

**SOPHISTICATED ANALYTICAL INSTRUMENTATION FACILITY
(SAIF)**

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**TENDER DOCUMENT FOR THE PURCHASE OF
WD-XRF SPECTROMETER**

Last Date for Receipt of Tender: **October 20, 2010, 3:00 PM**

DATE & TIME OF OPENING: **To be notified later**

PRICE Rs. 1000/-

SECTION – I

PROCEDURE FOR SUBMISSION OF BIDS

1. There will be **Two bid system** for this Tender: *Techno-Commercial bid* and *Financial bid*
2. The Techno-Commercial Bid of the Tender should be covered in one sealed cover superscribing the words “Techno-Commercial Bid”.

Likewise, the Financial Bid should also be covered in a **separate** sealed cover superscribing the words “Financial Bid”.

The two documents viz., Techno-Commercial bid and Financial bid covers prepared as above should be enclosed in a single sealed cover marked as under:

Tender for the supply of WD-XRF

Due on (last date for submission).

Name & Address of the Tenderer.....

Note: Price should not be indicated in the Techno-Commercial bid otherwise the Tender will be rejected

3. Tenders received after the due date will not be accepted. If the last date for submission of Tender falls on any declared holiday in the University, the next working day will be considered as the last date for the same.
4. The bids prepared by the Tenderer and all correspondence and documents relating to the bids, shall be written in English language
5. The contract for the supply of the items is non-transferable.
6. Tender/Offer should be type written, other wise the same will be rejected
7. Each page of the tender document should be signed by the authorized signatory.
8. Each offer should be complete in all respects.
9. Telegraphic/electronic/conditional offers will not be accepted.
10. Tender fee is to be submitted along with tender if document is downloaded from website

SECTION – II

TERMS AND CONDITIONS

1. **Opening of bids:** Techno-Commercial bids will be opened by the Committee after the closing date and studied. The Tenderers will be invited for presentation and clarifications if needed. Financial bids of the Tenderers complying with the prescribed Techno-commercial specifications will be opened by the Committee. Tenderers or their authorized agents may be present if they so desire during opening of the Tenders.
2. **Rejection of bids:** The Committee reserves the right to reject any or all offers without assigning any reason.
3. **EMD:** The Tender bid should accompany an EMD of Rs. 1, 00,000. The EMD should be made by means of an A/c payee DD in favour of the *Director SAIF, Panjab University, Chandigarh-160014* payable at Chandigarh. No interest is payable on EMD.
4. **Refund of EMD:** The EMD will be returned to unsuccessful Tenderer only after the Tenders are finalized. In case of successful Tenderer, it will be retained till the successful and complete installation of the equipment.
5. **CIF value and comparison of Financial bids:** CIF value upto SAIF, Panjab University, Chandigarh (*shipment by air upto Delhi and insured up to the installation site*) should be quoted. and will be considered for comparison of bids. Bids quoted in foreign currency will be converted into Indian Currency at the exchange rate applicable on the day of opening of the financial bids for comparison purposes.
6. **Warranty Period:** The warranty period should be *minimum 4 years (with spares)* from the date of installation with satisfactory performance as per specifications. *4 years free service* to be provided after the warranty period.
7. **PBG:** Tenderer selected for supply of equipment, will have to provide Performance Bank Guarantee (PBG) on any *scheduled bank situated in India, equivalent to 10 percent of the cost of the equipment* which should be valid until the expiry of the Warranty period. The PBG will be provided by the Company along with the letter of acceptance of the order by the Principals. LC will be opened in favour of the Principals only after obtaining the PBG.
8. **Terms of Payment:** LC will be opened for the 100% value of the equipment, 90% of the amount will be released after the shipment and remaining 10% after the installation of the equipment.
9. **Delivery period :** Delivery should be made within *120 days* of opening of the LC
10. **Delayed delivery:** If the delivery is not made within the due date for any reason, the Committee will have the right to impose penalty as under::

