

Sample Testing Services

Customer Training Services



LABORATORY
SERVICES
TO EMPOWER
YOUR LAB

A Dedicated Source

Laboratory Sample Testing & Training Services



SERVICES & CHARGES

PART NUMBER	DESCRIPTION	PRICE
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B.E.T or Langmuir Surface Area (ISO 9277)

001-01	Multipoints Surface Area using Nitrogen Gas (Static Volumetric Method)	RM150
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Pore Volume/Pore Size Distribution (ISO 15901-1)

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.

002-00	40-point Nitrogen adsorption and 40-point desorption isotherm (20 Å to 3000 Å)	RM350
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Micropore Pore Size Distribution

Reports may include Mesopore report and Micropore report such as H-K, Dubinin and/or DFT methods etc

002-01	High-resolution micropore analysis plus mesopore isotherm (4 Å to 3000 Å) Using N ₂ gas	RM500
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Pore Size by Mercury Intrusion (ISO 15901-1)

Report will include calculation of bulk density, skeletal density, porosity, average pore diameter, median pore diameters and total intrusion volume. Additional summary such as tortuosity, fractal diameter, permeability and compressibility are available upon request for an additional fee

002-02	Mercury Intrusion analysis (Pore size range 360 to 0.003 µm)	RM450
002-03	Mercury Intrusion and extrusion analysis (Pore size range 360 to 0.003 µm)	RM500
002-04	Combined Gas adsorption and Mercury Intrusion analysis (Pore size range 360 to 20 Å)	RM850

Chemisorption

Note : Standard charges applicable to common available gases only. Surcharge applies for special gas chemisorption

003-00	Dynamic or pulse Chemisorption analysis (specify analytical method)	RM350
003-01	Pulse Chemisorption using liquid vapors (specify analytical method)	RM500

Temperature Programmed Studies

003-02	Temperature-Programmed Reduction (TPR)	RM350
003-03	Temperature-Programmed Desorption (TPD)	RM500
003-04	Temperature-Programmed Oxidation (TPO)	RM350
003-05	Mass Spectrometry Analysis (Must be combined with Temperature Programmed study)	RM350

Special Gas Adsorption

004-00	Adsorption Isotherm at user defined condition (example CO ₂ , H ₂ , Argon etc)	RM500
004-01	Vapor adsorption using static volumetric Method	RM750

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PART NUMBER	DESCRIPTION	PRICE
Density		
005-00	True/Skeletal Density (Helium or Nitrogen pycnometry) ISO 12154	RM180
005-01	OpenCell content orf rigid cellular plastic: Foam density ASTM D6226-05	RM350
Particle Size/Zeta Potential		
Nano Particle Sizing using Dynamic Light Scattering (ISO 22412) Method		
006-01	Nano Particle Sizing using Dynamic Light Scattering (Size range 0.1 nm to 12.3 µm) using Aqueous Medium	RM180
006-02	Nano Particle Sizing using Dynamic Light Scattering (Size range 0.1 nm to 12.3 µm) using Solvent Medium	RM220
006-03	Nano Particle Sizing using Dynamic Light Scattering with pH Titration	RM500
Zeta Potential using Electrophoretic Light Scattering (ELS) technique (ISO 13099-2)		
007-03	Zeta Potential of Dilute (Up to 1% V/V) Sample	RM250
007-04	Zeta Potential Analysis of Concentrated (Up to 40% V/V) Sample	RM350
007-05	Surface Charge of film/flat surface using ELS technique	RM500
007-06	Surface Charge of film/flat surface with pH Titration	RM750
007-07	ISO-Electric Point (IEP) analysis with pH Titration	RM600
Particle Sizing Using Static Light Scattering Method		
008-05	Particle Sizing using Static Light Scattering (0.1 µm to 2000 µm) using Aqueous Medium	RM180
008-06	Particle Sizing using Static Light Scattering (0.1 µm to 2000 µm) using Solvent Medium	RM220
Particle Shape Analysis using Shape Model (CCD Camera)		
009-01	Particle Shape Analysis using Shape model (Available parameters like Circle, Ellipse, Rectangle, polygon, Fiber and irregular etc)	RM250
Powder Flowability Test by FT4 Powder Rheometer		
010-01	Powder Flow parameter (Available parameters like Basic flowability Energy, Stability Index, Flow Rate Index, Conditioned Bulk Density, Specific Energy, Aerated energy, compaction Energy, Compaction Index, Pressure drop, Compressibility, Unconfined Yield Stress, Major Principal Stress, Cohesion, Flow Function etc)	RM500
Static Contact Angle/Dynamic Contact Angle and Interfacial Surface Tension		
011-00	Contact angle analysis for 1 liquid (3 data points per test)	RM150
011-01	Pendant Drop analysis for 1 liquid (3 data points per test)	RM150
011-02	Dynamic Contact Angle of Solid Material	RM150

