

TENDER (E - PROCUREMENT MODE)

FOR

**SUPPLY, INSTALLATION & COMMISSIONING OF INDUCTIVELY-COUPLED
PLASMA MASS SPECTROMETRY (ICP-MS) SYSTEM
IN ADVANCED MATERIALS RESEARCH CENTRE AT IIT MANDI**



Tender No.: IITMANDI/S&P/PUR-47/2020-21/1286-87

Tender date: 02nd July, 2020

Last Date of Submission: 23rd July, 2020

**Indian Institute of Technology Mandi (IIT Mandi),
Store & Purchase Section,
2nd Floor, A7 Building, South Campus,
Kamand – 175 075, District – Mandi (H.P), India**

Tel.: 01905-267829/267039/267048

Email: sayantan@iitmandi.ac.in, amrcoffice@iitmandi.ac.in & arsp@iitmandi.ac.in

Indian Institute of Technology Mandi, Kamand invites online Bids for supply, erection, installation, commissioning, testing, demonstration and training of “**Inductively-Coupled Plasma Mass Spectrometry (ICP-MS) System**” as per specifications given in the Annexure attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the CPP Portal (<http://eprocure.gov.in/eprocure/app>) & Institute website <http://iitmandi.ac.in/administration/tenderseoi.php>.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, IIT Mandi, Kamand reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

Instruction to bidder:

1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender publishing on the CPP Portal.
2. Bidder should take into account any corrigendum published on the tender document before submitting their bids.
3. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
4. The tenders will be received online through portal <http://eprocure.gov.in/eprocure/app>. In the Technical Bids, the bidders are required to upload all the documents in .pdf format. All quotation (**both Technical and Financial should be submitted in the E-procurement portal**).
5. Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through <http://eprocure.gov.in/eprocure/app>. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <https://eprocure.gov.in/eprocure/app> under the link “Information about DSC”.

Instruction for Preparation & Submission of bids:

1. Technical should be submitted in PDF format & Financial Bids should be submitted in Excel format.
2. **In case of Financial bids**, a standard BOQ format has been provided in Excel format. Bidders are required to download the BoQ Excel file and fill their financial offer on the same BOQ format. After filling the same, submit it online in Excel format, without changing the financial template format. However, if bidder wants to modify in its financial offer, then bidder can modify.
3. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF formats. Bid documents may be scanned with 100 dpi with black and white option.
4. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
5. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
6. **Kindly add scanned PDF of all relevant documents in a single PDF file like, compliance sheet, OEM/Principle Certificate etc.**
7. Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
8. Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
9. The technical and financial bids should be submitted online through portal <http://eprocure.gov.in/eprocure/app> in original. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
10. Each bidder should be marked with the following reference on the top bids submitted online: **“IITMANDI/S&P/PUR-47/2020-21/1286-87/Inductively-Coupled Plasma Mass Spectrometry (ICP-MS) System, dated 02nd July, 2020”**.
11. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance in .pdf format.
12. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are

cuttings, they should be duly initialed, failing which the bids are liable to be rejected.

13. **Tender Cost:** The bidder should submit a demand draft of **Rs. 1,180 (Tender Fee inclusive GST) in Words Rupees One Thousand One Hundred & Eighty only** towards non-refundable **tender fee, drawn in favour of “The Registrar, IIT Mandi”** payable at Mandi in a sealed envelope super-scribed as **“Tender fee & NIT No. IITMANDI/S&P/PUR-47/2020-21/1286-87/Inductively-Coupled Plasma Mass Spectrometry (ICP-MS) System, dated 02nd July, 2020”** on or before last date & time of submission of bids. **In the absence of tender fee, bids for evaluation shall not be accepted. NSIC/MSME exemption certificate shall be considered only against EMD (detail as mentioned in S.No.15).**

14. **Earnest Money Deposit (EMD):**

Bidder should furnish an EMD of a refundable amount of **Rs 2,20,000/-** in the shape of Demand Draft and FDR from a scheduled bank in India drawn in favour of **“The Registrar, IIT Mandi” payable at Mandi**. This EMD should be submitted in sealed envelop super-scribed as EMD & NIT No. **“IITMANDI/S&P/PUR-47/2020-21/1286-87/Inductively-Coupled Plasma Mass Spectrometry (ICP-MS) System, dated 02nd July, 2020”**. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. **Failure to deposit Earnest Money will lead to rejection of tender.** In the event of the awardee bidder backing out, EMD of that bidder will be forfeited.

