

**Notice Inviting Open Tender for Procurement of FT-IR spectrophotometer at the Indian Institute of Science, Bangalore**

(Tender from Domestic Vendor and Suppliers)

**Bids are invited from domestic OEM / authorized distributor of domestic OEM**

(Last date of Submission 6<sup>th</sup> June 2022)

Date: 14<sup>th</sup> May 2022

Dear Sir/Madam:

Please send your tender documents valid for 180 days from the actual date of opening the technical bid, for the supply of equipment described below. Your documents/quotation should clearly indicate the terms and conditions of the quotations, delivery schedule, entry tax, payment terms, warranty coverage etc. The tender should be submitted in two separate sealed envelopes – one containing the “Technical bid” and other containing the “Commercial bid”, both of which should be duly signed and must reach the undersigned on or before 17:00 hours 6<sup>th</sup> June 2022.

The Chairman  
Civil Engineering Department  
Indian Institute of Science,  
Bangalore 560012,  
Karnataka, India.  
Attn: D Nagesh Kumar

## **Section 2 - Eligibility Criteria:**

With respect to this tender, the rules laid out by the Government of India in order No. P-45021/2/2017-PP (BE-II) issued by the Public Procurement Section, Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 16<sup>th</sup> September 2020, will be followed. Per this order, only Class-I and Class-II local suppliers as defined below are eligible to participate in this open domestic tender. Non-local suppliers are ineligible to participate in this tender.

Relevant definitions as per Government of India order:

- Class-I local supplier - a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%
- Class-II local supplier - a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%.
- Non-local supplier - a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%.
- Local content – the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, in percent.

Only Local Suppliers are eligible to participate in the bid. The bidders must go through the Government of India order stated above and follow all the rules and regulations therein. The covering letter Should clearly indicate whether the vendor is a Class I or class II local supplier failing which the vendor will automatically be disqualified.

### **SECTION 3 – Technical Specifications**

FT-IR (Fourier Transform – InfraRed) spectrophotometer covering the 8000 cm<sup>-1</sup> – 350 cm<sup>-1</sup> Spectral Range for rapid and accurate testing of soil properties in laboratory.

A. Main Instrument Specifications (the specifications stated are minimum required, a better specification is desirable).

SI No	Description	Specification (Minimum)
1	Optics	a) The optical bench should be sealed and desiccated. It should also be purgeable with inert gas. b) An internal attenuator wheel with minimum 4 positions must be available to prevent the saturation of detectors. c) The FT-IR should have at least 2 input beam ports and 3 output beam ports for upgrade.
2	Spectral Range	8000 cm <sup>-1</sup> – 350 cm <sup>-1</sup> The spectral range must be in future optionally expandable to Far IR range till 30 cm <sup>-1</sup> and visible region till 25000 cm <sup>-1</sup>
3	Spectral Resolution	Better than 0.2 cm <sup>-1</sup> under standard measurement conditions
4	Wavenumber Accuracy	Better than 0.005 cm <sup>-1</sup>
5	Photometric Accuracy	Better than 0.1 % in transmission mode
6	Signal to Noise ratio	60,000:1 peak to peak in 60 seconds or better
7	Sources Required	Suitable IR sources of high quality, high performance and longer life should be supplied to cover the 8000 cm <sup>-1</sup> – 350 cm <sup>-1</sup> spectral range. Source must be electronically stabilized for highest precision and long lifetime, air cooled.
8	Detectors	Deuterated TriGlycine Sulphate (DTGS) detector with high sensitivity in the spectral range of 8000 cm <sup>-1</sup> to 350 cm <sup>-1</sup>
9	Beam splitter	KBr beamsplitter
10	Interferometer	Permanently aligned, wear-free and stable interferometer with velocities ranging from 1.6 - 80 kHz for the movable mirror. Interferometer types creating abrasion or dust (graphite or ball bearings) are not acceptable since they will get stuck and/or misalign over time.
11	Measurement modes	Diffuse reflectance measurements. Software controlled repeated scans should be possible. The basic spectrometer should also allow for time resolved measurements with a rate of at least 15 spectra/second at 8 cm <sup>-1</sup> spectral resolution and should have in future possibility to upgrade rapid scan option of 50 spectra/second at 8 cm <sup>-1</sup> .

12	Microplate Reader	<p>Microplate reader for automated IR spectroscopic analysis of large sample numbers of minimum 96 well plate should be provided. Microplate reader should be compatible to the supplied FTIR Spectrometer. Its optical design should allow sample measurements in diffuse reflectance mode utilizing the mid infrared spectral range of <math>8000\text{ cm}^{-1} - 350\text{ cm}^{-1}</math> and in future must be upgradable to transmission mode.</p> <p>The drawer of the IR microplate reader must be motorized. After placing the microplate in the drawer, the plate must be located automatically in the correct measurement position when the drawer moves into the module. The positioning of the well must be software controlled.</p> <p>Dedicated liquid nitrogen cooled mercury cadmium telluride (MCT) detector must be provided for Microplate reader.</p>
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Standard Items accompanying the Main Instrument: Must include basic accessories as:

