

ISO Accredited Lab (MS ISO/IEC 17025)

No	Instrument	Equipment/Method	Price (RM) Without SST, Per Sample
1.	Hardness Test	Rockwell C, ASTM E18-2017 ^{e1}	150/5 points
2.	Tensile Test	Metal, ASTM E8/8M-16a, Instron	200
		Plastic, ASTM D638-14, Instron	200

No	Instrument	Equipment/Method	Price (RM) Without SST, Per Sample
1	Ageing Test (Polymeric Materials)	Oven (RT-400°C)	150 and 20 per day for additional day
2	Aggregate Crushing Value (ACV)	Standard Crushing Tester	300/run
3	Aggregate Impact Value (AIV)	Standard Impact Tester	300
4	Autotitration/Zeta Potential	Zeta Sizer	250
5	Analytical chemistry	UV-Visible Spectrometer	150
6	Autoclave (max T 250°C)	Thermal exposure	100/hr
7	Bending Test/3-point Bend Test	Instron Machine	200
8	Chemical Composition	X-ray fluorescence (XRF)	350
9	Chemical Resistant	Polymer lab testing	200
10	Compression Moulding	Hot Press Machine	120
11	Compression Test	Instron Machine	150
12	Colour Measurement	Universal Testing Machine (UTM), 50 ton	150
		Colori-Meter	50
13	Corrosion	Polarization Test, Potentiostat	150 (test run < 1hr) (subsequent hr: 50/hr)
		Open Circuit Potential / Galvanic Cell	100/1 hr (subsequent hr: 50/hr)
		Salt Spray machine (max 5 sample per run)	10/hr
		Immersion test	100/day (subject to actual test conditions)
14	Concentration of Electron, Mobility of Electron	Hall effect	300
15	Creep Test	8M-6 Tech Equipment	250/day (pro-rate depends on duration)
16	Cyclic Voltamogram	Potentiostat	150 (test run < 1hr) (subsequent hr: 50/hr)
17	Conductivity at Different Temperature and Current/Voltage Characteristic	Parameter Analyzer	300
18	Contact Angle Measurement	Statistic and Dynamic, Goinometer	100-400
19	Crushing Testwork	Jaw Crusher/ Double Swing Jaw Crusher/ Cone Crusher	200/run
20	Crushing Testwork (Min. 2 ton)	Min. 2 ton, BARMACVSI Crusher	950/run
21	Density	Pycnometer Density/Archimedes	100
22	Dynamic Mechanical Testing Analysis	Normal, > Room Temperature	300
		Low, < Room Temperature	400
23	Elemental Analysis	Normal Scan, energy-dispersive X-ray (EDX)	150/3 points
		Line Scan EBSD, EDX Mapping	1,500/run
		Atomic Absorption Spectrometry (AAS)	120/element
		ICP-OES	30/element
24	Electrical Resistivity Test	High Resistant Meter	100
		4 Points Probe	100
25	Fatigue to Failure Test	FTFT machine	200
26	Fatigue Test	UTM Machine	150/hr
27	Film Thickness/Optical parameters	Filematic	200
28	Fine Grinding fine	Planetary Mill	250/run
		Milling machine (roller machine)	300/hr
		3-micron, Fluidized Jet Mill	500/run
29	Flotation Test	Denver Flotation Test	300/run
30	Flow Cone Test (NZS)	Flow Cone	250