- **To return FDR in original, bidder must submit its valid address as an address proof on its letterhead.**
- **Note: Both (tender fee & EMD) envelops should be placed in another sealed envelope and address to:**

**“Assistant Registrar, Stores and Purchase”
Indian Institute of Technology Mandi (IIT Mandi),
S & P Section, 2nd Floor, A7 Building, South Campus,
Kamand – 175 075, Distt. – Mandi (H.P), India”**

This envelop having tender fee & EMD should reach on or before last date time of submission of bid.

15. **EMD Exemption:**

The Institute may accept bids without EMD from those bidders who are registered with the Central Purchase Organization, National Small Industries Corporation (NSIC) or the concern Ministry or Department **as Manufacturer**. To claim the exemption, the bidder must be offering goods manufactured by themselves. Exemption will not be granted in case the bidder is acting as an agent for some other vendor.

General Terms & Condition:

1. While sending rates, the firm shall give an undertaking to the effect that ***“the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.”*** in .pdf format. In case the firms do not give this undertaking, their rates will not be considered.
2. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should submit in .pdf format.
3. The quantity shown against the item is approximate and may vary as per demand of the Institute at the time of placing order.
4. Any bids received after **03:00 P.M. on 23rd July, 2020**, shall not be considered
5. The Technical Bids will be opened on **24th July, 2020 at 03:00 P.M.** The date & time for opening of Financial Bids will be informed later on to the technically qualified bidders.
6. The tenders will be received online through portal <http://eprocure.gov.in/eprocure/app>. All tender documents received after the specified date and time shall not be considered.

For any correspondence regarding tenders is on below address:

**“Assistant Registrar, Stores and Purchase”
Indian Institute of Technology Mandi (IIT Mandi),
S & P Section, 2nd Floor, A7 Building, South Campus,
Kamand – 175 075, Distt. – Mandi (H.P), India”**

7. **Arbitration Clause:** In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, IIT Mandi”, Kamand who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act,1996. The decision of the arbitrator shall be final and binding on both the parties.
 - a) In case of a dispute between the purchaser and a foreign supplier, the dispute shall be settled by arbitration in accordance with provision of sub-clause above. But if this is not acceptable to the supplier then dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.
 - b) The venue of the arbitration shall be the place from where the order is issued.

- c) The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
- d) All disputes shall be subject to Mandi Jurisdiction only.
8. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tenderer shall be summarily rejected.
9. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Note: Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee. Information in this regard will be intimated only to the technically qualified bidders. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

10. **Clarifications:**

In case the bidders requires any clarification regarding the tender document, they are requested to submit their queries on the e-mail i.e. sayantan@iitmandi.ac.in, amrcoffice@iitmandi.ac.in & arsp@iitmandi.ac.in on or **before 18.07.2020**.

11. **Assistance To Bidders:** Any queries relating to the tender document and the terms & conditions contained therein should be addressed to tender Inviting Authority for a tender or relevant contact person indicated in the tender.

12. **Pre – Qualification Criteria:**

- Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- OEM should be internationally reputed Branded Company.
- Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid.
- The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only

tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.

- **In the tender, either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.**
- **If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf another Principal/OEM in the same tender for the same item/product.**
- **Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

13. Prices:

Note: Bidder must quote financial bids in INR if Foreign Firm is quoting either through Their Existence in India or through their Indian Agent. Such Bids not Received in INR Shall Not be considered for further Evaluation.

- The Prices quoted should be inclusive of basic price of an item, custom duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi/Kamand). IIT Mandi is registered with DSIR, Govt. of India and is exempted from Custom /GST Exemption Certificate to this effect will be issued by IIT Mandi. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. Nothing extra shall be paid on any account.
- **In case of imports/foreign supplier, the price should be quoted on ex-work price/FOB/FCA basis only. Under special circumstance (e.g. perishable chemicals), when the item is imported on CIP/CIF, please indicate CIF/CIP charges separately upto Delhi indicating the mode of shipment. IIT Mandi will make necessary arrangements for the clearance of imported goods at the Airport/Seaport.**
- In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. **IAC shall be paid after satisfactory installation & commissioning of the goods at the destination.** For imported equipment, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.
- **In case of indigenous item, the vendor should clearly mention the final FOR IIT Mandi, Kamand Campus Price, as applicable in their bid.**

14. **Validity:**

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

15. **Delivery:**

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 4-6 weeks of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipments or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

16. **Installation, Training & Demonstration:**

Bidders need to provide adequate training to the nominated persons of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure. The supplier is required to done the installation and demonstration of the equipment within **15 days** of arrival of materials at the IIT Mandi site of installation, otherwise the penalty clause will be the same as per the supply of material.

