

LABORATORY SERVICES TO EMPOWER YOUR LAB

LABORATORY SAMPLE TESTING & TRAINING SERVICES



mission statement

Our mission is to provide industry-leading, high quality sample testing and training services to prepare technology user for the field of analytical and material characterization.

To achieve this, we ensure analysis is done meticulously at our fully functional laboratories. Our instruments are maintained & serviced regularly by our team of engineers to ensure its optimum functionality.

For training & workshop, classroom discussion and hands-on experience is provided using the instruments distributed and serviced by us.

Our approach is based on understanding our customer's need, personalize each encounter, being responsive and flexible in delivering our services to ensure a satisfactory experience.

Our desired outcome is to facilitate a positive and stimulating learning experience so that user can be further equipped to optimize their lab productivity.



SERVICES & CHARGES

BET or Langmuir Surface Area (ISO 9277)

PART NUMBER	DESCRIPTION	PRICE (RM)
001-01	Multipoints Surface Area using Nitrogen Gas (Static Volumetric Method) Note: The minimum requirement for this analysis is 3 samples per submission	TBA

Pore Volume/Pore Size Distribution (ISO 15901-02)

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).

002-01	40-Point Nitrogen adsorption and 40-point desorption isotherm (20 A to 3000 A)	TBA
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Micropore Pore Size Distribution

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

002-02	High-resolution micropore analysis plus mesopore isotherm (4 A to 3000 A) Using N ₂ gas@77K	TBA
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Pore size by Mercury Intrusion(15901-01)

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

002-03	Mercury Intrusion analysis (Pore size range 360 to 0.003 um)	TBA
002-04	Mercury Intrusion and extrusion analysis (Pore size range 360 to 0.003 um)	TBA
002-05	Combined Gas adsorption and Mercury Intrusion analysis (Pore size range 360 to 20 A)	TBA

SERVICES & CHARGES

Chemisorption

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

003-01	Dynamic or pulse Chemisorption analysis (specify analytical method)	TBA
003-02	Pulse Chemisorption using liquid vapors (specify analytical method)	TBA

Temperature Programmed Studies

003-03	Temperature-Programmed Reduction (TPR)	TBA
003-04	Temperature-Programmed Desorption (TPD)	TBA
003-05	Temperature-Programmed Oxidation (TPO)	TBA

Special Gas Adsorption

004-01	Adsorption Isotherm at user defined condition (example CO ₂ , H ₂ , Argon etc)	TBA
004-02	Vapor adsorption using static volumetric Method	TBA

Density

005-01	True- Skeletal Density (Helium or Nitrogen pycnometry) ISO 12154, USP<699>	TBA
005-02	Open Cell content of rigid cellular plastic: Foam density ASTM D6226-05	TBA

SERVICES & CHARGES

PART NUMBER	DESCRIPTION	PRICE (RM)
Particle Size/Zeta Potential		
Nano Particle Sizing using Dynamic Light Scattering Method (ISO 22412)		
006-01	Nano Particle Sizing using Dynamic Light Scattering (Size range 0.1 nm to 10 um) using Aqueous Medium	TBA
006-02	Nano Particle Sizing using Dynamic Light Scattering (Size range 0.1 nm to 10 um) using Solvent Medium	TBA
Zeta Potential using Electrophoretic Light Scattering (ELS) technique (ISO 13099-2)		
007-01	Zeta Potential of Dilute (Up to 1% V/V) Sample	TBA
007-02	Zeta Potential Analysis of Concentrated (Up to 40% V/V) Sample	TBA
007-03	Surface Charge of film/ flat surface using ELS technique	TBA
Particle Sizing Using Static Light Scattering Method(ISO 13320)		
008-01	Particle Sizing using Static Light Scattering (0.02 um to 2600 um) using Aqueous Medium	TBA
008-02	Particle Sizing using Static Light Scattering (0.02 um to 2600 um) using Solvent Medium	TBA
008-03	Particle Sizing using Static Light Scattering (0.1 um to 2600 um) using Dry dispersion technique	TBA
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)	TBA

SERVICES & CHARGES

PART NUMBER	DESCRIPTION	PRICE (RM)
Particle Size Analysis using X Ray Sedimentation- Stoke's Law (ISO13317-3)		
010-01	Aqueous & non-aqueous based dispersion for inorganic material only. Note: Requires density measurement (005-01) prior to analysis if skeletal density is not provided	TBA
Particle Flowability Test by FT4 Powder Rheometer		
010-02	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)	TBA
Static Contact Angle/ Dynamic Contact Angle and Interfacial Surface Tension		
011-01	Contact angle analysis for 1 liquid (3 data points per test)	TBA
011-02	Pendant Drop analysis for 1 liquid (3 data points per test)	TBA
011-03	Dynamic Contact Angle of Solid Material	TBA
011-04	Dynamic Contact Angle of powder using Washburn Method	TBA
011-05	Dry Material adsorption, wicking rate analysis	TBA
011-06	Interfacial Surface Tension using Du Nuoy Ring method for liquid	TBA
011-07	Interfacial Surface Tension using Wilhelmy Plate method for liquid	TBA
011-08	Critical Micelle Concentration (CMC) Analysis using Du Nouy Ring/ Wilhelmy Plate, data points of up to 10 points	TBA

