$0.60/Mile
Consultation, Senior Geologist/Engineer	\$120.00/Hour

Concrete Mix Design

1. Complete Mix Design - Includes: Aggregate Gradation, Specific Gravity, Five Cylinders Per Mix	\$690.00/1st mix \$500.00/ea addl. mix
2. Verification Mix - Submitted by Client (5 Cylinders)	\$500.00/mix
3. Water Cement Ratio Curve (3 Points)	\$1400.00/set
4. Time of Set, Penetration Resistance (C 403)	\$160.00/set
5. Mix Design Using Retarder w/ Setting Time	\$80.00/Hour
6. Additional Cylinders in Mix Design	\$36.00 each
7. Restrained Expansion Type K Concrete (C 878)	\$800.00/set of 3

Concrete Physical Analysis

8. Length of Cores - Vernier Method (C174)	\$40.00
9. Specific Gravity, Absorption, Voids (C642)	\$50.00
10. Compressive Strength	
a. Cylinders (C 39)	\$17.00
b. Drilled Cores-Trimmed & Tested (C 42)	\$56.00
c. Modulus of Elasticity (C 469)	\$90.00
11. Flexural Strength	
a. Center Point Load (C 293)	\$48.00
b. Third Point Load (C 78)	\$48.00
c. Flexural Toughness (C 1018)	\$1,000.00
12. Splitting Tensile Strength (C 496)	\$80.00
13. Creep in Compression	
a. Creep Test Only-includes 5 control & 5 test specimens (C 512)	\$3200.00/set
b. AWWA Pipe Certification-includes C512, C192, C39, C469, Report	\$4600.00/mix
14. Abrasion Resistance by Sandblasting (C 418)	\$1,000.00
15. Moisture Content	\$18.00
16. Concrete Durability Factor Rapid Freeze-Thaw (C 666 A & B, CRD-C 114)	
a. Procedure A, USACE, 300 cycles, Dur. Factor	\$2,300.00
b. Procedure B, DOT, 350 cycles, Expansion & DF	\$2,300.00
c. each additional beam over 3 per set above	\$500.00
17. Drying Shrinkage (C 157)	\$560.00
18. Chloride Ion Permeability (C 1202)	\$180.00
19. Cut/Prep Core Specimen	\$60.00
20. Petrographic Examination (C 856)	Quote

Concrete Chemical Analysis

21. Acid Soluble Chloride Ion (C 1152)	\$180.00
22. Water Soluble Chloride Ion (C 1218)	\$180.00
23. Acid Soluble Chloride Ion (T 260, sec. 5.2)	\$180.00
24. Water Soluble Chloride Ion (T 260, sec. 5.3)	\$180.00

Basic Concrete Aggregate Tests (for complete aggregate schedule, see 2009 Laboratory Testing Fees-Mineral Aggr.)

25. Sieve Analysis; Gradation (C 136)	
a. Coarse Aggregate (6 Sieves)	\$68.00
b. Fine Aggregate (6 Sieves)	\$68.00
26. Material Passing No. 200 Sieve/Decantation (C 117)	\$58.00
27. Unit Weight (C 29)	\$62.00
28. Los Angeles Abrasion (C131/C535)	\$134.00
29. Specific Gravity and Absorption (C127/128)	\$86.00
30. Complete Quality Analysis (C 33) Includes: Soundness, LA Abrasion, Deleterious Substances, Gradation, Unit Wt, Specific Gravity, % Crushed, etc. See "Mineral Aggregates Fee Schedule"	
a. Coarse Aggregate (20% Discount)	\$1,050.00
b. Fine Aggregate (20% Discount)	\$760.00
c. DOT Parameters, Additional	\$125.00
31. Alkali Silica Reactivity (ASR)	
a. 6 Month Mortar Bar Method (C 227)	\$1,000.00
b. Chemical Method (C 289)	\$800.00
c. 14 Day Mortar Bar Method (C 1260)	\$800.00
d. Remediation Trials with Fly Ash, Slag (C 1567)	\$800.00
e. FAA EB 70 Pot. Acetate Method (De-Icer) (C 1260)	\$800.00
f. 3-Point Remediation Curve (C1567)	\$2,200.00
g. 12 Month(+) Prism Method (C 1293)	\$2,000.00
h. 13 Week ICAR Modified (C 1293)	\$1,000.00
i. 3-Point Remediation Curve (C 1293)	\$5,000.00
32. Alkali Carbonate Reactivity (ACR)	
a. Rock-Cylinder Method (C 586)	\$1,000.00
b. Prism Method (C 1105)	\$1,800.00
33. Petrographic Examination (C 295)	
a. Coarse Aggregate	\$1,800.00
b. Fine Aggregate	\$2,200.00