In case of any mishappening/damage to equipment and suppliers during the carriage of suppliers from the origin of equipment to the installation site, the supplier has to replace to it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. IIT Mandi will not be liable to any type of losses in any form.

17. **Insurance:** For delivery of goods at the purchaser's premises, the Insurance shall be obtained by the supplier on "**All Risk**" basis. The insurance shall be valid for a period of not less than 3 months after installation and commissioning. **In case of order placed on FOB/FCA basis, the purchaser shall arrange insurance. If order placed on CIF/CIP basis, the insurance should be up to New Delhi, the supplier shall arrange insurance.**

18. **Warranty Declaration:**

Bidders must give the comprehensive on-site warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *"everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.*

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction/specifications specified in the order / contract and demonstrate at their own cost.

- The Purchaser Shall Promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately within **Two weeks** arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie to the Purchaser for the replacement parts/goods thereafter. The period for correction of defects in the warranty period is **Two week**. If the supplier having been notified fails to remedy the defects within **Two week**, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses without prejudice to any other rights, which the purchase may have against supplier under the contract.
 - The warranty period should be clearly mentioned. The maintenance charges (AMC) under different schemes after the expiry of the warranty should also be mentioned. The comprehensive warranty will commence from the date of the satisfactory installation/commissioning of the equipment against the defect of any manufacturing, workmanship and poor quality of the components.
 - After the warranty period is over, Annual Maintenance Contract (AMC)/Comprehensive Maintenance Contract (CMC) should be started. The AMC/CMC Charges will not be included in computing the total cost of the equipment.
19. **Performance Bank Guarantee:** A performance bank guarantee from a scheduled bank in India for an amount equal to 10% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.
20. **Terms of Payment:** Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. **This must be specified in the tender/quotation.**
- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80 % of the money will be released on submission of shipping of documents. Remaining 20 % will be released after successful installation of the instrument and submission of a performance bank guarantee for 10% of the order value from scheduled bank in India, valid for 2 months beyond the expiry of the warranty.

All the bank charges within India will be borne by the Institute and outside India will be borne by the Supplier.

- In case of required item quoted in INR, 80% payment will be made through E-payment after receipt of material in good condition and Remaining 20% will be released on successful installation of the instrument and on submission of a performance bank guarantee for 10% of the order value from scheduled bank in India, valid for 2 months beyond the expiry of the warranty.

21. **Tender expenses and documents:** All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.

22. **Tender Evaluation Criteria:** The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.

23. **Return of EMD:**

- The earnest money of unsuccessful bidders will be returned to them without any interest within 15 working days after awarding the contract.
- The earnest money of the successful bidder will be returned to them without any interest within 15 Days after supply of material.

24. **Manual and documentation:** All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.

25. The IIT Mandi reserves the right to cancel the tender at any stage (point of time) without assigning any reason.

26. Bidders should go through the tender terms, conditions and specifications carefully and fill in the attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

Sd/-
**Assistant Registrar
Stores & Purchase**

BID PARTICULARS

1. Name of the Supplier :

2. Address of the Supplier :

3. Availability of demonstration of equipment : Yes / No

4. Tender cost enclosed: : Yes/No if yes

D.D. No. _____ Bank _____ Amount _____

5. EMD enclosed : Yes / No if Yes

D.D. No. _____ Bank _____

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry.

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web :

< Organization Letter Head >>
DECLARATION SHEET

We, _____ hereby certify that all the information and data furnished by our organization with regard to this tender specification are true and complete to the best of our knowledge. I have gone through the specification, conditions and stipulations in details and agree to comply with the requirements and intent of specification. This is certified that our organization has been authorized (Copy attached) by the OEM to participate in Tender. We further certified that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, OEM has agreed to support on regular basis with technology / product updates and extend support for the warranty.