SERVICES & CHARGES



Edible Fats & Oils Analysis for 3MCPD/ 2MCPD/ GE (AOCS Cd 29a-13 or 29c-13)

PART NUMBER	DESCRIPTION	PRICE (RM)
012-01	Analysis for 3MCPD, 3MCPD & Glycidol in edible oils & fats using GCMS and Automated Gerstel Multipurpose Autosampler Sample Prep Robotics according to AOCS 29a-13	TBA
012-02	Analysis for 3MCPD, 3MCPD & Glycidol in edible oils & fats using GCMS and Automated Gerstel Multipurpose Autosampler Sample Prep Robotics according to AOCS 29c-13	TBA

Vegetable Fats & Oils Analysis for Wax Content (ISO/TS 23647:2010(E))

013-01	Determination of wax content by Gas Chromatography in accordance to ISO/TS 23647:2010(E)	TBA
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Vegetable Fats & Oils & Fats Analysis for MOSH MOAH (CEN-16995-2017)

014-01	Determination of mineral oil saturated hydrocarbon (MOSH) and aromatic hydrocarbons (MOAH) with online coupled LC-GC-FID with Automated Gerstel Multipurpose Autosampler Sample Prep Robotics for online cleanup procedures -saponification, ALOX & Epoxidation	TBA
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Chlorine Content in palm oil using Micro-coulometry (ASTM D4929-2017, UOP779-08)

015-01	Determination of Chlorine content in Palm Oil	TBA
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Sulfur Content in Recycled Oil using Ultraviolet Fluorescence method (ASTM D5453)

016-01	Determination of Sulfur content in recycled oil	TBA
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Customize Project Services

017-01	Customize projects involving research on plants/animals or application involving the use of tandem mass spectrometers, other chromatography techniques and expert facility	Upon Request
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ADDITIONAL INFORMATION ON ANALYSIS

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.

Sample Retention

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.

Prices

Prices are subject to review by LabAlliance Sdn Bhd without further notice.



Chromatography & Mass Spectrometry Analysis

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

- Agilent 1260 Infinity HPLC DAD
- 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.

TRAINING & WORKSHOP



Customized Training & 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.

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.

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

Material & Powder Characterization Training & Workshop

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

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-Radustkevich) 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

At the end of this 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 & WORKSHOP

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

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

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.

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 and etc

- 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

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 can 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 & WORKSHOP



Dynamic Light Scattering and Zeta Potential Instrument Theory and Application Training

Training Duration: 2 Days

Who should attend this training course?

R&D in Catalysis, QA&QC in

food/cosmetics/pharma lab personnel etc

Training Outline:

- Dynamic Light Scattering DLS or Photon Correlation Spectroscopy PCS
- Understand how auto correlator function works and how size is derived from the ACF
- Understand how to setup up the Standard Operating 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
- 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 Topic Discussion (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

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

Training Duration: 2 Days

Who should attend this training course?

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

- 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

At the end of the course, you will :

- Understand the basic fundamental of DLS, ELS, SLS & molecular weight determination
- Able to make a DLS/Zeta potential analysis using reference material
- Understand how to use the operating software with PC to operate 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 DLS/PSA instrument

TRAINING & WORKSHOP

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

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

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 on Analysis of mineral oil saturated hydrocarbon (MOSH) and aromatic hydrocarbons (MOAH) with online coupled LC-GC-FID with Automated Gerstel Multipurpose Autosampler Sample Prep Robotics for online cleanup procedures -saponification, ALOX & Epoxidation (CEN-16995-2017)

Training Duration: 2 Days

Who should attend this training course?

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

Training Outline:

- Overview and discussion on CEN-16995-2017 Method
- Review method & understand its calculation
- Sample and reagent preparation requirements according to the method
- Overview of LC GC coupling interface hardware and software operation
- Understand the parameter settings on LC-GC 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

At the end of the course, you will:

- Have a good understanding of CEN-16995-2017 method requirements for analysis MOSH MOAH
- 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 LC & GC
- Be able to integrate the data and properly configure report format and obtain analysis information according to your laboratory requirements.

Note: For our existing users, training can be conducted at our lab or at customer's lab



For Public Academia & Research Account enquiries, please contact:

Kromtek Sdn Bhd

Tel: 51315884

Email: info@kromtek.com.my

www.kromtek.com.my

CONNECT WITH US



info@laballiance.com.my



03 51226922, 51226170



41 & 43, Jalan Anggerik Vanilla
AB 31/AB Kota Kemuning 40460
Shah Alam, Selangor

@LabAlliance, we pride ourselves in our capability to support customers through sample evaluation and testing, helping them to assess instrument performance prior to purchasing the right equipment to suit their analysis requirement. Call us for a conversation and benefit from our experience.



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