



## BILLING RATES - FY 14/15

**DEPARTMENT NAME :**  
**Materials Science & Engineering**

**VICE-PRESIDENT AREA :**  
**Academic Affairs (COES)**

DESCRIPTION OF COMMODITY OR SERVICE :	UNIT OF BILLING	FY 14/15 RATE	CUSTOMERS BEING SERVED
<b>Analytical Testing Laboratory</b>			
Sample Preparation	per hour	\$85.50	Industrial companies (Same Customers for all Testing Listed Below)
Extractions (Soxhlet)	per sample	\$85.50	
Extractions (Supercritical) - Instrument	per instr. hour	\$85.50	
Extractions (Supercritical) - Preparation	per sample	\$21.50	
Extractions (ASE) - Organic Solvent	per sample	\$57.00	
Extractions (ASE) - Aqueous	per sample	\$85.50	
Data Analysis	per hour	\$149.00	
FTIR - Instrument (Avg 20 Min/Sample)	per instr. hour	\$134.00	
FTIR Microscopy - Instrument (Avg 20 Min/Sample)	per instr. hour	\$176.75	
GC/MS - Instrument (Avg 40 Min/Sample)	per instr. hour	\$149.00	
Chromatography GC, SFC, HPLC - Instrument (Excludes Method Development)	per instr. hour	\$85.50	
NMR - Operator	per hour	\$149.00	
NMR - Instrument	per instr. hour	\$21.50	



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Thermal Analysis TGA - Instrument (Avg 60 Min/Sample)	per instr. hour	\$106.00	"
Thermal Analysis DSC - Instrument (Avg 30 Min/Sample)	per instr. hour	\$106.00	"
Thermal Analysis MDSC - Instrument (Avg 60 Min/Sample)	per instr. hour	\$106.00	"
Thermal Analysis DMTA - Instrument (Avg 60 Min/Sample)	per instr. hour	\$134.00	"
Formaldehyde/Benze Trials	daily	\$3,294.00	"
<b>Physical Testing Laboratory</b>			
Bursting (Mullen) - ASTM D-3786	per sample	\$55.25	"
Bursting (Ball) - ASTM D-3787	per sample	\$55.25	"
Air Permeability (FX 3300) - D-0737	per sample	\$31.50	"
Abrasion - Stohl (Flex) D-3885	per sample	\$47.50	"
Abrasion - Stohl (Diaphragm) D-3886	per sample	\$47.50	"
Abrasion - Yarn - CTT	per sample	\$65.50	"
Yarn Twist (ILS) D-1423	per sample	\$42.25	"
Tear Test (D-1424) Elmendorf	per sample	\$42.25	"
Uster (Yarn Evenness) D-1425	per sample	\$55.25	"
Skein Break D-1578	per sample	\$47.50	"
Tensile (Grab) Warp & Filling - D-5034	per sample	\$55.25	"



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Tensile (Modified Grab) Warp & Filling - D-5034	per sample	\$55.25	"
Single End Yarn Break - Statimat 11 - D-2256	per sample	\$55.25	"
Single End Yarn Break - Instron D-2256	per sample	\$55.25	"
Tear Test (Tounge) D-2261	per sample	\$55.25	"
Tear Test (Trapezoid) D-5587	per sample	\$55.25	"
Pilling (Rotary Tumble) - 3 Repeats D-3512	per sample	\$47.50	"
Weight - D-3776	per sample	\$31.50	"
Single Fiber Break D-3822	per sample	\$79.00	"
AOS (EOS) Geotextile	per sample	\$79.00	"
Yarn Appearance (EIB) D2255	per sample	\$31.50	"
Fabric Width D-3774	per sample	\$31.50	"
Tensile 1" Strip (Instron or Scott) D-5035	per sample	\$55.25	"
Fabric (Construction Ends/in., Picks/in., etc., D-3775	per sample	\$55.25	"
Abrasion - Taber (Cost Plus Wheels)	per sample	\$119.00	"
Abrasion (Wyzenbeek) D-4157	per sample	\$79.00	"
Moisture Regain/Content D-2495	per sample	\$55.25	"
Resistance to Slippage of Yarns in Woven Fabric - D434	per sample	\$79.00	"



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Yarn Shrinkage (Boiling Water) D-2259	per sample	\$79.00	"
Yarn Inspection (Pulled from fabric)	per sample	\$16.50	"
Color Fastness (Crocking) AATCC 8:	per sample	\$31.50	"
Colorfastness to Light (Carbon-Arc Lamp) 16 AATCC Sec. 1 D	per sample	\$61.25	"
PH % - 81	per sample	\$31.50	"
Dimensional Change (Shrinkage) 3 Repeats/Sample - 135 AATCC	per sample	\$158.25	"
Fabric Durable Press Rating 3 Repeats - 124 AATCC	per sample	\$158.25	"
Hydrostatic Head (FX 3000) - 127 AATCC	per sample	\$47.50	"
Soil Release (Oily Stain Method) - 130 AATCC	per sample	\$95.00	"
Colorfastness to laundering (Home& Comm: Acclrtd) - AATCC 61 - 3A Test	per sample	\$396.75	"
Water Repellency - Spray Test - 22 AATCC	per sample	\$39.75	"
Water Repellency - IPA/Water AATCC - 42	per sample	\$47.50	"
Thickness (Shirley) FTM 5030	per sample	\$31.50	"