We, further specifically certify that our organization has not been Black Listed/De Listed or put to any Holiday by any Institutional Agency/ Govt. Department/ Public Sector Undertaking in the last three years.	NAME & ADDRESS OF THE Vendor/ Manufacturer / Agent
1 Phone	
2 Fax	
3 E - mail	
4 Contact Person Name	
5 Mobile Number	
6 TIN Number	
7 PAN Number	
8 GST No.	
9 Kindly provide bank details of the bidder in the following format:	
a) Name of the Bank	
b) Account Number	
c) Kindly attach scanned copy of one Cheque book page to enable us to return the EMD to unsuccessful bidder	

Ref:-ENQUIRYNO:- IITMANDI/S&P/PUR-47/2020-21/1286-87/Inductively-Coupled Plasma Mass Spectrometry (ICP-MS) System, dated 02nd July, 2020.

Technical Specifications of Inductively-coupled Plasma Mass Spectrometry (ICP-MS) system at the Advanced Materials Research Centre, IIT Mandi.

Qty.: 01 Set

Purpose and general requirements: The ICP-MS system should be capable of analyzing major, minor, trace and ultra-trace levels of multi-elemental/isotopic concentrations in a single run in a variety of matrices; for example: environmental (soil, rock, sediment, sludge, ash, aerosol, water, wastewater, etc.), chemical (catalysts, metal nanoparticles, polymers, oils, plastics, etc.), biological, and engineered material samples, among others. The system should be capable of time-resolved analysis for single nanoparticle applications, and should possess the ability for speciation analysis (As, Cr, Hg, Se, etc.) using a coupled liquid chromatography (LC) unit. A microwave digestion system capable of sample preparation with acid mixtures using programmable pressure-temperature ramping should be supplied with the ICP-MS system. The system should be supplied with all peripherals, and model numbers of the equipment/additional units should be clearly mentioned. **In terms of technical specifications, better and higher specifications will be given preference.**

1) Technical specifications:

Sl. No.	Feature	Requirement
1	Basic design	Latest technology bench-top quadrupole ICP-MS with collision/reaction cell for removal of interferences. The system should have built-in features of hardware and software compatible with components such as a liquid chromatography (LC) unit for speciation studies.
2	Sample introduction system	<ul style="list-style-type: none"> • Concentric nebulizer that should be able to connect to an autosampler and port for Argon dilution. • Low-pulsation, high-precision 10-12 roller multi-channel (minimum: 03) peristaltic pump.

		<ul style="list-style-type: none"> • Integrated Peltier-cooled spray chamber (-5°C to +20°C or better). • Integrated software-controlled Argon and/or liquid dilution system with 25-fold or more dilution factor. Dilution should be fully automated and software-controlled without any manual intervention. • Online internal standard kit with splitter and tubing set. • Sample introduction system should be able to handle complex matrices containing high total dissolved solids with direct sample aspiration. Required accessories should be included.
3	Plasma and torch setup	<ul style="list-style-type: none"> • Solid-state RF Generator: 27/40 MHz • RF power range: 500-1600 W or better • One-piece user-changeable quartz torch with alignment: X, Y, Z automatic and computer controlled • Should have at least 04 mass flow controllers (MFC) for control plasma, auxiliary makeup, carrier gas and makeup/dilution gas.
4	Interface	<ul style="list-style-type: none"> • Ni sampling cone with easy access to the interface region for maintenance. • Ni skimmer cone with minimal matrix condensation and good tolerance to high-matrix samples. • The ICP-MS system must have a single cone interface to achieve all instrument guaranteed performance specifications without any manual intervention or changeover for high matrix, high sensitivity and high TDS samples. • Ion lens: off-axis or other suitably designed ion lens in order to provide high ion transmission and low backgrounds.
5	Collision/Reaction Cell	<ul style="list-style-type: none"> • Capable of operating in standard, collision and reaction modes (pure or pre-mixed gas).

