

Proceedings of Technical evaluation of Instruments in Pre-bid meeting

Pre-bid meeting of the committee with the various firms was held upto 15th September at ICAR Research Complex for Eastern Region, Research Centre, Plandu, Ranchi. The different firms raised their issues on specification of instrument and their issues were examined and resolved in consultation with indentor.

Few firms requested for EMD in the form of Bank guarantee instead of Demand draft. Hence it is proposed that the firms may submit EMD in the form of Bank Guarantee/ demand draft.

The following minor changes in the specifications and Terms & Conditions of the following instruments were proposed.

1. CHNS Analyzer and 2. Refrigerated Centrifuge

1. The changes made in CHNS Analyzer were,

Sl. No	Changes required	Changes made
3, 6 and 15	The warranty of 5 year mentioned in sl. No. 3, 6 and warranty of 7 yr in sl.no. 15.	The warranty of 5 year mentioned in sl. No. 3, 6 and warranty of 7 yr in sl.no. 15 were merged to make the warranty of 5 year on entire system in sl. No. 20.
11	To be supplied with all consumables sufficient for 5000 liquid and 5000 solid samples analysis and spares for minimum 2 years operation.	To be supplied with all consumables sufficient for 5000 liquid and 5000 solid samples analysis. The spares of the instruments for 2 yr operation has been merged in warranty section in sl. No 20.
13	Microbalance of sensitivity up to 6 place i.e. 0.001 mg or more	Microbalance of sensitivity up to 5 place i.e. 0.01 mg or more
20		The vendor should provide warranty for 5 years for the entire system of CHNS analyzer (which includes supply of spares and labour).

Revised specifications of CHNS- Analyzer

Sl. No.	<u>SPECIFICATIONS</u>
1.	PC Controlled Elemental Analyzer with all essential accessories for the quantitative simultaneous analysis of Carbon, Hydrogen, Nitrogen and Sulfur in Solid and liquid (Soil-Plant-Water) samples following Dumas or any equivalent method.
2.	To ensure effective separation for complex matrix samples, the system should have two furnaces for combustion and reduction with independent temperature control through software. Systems should have upgradation option.
3.	Furnace temperature should be from 1000 ⁰ C and above. Furnace working on low voltage for

	electric shock safety and long life.
4.	Column should not require be changing /refilling for at-least 1,000 sample analysis (If applicable). Complete instrument control over elution process with provision of auto zero of baseline after each element elution as well as after each sample so as to ensure accurate measurements with low sample weights and elemental concentrations.
5.	Should incorporate ash finger so that ash can be removed on regular interval from combusted samples without the need to change the combustion tube and halogenated compounds do not affect combustion
6.	Detector : Thermal Conductivity Detector or any suitable detector.
7.	Sample size : 100 – 500 mg (according to the sample nature) Detection range: 0.01 (100 ppm) to 100% for all elements of CHNS Sensitivity: Less than 1.0 µg or better for CHNS
8.	Analysis Time: 3-5 min for all the elements with Complete baseline separation, irrespective of sample size, matrix or analysis mode simultaneously.
9.	It should have electromechanical auto sampler system with 60 positions or more in single tray for both solid & liquid Sampling. It should be possible to remove the auto sampler without having to shut of gas supplies or evacuate the flow path for loading more samples. Zero blank sample injection system without keeping the whole auto-sampler under inert atmosphere.
10.	It Should be Windows based and should have display of set and actual pressures, flow rates, temperatures, number of samples analyzed with provision for setting maintenance interval with warning when maintenance needed. Software should be CFR 21 compliant, LIMS capability and with access through internet. It Should have segmented leak check through software to enable identification of exact position of leak. The System should have built in Carrier Gas purifier. Multipoint calibration, regression liner, stable over months.
11.	To be supplied with all consumables sufficient for 5000 liquid and 5000 solid samples analysis.
12.	Direct Total Inorganic Carbon measurement attachment for solid samples such as soils & plants to be equipped with the analyzer (may be offered in optional).
13.	CHNS-Elemental Analyzer should be equipped with a Microbalance of sensitivity up to 5 place i.e. 0.01 mg or more with facility for automatic weight transfer to Elemental Analyzer to avoid post script error. Microbalance with interface to analyzer for direct transmission of weighing data.
14.	System should be supplied complete with combustion and carrier gas cylinders, regulators with all connection tubing to the instruments. The Gases should be of high purity of 99.9995 %.
15	Supplied with At least 5000 Consumables for CHNS analysis with suitable Organic Certified Reference Standard & Plants and Soil standards with diversified Carbon & Nitrogen compositions or ratio.
16	Supplied with latest available computer with Core i7 processor with 4 GB DDR 2 RAM, 1 TB HDD, DVD Drive , 18.5” LED-HD monitor, optical mouse, key board and Colour Laser printer.
17	Supplied with Liquid sample sealing press for cold sealing of volatile samples under purging. Liquid sample preparation accessories / sealing device etc
18	10 KVA UPS or more but appropriate to take the complete load of equipment including the PC