- i First extension for one month or part thereof @ 2%.
 - ii Second extension for an additional month or part thereof @ 3%
11. **Non delivery beyond extended period:** If the Tenderer fails to execute the order within the second extension mentioned above or mutually agreed time frame, the order will be cancelled and EMD forfeited by the Dept. He will also be liable for all damages imposed by SAIF for non supply of equipment including the liability to pay the difference between the price accepted by him and those ultimately paid by the SAIF for the equipment, Such damages will be assessed by the Committee for the purchase of XRF Spectrometer.
 12. Increased statutory levies and duties above the rate quoted in the offer will not be an excuse for the Tenderer to delay the supply beyond the date specified in the Tender.
 13. **Validity of rates:** Rates quoted should be valid for at least *4 months* from the closing date of the tenders.
 14. **Consistent pricing:** The rates quoted for the Equipments by the supplier shall in no case exceed the lowest price at which the supplier of this Equipments of identical description made to any other person/organization/Institution during the above said period and should attach an undertaking in this regard
 15. **Installation requirements:** The Supplier will clearly mention installation requirements on our part in the *Techno-Commercial bid*.
 16. **Installation time:** The company must install the equipment *within a period of two months* of the date of delivery of the equipment at SAIF. Chandigarh.
 17. **Free Installation:** The equipment and software should be installed and tested to the specifications *free of cost*.
 18. **Supporting Equipment:** The Tenderer will provide all requisite supporting equipments like isolation transformer, step down transformer, *if needed*. We need the complete installed system.
 19. **Licensed Software and its up gradation:** *Two user licenses* for analysis software should be provided. The certified/licensed software and programs should be the part of the supplies. There should be *free up gradation of software upto 5 years*
 20. **Factory Acceptance Data:** Proposed acceptance criteria for the equipment should be provided by the supplier. in order to compare the performance against the quoted specifications. *Manufacturer's test certificate along with test conditions and results* is to be supplied along with the equipment.
 21. Tenderers are advised to study all technical aspects and terms & Conditions, of the Tender documents. Submission of Tender shall be deemed to have been done after

careful study and examination of the Tender Document with understanding of its implications.

22. **Only Manufacturers or Authorized dealers to bid:** The offering firm should clearly mention whether they are the manufacturer or authorized agent/dealer of the manufacturer. In case of agent for overseas manufacturer, a letter of authorization from the manufacturer should be submitted along with the offer. The Tenderer can also enclose the rates on the letterhead of the manufacturer if he has been authorized to do so by the manufacturer.
23. **Descriptive literature:** A set of specifications, description and illustrated literature of the equipment and related peripherals *should accompany the Techno-Commercial bid.*
24. **User and Service Manuals:** A set of User's manuals and Service manuals of the main instrument, attachments and related equipment (water chiller etc.) should be supplied with the equipment
25. **Equipment must be new:** The Tenderer must ensure that the equipment being offered is a new one and not refurbished or repaired one.
26. **Defective Equipment:** If any of the equipment supplied by the Tenderer is found to be substandard, refurbished, unmerchantable or not in accordance with the description /specification or otherwise faulty, the committee will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment has already been made to him.
27. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 45 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges.
28. **Damage during transit:** In case of any mishappening /damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. The SAIF will not be liable to any type of losses in any form.
29. **Legal jurisdiction:** Any dispute in this regard of any term of the offer and on the supply of equipment is subject to *Chandigarh jurisdiction* only.
30. **Training** Two weeks training should be provided free of charge at the premises of SAIF out of which one week should be on equipment usage & software and one week in maintenance and application including sample preparation.

