

CLEMSON UNIVERSITY
FY 2022-2023 BILLING RATES

**** Please read the instruction sheet ****

DEPARTMENT NAME : **Materials Science and Engineering**

VICE-PRESIDENT AREA : **Provost-Academic Affairs - CECAS**

Description of commodity or service :	Unit of Billing	FY 22/23 RATE
Analytical Testing Laboratory		
Sample Preparation	per hour	\$ 135.12
Extractions (Soxhlet)	per sample	\$ 135.12
Extractions (ASE)	per sample	\$ 90.32
Data Analysis	per hour	\$ 235.60
FTIR/ UV/Vis/NIR - Instrument (Avg 20 Min/Sample)	per instr. hour	\$ 279.43
GC/MS - Instrument (Avg 40 Min/Sample)	per instr. hour	\$ 235.60
Chromatography GC, SFC, HPLC - Instrument (Excludes Method Development)	per instr. hour	\$ 135.12
NMR - Operator	per hour	\$ 235.60
NMR - Instrument	per instr. hour	\$ 33.95
Thermal Analysis TGA, DSC, MDSC	per instr. hour	\$ 167.47
Thermal Analysis DMTA (DMA OR TMA) - Instrument (Avg 60 Min/Sample)	per instr. hour	\$ 211.97
Physical Testing Laboratory		
Skein Break D-1578	per sample	\$ 75.30
Tensile (Grab) Warp & Filling - D-5034	per sample	\$ 87.29
Tensile (Modified Grab) Warp & Filling - D-5034	per sample	\$ 87.29
Single End Yarn Break - Statimat 11 - D-2256	per sample	\$ 87.29
Single End Yarn Break - Instron D-2256	per sample	\$ 87.29
Tear Test (Tounge) D-2261	per sample	\$ 87.29
Tear Test (Trapezoid) D-5587	per sample	\$ 87.29
Tensile 1" Strip (Instron or Scott) D-5035	per sample	\$ 87.29

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Single Fiber Break D-3822	per sample	\$ 124.91
Resistance to Slippage of Yarns in Woven Fabric - D434	per sample	\$ 124.91
Bursting (Ball) - ASTM D-3787	per sample	\$ 87.29
Hydrostatic Head (FX 3000) - 127 AATCC	per sample	\$ 75.30
Air Permeability (FX 3300) - D-0737	per sample	\$ 49.82
Water Repellency - Spray Test - 22 AATCC	per sample	\$ 62.86
Water Repellency - IPA/Water AATCC - 42	per sample	\$ 75.30
Abrasion - StohID-3885/D3886	per sample	\$ 75.30
Abrasion - Yarn - CTT	per sample	\$ 103.58
Abrasion - Taber (Cost Plus Wheels)	per sample	\$ 188.12
Abrasion (Wyzenbeek) D-4157	per sample	\$ 124.95
Pilling (Rotary Tumble) - 3 Repeats D-3512	per sample	\$ 75.30
Tear Test (D-1424) Elmendorf	per sample	\$ 66.75
Weight - D-3776	per sample	\$ 49.82
AOS (EOS) Geotextile	per sample	\$ 124.95
Moisture Regain/Content D-2495	per sample	\$ 87.29
Colorfastness to laundering (Home& Comm: Acclrtd) - AATCC 61 - 3A Test	per sample	\$ 627.44
Color Fastness (Crocking) AATCC 8:	per sample	\$ 49.82
Colorfastness to Light (Carbon-Arc Lamp) 16 AATCC Sec. 1 D	per sample	\$ 96.81
Colorfastness (Washing)	per sample	\$ 125.78
PH % - 81	per sample	\$ 49.82
Scour Greige Goods & Dye	per sample	\$ 374.56

