MICROMERITICS ANALYTICAL SERVICES
The Particle Testing Authority

ACCREDITED
CERTIFICATE # 3636.01

PRICE LIST

Particle Size and Particle Shape

Laser Light Scattering – Mie and Fraunhofer Theories

520 – 00 Aqueous – based dispersion (ISO 13320) using Saturn DigiSizer $265
520 – 01 Non-aqueous – based dispersion (ISO 13320) using Saturn DigiSizer $265
520 – 50 Dry dispersion (ISO 13320) using Malvern Mastersizer $265
520 - 51 Liquid dispersion (ISO 13320) using Malvern Mastersizer $265

X – Ray Sedimentation – Stokes' Law

510 – 00 Aqueous and non-aqueous based dispersion inorganic materials only (ISO 13317–3)
(Requires skeletal density 133 – 00 prior to analysis if skeletal is not provided) $265

Electrical Sensing Zone – "Coulter principle"

538 – 00 Aqueous and non-aqueous based dispersion (ISO 13319) $315
538 – 02 Particle Size Distribution plus particle concentration analysis (ISO 13319) $340
538 – 50 Emission stack testing, particle size analysis of fly ash particles collected on filters (ISO 13319) $340

Particle Shape Analysis

005 – 80 Particle shape using Wet dispersion and Dynamic Image Analysis (ISO 13322-2) $290
005 – 81 Particle shape using an Automated Microscopy technique $800

Nano Particle Size

005 – 70 Average particle size calculated from BET surface area $265
005 – 71 Dynamic Light Scattering / Photon correlation spectroscopy (ISO 22412) $265

Sieve Analysis

010 – 16 Dry or Wet sieving available / Ro-Tap apparatus $190
010 – 71 Alpine Airjet Sieves $190
010 – 72 Sonic sifter for small volumes $190

Other Particle Size Techniques

005 – 73 Particulate count and concentration using the Light Obscuration technique
(USP method <788> and <789>) $315
005 – 74 Sub-sieve autosizer (ASTM B330-07, ASTM C721, ISO-10070)
(Requires density prior to analysis) Air permeability Diameter $265

Zeta Potential

120 – 00 Zeta potential (ISO 13099–2) $315
120 – 01 ISO-electric point determination and pH titration $650

Microscopy

010 – 50 Particle size using automated SEM techniques.....$605 + up

Mayer - Stowe

942 - 09 Particle size calculation from Mercury Intrusion Analysis.....$315

B.E.T. or Langmuir Surface Area; T-Plot Area

005 – 00 Single point surface area using Nitrogen gas (ISO 9277).....$190
005 – 01 Multipoint surface area using Nitrogen gas (ISO 9277).....$215
005 – 02 Multipoint surface area using Krypton gas (ISO 9277).....$245
005 – 16 Single point surface area using Krypton gas (ISO 9277).....$220
005 - 10 Multipoint surface area and STSA using Nitrogen gas (ASTM D6556).....$275

Pore Volume Distribution/Pore Size Distribution

Pore Size by Gas Adsorption

Pore size samples may include the following reports as appropriate: BET or Langmuir surface area, BJH mesopore analysis, DFT pore size calculations, single-point total pore volume, and t-Plot micropore volume (ISO 15901-02).

005 – 50 40-point nitrogen adsorption isotherm (20 Å to 3000 Å).....$375
005 – 05 Surface area and 40-point Nitrogen desorption isotherm (20 Å to 3000 Å).....$400
005 – 08 40-pt Nitrogen adsorption and 40-pt desorption isotherm (20 Å to 3000 Å).....$575
010 - 03 Sample encapsulation in glass tube.....$100

Micropore Pore Size Distribution

Reports may include H-K, Dubinin, and/or DFT methods for micropore analysis (ISO 15901-3).

201 – 03 High-resolution micropore analysis plus mesopore isotherm (4 Å to 3000 Å).....$950

Pore Size by Mercury Intrusion

Report will include calculations of bulk density, skeletal density, porosity, average pore diameters, median pore diameters, and total intrusion volume. Additional summary reports such as tortuosity, fractal dimension, permeability, and compressibility are available upon request for an additional fee (ISO 15901-01).

942 – 03 Mercury intrusion analysis (pore size range 360 to 0.003 µm).....$350
942 – 04 Mercury intrusion and extrusion analysis (pore size range 360 to 0.003 µm).....$400
942 – 10 High-resolution macropore analysis (pore size range 900 to 4 µm).....$325
942 – 11 High-resolution macropore plus a complete intrusion and extrusion analysis.....$500
942 - 05 Additional mercury porosimetry calculations.....$50

Density

133 – 00 Skeletal density (Helium or Nitrogen pycnometry) ISO 12154, USP<699>.....$105
133 - 01 Skeletal density at specific temperature.....$130
133 – 02 Open cell content of rigid cellular plastic, foam density (ASTM D6226).....$160
942 – 07 Mercury bulk density.....$150
136 – 00 Envelope density of solid, non-powder samples using the GeoPyc® 1360.....$145
136 – 01 T.A.P.™ (Transverse Axial Pressure) density using the GeoPyc® 1360.....$200
136 – 02 Specific pore volume and percent porosity calculations (Includes true density analysis and envelope density analysis).....$235
010 – 70 Bulk and Tap Density USP <616>.....$165
010 - 77 Bulk density only.....$125