	Printer to complete 20 samples in autosampling mode for CHNS Analysis- backup.
19	Catalogue in original with all technical specifications printed on the catalogue. At-least 5 users available for this instrument or similar types of application with all types of attachment need to be provided.
20	The vendor should provide warranty for 5 years for the entire system of CHNS analyzer (which includes supply of spares and labour).
Terms and Conditions	
1. The supplier must provide installation, commission, and training for a group of technical staff/students from operating the instrument to complete structure determination/solution at site without any additional cost with supply of all relevant manuals and documents in printed format.	
2. Warranty & Maintenance contract: The supplier shall warrant equipment, system components for a minimum period of three years following satisfactory installation and commissioning. The defects, if any, during the guarantee/warrantee period are to be rectified free of charge by arranging free replacement wherever necessary. Any expenditure including government levies on account of the replacement are to be borne by the supplier/agent. The supplier shall offer an annual test & maintenance agreement for three years, consisting of the following: Regularly and systematically examine, test and adjust all system components. Submit test reports that certify all components have been tested and the system is in proper working order and functions in accordance with this specification.	
3. Please submit & confirm the following that will be complied with by the vendor during supply of the system.	
a) Spares & service Support: Please certify that the instrument supplied shall be of latest technology and model, so that you would support with onsite service and spares for next 10 years.	
b) Exhaustive soft and hard copy of installation operation, users, applications manuals, maintenance & service manuals shall include system interconnection diagram, general arrangement of equipment drawing, complete circuit diagram, trouble shooting tips & diagnostic methods.	
c) Standard toolkit shall be provided for general maintenance service.	
d) Recommended essential spare parts and consumables with budgetary price.	
e) Complete system pre-installation requirements.	
4. Installation & Testing: The installation shall be completed within a week from the date of intimation regarding the arrival of the equipment in the institute. A Penalty equivalent to 1% of the value of the goods will be levied for every week's delay in installation. The installed system shall be performance tested at our premises in accordance with the manufacturer's/supplier's recommendation/specifications. Tests shall demonstrate the proper operation of the instrument and all components.	

2. The changes made in Refrigerated Centrifuge were

Sl. No	Changes required	Changes made
3.	12000-14000	12000-15000
4.	18000-20,000 x g	18000-22,000 x g
7.	30 X 1.5/2.0ml microtubes	24-36 × 1.5/2 ml micro tubes
16.	30-40 Programmable storage memory	more than 30-40 Programmable storage memory
Required	A suitable autoclavable fixed-	A suitable autoclavable fixed- angle rotor for 6

Accessories	angle rotor for 6 × 80ml At least speed (RPM): ~12000 At least RCF:18000 - 20,000 xg	× 100 & 85ml reducers At least speed (RPM): ~10,000-12000 At least RCF:13000 - 20,000 x g
1.		
2.	at least 30 × 1.5/2 mL micro tubes	at least 24-36 × 1.5/2 mL micro tubes

Revised specifications of Refrigerated Centrifuge

1. Refrigerated centrifuge capable of supporting different type of rotors
2. Min speed (RPM): 12000-15,000 with accuracy of 10 rpm.
3. Min. RCF: 18000-22,000 x g
4. Temperature ranges from at least -9 °C to +40 °C with CFC free refrigeration system for fast and stand by cooling facility (Room temperature to 4°C within 10 min). Sample temperature should be 4°C or less at max speed
5. System should have dedicated short spin key for short spin.
6. Facility to run the 24-36 × 1.5/2 mL micro tubes
7. Time pre-selection: short run, 0 - 99 min, continuous run
8. Microprocessor controlled “Touch Screen” or alphanumeric LCD Screen for display of set & run parameters i.e. speed, RCF, temperature, run time, etc.
9. Maintenance-free, noiseless (even at the highest speed) and brushless drive motor
10. Different curves for acceleration and deceleration
11. Imbalance identification and auto cut off
12. Error message alarm indicator
13. Automatic rotor identification system.
14. Motorized lid lock with automatic lid opening after run
15. User defined more than 30-40 Programmable storage memory for routine experiments
16. Provision for changes in parameters during centrifugation
17. Emergency lid release should be integrated in to front panel of the instrument for easy access
18. System should have the condensation drain in the rotor chamber bowl
19. Compact system should be space saving and easy one handed operation
20. System to operate at: 220-240V AC, 50/60 Hz
21. System should have International certification
22. System should be quoted with suitable voltage stabilizer.

Required Accessories

1. A suitable autoclavable fixed- angle rotor for 6 × 100 & 85ml reducers

At least speed (RPM): ~10,000-12000

At least RCF:13000 - 20,000 x g

With 15 and 50 ml adaptors.

2. A suitable autoclavable fixed-angle rotor for at least 24-36 × 1.5/2 mL micro tubes

At least speed 12,000-14,000 rpm.

With 0.5 ml adaptors

General Terms & Conditions:The Company should provide minimum of **3 years Comprehensive Warranty** (CMC) on the whole system. A **compliance table** as per the specification point by point must be submitted by the firm. **Original technical brochure** of the quoted models should be enclosed. Quotations from firms must clearly indicate details of after-sale service including response time at ICAR-

RCEr, RC, Ranchi and **list of users** (in ICAR) with updated telephone numbers and addresses and complete literature of equipment to be provided. The system should have Q3 certificate i.e. Installation Qualification, Performance Qualification and Operational Qualification on the site. The firm should have a good service and application support backup. Manufactured as per international safety standards i.e, IEC1010 and 1010-2 standard and CE/ISO 9001 manufacturer certificate to be enclosed with the offer.