31	Functional Group and Bonding analysis	Fourier Transform Infrared Spectroscopy (FTIR)	200 250 (if using KBR)
32	Furnaces (max T 1600°C)	Gas furnace	350/run (not include gas)
		Chamber/tube furnace	300 (subject to actual test conditions)
		LOI Test	250/sample
		Glass melting furnace	500 (subject to actual test conditions)
33	Geophysics Survey	Resistivity, Seismic	3,000-4,000/line
34	Geological Mapping	Drone	2,000-4,000/line
35	Gravity Concentrator	Spiral Shaking Table	250/run
36	Hardenability Test	Jominy test	250
37	Hardness Test	Rockwell, Brinell (micro), Vickers (micro)	120 (5 points)
38	Internal Mixer for Polymer	Internal Mixer	150
39	Impact Test	ZWICK Impact Test (Izod & Charpy)	150 (with liquid nitrogen add 50)
40	Impedance Spectroscopy	Potentiostat	150/hr (subsequent hr: 50/hr)
41	Magnetic Separator	Magnetic Separator/ Eddy Current Separator	200/run
42	Metallographic Sample Preparation	Cutting, mounting, grinding	Min 100 (rate depends on difficulty)
43	Microstructure/Morphology	Field Emission Scanning Electron Microscopy (FESEM)	400/ 3 magnifications
		Table-top Scanning Electron Microscopy (SEM)	180
		Optical microscopy	150, 200 (with IA)/hr
44	Melt Flow Index (MFI)	Melt Indexer	200
45	Modulus Test	Sonic Modulus Tester	150
46	Molecular Weight Measurement	Gel Permission Chromatography	400
47	Non-Destructive Test	Ultrasonic	250
		Eddy Current	250
		Liquid Penetrant	150
48	Oven (max temp 200°C)	Heating/Drying	20/hr
49	Particle Size Analysis	Laser Sizer	150
		Zeta Sizer	150
		Sieves	100
50	Particle Classification	Hydrocyclone	280/run
51	pH value	pH meter	30
52	Phases Characterization (But Not Inclusive Detail Phase Analysis)	X-ray diffraction (XRD) – Bruker D2/D8	350
53	Plastic Injection Moulding	Injection Moulding Machine	300/hr
54	Plastic Mixing	Heated Two Roll Mill	150
55	Plastic Mixing (Extrusion)	Single Screw Extruder	250/hr
		Twin Screw Extruder	250/hr
		Cold Isostatic Press	300/cycle run
56	Powder Compaction	Hot Isostatic Press	Min 500 (not inclusive cost of gas, subject to actual test conditions)
57	Polarized Microscope (Petrography/Petrology) Polished Section (with photomicrograph)	Microscope	200
58	Polarized Microscope (Petrology) Thin Section (with photomicrograph)	Microscope	200
59	Rock Breakage Characterization	Drop Weight Tester	250
60	Rock Strength	Point Load Tester	200
61	Rubber Compounding	Two Roll Mill	110
62	Rubber Curing Characteristics	Rheometer	150
63	Rubber Injection Moulding	Injection Moulding Machine	300/hr
64	Shape Analysis (BS) Elongation Index	Elongation Gauge	220
65	Shape Analysis (BS) Flakiness Index	Flakiness Gauge	220
66	Sound and Vibration Measuring for blasting	Blastmate	230
67	Solder Reliability Test	Solder Checker	200
68	Standard Bond Grindability Test	Ball Mill	450/run