SERVICES & CHARGES

PART NUMBER	DESCRIPTION	PRICE
Static Contact Angle/Dynamic Contact Angle and Interfacial Surface Tension		
011-03	Dynamic Contact Angle of powder using Washburn Method	RM150
011-04	Dry Material adsorption, wicking rate analysis	RM150
011-05	Interfacial Surface Tension using DuNuoy Ring method for liquid	RM100
011-06	Interfacial Surface Tension using Wilhelmy Plate method for liquid	RM100
011-07	Critical Michelle Concentration (CMC) for Surfactant Analysis	RM350

Palm Oil Edible Oils & Fats Anaysis for 3MCPD/2MCPD/GE		
012-00	Analysis for 3MCPD, 3MCPD & Glycidol in edible oils & fats using GCMS and Automated Gerstel Multipurpose Autosampler Sample Prep Robotics according to AOCS Cd 29a-13 or 29c-13	RM2,000.00

Protective Material Permeation (ASTM F739 or EN 374-3 2003 and EN16523-1[2015])		
013-00	Protective Material Permeation analysis for measuring chemical resistance permeation of solvent through gloves or other protective clothing materials in accordance to ASTM F739 or EN 374-3 2003 and EN16523-1(2015). [using GC FID]	RM300.00
013-01	Protective Material Permeation analysis for measuring chemical resistance permeation of liquids through gloves or other protective clothing materials in accordance to ASTM F739 or EN 374-3 2003 and EN16523-1(2015). [using Conductivity/Redox method]	RM300.00

Chromatography and Mass Spectrometry Analysis

The following instrumentation are available for R&D sample analysis:

- Agilent 1260 Infinity HPLC DAD & RID
- Agilent 7890B Gas Chromatograph with FPD/NPD/TCD/FID and Headspace Sampler
- Agilent 5977B Mass Selective Detector GCMS with Headspace and SPME capability

Charges for the above sample measurement services depends on sample matrices, availability of standard reagents, extent of method development required. Please request quotation with our Lab Manager.

Customized Training and Workshop

We provide training and workshop tailored to customer's requirement. Customized training or workshop covering scientific theory and hands-on instrument operations are provided for Micromeritics' Material Characterization and Agilent's Chromatography technologies.

Charges for the training and workshop services depend on duration and extent of training content. Please request quotation with our Lab Manager.

Additional Information

- Volume Discount - Volume discount applies for more than 5 samples per submission. Please enquire for details
- Fast Turn Around Services - Typical analysis turn-around of 2 weeks. Fast Turnaround Services can be available which typically takes 2- 4 days. Surcharge of 100% applies
- Contract Services - Long term contract service is available. Please enquire for details
- Prices are subject to review by LabAlliance Sdn Bhd without further notice
- Orders are subjected to LabAlliance Sdn Bhd Services terms and conditions (See separate terms and conditions notes for details) Unless otherwise requested, sample will be retained for 1 month. Samples can be returned at the customer's expense. Sample results will be maintained for 1 year. LabAlliance adheres to strict confidentiality pertaining to sample details and related customer information
- All enquiry for the testing and training services is to be directed to **labtest@laballiance.com.my**

MISSION STATEMENT

Our mission is to provide industry leading, high-quality training to prepare technology user for the field of analytical sciences and material characterization through class room discussion and hands-on experience using instruments supply by us. Our desired outcome is to facilitate a positive and stimulating learning experience so that user can be further equipped to optimize their lab productivity.