(* see 2009 Petrography Fee Schedule for Specific Petrographic Analyses)

Supplies

34. Cylinder Molds	\$50.00/case
35. Retaining Caps	\$210.00/set
36. Pad Caps	\$25.00 each
37. Slump Rod & Cone	\$60.00/set
38. Capping Compound	\$60.00/bag

Note: These are standard fees for calendar year 2009. Volume discounts are available based on quantities.

Mailing Address:	Shipping Address:	Contact Person:	Alternate Contacts:	
Bowser-Morner, Inc.	Bowser-Morner, Inc.	Bob Kushmaul, Supervisor	James W. Fletcher, Vice President	Karl A. Fletcher
P.O. Box 51	4518 Taylorsville Road	Concrete & Masonry Section	Director of Laboratory Services	Assistant Lab Manager
Dayton, Ohio 45401-0051	Dayton, Ohio 45424	937-236-8805, ext. 229	937-236-8805, ext. 235	937-236-8805, ext. 322
Attn: Department 21	Attn: Department 21	rkushmaul@bowser-morner.com	jfletcher@bowser-morner.com	kfletcher@bowser-morner.com

BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY
2009 Laboratory Testing Fees - Stone and Masonry
AASHTO/ISO 17025 ACCREDITED

Miscellaneous Fees

Sampling - Time	\$58.00/Hour
Sampling - Mileage	\$0.60/Mile
Consultation, Senior Geologist/Engineer	\$120.00/Hour

Concrete Masonry Units (Block) ASTM C 90

1. Compressive Strength and Absorption (C 140)	\$260.00/set of 6
2. Linear Shrinkage (C 426)	\$520.00/set of 3
3. Fire Rating; NCMA & UL 618; Equivalent Thickness	
a. with strength & absorption additional	\$90.00/set of 3
b. without strength & absorption	\$240.00/set of 3
4. Prisms (C 1314)	
a. 2-High	\$240.00/set of 3
b. 3-High	\$300.00/set of 3
c. Filled Cores, Additional	\$100.00/set of 3
5. Bond Strength (C 952)	\$400.00/set of 3
6. Freeze Thaw (C1262)	\$1000.00/set of 5
7. Stain Test (C 641)	\$240.00 each

Concrete Retaining Wall Units ASTM C 1372

8. Compressive Strength and Absorption (C 140)	\$260.00/set of 6
9. Freeze-Thaw Durability (C 1262)	\$1000.00/set of 3

Concrete Paving Units ASTM C 936

10. Compressive Strength and Absorption (C 140)	\$260.00/set of 6
11. Freeze-Thaw Durability (C 1645)	\$520.00/set of 3

Clay Masonry Units (Brick) ASTM C 216

12. Compressive Strength (C 67)	\$240.00/set of 5
13. Absorption & Saturation Coefficient (C 67)	\$240.00/set of 5
14. Modulus of Rupture; Flexure (C 67)	\$240.00/set of 5
15. Initial Rate of Absorption; Suction (C 67)	\$76.00/set of 5
16. Efflorescence (C 67)	\$76.00/set of 5
17. Freeze Thaw (C 67)	\$1000.00/set of 5
18. Bond Strength (C 952)	\$200.00/ set of 3

Masonry Grout Prisms

19. Compressive Strength (C 1019)	\$20.00 each
-----------------------------------	--------------

Cement Mortar

21. Mortar Mix Design - Includes gradation of sand, strength cubes and water retention	\$800.00 each
21. Time of Set, Vicat (C 191)	\$140.00 each
22. Mortar Cube Compressive Strength (C 109)	\$30.00 each
23. Drying Shrinkage (C 596)	\$550.00/set
21. Expansion (C 1038)	\$550.00/set

Architectural Cast Stone ASTM C 1364

25. Absorption & Bulk Density (C 1195)	\$140.00/set
26. Compressive Strength (C 1194)	\$140.00/set
27. Freeze Thaw (C 1364 sec. 5.4)	\$2300.00/set

