

CSIR-NATIONAL METALLURGICAL LABORATORY
Burmamines, Jamshedpur 831007

CORRIGENDUM

REFERENCE NO. :- NML/PUR/32/19/21/SM

DATE: 24/03/2022

NAME OF EQUIPMENT: SUPPLY, INSTALLATION AND COMMISSIONING OF X-RAY FLUORESCENCE SPECTROMETER (XRF) WAVELENGTH DISPERSIVE, 4KW

NOTE: The Bids must be submitted in the Central Public Procurement Portal (URL:<https://etenders.gov.in/eprocure/app>) only. Manual/Offline bids shall not be accepted under any circumstances. Bidders should quote in INR only.

CONSEQUENT TO THE PRE-BID MEETING HELD ON 15/03/2022, THE REVISED SPECIFICATION IS GIVEN BELOW:-

SPECIFICATIONS:-

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TECHNICAL SPECIFICATIONS FOR “Sequential Wavelength Dispersive X-Ray Fluorescence Spectrometer (WDXRF)”.

Supply, Installation and commissioning of fully automated computer controlled sequential WD X-ray Fluorescence spectrometer (WDXRF). The XRF system should be a sequential wavelength dispersive XRF Spectrometer (WDXRF) with capabilities for high speed and high precision qualitative, quantitative, semi quantitative (Standard less) analysis. The spectrometer should be able to analyze elements from Boron to Uranium in liquid, solid, loose powder and pressed powder samples. The XRF should have following specifications and configurations.

Vendor must quote their most recent model.

1. SAMPLE HANDLING & PRESENTATION

Sample types	Should be able to handle solids, pressed powders, fused beads & liquids in a variety of sample holders.
Sample size	Spectrometer should have capability to handle sample diameter between 20-40mm.
Sample changer	Automatic programmable sample changer with capacity to handle minimum 40 positions. Should be supplied with minimum 40-position tray.

2. X-Ray GENERATOR

Power	4 kW or more
Max kV	65±5 kV
Max mA	160±10 mA
Voltage increment	In steps of 1kV or less
Current increment	In steps of 1mA or less
Cooling	Air / Water cooled

3. X-RAY TUBE

Anode material	Rh
Tube type	End window type
Power	Minimum 4 kW capacity
Max KV	65±5 kV
Max mA	160±10 mA
Voltage increment	In steps of 1KV or less
Current increment	In steps of 1mA or less
Tube window thickness	75 micron or less

4. OPTICS

Primary filters	Should have minimum 4 primary tube filters
Primary Collimators	Should have minimum 2 primary collimators
Beam Path	Should be selectable as Vacuum, Helium
Automatic mask	Should have automatic 3 position mask to handle sample dia 20-40mm.
Crystal Changer	Should have minimum 8-position crystal changer
Crystals	Should have (i) LiF200, (ii) LiF220, (iii) PET, (iv) GE Curved (V) suitable multilayer crystal for analysing elemental range oxygen (O) to Magnesium (Mg) (vi) Separate artificial crystals for analysis of Carbon (C) & Boron (B) should be quoted with proper collimator/slit.
Vacuum pump	The spectrometer should be evacuated with suitable vacuum pump. Vacuum pump should be built inside the spectrometer cabinet.
Spinner	Should have built-in spinner with minimum 30 rpm rotation speed.
Safety	Dust control (not primary beam filter) system should be inbuilt with the system. Complete protection from sample dust, loose particles falling

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	during measurement should be ensured.
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5. GONIOMETER

Angular reproducibility	$\leq \pm 0.0001$ degree
Goniometer maximum scanning speed	≥ 2400 degree/minute (2 theta)
Temperature stabilization	± 0.1 degree Celsius or better
Drives	Should have two independent drives for theta & 2 theta.

6. DETECTORS

Number of detectors	Should have 2 detectors, Flow proportional & Scintillation detector.
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7. SAMPLE HOLDERS

20 numbers of sample holders to handle 40mm diameter solid samples, 10 nos. of sample holders to handle 30mm dia solid or pressed pellet or fused bead samples to be quoted.