Continual training courses for laboratory personnel are designed to improve user confidence, performance, reduce instruments downtime due to misuse, and increase lab productivity. The knowledge and understanding gained by those attending will help optimized lab operations.

MATERIAL & POWDER CHARACTERIZATION

Gas Adsorption (Physisorption) Instrument Theory and Application Training

Training Duration: 2 Days

Who should attend this training course?

R&D in material synthesis, QA&QC, Lab personnel etc

At the end of the course, you will:

- Be able to prepare sample for degassing and sample analysis
- Understand the basic fundamentals of physisorption and basic operation of a volumetric analysis system.
- Be able to use the computer and operational software to perform an analysis on a reference material.
- Be able to properly configure any report format, a combination of reports, and obtain analysis information according to your laboratory requirements.
- Be able to make basic user level maintenance and troubleshooting of gas adsorption instrument

Training Outline:

- Introduction of gas adsorption theory
- Understand particle texture properties such as surface area and porosity
- Importance of surface area and porosity applications
- Understand the Isotherm classification for gas adsorption experiment
- Classification of porosity
- Construction of a gas adsorption instrumentation system
- Hands-on session - Sample preparation and degas procedures
- Introduction of Surface Area and Porosity models (B.E.T and Langmuir Models)
- Hands-on Session – Gas adsorption analysis using reference materials
- Introduction for Porosity and porosity classification
- Understand the mesopore porosity models (B.J.H models, Dollimore -Heal Model) and its application examples.
- Understand t-Plot and thickness equation and its application examples
- Understand the micropore models (Horvath-Kawazoe, Dubinin-Astakhov, Dubinin-Radushkevich) and its application examples
- Understand Density Function Theory (DFT) and its application examples.
- Discussion of latest development of DFT models
- Reporting of analysis data and data interpretation
- General discussion and Q&A Sessions

Gas Adsorption (Chemisorption) Instrument Theory and Application Training

Training Duration: 2 Days

Who should attend this training course?

R&D in Catalysis, QA&QC, Lab personnel etc

At the end of the course, you will:

- Be able to carry out chemisorption analysis such as TPR/Pulse Chemisorption & TPD
- Understand the basic fundamentals of chemisorption and the basic operation of a dynamic (flowing gas) analysis system.
- Be able to properly configure a report format, overlay sample data, and obtain analysis information according to your laboratory requirements.
- Be able to make basic user level maintenance and troubleshooting of chemisorption instrument

Training Outline:

- Introduction of chemisorption
- Comparison between Physisorption and Chemisorption
- Discussion of Static Chemisorption and Dynamic Chemisorption techniques
- Construction of a chemisorption Instrumentation system
- Introduction to Temperature Programmed Reduction (TPR) Technique
- Introduction of Temperature Programmed Oxidation (TPO) Technique
- Hands-on of TPR analysis using reference materials
- Introduction of Pulse Chemisorption/Gas Titration Technique
- Understand metal dispersion calculations of active metal of catalyst
- Hands-on of Pulse Chemisorption experiment using reference materials
- Introduction of Temperature Programmed Desorption (TPD) Technique
- Hands-on of TPD experiment using reference materials
- How to process TCD signals, peak integration and calibration.
- General discussion and Q&A

Mercury Intrusion Porosimetry Instrument Theory and Application Training

Training Duration: 1 Day

Who should attend this training course?

R&D in Catalysis, QA&QC, Lab personnel etc

At the end of the course, you will:

- Understand the basic fundamentals of mercury porosimetry.
- Understand how to safely handle mercury with the instrument.
- Understand the basic fundamentals of AutoPore operation and be able to properly analyse a sample of reference material.
- Understand how to use the operating software with a PC in order to operate the AutoPore.
- Be able to properly configure any report format, a combination of reports, and obtain analysis information according to your laboratory requirements.
- Be able to make basic user level maintenance and troubleshooting of mercury intrusion instrument

Training Outline:

