

**MAJOR CHARACTERISATION EQUIPMENTS AVAILABLE
AT C-MET, PUNE**

NAME OF THE EQUIPMENT	NAME OF THE MANUFACTURER	APPLICATIONS
Atomic Absorption Spectrophotometer (AAS)	Electronic Corporation (I) Ltd, Hyderabad, India	Trace Impurities Analysis
Inductively Coupled Plasma Optical Emission Spectrophotometer (ICP-OES)	Perkin Elmer, USA (Model No. Perkin Elmer P-1000)	Trace Elemental Analysis
Gas Chromatograph (GC)	Hewlett Packard, USA, (Model No. HP 5890)	Chromatographic Analysis
UV-VIS Spectrometer	Hitachi, Japan	Spectroscopic Chemical Analysis
Spectrofluorometer	Hitachi, Japan	Luminescence studies of organic, inorganic and polymeric compounds
Elemental Analyser	CE Instruments, Italy, (Model No. CE Instrument EA 1110)	Elemental Analysis of Organic/Polymeric Compounds
Potentiostat/ Galvanostat	Autolab, Netherlands	Electrochemical Synthesis and Characterization
TGA/SDTA/ DSC/DPA	Mettler Switzerland, (Model No. – Toledo 821, 851)	Thermal Characterization of Organic, Inorganic and polymeric samples
TMA/DMA	Perkin Elmer, USA, (Model No. Perkin Elmer 7e)	Thermomechanical Analysis of Polymers
Fourier Transform Infrared Spectrometer (FTIR)	Perkin Elmer, USA, (Model No. PE Spectrum 2000)	Spectroscopic Chemical Analysis
High Performance Liquid Chromatograph (HPLC)/ Gel Permeation Chromatograph (GPC)	Water, Austria, (Model No. HPLC 515/996 & GPC 2410)	Chromatographic Analysis of Polymeric and Organic Compounds
Scanning Electron Microscope (SEM) with EDAX	Philips, Netherlands, (Model No. Philips XL-30)	Surface Morphology and related Microanalysis
Graphite furnace Atomic Absorption Spectrometer	Nulab, (Model No. Avanta – sigma)	Trace Impurity Analysis
Hot Stage Microscope	Mettler- Toledo (Model No. FP-900) Lica DMLP	Characterisation of Liquid Crystalline Polymers
Scanning Probe Microscope	Agilent Technologies Inc.	Examination of Topological Features at Atomic Scale

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Inductively Coupled Plasma – Optical Emission Spectrometer (ICP-OES)	JOBIN-YVON, France, Model No. JY-24 R	Elemental Analysis in Liquid (ppm/ppb Level)
Glow Discharge – Optical Emission Spectrometer (GD-OES)	JOBIN-YVON, France, Model No. JY-10000RF	Elemental, Gases and depth Profile analysis in Solids (ppm/ppb Level)
UV-Visible Spectrophotometer	Chemito, India, Model No. 2000	Chromophoric Analysis of Elements in ppm/ppb Level
Flame Photometer	Chemito, India, Model No. 1020	Analysis of Alkali Metal in ppm Levels
Auto-Titrator	Spectra Lab, India, Model No. AT-38	Classical Analysis elements
Microwave Digestion System	Milestone, Italy, Model No. MLS 1200	Closed Digestion of samples by Microwave
Water Quality Analyser	Century, India, Model No. CK-17	Analysis of TDS/Salinity/Conductivity
pH/Ion meter	Denver, USA, Model No. 25	Estimation of pH Chloride Fluoride
Ion-Chromatograph	Shimadzu, Japan, Model No. LC 10AT	Estimation of Anions/Cations
O-N Analyser	LECO, USA, Model No. TC-236	Estimation of Oxygen, Nitrogen in Metal Samples
Particle Size Analyser,	Honeywell, USA, Model Nol X-100	Analysis of Particle Size Distribution
Universal Testing Machine (UTM)	Shimadzu, Japan, Model No. AGS-1000G	Estimation of Tensile Strength, Elongation and Yield Strength of Materials
Micro Hardness Tester,	Shimadzu, Japan, Model Nol. HMV-04	Measuring Brinell Rockwell, Diamond Hardness
Metallurgical Microscope	Leica, Vienna, Model No. 12ME ST	Morphological and Structural Analysis of Materials
LCR Meter	Hioki, Japan, Model No. 3531	Measurements of Capacitance
DC Leakage Current Tester	Sivananda, India, Model No. LS-13A	Measurement of Leakage current
RRR measurement system	Con-Serv, USA	Residual Resistivity Ratio

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Name of the equipment	Name of the manufacturer	Applications
X-ray Fluorescence Spectrometer	Philips (Model No. PW2400)	Elemental Analysis quantitative and qualitative estimation
DSC/TGA	TA Instruments, USA, Model SDTQ600	To study Physicochemical changes with respect to temperature upto 1500 ⁰ C
Impedance Analyser	Hewlett-Packard, (HP4192A), Japan	To measure inductance, capacitance, resistance, factor and variation of these properties with frequency from 5Hz to 13 MHz.
X-ray Diffractometer with variable temperature attachment	Bruker, Germany, Model No.: D5005)	Phase evaluation, crystal structural studies, phase formation with respect to temperature
Mercury Porosimeter	CE Instruments, Italy	Pore structure analysis with respect to pore volume, pore radius, pore size distribution in green and sintered bodies.
BET Surface area Analyser	Quantachrome Nova 1200, USA	Measurements of surface area of nano powders
Supercapacitor Test Systems	Arbin Instruments, USA, BT-2000	Measurement of capacitance, ESR, charge-discharge cycle
Gain Phase Analyser	Agilent Technologies, USA, Model 4294A	For impedance analysis of materials in the frequency range 40hz to 110MHz
Electrometer	Keithley, USA, Model 6517A	Measurement of electrical resistivity (10 Ω to 210T Ω) voltage/current, RH, etc.
Vector Network Analyzer	Agilent Technologies E8263 B Model, USA	Microwave characterization of Dielectric Resonators, Composite substrates, ferrites, tunable dielectrics etc.