		<ul style="list-style-type: none"> • Should be able to remove polyatomic interferences as per national and international regulations. Kinetic energy discrimination (KED) facility must be available to remove interferences. • Fully automated and software-controlled changeover between standard, collision and reaction modes without any manual intervention. • Separate gas lines along with dedicated MFC for collision and reaction gases. Suitable collision/reaction gases should be offered to satisfy aforementioned applications and to comply with national and international regulations.
6	Mass analyzer and detector	<ul style="list-style-type: none"> • Quadrupole based, RF 2 MHz or higher. • Mass range: 5-260 amu or better. • True linear dynamic range: 10 orders of magnitude (0.1 cps to 10^9 cps) or better. • Mass scan speed: 3000 amu/s or better • Dwell time: 3 ms or better
7	Guaranteed performance specifications	<ul style="list-style-type: none"> • Detection Limits: <ul style="list-style-type: none"> • Low mass (Be/Li): ≤ 0.5 ppt • Mid mass (Y/In): ≤ 0.1 ppt • High Mass (Tl/Bi): ≤ 0.1 ppt • Sensitivity: <ul style="list-style-type: none"> • Low mass (Be/Li): ≥ 50 Mcps/mg/L • Mid Mass (In/Y): ≥ 150 Mcps/mg/L • High Mass (Tl/Bi): ≥ 80 Mcps/mg/L • Oxide ratio (CeO^+/Ce^+): $< 2\%$ • Isotope-ratio precision: Ag: 0.2% RSD or better • Mass resolution (5-260 amu): variable from 0.4 u to 1.0 u or better • Background noise (no gas mode): < 1 cps

		<ul style="list-style-type: none"> • Abundance sensitivity at Cs (low mass side and high mass side): 5×10^{-7} and 1×10^{-7} or 0.5 ppm (L, H) or better.
8	Vacuum system	<ul style="list-style-type: none"> • Suitable turbo molecular pump, corrosion resistant and protected. • Vacuum should be maintained even in case of a power failure or the system should be backfilled with inert gas to prevent damage to collision/reaction cell and quadrupole.
9	Software	<ul style="list-style-type: none"> • Original licensed copy of software to be provided. • Windows-based software (compatible with the latest versions of Windows) with free lifetime upgradation • Availability of method templates • Should be able to control all accessories of the ICP-MS system including autosampler • The system software should support the following calibration curve fit modes for quantitative analysis: linear least squares, weighted linear least squares, linear forced-through-zero least squares, quadratic, and method of standard additions (matrix-matched calibration). Software should be able to perform automated optimization of cell gas flow and single software control for ICPMS and LC for speciation studies.
10	Liquid chromatography (LC) unit for speciation studies	<ul style="list-style-type: none"> • Liquid chromatography (LC) unit for speciation: Fully automated LC-ICP-MS operation for speciation studies for As, Cr, Hg and Se. The LC unit should consist of a quaternary gradient, high-performance liquid chromatography (HPLC) pump (800 bar or more) with integrated degasser, autosampler (≥ 100 vials), and column oven. Standards and columns for speciation analysis of As, Cr, Hg and Se should be provided. The chromatography software module should be integrated within the ICP-MS software and should provide real-time

		<p>status information on all vital analytical parameters for both the ICP-MS and the HPLC system.</p> <ul style="list-style-type: none"> • Additional consumables: vial and cap 1000 Nos. (02 Sets), PEEK tubing 5 m (04 sets), PFT frit (20 Nos.), glass mobile phase filter (04 sets), rotor seal (02 sets), pump seal (02 sets), needle (02 sets), and needle sheet (02 Nos.).
11	Microwave digestion system for sample preparation	<ul style="list-style-type: none"> • Microwave digestion system: capable of digesting inorganic/organic samples including metals, alloys, geological samples, glass, quartz, ceramics, ashes, plastics, electronic products, fibers, oils, waxes, coal, coal ash, soil, sediment, sludge, aerosol, water and wastewater, biological samples, pharmaceuticals, chemicals, etc. The system should have 14 or more vessel rotor, microwave power ≥ 1600 W, vessel volume: ≥ 80 ml, maximum operating temperature: $\geq 240^{\circ}\text{C}$ (designed temperature $\geq 300^{\circ}\text{C}$), maximum operating pressure: ≥ 50 bar (designed pressure ≥ 100 bar), IR/contactless temperature sensor for temperature monitoring of each vessel, integrated keypad/touch screen control, pressure-activated venting, chemical- (especially, acid) and corrosion-resistant cavity chamber and vessels, TFM/PTFE vessels, flexibility in terms of customized method creation, compliance with international safety standards, and method compliance with US EPA 3052, US EPA 3051A, ASTM D4309-96, ASTM D-5765, ASTM D-6010-96. • Additional consumables: vessel cover (20 sets), vessel spring (20 sets), and vessel liners (05 sets).
12	Other accessories	<ul style="list-style-type: none"> • Autosampler: ≥ 200 vials capacity, completely sealed/covered enclosure. Microplate/wellplate autosampler accessories for micro-volume sample analysis, i.e., 700-800 μL or better.