- Understand the basic fundamental of Mercury Porosimetry
- Classification of porosity and comparison with gas adsorption technique
- Overview of the Mercury Intrusion Porosimetry Instrumentation system
- Understand the selection criteria for suitable penetrometers for various types of solid samples.
- Hands-On – Low-Pressure analysis of reference materials
- Hands-On – High-Pressure analysis of reference materials
- Discussions on Mercury Intrusion Parameters (%Porosity, Bulk density / Skeletal Density) Pore diameter, Pore structure parameters (Permeability and tortuosity), Pore cavity to throat size ratio and fractal dimension etc
- Understand how to process Mercury Intrusion Porosimetry data and configure report
- General discussion and Q&A

Dynamic Light Scattering and Zeta Potential Instrument Theory and Application Training

Training Duration: 1 Day

Who should attend this training course?

R&D in Catalysis, QA&QC in food/cosmetics/pharma etc, lab personnel

At the end of the course, you will:

- Understand the basic fundamentals of DLS, ELS, SLS and Molecular Weight Determination
- Able to make a DLS and Zeta potential analysis using reference material
- Understand how to use the operating software with a PC in order to operate the DLS/ELS instrument
- Be able to properly configure any report format, a combination of reports, and obtain analysis information according to your laboratory requirements.
- Be able to make basic user level maintenance and troubleshooting of mercury intrusion instrument

Training Outline:

- a. Dynamic Light Scattering DLS or Photon Correlation Spectroscopy PCS:
 - Understand basic theory of DLS
 - Understand how auto correlator function works and how size is derived from the ACF
 - Understand how to setup the Standard Operation Procedure (SOP) for DLS experiment
 - Hands-on: Sample Preparation for DLS experiment using reference material
 - Understand how sizing is determined, data fit quality, polydispersity Index etc
 - b. Electrophoretic Light Scattering ELS - Zeta Potential:
 - Understand basic theory for ELS – Zeta Potential
 - Understand the stability of a colloidal stability by zeta potential measurement
 - Understand how to setup the Standard Operation Procedure (SOP) for Zeta Potential experiment
 - Hand-on: Sample preparation for DLS experiment
- Advanced Topics Discussions (Optional)
 - ▶ High concentration sample zeta potential measurement
 - ▶ Surface Charge measurement for flat solid surface
 - ▶ Iso-Electric Point IEP determination using Auto pH titration
 - ▶ Molecular weight determination with Static Light Scattering and Debye plot
 - General discussion and Q&A

Static Light Scattering and Shape model for Particle Size/Shape Analysis Theory and Application Training

Training Duration: 1 Day

Who should attend this training course?

R&D in Catalysis, QA&QC, Lab personnel etc

At the end of the course, you will:

- Understand the basic fundamentals of Particle Size measurement and its terminology
- Understand the strength and weaknesses of each technique
- Able to select a dispersion method suitable for the sample
- Able to grasp the important factor of Particle Size measurement
- Able to perform Particle Size measurement using SLS instrument
- Be able to properly configure any report format, a combination of reports, and obtain analysis information according to your laboratory requirements.
- Be able to make basic user level maintenance and troubleshooting of SLS instrument

Training Outline:

- Fundamental of Particle Size distribution measurement
 - The terminology used in Particle Size distribution
 - Comparison of different techniques for particle size measurement
 - Principle of each measurement technique (Static Light Scattering, Sedimentation Method, Electric Sensing /Coulter counter method, Particle Shape method)
 - Advantages/ Disadvantages of each technique
 - Discussion on sample preparation
 - Details discussion on Static Light Scattering instrument and its parameters of measurement
- Hands-on Session –
- ▶ Sample dispersion method
 - ▶ Particle size analysis using Static Light Scattering instrument
 - ▶ Particle Size/Shape analysis using Shape Module analyzer
 - ▶ Prepare the report for the measurement

Powder Flowability Characterization Theory and Application

Training Duration: 1 Day

Who should attend this training course?