69	Standard Polished Section Preparation (Ore Specimen)	Sample cutter and Polishing Machine	200
70	Standard Thin Section Preparation (Ore & Rock Specimen)	Sample cutter and Polishing Machine	200
71	Surface Analysis	Atomic Force Microscope	250
72	Surface Area	Brunauer–Emmett–Teller (BET)	250
73	Surface Resistivity	Resistivity Meter	200
74	Thermal analysis	Thermal Gravimetric Analysis (TGA) (Normal, > Room Temperature)	250-400
		Differential Thermal Analysis (DTA) (Normal, > Room Temperature)	250-400
		Differential scanning calorimetry (DSC) (Normal, > Room Temperature)	250
		Differential scanning calorimetry (DSC) (Low, < Room Temperature)	350
75	Tensile Test	Universal Testing Machine (UTM)	150
76	Thermal Conductivity Analysis	Thermal Conductivity Analyzer	200
77	Thermal Expansion Coefficient	Dilatometer	200
78	Total Dissolved Solid (Latex/Emulsion)	-	80
79	Total Solid (Latex/Emulsion)	-	80
80	Total Suspended Solid (Latex/Emulsion)	-	80
81	Torsion Test	UTM Servo Hydraulic	200
82	Viscosity	Cone and Plate Rheometer	250
83	Voids Contents (ASTM)	TGA/Furnace	250
84	Weathering Test	Q-UV	15/hr
		Q-Sun	20/hr
85	Zeta Potential	Nano Particle Size Analysis, Zeta Sizer	200 with cuvette 250 w/o cuvette
86	Inductively Coupled Plasma Optical Emission Spectroscopy	Multiple Element Analysis (Not include sample preparation)	180/sample (1-12 element) 360/sample (1-24 element) Additional element 35/sample
87	Atomic Absorption Spectroscopy (AAS)	Analysis Single Element	120/element Additional element 35/element
88	Scanning Probe Microscopy (AFM)	Image Topography Surface Roughness	270/ analysis
89	Goniometer	Contact Angle Surface Tension Surface Energy	250/ sample
90	Potentiostat/ Galvanostat	Linear polarization (Corrosion) Impedance (EIS) Cyclic Voltammetry (CV) Chronoamperometry	120/ sample
91	Thermal Constant Analyser	Thermal conductivity, thermal Diffusivity, Specific Heat (Not include sample preparation)	200/ sample
92	Fourier- Transform Infrared Spectroscopy (FTIR)	Chemical Bonding, Functional Group (Not include sample preparation)	120/ sample
93	Rockwell Hardness	Microhardness Test (Not include sample preparation)	120/ 3 indentation/ sample
94	Vickers Hardness	Microhardness Test (Not include sample preparation)	120/ 3 indentation/ sample
95	Brinell Hardness	Microhardness Test (Not include sample preparation)	120/ 3 indentation/ sample
96	Vickers Hardness (Micro)	Microhardness Test (Not include sample preparation)	150/ 3 indentation/ sample
		Specific place (10 micron)	200/ 3 indentation/ sample
97	Point Load	Rock strength	200/ run
98	Scanning Electron Microscope (SEM) – Tabletop	SEM (Morphological/ Cross section observation)	200/ sample

99	Thermomechanical Analysis (TMA)	Coefficient of Thermal Expansion (CTE) – Vertical sample position (Not include sample preparation)	250/ sample
100	Hot Press	Compression Moulding	150/ sample
101	Two Roll Mill	Rubber Compounding	150/ sample
102	Ball Mill	Standard Bond Grandability Test	450/ run
103	Pycnometer Density	Density	120/ sample
104	Crusher/ Granulator	Crushing	150/ kg
105	Mini Crusher	Crushing	150/ kg
106	Bandsaw	Cutting	100/ sample
107	Preparataion Sample	Thin Section	100/ sample
		Mounting/ Grinding & Polishing	100/ sample
		Etching	100/ sample
		Microscopic	100/ sample
108	Diamond Cutter	Metal Cutting	30/ sample
109	LOI (Limited Oxygen Index)	Burning	250/ sample
110	Thermal Gravimetric Analysis (TGA)	Thermal Analysis For Polymer Sample	250-400/ sample
111	Tribometer	Friction Coefficient	200/ sample
112	Horizontal Vertical Flame Chamber (HVUL)	Horizontal/ Vertical Flammability Test	250/ sample
113	Salt Spray	Corossion Test	500/ day (24 hour)
114	Cold Isostatic Pressing (CIP)	Cold Isostatic Press	350/ run
115	Frank & Cup	Rebound Resillence Test	100/ sample
116	Abrassion Test (GT-7012-A)	Sample Preparation (Hot Press)	120/ sample
		Cure Time (Rheometer)	150/ sample
		Abrasion	150/ sample
		Density Test (Running total 9500 revolution)	50/ sample
117	Metallurgical microscope	Surface Morphology	80/ sample
118	Rubber Processing Analyzer (RPA)		250/ sample
119	Simulation & Modelling		Starting From 350

*All price does not include sample preparation and subject to change

*For result within 3 days consider as urgent and double price will be charged

* Testing result depends on number of samples, instrument availability. If you are interested in using our service kindly contact:

Pusat Pengajian Kejuruteraan Bahan dan Sumber Mineral, USM

School of Materials and Mineral Resources Engineering, USM

<https://material.eng.usm.my>

BUSINESS UNIT

Dr. Mohamad Danial Shafiq

Manager (Corporate Affairs & Community Engagement)

04-599 6131

danialshafiq@usm.my