		<ul style="list-style-type: none"> • Separate complete HF resistant kit including PFA nebulizer, PFA spray chamber, torch, Pt injector, Pt cones should be included. • NIST calibration standards 22/23 elements including U and Th (1000 ppm, 250 ml and 100 ppm, 250 ml). Single element (10 ppm, 200 ml) standards for Hg, As, Cr and Se. • Single nanoparticle module including software for estimation of number of particles, concentration, particle size, and particle size distribution. • PC and Printer: i7 PC with 16 GB RAM, 1 TB hard disk, two 24 inch TFT/LED monitors or factory-configured workstation with equivalent specifications, along with antivirus, MS office, and ICP-MS software. A compatible multi-function color laser printer with scanning ability should be included.
13	Items for installation requirement	<ul style="list-style-type: none"> • All necessary pre-installation requisites/consumables including chemicals, acids, gases and standards for complete installation and demonstration of the instrument need to be supplied. • Gas cylinders with regulators (minimum number of cylinders required are mentioned here): Argon - 08 Nos., Helium - 02 Nos., Nitrogen: 02 nos., reaction gas cylinders: Methane/Oxygen/Hydrogen – 02 Nos. as per system requirement to comply with all applications and regulations. Gas Panel as per requirement and suitable 30 KVA online UPS with 60 min backup. Manifold with four cylinder capacity for Argon. Gas line installation. • Suitable exhaust fume hood assembly for both ICP-MS and microwave digestion system. • Compact and low-noise chiller unit(s) as per manufacturer's recommendation. • Inorganic speciation standards and columns for As, Cr, Hg and Se.

		<ul style="list-style-type: none"> • Auto-tuning standards. • Single nanoparticle standards for Au and Ag (three concentrations each) • ICP-MS Grade Suprapure acids and chemicals: 5L Nitric acid, 5L Hydrochloric acid, 2L Hydrogen Peroxide, 4L Hydrofluoric acid. • A suitable granite-top table for ICP-MS, LC unit and desktop. A separate suitable granite-top table for the microwave digestion system. • 1.5 Ton split air conditioning units with 3-star or above energy rating (2 units).
14	Consumables (each line item and required quantity should be quoted along with OEM part numbers)	<ul style="list-style-type: none"> • Ni sampler, skimmer and hyper skimmers with all inserts (02 sets) (sample, skimmer and/or hyper skimmer cone). • Pt sampler, skimmer and hyper skimmers with all inserts (02 sets) (sample, skimmer and/or hyper skimmer cone). • Standard injector and torch - 03 Nos. • Standard spray chamber - 01 Set • Standard peristaltic pump tubing for drain – 150 Nos. • Standard Peristaltic pump tubing for samples – 150 Nos. • Peristaltic pump tubing for ISTD – 100 Nos. • Tubing autosampler to peristaltic pump – 25 Nos. • PFA/Inert sample and rinse tubing - 02 sets • Oil element for outlet mist filter - 02 sets • Replacement cartridge for oil mist filter for rotary pump - 02 sets • Graphite gasket for sampling cone - 15 Nos. • Sample tubing for nebulizer, 0.5 mm id – 20 sets • Tubing for spray chamber drain - 10 m • Pump oil (1L) - 08 sets • RF coil - 03 sets