31. **Availability of Spares:** The Tenderer must assure the availability of spares for servicing of equipment *for at least 10 years*. Supplier should give an undertaking that spares parts will be supplied within the specified periods as and when ordered.
32. **SAIF Infrastructure:** SAIF will provide required air conditioned space, *single phase power supply* with required electricity outlets.
33. **Clearance:** The Principals will do all types of clearance work to deliver the equipment at the site of installation. Department will provide all types of documentary support including Customs Duty Clearance. Principals will themselves have to procure any requisite permission from the Govt. of country of origin of equipment.
34. **Agency Commission:** Agency commission, if any, should be clearly mentioned by the Principals in the form of a certificate and will be paid in Indian Currency.
35. **Bank Charges:** Bank charges in India will be borne by the Panjab University and Bank charges abroad will be borne by the suppliers.
36. **Similar Models installed:** The Tenderer must mention in the *Techno-Commercial bid* the similar model of equipment installed in India *during the last two years* and the *addresses of contact persons at these places*.
37. **Application Specialist:** The Tenderer should mention in the *Techno-Commercial bid* the availability and *names of Application Specialist and Service Engineers* in the nearest regional office.
38. **Response Time:** The Tenderer should mention in the *Techno-Commercial bid* the response time for attending to a complaint about the equipment.
39. **Change of Indian Representatives:** The original manufacturer/Principals should give an undertaking that the aforementioned warranty and availability of spares clauses will be valid even in the case of change of their representatives in India.

TECHNICAL SPECIFICATIONS FOR WAVELENGTH DISPERSIVE X-RAY FLUORESCENCE (WD-XRF) SPECTROMETER

SPECIFICATION OF WD-XRF SPECTROMETER

Fully automated computer controlled sequential WD-XRF Spectrometer for high precision, qualitative and quantitative and semi quantitative (Standard less) is required for the analysis of samples from different scientific fields as per our requirements. The spectrometer should be able to analyze elements ranging Atomic Number $Z = 4-92$, i.e., from Beryllium to Uranium, in the concentration range from PPM level to 100% in liquid, solid and powder samples.

The specifications and configuration of WD-XRF are as follows:

(1) GENERAL

- a. All kinds of safety protection for radiation, electrical, electronic should be in built as per International regulation / norms. 230V, 50 Hz single phase operation as per Indian standards.

(2) SAMPLE HANDLING

- a. The Instrument should be capable of handling solids, powders, fused beads and liquids in appropriate sample holders. Quote dimensions of different available sample holders including hollow holder for paper sample.
- b. An automatic Sample Changer with at least **10** positions or more. Specify the dimensions of max sample size. The sample changer should perform complete unattended operations and should have facilities for priority sample analysis.

(3) HT GENERATOR

- a. Generator of 4 kW or better with variation in voltage up to 60kV or better and current up to 160mA or better in steps of 1 kV and 1mA. Quote the minimum values of voltage and current.
- b. A built in microprocessor/microcontroller should control all important functions, allow service testing from remote locations and monitor tube life, water flow, temperature, and status of other important parameters.
- c. Flawless safety mechanism against over-voltage, over-current, over-load, abnormal input voltage, abnormal cooling water supply and its temperature or abnormal interlock on operation panel etc.
- d. **HT stability +/- 0.0001% or better per 1% variation in mains**, Mains stability +/- 10 %.

(4) X-RAY TUBE

- a. End window 4kW Rh anode X-ray tube with voltage rating up to 60 kV or better and current rating up to 160mA or better with ceramic insulation and having **0.075mm** Be window with close optical coupling with target. Specify the X- ray tube parameters in details.
- b. Unconditional two years warrantee for x-ray tube. Excise duty and other charges will be paid by vendor in case of replacement of tube. Down period will be excluded from the warrantee period.

(5) OPTICAL PATH

- a. Minimum 3 positions collimators with choice from ultra high resolution to coarse to optimize the measuring conditions per element.
- b. The x-ray beam path should be selectable : Vacuum , Helium or Air. Integrated vacuum/Gas system.
- c. Minimum 4 positions primary beam filters changer provision should be available and at least 4 suitable filters to cover the Be-U elemental range.
- d. At least three crystals well-optimized to cover the whole range of elements $_{8}\text{O}$ - $_{92}\text{U}$, and one crystal each for the $_{6}\text{C}$ and $_{7}\text{N}$ elements.
- e. Crystals for the lower-Z elements, $_{4}\text{Be}$ and $_{5}\text{B}$ [quote as an option].
- f. The spectrometer should be equipped with minimum eight positions bi-directional crystal changer.
- g. Minimum three position masks to be quoted with basic system.
- h. The sample spinner should be equipped with the system. Specify details.
- i. Temperature controlling system - The spectrometer optical chamber temperature stabilization must be better than +/- 0.1 deg C at ambient temperature.
- j. Inbuilt dust control system/clean sample insertion system with the WDXRF Instrument.