R&D in Catalysis, QA&QC, Lab personnel etc

At the end of the course, you will:

- Understand the basic fundamentals of Powder flowability measurement
- Understand how the processing of material under different packing states such as aeration, conditioning and consolidated affect the powder flow characteristics
- Have thorough insight regarding flow in differing processing environments such as
 - ▶ Stability (How repeatable is the flow energy with the same blade speed?)
 - ▶ Variable Flow Rate (How does the flow energy change with decreased blade speed?)
 - ▶ Aeration & De-aeration (How does the flow energy change with a change in air velocity passed through the powder bed?)
 - ▶ Compaction (What is the comparison between tapping and direct pressure as a mode of consolidation?)
 - ▶ Permeability (How readily does air pass through the powder?)
 - ▶ Compressibility (How does the bulk density change as a downward compaction force is applied?)

Training Outline:

- Fundamental of Powder Flowability
- How powder flowability is related to its physical properties such as particle size, shape, surface area or density, etc
- How powder flowability can be easily changed when a material is moved from one environment to another. Environment conditions during processing, handling, or transport including temperature, humidity, electrostatic charge and storage time can affect its flow properties.
- Introduction to Freeman Technology FT4 powder Rheometer – a Universal powder tester that can measure dynamic, bulk and shear properties in addition to wall friction measurement. The combination of these testing techniques allows for the measurement of powder in several different powder “states”: i.e dynamic, static and under a stressed condition
- Hands-on demonstration on FT-4 measurement
 - ▶ Bulk Properties testing – Density, compressibility, and permeability
 - ▶ Dynamic Flow properties – basic flowability, aeration, consolidation, flow rate, specific energy, etc
 - ▶ Shear Testing – Shear Cell, wall friction, etc

SOLUTION-BASED ANALYTICAL TRAINING

Training on Analysis of 3MCPD, 2MCPD and GE based on AOCS Method CD29a-13 & CD 29c-13 using Single Quadrupole GCMS and Automated Sample Preparation Robotics System

Training Duration: 2 Days

Who should attend this training course?

R&D chemist, QA&QC edible oil related, Lab personnel etc

At the end of the course, you will:

- Have a good understanding of AOCS method requirements for analysis 3MCPD/2MCPD and GE in Edible oil sample.
- Be able to learn and prepare the reagents and standards needed for the analysis.
- Be able to learn on automation sample preparation steps using Gerstel Robotics system.
- Be able to learn how to do parameter setting for data acquisition on Agilent GCMS.
- Be able to integrate the data and properly configure report format and obtain analysis information according to your laboratory requirements.

Training Outline:

- Overview and discussion on AOCS Method Cd29a-13 & Cd29c-13
- Method differences between the “a” and “c” and its implications
- Sample and reagent preparation requirements according to method “a” and “c”
- Overview of single quadrupole GCMS hardware and software operation
- Understand the parameter settings on GCMS and setting criteria
- Understanding of automated robotics operations for the whole sample preparation procedure
- Preparing calibration curve for the standards.
- Hands on operation from sample preparation to method setting and data acquisition and processing.
- Understand how to process chromatography data and configure report
- General discussion and Q&A

Protective Material Permeation Training using the LabAlliance Instruments Solution for measuring chemical resistance permeation of liquids and volatile solvent gases through gloves or other protective clothing materials in accordance to ASTM F739 or EN 374-3 2003 and EN16523-1(2015)

Training Duration: 1 Day

Who should attend this training course?

R&D chemist, QA&QC, production and Lab personnel etc

At the end of the course, you will:

- Have a good understanding of ASTM F739 or EN 374-3 2003 and EN16523-1(2015) requirements
- Be able to learn how to assemble permeation cell, prepare the reagents and perform calibration for the analysis.
- Be able to use the LabInsight software for data acquisition and processing.

Training Outline:

- Overview and discussion on EN16523-1(2015) requirements
- Overview of system setup and configuration for both GC FID (solvent) and Conductivity/Redox method
- Understanding of sampling workflow
- Hands-on on mounting and running samples
- Understanding on data acquisition and processing
- Understanding on result calculation
- Understand how to process chromatography and conductivity data and configure report
- General discussion and Q&A



Connect with **LabAlliance**

LabAlliance Sdn Bhd located at Kota Kemuning Shah Alam offers product demonstration and sample testing services.

As a distributor representing scores of renowned brands, LabAlliance specializes in providing technological solutions in the vast area of analytical and material sciences. We have an in house functional laboratory capable of running customer's samples as well as providing instrument demo and training.

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