PARTICLE TESTING AUTHORITY

Particle Testing Authority - Price List

PARTICLE SIZE AND PARTICLE SHAPE

Laser Light Scattering – Mie and Fraunhofer Theories

PSA - 01 (Formerly 520-00)	Aqueous – dispersion (ISO 13320) using Saturn DigiSizer	**$275**
PSA - 02 (Formerly 520-01)	Non-aqueous – based dispersion (ISO 13320) using Saturn DigiSizer	**$275**
PSA - 03 (Formerly 520-50)	Dry dispersion (ISO 13320) using Malvern Mastersizer	**$275**
PSA – 04 (Formerly 520-51)	Liquid dispersion (ISO 13320) using Malvern Mastersizer	**$275**

X – Ray Sedimentation – Stokes' Law

PSA - 05 (Formerly 510-00)	Aqueous and non-aqueous based dispersion inorganic materials only (ISO 13317–3) (Requires Density – O1 prior to analysis if skeletal density is not provided)	**$285**

Particle Shape Analysis

PSA – 13 (Formerly 005-80)	Particle shape using wet dispersion and dynamic image analysis (ISO 13322-2)	**$300**
SEM - 04 (Formerly 005-81)	Particle shape using an automated microscopy technique	**Call**

Nano Particle Size

Physi – 23 (Formerly 005-70)	Average particle size calculated from BET surface area	**$285**
PSA – 10 (Formerly 005-71)	Dynamic light scattering / photon correlation spectroscopy (ISO 22412)	**$275**

Other Particle Size Techniques

PSA – 11 (Formerly 005-73)	Particulate count and concentration using the light obscuration technique (USP method <788> and <789>)	**$315**
PSA – 12 (Formerly 005-74)	Sub-Sieve AutoSizer (ASTM B330-07, ASTM C721, ISO-10070) (Requires density prior to analysis) Air permeability diameter.	**$275**
PSA – 14 (Formerly 010-16)	Dry or wet sieving available / Ro-Tap apparatus	**$225**
PSA – 15 (Formerly 010-78)	Particle size of material on filters	**$340**
SEM - 03 (Formerly 010-50)	Particle size using automated microscopy techniques	**Call**

Zeta Potential

PSA – 16 (Formerly 120-00)	Zeta potential (ISO 13099–2)	**$315**
PSA – 17 (Formerly 120-01)	ISO-electric point determination and pH titration	**$650**

Mayer - Stowe

PSA -18 (Formerly 942 -09)	Particle size calculation from Mercury intrusion analysis	**$350**

Not all tests listed are included in our A2LA Scope of Accreditation. Please consult A2LA Certificate 3636.01 for a list of accredited tests.

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B.E.T. OR LANGMUIR SURFACE AREA; T-PLOT AREA

Physi – 01 (Formerly OO5-O1)	Multipoint surface area using nitrogen gas (ISO 9277)	$230
Physi – 02 (Formerly 005-02)	Multipoint surface area using krypton gas (ISO 9277)	$265
Physi – 04 (Formerly 005-10)	Multipoint surface area and STSA using nitrogen gas (ASTM D6556)	$315

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).

Physi – 10 (Formerly 005-50)	40-point nitrogen adsorption isotherm (20 Å to 3000 Å)	$375
Physi – 12 (Formerly 005-08)	40-pt Nitrogen adsorption and 40-pt desorption isotherm (20 Å to 3000 Å)	$550

Micropore Pore Size Distribution:

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

Physi – 13 (Formerly 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).

MIP – 01 (Formerly 942 – 03)	Mercury intrusion analysis (pore size range 360 to 0.003 µm)	$350
MIP – 02 (Formerly 942 – 04)	Mercury intrusion and extrusion analysis (pore size range 360 to 0.003 µm)	$400
MIP – 03 (Formerly 942 – 10)	High-resolution macropore analysis (pore size range 900 to 4 µm)	$325
MIP – 04 (Formerly 942 – 11)	High-resolution macropore plus a complete intrusion and extrusion analysis	$500
MIP - 05	Reverberi method for pore throat and pore cavity	$600
MIP – 10 (Formerly 942-05)	Advanced Hg calculations	$75

DENSITY

Density – 01 (Formerly 133 – 00)	Skeletal density (Helium or Nitrogen pycnometry) ISO 12154, USP <699>	$125
Density – 02 (Formerly 133 – 01)	Skeletal density at specific temperature	$150
Density – 03 (Formerly 133 – 02)	Open cell content of rigid cellular plastic, foam density (ASTM D6226)	$200
Density – 04 (Formerly 136 – 00)	Envelope density of solid, non-powder samples using the GeoPyc® 1360	$150
Density – 05 (Formerly 136 – 01)	T.A.P.™ (Transverse Axial Pressure) density using the GeoPyc® 1360	$200
Density – 07 (Formerly 942 – 07)	Mercury bulk density	$275
Density – 08 (Formerly 010 – 70)	Bulk and Tap density USP <616>	$175
Density – 09 (Formerly 010 – 77)	Bulk density only	$125