Special Vapor Sorption Services

005 – 60 Adsorption Isotherms at user defined conditions (CO_2 for example) $750
005 – 61 High-Pressure Isotherms using Hydrogen, Nitrogen, Oxygen, & Methane other gases $950
005 – 62 High-Pressure Reactions ..... Call
005 – 63 Vapor isotherms – Dynamic Vapor Sorption (DVS) gravimetric analysis $800
005 – 64 Vapor isotherms using Volumetric technique (ASAP 2020 or 3Flex) $800
005 – 65 Inverse Gas Chromatography (Surface Energy Measurement) $950
005 – 75 Surface Energy heterogeneity profile (Requires BET 005-01) $1275

Chemisorption

201 – 10 Volumetric Chemisorption analysis (specify analytical method) $750
291 – 23 Dynamic or pulse Chemisorption analysis (specify analytical method) $750
291 – 03 Pulse Chemisorption using liquid vapors (specify analytical method) $850

Temperature-Programmed Studies

291 – 01 Temperature-Programmed Reduction (TPR) $650
291 – 10 Temperature-Programmed Desorption (TPD) $650
291 – 02 Temperature-Programmed Oxidation (TPO) $650
291 – 06 Mass Spectrometry analysis (must be combined with Temperature Program study or TGA) $225

Other Chemisorption Experiments

291 – 20 Heat of Desorption, first order Kinetics $1800
201 – 50 Isosteric Heat of Adsorption $1250

Microscopy

010 – 23 Optical Microscope Photos (price per photo) $55
010 – 50 Microscopy Techniques courtesy of MVA Scientific Consultants ..... Call
010 - 40 SEM imaging ..... Call
010 - 41 Elemental Analysis by Energy Dispersion Spectroscopy ..... Call

Thermal Analysis

005 – 66 TGA – Standard Run Conditions Room Temp – 900°C $370
005 – 67 DSC – Standard Run Room Temp – 600°C $395
005 – 68 mDSC – Modulated DSC – High Resolution $525
005 – 69 Combination TGA/DSC $690

Scientific Services

010 – 00 Non-Standard Laboratory Analysis ..... Call
010 – 10 Method Development services ..... Call
010 – 11 Method Validation Services ..... Call
010 – 06 Consulting services and detailed results interpretation ..... Call

Other Services

005 – 85	Dynamic Void Volume – DVVA (ASTM D7854)	$350
005 – 86	Magnetic content using Buck analyzer	$150
005 – 87	Expert Testimony	Call
010 – 76	Material Characterization using XRD	$650
010 – 01	Certificate of Analysis	$50
010 – 15	Viscosity of Newtonian liquids using cone/plate rheometer	$80
010 – 18	pH	$60
010 – 19	Percent moisture (weight loss upon drying)	$80
010 – 22	Specific gravity of slurry	$80
010 – 24	Total dissolved solids	$80
010 – 25	Total suspended solids	$80
010 – 26	Specific gravity at user specified temperatures	$130
010 – 50	Contamination or Particle Identification (outsourced)	Call
010 – 80	Special sample Preparation or storage (glove box or freezer)	$55
950 – 50	Volume calibration of AutoPore mercury penetrometers	$265

Additional Information

There is a 25% surcharge for all DEA-controlled substances and hazardous materials. There is a 10% surcharge for all cGMP and GLP samples or projects and A2LA Accreditation reports.

Volume Discount Schedule

Volume discounts are based on the number of samples sent in for same test number, not just total number of samples.

1–5 samples.....List Price
6–10 samples.....5% discount
11–20 samples.....10% discount
21–40 samples.....15% discount
More than 40 samples.....20% discount

Sample Turnaround times

Turnaround times are typical are most samples. Some exclusions do apply.

Normal	5–7 days	List Price
Priority	2–4 days	List Price + 50% surcharge
Rush	Next sample analyzed	List Price + 200% surcharge

All orders are subject to Micromeritics Analytical Services terms and conditions (see separate terms and conditions document at www.particletesting.com). Credit card orders are welcomed.

Unless otherwise requested, samples will be retained for a minimum of 3 months. Samples can be returned at the customer's expense, provided correct shipping and payment information is received. Sample results will be maintained for a minimum of 5 years.

All samples and related customer information is kept confidential.

Instrument Purchase Allowance

Half the cost of applicable analyses completed within 120 days of instrument purchase may be credited toward instrument purchase. The maximum credit allowed is 4% of the instrument purchase price. Customer must notify Micromeritics of credit due when instrument is ordered.

Return Sample Fee

There is a flat fee of $50 per project for all sample returns, $200 if samples are considered hazardous, unless an account number is provided. SDS are required for all samples.

MICROMERITICS ANALYTICAL SERVICES *The Particle Testing Authority*

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