8. LIQUID SAMPLE ANALYSIS

The liquid sample analysis kit along with minimum 500 liquid disposable cups to be quoted with the basic instrument. One number of roll (90 m length or more) of 6 micrometre thick mylar film should be quoted.

9. COMPUTER

Branded latest configurations high-end workstation suitable for the instrument and compatible with the XRF control and calibration software must be quoted. The minimum configuration requirement is CPU Intel Core i7 processor or higher, 8 GB RAM, LED-monitor. Operating system MS Windows 10 Professional 64-bit or latest. A laser jet printer must be quoted.

10. SOFTWARES

(A) INSTRUMENT CONTROL & CALIBRATION SOFTWARE

User-friendly software should be quoted with following features:

Windows Operating base	Should be WINDOWS 10 based or latest
Basic minimum features	<p>Should have following basic minimum features</p> <ul style="list-style-type: none"> • Multipoint background correction. • Line overlap correction. • Ratio calculation. • Auto PHD/PHA measurements. • Calibration curve (Net intensity / concentration, corrected intensity / concentration) for quantitative analysis. • Empirical matrix correction models. • Theoretical alpha matrix correction models. • Variable alpha matrix correction models. • Compton & Rayleigh scattering correction model. • Calculation of concentration functions. • Data storage.

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- (B) The instrument should be offered with factory calibrated Standard-less analysis to analyse elements from Boron to Uranium in various kinds of samples (solid, liquid, pressed pellets & fused beads). The vendor must provide the licence key or the software CD of the standard-less software along with the instrument.

11. Safety Requirements

All kinds of safety protection for radiation, electrical, electronics should be inbuilt as per International regulation/norms. All these norms should be clearly specified in the offer.

12. ESSENTIAL ACCESSORIES

1. Two numbers P-10 gas cylinders along with two numbers of compatible gas regulator to be offered.
2. One number Helium gas cylinder with one number gas regulator to be offered.
3. One number external chiller suitable for the quoted XRF instrument to be offered. The Chiller should provide proper cooling throughout the year with summer temperature up to 48 °C. The chiller will be kept on 24x7 throughout the year without switching off.

13. ACCEPTANCE CRITERIA

Acceptance of results will be done by running 5 CRM standards & matching the standard deviation as per the CRM certificate.

14. OPERATION MANUAL

Both Hardcopy and softcopy of operation manual, service manual, and trouble shooting must be provided.

15. PRE-INSTALLATION REQUIREMENTS

Pre-Installation requirements for the instrument in terms of electrical requirements, room temperature, humidity and specific civil constructional must be mentioned in the quotation.

16. WARRANTY

The supplier shall give on-site comprehensive warranty for the main XRF system and Chiller for a period of three (03) years including warranty for X-Ray Tube from the date of successful installation / commissioning, whichever is later.

17. INSTALLATION, COMMISSIONING & Training

Installation, commissioning, demonstration should be done at CSIR-NML. Training for at least five days for 3 NML Scientists on operation, trouble shooting and preventive maintenance of the equipment to be arranged at CSIR-NML, Jamshedpur during installation and commissioning free of cost.

18. Electrical requirements:

The system must be operative with 210-220V, 50 Hz power supply.

19. Essential Qualification Criteria

The supplier should be the OEM of similar equipment or have authorized ~~dealer~~ ^{dealer} ~~dealer~~ Spares (hardware & software) should be available at least for next ten years after the successful date of commissioning/installation.

Payment for Goods and Services supplied from India:

The payment shall be made in Indian Rupees, as follows:

A) 70% payment to be released on receipt of material at CSIR-NML in good condition duly certified by the user Scientists.

B) 30% payment would be released after satisfactory installation, commissioning & training as certified by the user Scientists subject to submission of Performance Bank Guarantee (PBG) for 3% of the purchase order value covering the period of warranty + 60 days.

EMD/Bid Security should reach this office by 09/04/2022.

The above amendments shall amount to amendments of the relevant terms of our Bid Document for CSIR-NML Tender No. **NML/PUR/32/19/21/SM dated 01.03.2022.**

All other Tender terms and conditions remain unchanged.

Bidders should quote only in INR.

Ray
24/3/22

(R. Ray)

Controller of Stores & Purchase

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