

## Central Instrumentation Facility

### Research Institute for Sustainable Energy (RISE), Salt Lake, Sector V, Kolkata, India.

RISE is a vertical of TCG-CREST, which is a DSIR recognized and AcSIR affiliated. It is a section 8 not-for-profit Institution. RISE has established a first-rate laboratory infrastructure for Research in the field of “Energy & Sustainability.” It includes several high-end characterization as well as some uniquely designed facilities that can be used for Advanced Materials and Device rResearch.

We are pleased to offer assistance to Academia and Industry in characterizing their samples for R & D purposes. The sample testing charges stated below will be used towards equipment maintenance and enhancements at TCG-CREST. We have set up protocols for efficient delivery of results to the researchers from academia and industry.

Sample Testing Charges (for Indian Entities) with effect from 01.05.2023

Sl.	Instrument	Type of Analysis	Unit	Academic Universities	Research Institution	Industry
				(₹)	(₹)	(₹)
1	X-ray photoelectron spectrometer (XPS)	Routine measurement	Per Sample	4,000	8,000	15,000
		Depth profiling	Per Hour	4,000	8,000	15,000
		Consultancy	Per Sample	2,500	5,000	20,000
2	XRD	SAXS analysis	Per Sample	3,000	5,000	10,000
		Routine XRD	Per Sample	800	1,000	2,000
		High temperature XRD	Per Sample	2,000	4,000	8,000
		High temperature under gas flox	Per Sample	1,500	3,000	15,000
		In operando XRD	Per Hour	250	500	1,200
		Consultancy	Per Sample	1,500	4,000	12,000
3	UV-Vis spectrometer	Routine measurement	Per Sample	400	800	1,600
4	FTIR	Routine measurement	Per Sample	500	900	2,000
5	Thermogravimetric analysis	Routine measurement	Per Hour	2,500	5,000	10,000
6	Differential scanning calorimetry	Routine measurement 500	Per Sample	2,500	5,000	10,000
7	Optical profilometer	Surface topography/roughness (up to 9 cm <sup>2</sup> )	Per Sample	300	750	1,500
8	Atomic absorption Spectrometer	Elemental analysis	Per Element	300	600	2,000
9	Probe Station	Four probe conductivity measurement	Per Sample	100	200	500
10	Ball Mill	for Milling sample (less than 5 g)	Per Hour	75	150	600

Sl.	Instrument	Type of Analysis	Unit	Academic Universities	Research Institution	Industry
				(₹)	(₹)	(₹)
11	Furnace	Box Furnace	Per Hour	100	200	500
		Tube furnace with gas flow	Per Hour	200	400	1,000
12	Contact Angle measurement	Ambiently air	Per Sample	250	250	750
		Inert condition	Per Sample	100	200	500
		High temperature	Per Sample	500	1,000	3,000
13	Electrochemical Work Station	Service	Per Hour	800	1,400	2,800
14	Battery cycler	Service	Per Hour	200	200	500
		Consultancy	Per Sample	4,000	7,000	15,000
15	Solar Simulator	Service	Per Hour	50	100	300
16	Gas Chromatography	Service	Per Hour	100	200	500
		Consultancy	Per Sample	4,000	7,000	15,000
17	Impedance Analyzer	Service	Per Sample	700	1,400	2,800
18	Coin cell	Consultancy	Per Hour	3,000	5,000	20,000
19	Pouch cell	Consultancy	Per Hour	6,000	8,000	40,000
20	Cryo-Dual-beam (ion/electron) microscope *	Electron imaging	Per Sample	1,250	2,500	5,000
		Cryo Electron imaging	Per Sample	1,250	2,500	10,000
		EDAX	Per Sample	1,500	1,600	3,600
		Mapping	Per Sample	2,000	2,000	4,000
		Ion Milling and Surface reconstruction (100 *100 micron <sup>2</sup> )	Per Sample	4,000	8,000	30,000
		Cryo-Ion Milling and Surface reconstruction	Per Sample	7,500	15,000	45,000
21	Raman spectroscopy *	TEM lamella Sample preparation	Per Sample	7,500	15,000	45,000
		Routine spectra	Per Sample	800	1,600	5,000
		Mapping/imaging	Per Sample	1,000	2,000	5,000
22	AFM *	Consultancy	Per Sample	1,500	3,000	10,000
		Basic surface topography	Per Sample	2,600	5,200	10,400

**NOTE:**

• **End to end Battery fabrication, Characterization & Analysis for Industry and Academia:**

Slurry optimization, coating, Hot press, coin cell fabrication, Electrochemical analysis (charge discharge, cyclic voltammetry, Linear sweep voltammetry, cyclability, electrochemical impedance spectroscopy, galvanostatic & Potentiometric intermittent titration technique), post cycle material analysis (XRD, XPS, Raman, SEM, TGA, DSC, FTIR, UV-VIS, AAS, etc.). Pouch cell fabrication up to 1Ah.

**Charges: Depending on the Detailed Requirements.**

- **Rates are given based on materials being provided from the applicant's side. Extra cost can be included if materials are involved from institute side.**
- **\* Will be available soon.**
- **All the above rates are excluding GST.**

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