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Flammability (45 degree Angle) FTM 5908 ASTM- D-1230	per sample	\$47.50	"
Vertical Flammability ASTM D-6413	per sample	\$47.50	"
Latex Trials	per day	\$992.00	"
Colorfastness (Washing)	per sample	\$79.50	"
Barre' (Redye)	per sample	\$197.25	"
Barre' (Yarn Pull & Weigh)	per sample	\$118.50	"
Scour Greige Goods & Dye	per sample	\$237.00	"



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Barre' (Yarn Pull & ReKnit)	per sample	\$118.50	"
Yarn Denier/Count by Weight	per sample	\$24.00	"
Fiber Denier (Microscopic Measurement)	per sample	\$47.50	"
Uster AFIS (Neps, Length & Diameter & Trash)	per sample	\$47.50	"
MacBeth Color Eye - Spectrophotometer	per sample	\$95.00	"
HVI (Per Sample) ASTM D-4605	per sample	\$2.80	"
Liquid Wicking - INDA 10-70-3	per sample	\$31.50	"
Photomicrograph - Polaroid	per picture	\$19.35	"
Photomicrograph - 35 MM	per picture	\$27.10	"
Fabric Streak Analyzer (Replicas)	per sample	\$25.40	"
Image Analysis	per hour	\$99.50	"
Fabric Contamination Determination (Chem, Micro, Photo, etc.)	per sample	\$79.50	"
Desize Yarn	per hour	\$79.50	"
Yarn Tension	per sample	\$95.00	"
Fusion of Fibers	per sample	\$47.50	"
Crimp Per Inch (Fiber)	per sample	\$31.50	"
Cross-Sections (Fibers - Microtome Method)	per sample	\$55.25	"
% Take-Up (Ground & Pile)	per sample	\$39.75	"
Yarn Contraction (Per Directions)	per sample	\$39.75	"



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Fiber Staple Length	per sample	\$31.50	"
Yarn Filament Count	per sample	\$39.75	"
Thickness - SAE J-1355	per sample	\$31.50	"
Sewability of Woven Cloth; Seam efficiency Method FTM 5110	per sample	\$66.00	"
Loop Strength ASTM D2256-5 (YARN)	per sample	\$55.25	"
Pore Distribution & Bubble Point (PMI)	per sample	\$215.00	"
General Laboratory Usage	daily	\$660.25	"
Non-Wovens Laboratory Usage (Rando Machine)(except fiberglass)	daily	\$1,123.00	"
Hills Extruder (Room 236 Serrine) with technical assistance (single extruder includes winding & drawing) (1/2 Day Min.)	daily	\$1,980.00	"
James Extruder (Room 305 Rhodes) double extruder without winding and without drawing (1/2 Day Min.)	daily	\$1,319.25	"
Atomic Force Microscopy	per hour	\$110.00	"
Surface tension of different liquids	per hour	\$65.00	"
Surface energy of planar substrates, fibers and contact angles	per hour	\$65.00	"
Rheological analysis of complex fluids	per hour	\$56.00	"



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DESCRIPTION OF COMMODITY OR SERVICE :	UNIT OF BILLING	FY 14/15 RATE	CUSTOMERS BEING SERVED
Characterization of compression properties of fiber and films (Kawabata compression tester)	per hour	\$71.00	"
High speed imaging of droplet spreading and absorption into fibrous materials	per hour	\$98.00	"
Characterization of magneto-optical properties of transparent materials (verdet constants)	per hour	\$73.00	"
<b>CERAMICS &amp; MATERIALS ENGINEERING</b>			
<b>External Rates</b>			
X-ray Diffraction(room temperature)	per sample	\$132.00	"
X-ray Diffraction(elevated Temperature)	per hour	\$66.00	"
Total Particle Size Analysis	per sample	\$197.25	"
PSD(Horiba)	per sample	\$197.25	"
Thermogravimetric Analysis	per sample	\$197.25	"
Differential Thermal Analysis	per sample	\$197.25	"
Dilatometry(air)	per sample	\$132.00	"
Dilatometry(controlled atmosphere)	per sample	\$263.75	"





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<b>Internal Rates</b>			
X-ray Diffraction(room temperature)	per sample	\$33.10	Faculty and CU research staff
X-ray Diffraction(elevated Temperature)	per hour	\$13.25	Faculty and CU research staff
Total Particle Size Analysis	per sample	\$66.00	Faculty and CU research staff
PSD(Horiba)	per sample	\$66.00	Faculty and CU research staff
Thermogravimetric Analysis	per sample	\$66.00	Faculty and CU research staff
Differential Thermal Analysis	per sample	\$66.00	Faculty and CU research staff
Dilatometry(air)	per sample	\$66.00	Faculty and CU research staff
Dilatometry(controlled atmosphere)	per sample	\$99.75	Faculty and CU research staff
<b>AMRL Rates</b>			
Optical Fiber Draws	Per day	\$2,733.53	Industrial companies
Optical Characterization	per sample	\$188.50	Industrial companies
New View (White Light interferometer)	per hour	\$61.25	Industrial companies
Microthermal analysis	per hour	\$183.25	Industrial companies
Viscosity Measurements	per sample	\$100.00	Industrial companies
MCVD preform fabrication	Per day	\$3,021.94	Industrial companies
Stacking	Per day	\$2,001.26	Industrial companies