Dimension Stone (ASTM spec designations detailed below)

28. Absorption & Density (C 97)	\$44.00 each
29. Modulus of Rupture (C 99)	\$64.00 each
30. Compressive Strength (C 170)	\$64.00 each
31. Abrasion Resistance (C 241)	\$400.00 each
32. Flexural Strength (C 880)	\$64.00 each
33. Flexural Modulus of Elasticity (C 1352)	\$64.00 each
34. Petrographic Examination (C 295)	\$1400.00 each

ASTM Standard Specifications for Dimension Stone:

C 503	<i>Marble Dimension Stone</i>
C 568	<i>Limestone Dimension Stone</i>
C 615	<i>Granite Dimension Stone</i>
C 616	<i>Quartz-Based Dimension Stone</i>
C 629	<i>Slate Dimension Stone</i>
C 1526	<i>Serpentine Dimension Stone</i>
C 1527	<i>Travertine Dimension Stone</i>

Please contact us for a complete listing of number of test specimens and dimensions required for the above testing

Note: These are standard fees for calendar year 2009. Volume discounts are available based on quantities.

Mailing Address:	Shipping Address:	Contact Person:	Alternate Contacts:	
Bowser-Morner, Inc.	Bowser-Morner, Inc.	Bob Kushmaul, Section Supervisor	James W. Fletcher, Vice President	Karl A. Fletcher
P.O. Box 51	4518 Taylorsville Road	Concrete & Masonry Section	Director of Laboratory Services	Assistant Lab Manager
Dayton, Ohio 45401-0051	Dayton, Ohio 45424	937-236-8805, ext. 229	937-236-8805, ext. 235	937-236-8805, ext. 322
Attn: Department 21	Attn: Department 21	rkushmaul@bowser-morner.com	jfletcher@bowser-morner.com	kfletcher@bowser-morner.com

BOWSER-MORNER, INC. - CONSTRUCTION MATERIALS LABORATORY
2009a Laboratory Testing Fees - Lime & Limestone Chemical and Physical Testing (Non-Construction Uses)
AASHTO/ISO 17025 ACCREDITED

Miscellaneous Fees	
Sampling - Time	\$58.00/Hour
Sampling - Mileage	\$0.60/Mile
Consultation, Senior Geologist/ Engineer/ Chemist	\$120.00/Hour

Bulk Sample Preparation (rock core &/or large pieces)	
1. Ledge Rock, etc., crush to test specimens	\$58.00/Hour
2. Rock Core, split & archive representative half	\$3.80/ft.
3. Rock Core, crush to test specimens	\$3.80/ft.
4. Geologist Log	\$3.80/ft.
5. Rock Core, log, split, crush (items 2, 3, & 4)	\$8.00/ft.

Test Specimen Preparation (+ No. 4 reduced to - No. 60 mesh)	
6. Prep Bulk Sample (+ No. 4), crush and or pulverize (C 50)	\$60.00
7. Prep for Fine Aggregate (-#4), pulverize to - #60 (C 50)	\$27.00

Aglime Quality Parameters	
8. Wet Sieve Analysis (C110, sec. 22)	\$80.00
9. Elemental Analysis (C 25/ C 1271) per each element:	
a. calcium, reported as Ca, CaO, CaCO3	\$27.00
b. magnesium, reported as Mg, MgO, MgCO3	\$27.00
c. iron, reported as Fe, Fe2O3	\$27.00
d. aluminum, reported as Al, Al2O3	\$27.00
e. silicon, reported as Si, SiO2	\$27.00
f. residual oxides	\$27.00
10. Calcium Carbonate Equivalent - CCE (C 25, sec. 33) (Total Neutralizing Power - TNP)	\$55.00
11. Loss on Ignition - LOI (C25, sec. 19)	\$27.00
12. Relative Neutralizing Value (RNV) - Indiana Method	NC
13. Effective Neutralizing Power (ENP) - Ohio Method	NC
<i>(items 12. RNV & 13. ENP are calculations based upon items 8 & 10)</i>	
14. Acid Insoluble (C 25)	\$27.00

