

Annexure – I

Technical Specification for CHNS Analyser

Sl. No.	Features	Requirement
1.	Sample to be analyzed	Solid, liquid
2.	Measuring range	1% - 100% or better for solid samples & 1-10 ppm or better for liquid samples
3.	Detector type	Thermal conductivity Detector (TCD)
4.	Pressure reducer type	Helium and oxygen
5.	Sample weight	Less than equal to 1mg to 1000 mg or better
6.	Furnace temperature range	Maximum temperature: 1000°C or better
7.	Furnace type	Should have a two-zone furnace system, separate for combustion/reduction with independent temperature control for each furnace for CHNS mode
8.	Analysis time	< 15 minutes
9.	Sampler type	Auto sampler with at least 32 positions in a single tray
10.	Gas requirement	He, O ₂ Gas cylinder with Regulators
11.	Gas purification panel	Gas Purification Panel with Filters for all the gases.
12.	Gas separation	Chromatographic separation of gases
13.	Software	Window based operating software controlling the instrument operations, recording data, performing calculations, diagnostic recording like leak testing and condition monitoring, and manage calibration procedures
14.	Sample analysis kit	CHNS kits for 1000 samples analysis
15.	Computer/Printer	Branded i7 PC or better (Windows 10, 16GB RAM, 1 TB HDD, 64bit or more, 30 inch monitor or more) and Laserjet Color Printer with Scanner
16.	Online UPS	Branded 20 KVA on line UPS with 1 hour back-up -01 Set
17.	Chemical kit and other accessories	Copper oxide -50 g, quartz wool - 5 g, electrolytic copper -80 g, vanadium pentoxide - 1 g, Knurled Screws kit – 01 no., Universal Tin Containers (set of 100) – 01, Universal Tin Container mega box (set of 1000) – 01, Universal "soft" Silver Containers (set of 100) – 01, Forceps – 05, Spatula for Container Filling, Cleaning Device for Quartz Reactor – 01, Empty Quartz Reactor (set of 2) – 02 No.
18.	Micro analytical balance	Maximum Capacity: 2g with readability 0.001 mg
19.	Warranty	Comprehensive warranty of 3 years with at least 10 years warranty on furnace and 5 years warranty on detector
20.	Installation and Training	The onsite installation and commissioning of the system at CSIR-CMERI must be done by the supplier. The gas sample analysis must be demonstrated to the user's satisfaction and must show the data matching with standard. Training for operation and maintenance of the instrument should be provided at the time of installation.

Minimum eligibility criteria:

- ♦ The OEM should be in this business for at least 8 years. A 8 years old PO copy of similar equipment is to be included in the technical bid as evidence.
- ♦ The OEM should have at least five (05) installations of offered equipment supplied to Govt. Institutes of India. The PO copies/installation reports are to be included in the technical bid as evidence. In addition, satisfactory equipment performance reports, from these users are also to be included in the technical bid.
- ♦ OEM must have trained the service engineer of the bidder. Relevant training certificate from OEM is to be attached as evidence.