

Chromatography Analysis Services

Service	Equipment	Service Charge		
		Category A	Category B	Category C
to analyze or purify mixtures of proteins.	Fast Protein Liquid Chromatography (FPLC)	RM 220 / sample	RM 290 / sample	RM 360 / sample
a method for extracting various chemicals from a complex solid or semisolid sample matrix	Accelerated Solvent Extractor	RM 90 / sample	RM 120 / sample	RM 150 / sample
to separate, identify, and quantify each component in a mixture	High Performance Liquid Chromatography (HPLC)	RM 90 / 1st Injection	RM 100 / 1st Injection	RM 115 / 1st Injection
		RM 20 / sub Injection	RM 20 / sub Injection	RM 20 / sub Injection
to separate the chemical components of a sample mixture and then detect them to determine their presence or absence and/or how much is present.	Gas chromatography (GC)	RM 180 / 1st Injection	RM 240 / 1st Injection	RM 300 / 1st Injection
		RM 15 / sub Injection	RM 15 / sub Injection	RM 15 / sub Injection

Gas Analysis Services

Service	Equipment	Service Charge		
		Category A	Category B	Category C
for checking modified atmospheres inside packages	Mocon Pac Check - portable and handheld oxygen and carbon dioxide analyzers	RM 10 / sample	RM 15 / sample	RM 20 / sample
for determination of the steady-state rate of transmission of oxygen gas through plastics in the form of film, sheeting, laminates	Oxygen Permeability Tester	RM 120 / sample	RM 160 / sample	RM 200 / sample

Spectroscopy Analysis Services

Service	Equipment	Service Charge		
		Category A	Category B	Category C
to measure light absorbance across the ultraviolet and visible ranges of the electromagnetic spectrum	Ultraviolet-visible (UV-Vis) spectrophotometry	RM 12 / hour	RM 15 / hour	RM 20 / hour

Mechanical Analysis Services

Services	Equipment	Service Charge		
		Category A	Category B	Category C
to determine compression strength and estimate stacking test of transport packages	Box Compression Tester	RM 25 / sample	RM 30 / sample	RM 40 / sample
to test the extrusion properties of various food materials, such as snacks, pasta, breakfast cereals, animal feed, rice and others at laboratory scale to optimise formulations.	Food Single Screw Extruder - use the single screw extruder 19/20D in combination with the Do-Corder 'Plus' drive	RM 320 / sample	RM 425 / sample	RM 530 / sample
to determine the ability of a package to endure the impacts occur in the process of transportation	Drop Tester	RM 25 / sample	RM 30 / sample	RM 40 / sample
to determine the properties of materials not limited to tensile strength, compressive strength, fatigue, flexural, etc.	Universal Instron Testing Machine (10 kN)	RM 40 / sample	RM 55 / sample	RM 70 / sample
to turn solid into powder form	Grinder	RM 10 / hour	RM 11 / hour	RM 12 / hour

Thermal Analysis Services

Service	Equipment	Service Charge		
		Category A	Category B	Category C
measures weight changes in a material as a function of temperature (or time) under a controlled atmosphere	Thermogravimetric Analysis (TGA)	RM 180 / sample for 2 hrs analysis	RM 240 / sample for 2 hrs analysis	RM 300 / sample for 2 hrs analysis
measure temperatures and heat flows associated with thermal transitions in a material	Differential Scanning Calorimetry (DSC)	RM 180 / sample	RM 240 / sample	RM 300 / sample
characterize linear expansion, glass transitions, and softening points of materials by applying a constant force to a specimen while varying temperature	Thermo Mechanical Analyzer (TMA)	RM 175 / sample	RM 230 / sample	RM 290 / sample

Service Charge Category

Category A	Staff, students other PTJTs in UPM. (outside KPM's Department)
Category B	Government or other government agencies
Category C	Private company, public

Liquid Analysis Services

Service	Equipment	Service Charge		
		Category A	Category B	Category C
to produce a dry powder from a liquid or slurry by rapidly drying with a hot gas	Spray Drier	RM 120 / 2 hrs	RM 160 / 2 hrs	RM 200 / 2 hrs
for measuring moisture content in both high level and trace amounts in solids, liquids, or gases.	Moisture Analyzer	RM 10 / sample	RM 15 / sample	RM 20 / sample

