Testing Charges :D 4.03, Advanced carbon product metrology (w.e.f. 01.04.2021)

Alternative Energy Materials

Sl. No.	Area of Testing	Sample / Item Name	Test Parameters	Sample Requirements, if any	Testing Charges per Sample Rs	Additional Charges Rs	Description of Additional Charges	Remarks, if any
1	Rapid and High Temperature Sintering with simultaneous application of load	Spark Plasma Sintering (SPS)	The diameter of the graphite die is 12.7 mm or 20 mm and the heating rate is 50 - 200°C/minute. Appropriate load (6 - 7 KN or 50 MPa) will be applied on the sample during the sintering process and also this is depending on the size of the sample. Sintering will be done under vacuum of 15 Pa. Maximum Sintering temperature is 1400°C. Powder weight will be calculated depending on the final size of the sample.	Spark Plasma Sintering of Metals, Alloys, Ceramics and Composite Powders	27723	Nil	Nil	Spark Plasma Sintering can be done for Metals, Alloys, Ceramics and Composite Powders. Maximum Sintering temperature is 1400°C with our existing machine.
2	Thermal transport property	Thermal conductivity of solid state dense materials	Temperature Range: Room Temperature to 900^0C. Thermal diffusivity (LFA), specific heat (Cp by Sapphire) and, Density at room temperature (Archimedes' principle).	Disc specimen ∅ 12.7 mm and 1 to 3 mm thickness (Flat & parallel dense solid samples)	9503	Nil	Nil	The material should be stable, homogeneous, isotropic, and non-reactive.
3	Seebeck Coefficient and Electrical Resistivity System	Seebeck Coefficient and Electrical Resistivity System	Sample resistance should be less than kilo Ohms. Experiments will be performed under Helium atmosphere. Measurement range: Room temperature to 600 degree centigrade, Temperature interval: 50 degree centigrade, ΔT:10, 20, 30 degree centigrade.	Rectangular Solid samples (maximum of: 4 mm thick x 4 mm width x 12 mm height), (minimum of: 2 mm thick x 2 mm width x 12 mm height).	9199	Nil	Nil	Seebeck coefficient and Electrical Resistivity of Thermoelectric Materials. Measurements will be performed only for bulk inorganic samples and not for powder and thin films.
4	Differential Scanning Calroriemetry	Differential Scanning Calroriemetry	Glass transition temperature, Enthalpy, DSC, Heat Capacity	Sample should be in powder form or 2mm x 2 mmx 1 mm and the weight should be ~ 30 mg.	10108	Nil	Nil	Sample should be in powder form or 2mm x 2 mmx 1 mm and the weight should be ~ 30 mg.
5	Coefficient of Thermal Expansion (CTE)	Thermo-mechanical Analyzer (TMA)	Temperature Range Ambient to 1000`C	Sample should be solid in the form of a square 5mmx5mm or disc having dia 5mm with thickness between 2-7 mm	10023	Nil	Nil	CTE can be measured in inert or oxygen atmosphere
6	Extruder	Twin Screw Extruder	Processing Temperature upto 350 degree C	It is processing machine for processing of polymermic matyerial processed upto 350 degree C. Samples can be the form of polymeric granuals	23140 per day	Nil	Nil	Polymers can also be exttruded with the addition of some other fillers
7	Thermo Gravimetric Analysis (TGA)	TGA	Temperature Range Ambient to 1600`C	Sample should be in the form powder or very small pieces	9175	Nil	Nil	TGA can be done in inert or oxygen atmosphere
8	Differential Scanning Calroriemetry (DSC)	DSC	Temperature Range Ambient to 550`C	Sample should be in the form powder or very small pieces	8580	Nil	Nil	DSC can be done in inert or oxygen atmosphere
9	Specific Surface Area (BET)	BET Surface Are	BET Surface Area	Sample should be in the form of small pieces of coarse powder	9773	Nil	Nil	Nil
10	Pore Size Distribution (PSD)	PSD	PSD	Sample should be in the form of small pieces of coarse powder	18012	Nil	Nil	Nil