		<ul style="list-style-type: none"> • Screw, spacer and O-ring for cell - 02 sets • Fluid filter for chiller - 02 sets • Fluid for chiller - 07 L • Cone cleaning solvent - 04 L • Swab (cotton-tipped both ends) - 200 Nos. • Alumina Powder 100 g - 02 sets • Autosampler vials - 2000 Nos. • Standard autosampler probe and complete tubing set - 02 sets
15	Warranty	<p>Five years of comprehensive warranty from the date of installation without any additional cost to the purchaser. The warranty should cover ICP-MS, LC unit, microwave digestion system, UPS, fume hood, and other items including all accessories and spare parts. All accessories/spare parts replaced shall be from OEM/supplier of same model or higher version. If within a period of 5 years after commission, any accessory/spare part is proved to be defective then such product shall be replaced by the manufacturer/supplier. Such replacement shall be sole obligation of the manufacturer/supplier, including payment of charges for freight delivery, custom duty and transportation, if any. In case of breakdown during the warranty period, a competent Service Engineer of the supplier should make as many visits as are required to rectify the problem and replace the faulty parts, without any liability of cost. Service response time must be within 3-5 working days for small issues and within 10-14 working days for major breakdown/hardware changeover; otherwise, the warranty period shall automatically be extended by the time taken to rectify the defects. Also, two maintenance visits every year (within the warranty period) by authorized service engineers are required. Annual calibration of the equipment shall be a part of the</p>

		warranty. It shall also be mandatory to perform calibration after every major repair/breakdown.
16	Training	The supplier must provide one-week comprehensive training on operation, application and maintenance of the instrument after installation at IIT Mandi.

2) Non-technical requirements:

Sl. No.	Category	Criteria
1	Others	<ul style="list-style-type: none"> • The supplier must have sold, installed and provided support for 05 LC-ICP-MS systems across India. A list with corresponding details must be provided. • Specifications claimed must be supported by published OEM literature/document from the company. • The supplier of the instrument must confirm in writing that spares for the entire instrument (including additional units and accessories) will be available for at least a period 10 years after the model of equipment supplied has been phased out. For frequently required spares, there should be adequate inventory available with the Indian agency of the company. • Supplier must have proven capability and trained manpower to troubleshoot equipment both in terms of hardware and software. • Bidders must furnish documentary evidence (client's certificate) in support of satisfactory operation of the instrument. • Suitable and essential tool kit is to be supplied with the instrument for required maintenance. • Accessories that are needed for the operation of the instrument, but not mentioned in the Technical Specifications list, must be quoted by the vendor.

		<ul style="list-style-type: none">• The instrument should be installed and commissioned at site. Site requirements must be provided by the supplier. Complete technical details of pre-installation requirements should be furnished along with the technical bid. IIT Mandi will only provide the installation room and required electrical outlets. Vendor must supply all other infrastructure accessories, facilities and services required for successful installation and operation of the instrument. Vendor may conduct site survey prior to installation at no additional cost to IIT Mandi.• If shifting of the instrument elsewhere within IIT Mandi premises is required in the future, the vendor must do so free of cost including dismounting, packing, moving, unpacking, re-installation and commissioning of the system with test runs. Damage during the shifting process, if any, will be the liability of the vendor.• The vendor should quote complete instrument, accessories, and consumables only in Indian Rupees FOR IIT Mandi.
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**COMPLIANCE STATEMENT FOR THE TENDER SPECIFICATION
INDIAN INSTITUTE OF TECHNOLOGY MANDI
SOUTH CAMPUS, KAMAND – 175 075, DISTRICT – MANDI, HIMACHAL PRADESH**

Ref:- ENQUIRYNO:- IITMANDI/S&P/PUR-47/2020-21/1286-87/Inductively-Coupled Plasma Mass Spectrometry (ICP-MS) System, dated 02nd July, 2020.

Sr. No.	Check list of documents/ Undertakings?	YES/ NO	Remarks (Give explanation if answer is No)
1	Is Tender fees attached?		
2	Is EMD attached? (if applicable)		
3	Is the bidder original equipment manufacturer (OEM)/authorised dealer?		
4	If authorised dealer, recent dated Certificate to this effect from OEM, attached or not?		
5	Undertaking from OEM regarding technical support & extended warranty period		
6	Validity of 180 days or not?		
7	Undertaking from bidder regarding acceptance of tender terms & conditions		
8	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached.		
9	Whether special educational discount for Indian Institute of Technology (IIT) Mandi (H.P) given.		
10	Whether training of operator and research students without any charges offered.		
11	Does the instrument comply with all the required specifications as per annexure 1. IMPORTANT: Attach a separate sheet highlighting compliances with the specifications and explanations thereto if the equipments vary from the requested specifications.		
12	Whether free Installation, Commissioning and Application Training offered.		
13	Whether warranty as per requirement offered		
14	Whether Annual maintenance after expiry of comprehensive onsite warranty quoted separately as optional.		