Physical Analysis Services

Service	Equipment	Service Charge		
		Category A	Category B	Category C
to measure the density (volume) of solids, be they regularly shaped, porous or non-porous, monolithic, powdered, granular	Gas Pycnometer	RM 40 / sample	RM 50 / sample	RM 60 / sample
to determine the volume and density of a solid object	Automatic TAP & Envelope Density Analysis	RM 25 / sample	RM 30 / sample	RM 40 / sample
to determine the interfacial tension	Spinning Drop Surface Tension Meter	RM 150 / sample	RM 200 / sample	RM 250 / sample
to characterise the size distribution of particles in a given sample	Malvern Particle Size Analyzer	RM 60 / sample	RM 80 / sample	RM 100 / sample
to analyze physical characteristics of various substances and materials	Texture Analyzer	RM 85 / sample	RM 95 / sample	RM 110 / sample
to measure the way in which a liquid, suspension or slurry flows in response to applied forces	Rheometer	RM 115 / sample	RM 130 / sample	RM 150 / sample
to characterise the size distribution of particles in a given sample (in nano scale)	Particle Size Analyzer (nano size)	RM 120 / sample	RM 150 / sample	RM 200 / sample
to measure particle and molecular size, particle charge and particle concentration	Zetasizer	RM 120 / sample	RM 150 / sample	RM 200 / sample
a low temperature dehydration process that involves freezing the product, lowering pressure, then removing the ice by sublimation	Freeze Dryer	RM 27 / hour	RM 29 / hour	RM 32 / hour
determination of the compounds contained in a mixture as distinguished from ultimate analysis	Proximate Analysis	RM 220 / sample	RM 242 / sample	RM 266 / sample

About Us

Department has 9 labs and there are:

1. Bioreactor Engineering Laboratory
(*Makmal Kejuruteraan Bioreaktor*)
2. Agricultural Process Engineering Laboratory
(*Makmal Kejuruteraan Proses Pertanian*)
3. Food Engineering Unit Operation Laboratory
(*Makmal Operasi Unit Kejuruteraan Makanan*)
4. Transport Process and Pilot Plant Laboratory
(*Makmal Proses Angkutan dan Loji Pandu*)
5. Process Control & Instrumentation Laboratory
(*Makmal Instrumentasi & Kawalan Proses*)
6. Food Processing Quality Laboratory
(*Makmal Kualiti Pemprosesan Makanan*)
7. Packaging and Shelf Life Laboratory
(*Makmal Pembungkusan & Jangka Hayat*)
8. Food Processing Machinery Design Laboratory
(*Makmal Rekabentuk Mesin Pemprosesan Makanan*)
9. Biomaterials Engineering Properties & Nutraceuticals Laboratory
(*Makmal Kejuruteraan Sifat Bahan Bio & Nutrasedutikal*)

For more information, please contact:

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What are the capabilities of KPM's Lab Services?

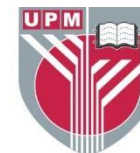
- Support all research activities for undergraduate and postgraduate studies.
- Department have a many expert about the analytical equipment among the academicians or researchers that can advise for the testing and services offered
- Experienced, well-trained, and very competent technical staff.

We offer facilities for testing and services including:

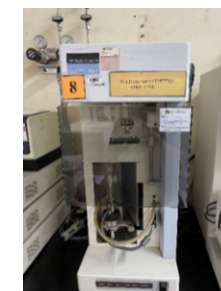
- Chromatography Analysis Services
- Gas Analysis Services
- Spectroscopy Analysis Services
- Mechanical Analysis Services
- Thermal Analysis Services
- Liquid Analysis Services
- Physical Analysis Services

Type of Payment:

- Internal Vot Transfer
- Cheque/Bank Draft/Postal Order
(payable to KIRA-KIRA AM UPM,
Pejabat Bursar, Bangunan Pentadbiran,
Universiti Putra Malaysia,
43400 UPM Serdang,
Selangor, Malaysia)
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DEPARTMENT OF PROCESS AND FOOD ENGINEERING FACULTY OF ENGINEERING



LABORATORY TESTING AND SERVICES BROCHURE

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