Scrubber Stone Parameters	
15. Wet Sieve Analysis (C110, sec. 22)	\$80.00
16. Elemental Analysis (C25/ C 1271) per each element:	
a. calcium, reported as Ca, CaO, CaCO3	\$27.00
b. magnesium, reported as Mg, MgO, MgCO3	\$27.00
c. iron, reported as Fe, Fe2O3	\$27.00
d. aluminum, reported as Al, Al2O3	\$27.00
e. silicon, reported as Si, SiO2	\$27.00
f. sulfur, reported as S, SO3	\$27.00
g. residual oxides	\$27.00
17. Calcium Carbonate Equivalent - CCE (C 25, sec. 33) (Total Neutralizing Power - TNP)	\$55.00
18. Loss on Ignition - LOI (C25, sec. 19)	\$27.00
19. Limestone Reactivity Test (ABB-FGD, Alstom SOP)	\$800.00
20. Acid Insoluble (C 25)	\$27.00
21. Available Lime Index, Rapid Sugar (C 25, sec. 28)	\$55.00
22. Calcium Carbonate, CO2, by Schroetter's Alkalimeter	\$75.00

ASTM C 110 Physical Test Parameters	
23. Apparent Loose & Packed Density (sec. 19 & 20)	\$40.00
24. Dry Brightness (sec. 12)	\$120.00
25. Limestone Grindability (sec. 13)	\$120.00
26. Particle Size by Sieve & Hydrometer (sec. 17)	\$100.00
27. Residue & Sieve Analysis (sec. 15)	\$100.00
28. Settling Rate (sec. 14)	\$100.00
29. Specific Gravity (sec. 21)	\$80.00
30. Water Retention (sec. 7)	\$80.00
31. Wet Sieve Analysis (sec. 22)	\$80.00
32. Slaking Rate, Reactivity (sec. 11)	\$300.00

Other Common Elements (usually trace)	
33. phosphorus, reported as P, P2O3	\$27.00
34. sulfur, reported as S, SO3	\$27.00
35. potassium, reported as K, K2O	\$27.00
36. sodium, reported as Na, Na2O	\$27.00
37. titanium, reported as Ti, TiO2	\$27.00
38. manganese, reported as Mn, MnO2	\$27.00

The following table recommends the number and weight of increments for general purpose sampling and are based upon a 1000-ton lot size. To determine the number of increments recommended for a specific lot size use the following equation: $N2 = N1 [specific\ lot\ size\ (tons) / 1000\ tons]^{1/2}$

where:
 N1 = minimum increments required, per 1000 ton lot, and
 N2 = increments required for specified lot size

ASTM C 50 Table 1 - Recommended Number & Weight of Increments for General Purpose Sampling			
Particle Size	- 1/4 in.	+ 1/4 in. by - 3/4 in.	+ 3/4 in
minimum number of increments	10	10	10
minimum weight of increment, lb	5	10	15
total minimum sample weight, lb	50	100	150

Refer to ASTM C 50, "Sampling, Sample Preparation, Packaging, and Marking of Lime and Limestone Products" for more detailed information and guidance.

The following table describes the level of crushing and/or pulverizing required in order to prepare a proper test specimen for laboratory analysis:

Levels of Preparation for Laboratory Testing		
as-submitted	crush to - No. 4	pulverize to - No. 60
rock core	\$3.80/ ft	\$27.00 ea. Interval
ledge rock	\$60.00 ea.	\$27.00 ea. sample
stockpile + No. 4	\$60.00 ea.	\$27.00 ea. sample
stockpile - No. 4	not applicable	\$27.00 ea. sample
pulverized >#60	not applicable	\$27.00 ea. sample
pulverized <#60	not applicable	not applicable (no charge)

(total prep charge = crush fee plus pulverizing fee)

Mailing Address:	Shipping Address:	Contact Person:	Alternate Contacts:	
Bowser-Morner, Inc. P.O. Box 51 Dayton, Ohio 45401-0051 Attn: Department 21	Bowser-Morner, Inc. 4518 Taylorsville Road Dayton, Ohio 45424 Attn: Department 21	Karl A. Fletcher Assistant Lab Manager 937-236-8805 ext. 322 kfletcher@bowser-morner.com	James W. Fletcher, Vice President Director of Laboratory Services 937-236-8805, ext. 235 jffletcher@bowser-morner.com	Kelly Pryfogle, Office Mgr. Ph: 937-236-8805, ext. 333 Fax: 937-233-2016 kpryfogle@bowser-morner.com