SPECIAL VAPOR SORPTION SERVICES

Physi – 20 (Formerly 005 – 60)	Special CO2 isotherms at 0 °C	$575
Physi – 21 (Formerly 005 – 60)	Adsorption isotherms at user defined conditions (specialty gases)	$950
Physi – 22 (Formerly 005 – 61)	High-pressure isotherms using hydrogen, nitrogen, oxygen, methane, or other gases	$950
Vapor – 01 (Formerly 005 – 63)	Vapor isotherms – Dynamic vapor sorption (DVS) gravimetric analysis	$800
Vapor – 02 (Formerly 005 – 64)	Vapor isotherms using volumetric technique (ASAP 2020 or 3Flex)	$800
Vapor – 03 (Formerly 005 – 65)	Inverse gas chromatography (surface energy measurement)	$900
Vapor – 04 (Formerly 005 – 75)	Surface energy heterogeneity profile (BET surface area required)	$1275

THERMAL ANALYSIS

Thermal – 01 (Formerly 005 – 66)	TGA – Standard run conditions room temp – 900°C	$370
Thermal – 02 (Formerly 005 – 67)	DSC – Standard run room temp – 600°C	$395
Thermal – 03 (Formerly 005 – 68)	mDSC – Modulated DSC – High resolution	$525
Thermal – 04 (Formerly 005 – 69)	Combination TGA/DSC	$690

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CHEMISORPTION

Chemi – 01 (Formerly 201 – 10)	Volumetric chemisorption analysis (specify analytical method)	**$750**
Chemi – 02 (Formerly 291 – 23)	Dynamic or pulse chemisorption analysis (specify analytical method)	**$750**
Chemi – 03 (Formerly 291 – 03)	Pulse chemisorption using liquid vapors (specify analytical method)	**$850**

Temperature-Programmed Studies

Chemi – 04 (Formerly 291 – 01)	Temperature-Programmed Reduction (TPR)	**$650**
Chemi – 05 (Formerly 291 – 10)	Temperature-Programmed Desorption (TPD)	**$650**
Chemi – 06 (Formerly 291 – 02)	Temperature-Programmed Oxidation (TPO)	**$650**
Chemi – 07 (Formerly 291 – 06)	Mass spectrometry analysis (must be combined with temperature program study)	**$275**

Other Chemisorption Experiments

Chemi – 20 (Formerly 005 – 62)	High-pressure reactions using AutoChem 2950	**Call**
Chemi – 21 (Formerly 201 – 50)	Isosteric heat of adsorption	**$1250**
Chemi – 22 (Formerly 291 – 20)	Heat of desorption, first order kinetics	**$1800**

MICROSCOPY

SEM - 01 (Formerly 010 - 40)	SEM images using table-top SEM	**$275**
SEM - 02 (Formerly 010 - 41)	Elemental analysis by energy dispersion spectroscopy and SEM Imaging	**$375**
SEM – 05 (Formerly 010 – 23)	Images from optical microscope	**$100/img**

POWDER RHEOLOGY

Powder - 01	Complete set of powder testing using the FT4, including dynamic flow properties, bulk powder properties and shear properties. A summary report will be provided.	**$1,150**
Powder - 02	Dynamic flow properties include basic flowability, aeration testing and consolidation testing along with a summary report.	**$575**
Powder - 03	Bulk powder property testing includes compressibility and permeability testing along with a summary report	**$475**
Powder - 04	Shear property testing includes shear cell testing and wall friction testing along with a summary report.	**$475**
Powder - 05	Individual powder property testing, choose from flowability, aeration, consolidation, compressibility, permeability, shear and wall friction testing. Price is per test and per sample. No summary report available.	**$225**

CAPILLARY FLOW POROMETRY

Filter-01	Scanning porometry of pore sizes down to 30 nm using a POROLUXTM 100/100NW; 500	**$225**

SCIENTIFIC SERVICES

PTA – 01 (Formerly 010 – 00)	Non-standard laboratory analysis	**Call**
PTA – 02 (Formerly 010 – 10)	Method development services	**Call**
PTA – 03 (Formerly 010 – 11)	Method validation services	**Call**
PTA – 04	Method verification or method transfer	**Call**
PTA – 05 (Formerly 010 – 06)	Consulting services and detailed results interpretation	**Call**

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OTHER SERVICES

PTA – 06 (Formerly 010 – 80)	Special sample preparation or storage (glove box or freezer)	**$75**
PTA – 10 (Formerly 005 – 87)	Expert testimony	**Call**
PTA – 13 (Formerly 010 – 01)	Certificate of analysis	**$75**
PTA – 40 (Formerly 005 – 85)	Dynamic void volume – DVVA (ASTM D7854)	**$350**
PTA – 41 (Formerly 005 – 86)	Magnetic content using Buck MA-1040 Analyzer	**$150**
PTA – 42 (Formerly 010 – 15)	Viscosity of liquids using cone/plate rheometer	**$110**
PTA – 50 (Formerly 010 – 76)	Material characterization using XRD (X-Ray Diffraction)	**Call**
SEM – 03 (Formerly 010 – 50)	Contamination or particle identification (outsourced)	**Call**
MIP – 11 (Formerly 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 accredited reports.

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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 for most samples. Some exclusions do apply.

Normal (Typically less than 7 business days)	**List Price**
Priority (Typically 2 to 4 business days)	**List Price + 50% surcharge**
Rush (Next sample analyzed)	**List Price + 200% surcharge**

All orders are subject to Particle Testing Authority 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.

SAMPLE DISPOSAL & SAMPLE RETURNS

VERY IMPORTANT - Please see MIC and PTA policy for sample disposal and/or sample returns at **www.micromeritics.com/submit-sample**.

Please review the Terms and Conditions by visiting: http://particletesting.com/submit- a-sample
TERMS: Net 30 days… for 45 days add 2%, for 60 days add 4% to the final negotiated price.