(6) GONIOMETER

- a. Oriented for highest sensitivity through optical coupling with theta, 2theta independent drive mechanism, continuous scanning.
- b. Angular accuracy 0.003 deg or better, and angular reproducibility (+/- 0.0003 deg) or better. Specify scanning angular ranges, scan speeds, and other parameters in detail.
- c. Mechanism to protect Goniometer and tube against sample spillage.

(7) X-RAY DETECTORS

Quote for 2 detectors of Flow proportional and Scintillation types for optimum coverage of entire elemental range ${}_{4}\text{Be}$ - ${}_{92}\text{U}$. Include the necessary gas cylinder with two stage regulator for Flow Proportional detector.

Detector windows for the Flow proportional counter for the optimum operation for detection of the low-Z elements – to be provided by the vendor during the warranty period of Two years.

(8) CONTROL SOFTWARE WITH LICENSE

WINDOWS based Spectrometry software based including multipoint background correction, line overlap correction, ratio calculation, auto PHD measurements, calibration curve qualitative analysis incorporating matrix correction based on different mathematical models, recalibration programme, calculation of concentration functions for quantitative analysis, full screen color graphic capabilities, limit checks, statistical evaluation, data storage and retrieval with multi connecting facilities and other necessary features.

Extensive analytical software package for data handling and processing, qualitative and quantitative and standard less operation. The software package for quantitative and semi quantitative analysis of various samples.

Factory calibrated Standard-less software along with the necessary calibrating standards for all the procured crystals.

Software for accurate trace element analysis of geological materials should be quoted along with all necessary crystals and standards if required to run the software.

The software and hardware for remote diagnostics capable of checking the equipment parameters/calibration etc.

Single User License for Data acquisition software and Two-users License for Data handling and analysis software [see point 10]

(9) LIQUID SAMPE ANALYSIS

The liquid sample analysis kit along with helium purging unit and necessary hardware, software and liquid sample cups (100 nos.) etc. to be quoted with the basic machine. Include the necessary helium gas cylinder with two stage regulator.

(10) COMPUTER SYSTEMS

Branded latest configurations high end PC with high capacity Hard disk and CD/DVD writer drive, 19" TFT Color monitor, Key board, mouse, color laser jet branded printer. The PC equipped with latest licensed windows operating system should be quoted for data-acquisition and analysis purposes. One similar configuration computer with B/W laser printer for networking with main computer to be included. It will be used for Data handling and analysis purposes.

(12) SPARES AND CONSUMMABLES

Necessary spares and consumables [other than X-ray tube and Flow Proportional Counter windows - as these are to be provided by the vendor without cost during first 2 years of warrantee period] required for smooth and efficient operation of X-ray generator and spectrometer for 2 years.

Also, quote for the X-ray tube and Flow Proportional Counter windows required after 2 years of warrantee period (as an option).

(13) ACCESSORIES

- a. Suitable Water Chiller from reputed Indian or imported makes to be quoted.
- b. Flow proportional gas cylinder & Helium gas cylinders each to be quoted [quote as option].
- c. Separate two stage regulators for Flow proportional detector gas and Helium gas cylinders [quote as option].
- d. Liquid sample cups – quote with different available sizes [as an option].

(14) QUOTE SEPARATELY (as optional)

- a. Suitable UPS with 1 hour backup for WDXRF and chiller to be quoted
- b. Hydraulic 30 tons semi automatic press (Indian or Imported to be quote)
- c. Vibratory cup mill with tungsten carbide bowl (Indian or imported to be quote)