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Dimensional Change (Shrinkage) 3 Repeats/Sample - 135 AATCC	per sample	\$ 250.51
Fabric Durable Press Rating 3 Repeats - 124 AATCC	per sample	\$ 250.51
Flammability (45 degree Angle) FTM 5908 ASTM- D-1230	per sample	\$ 75.30
Verticle Flammability ASTM D-6413	per sample	\$ 75.30
Barre' (Redye)	per sample	\$ 311.99
Barre' (Yarn Pull & Weigh)	per sample	\$ 187.32
Barre' (Yarn Pull & ReKnit)	per sample	\$ 187.32
MacBeth Color Eye - Spectrophotometer	Per hour	\$ 279.43
Microscopy/Image Analysis	per hour	\$ 157.32
Crimp Per Inch (Fiber)	per sample	\$ 49.82
Cross-Sections sample preparation(microscopy separate)	per sample	\$ 87.29
Fiber Denier (Microscopic Measurement)	per sample	\$ 75.30
Fiber Staple Length	per sample	\$ 49.82
Uster AFIS (Neps, Length & Diameter & Trash)	per sample	\$ 75.30
Yarn Denier/Count by Weight	per sample	\$ 37.96
Yarn Shrinkage (Boiling Water) D-2259	per sample	\$ 124.91
Yarn Tension	per sample	\$ 150.21
Yarn Filament Count	per sample	\$ 62.86
Yarn Inspection (Pulled from fabric)	per sample	\$ 26.15
Uster (Yarn Evenness) D-1425	per sample	\$ 87.29
Yarn Twist (ILS) D-1423	per sample	\$ 66.82
Yarn Appearance (EIB) D2255	per sample	\$ 49.82
Fabric Width D-3774	per sample	\$ 49.82

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Fabric (Construction Ends/in., Picks/in., etc., D-3775	per sample	\$ 87.29
Fabric Streak Analyzer (Replicas)	per sample	\$ 40.14
Thickness - SAE J-1355	per sample	\$ 49.82
Thickness (Shirley) FTM 5030	per sample	\$ 49.82
Loop Strength ASTM D2256-5 (YARN)	per sample	\$ 87.29
Pore Distribution & Bubble Point (PMI)	per sample	\$ 339.87
General Laboratory Usage (no equipment usage)	daily	\$ 1,044.25
Benz oven use and Latex Trials	per day	\$ 1,568.05
Non-Wovens Laboratory Usage (Rando Machine)(except fiberglas)	daily	\$ 1,775.65
Hills Extruder (Room 236 Serrine) (single extruder includes winding & drawing) (1/2 Day Min.)	daily	\$ 3,131.45
James Extruder (Room 305 Rhodes) double extruder without winding and without drawing (1/2 Day Min.)	daily	\$ 2,086.05
Atomic Force Microscopy	per hour	\$ 173.89
Surface tension of different liquids	per hour	\$ 102.80
Surface energy of planar substrates, fibers and contact angles	per hour	\$ 102.80
Rheological analysis of complex fluids	per hour	\$ 88.55
Characterization of compression properties of fiber and films (Kawabata compression tester)	per hour	\$ 112.30
High speed imaging of droplet sreading and absorption into fibrous materials	per hour	\$ 155.00

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Characterization of magneto-optical properties of transparent materials (verdet constants)	per hour	\$ 115.45
CERAMICS & MATERIALS ENGINEERING		
External Rates		
X-ray Diffraction	per hour	\$ 104.40
Total Particle Size Analysis	per sample	\$ 312.00
PSD(Horiba)	per sample	\$ 312.00
Thermogravimetric Analysis (Netzsch)	per sample	\$ 312.00
Differential Thermal Analysis	per sample	\$ 312.00
Dilatometry(air) ((Netzsch)	per sample	\$ 208.80
Dilatometry(controlled atmosphere)	per sample	\$ 417.10
AMRL		
Optical Fiber Draws	Per day	\$ 4,329.07
Optical Characterization	per sample	\$ 298.80
New View (White Light interferometer)	per hour	\$ 96.99
Microthermal analysis	per hour	\$ 290.18
Viscosity Measurements	per sample	\$ 158.36
MCVD preform fabrication	Per day	\$ 4,786.46
Stacking	Per day	\$ 3,169.51
AMRL-NMR (Nuclear Magnetic Resonance)	per instr. hour	\$ 95.91