1. Stainless steel micro spatula
2. Mortar and pestle
3. At least 5 dedicated Aluminium microplates (minimum of 96 no. of wells in a plate) for powder sample measurement.
4. Supporting frame for the well-plates

**B. Interface and software:**

1. The full process of data acquisition, data processing, data evaluation and visualization/documentation must be manageable by a workstation software appropriately interfaced to a PC using Windows Operating system. The software should also provide a range of pre-processing and validation options for multivariate analysis
2. A library of common materials, polymers and solvents must be included.
3. The software controlling the IR-microplate reader must perform the data acquisition, data control, data evaluation and documentation in a fully automated manner.
4. The software shall allow to set the positions for background and sample measurement according to user definition.
5. The software shall provide an option for interactive selection of individual positions and arrays on the microplate.
6. A branded computer with latest hardware configuration, all the required accessories and laser printer should be included.

**C. Electrical connectivity and UPS:** The instrument and all the accessories should be operational based on Indian standard electrical connectivity. Suitable UPS (at least 30 minutes power backup) be given as an optional item with a separate quote.

**D. Purging unit:** A Liquid Nitrogen Cryocan with at least 100L capacity to generate dry nitrogen by evaporation and compatible tubing to connect the spectrometer.

- E. Warranty: The complete system is to be under manufacturer's warranty for a minimum of 2 (two) years from the date of installation including any accessories and parts. Annual Maintenance Contract (AMC) for additional 3 (three) years must be included. (Quote separately).
- F. Upgrade possibility: The Instrument must have at least 2 input beam ports and 3 output beam ports for future upgradation with other accessories like TGA, FT-RAMAN, IR - Microscope, photoluminescence model and step scan option for time resolved spectroscopy down to 6 microseconds or better.
- G. Installation and training: Installation and training should be provided at the customer site. Installation requirement should be intimated in advance.

## **Section 4–Terms and Conditions:**

1. The tender document should be in English and be submitted in two bid system, i.e., Technical bid, and Commercial bid in two sealed envelopes with commercial or technical bid clearly indicated on the envelope. These two sealed envelopes should be placed within a larger envelope and “FT-IR spectrophotometer Bid – D Nagesh Kumar, Civil Engineering. Department” should be written on the outer envelope.
2. The technical bid must include all details of technical specifications of the instrument along with commercial terms and conditions masking only the price component. Bill of materials, brochures, technical datasheets, and any other document may be enclosed to help the evaluation of the technical bid. Please also include warranty terms and any other information on upgradation terms/extra accessories in the technical bid.
3. The technical bid must clearly state the specifications of the main instrument (A) along with the accompanying standard items and all other details including the warranty terms (B-G) as specified in section 3 of this document.
4. The commercial bid must include the base price of the instrument delivered in place and all components including accessories plus any additional GST component.
5. The commercial bid must indicate detailed component-wise and itemized price breakup and must include optional items/accessories.
6. Bidder should have well established own establishment. Enclose Company Registration Certificate, PAN, 3 years of audited balance sheets and turnover.
7. The covering letter in the technical bid should clearly mention whether the vendor is a Class I or Class II local supplier, failing which the vendor will be automatically disqualified.
8. In the technical bid include the complete details on all components of the main instrument and the accessories as to whether they are sourced locally or foreign made/imported along with the manufacturer and sourcing details.
9. The ‘Class-I local supplier/Class-II local supplier’ is required to indicate the percentage of local-content and provide self-certification that the item offered meets the local content requirement for ‘Class-I local supplier/Class-II local supplier’ as the case may be. They shall also give details of the location(s) at which the local value addition is made.
10. The vendor should provide detailed cost breakup for the Indian and foreign content of the bid in the commercial bid proving their status as a Class I or Class II local supplier. Vendors who do not provide such justification in the commercial bid will be automatically disqualified.
11. In case if there are any imported/foreign made components, the commercial bid must indicate procurement price from the manufacturer and any import duties incurred. IISc will not be responsible for any import duties.
12. The vendor should have a good track record of having previously supplied similar equipment in India or elsewhere in the world (Please furnish complete details including names and contact addresses). Reference letters may be sought by the committee to arrive at the decision.
13. The vendor should have qualified technical service personnel for the instrument based in Bengaluru.
14. Bidder should have executed at least three orders of similar instrument in India in the last 2 years. (Please provide copy of purchase orders and details).

15. The bidder should provide a list of national and international publication resulting from the data of the instrument.
16. The Bidder should not be currently blacklisted by any institution, bank in India or abroad (Please provide self-declaration).
17. No advance payment shall be made. Payment shall be made after completion of delivery and successful installation of equipment and acceptance of it by the Institute.
18. Agency commission (not encouraged) if any should be clearly mentioned and detailed in the commercial bid.
19. The lead time for the delivery of the equipment should not be more than two months from the date of receipt of purchase order and must be mentioned in the technical bid.
20. If the equipment or any parts/accessories are found to be defective, they have to be replaced or rectified at the cost of the supplier within 30 days from the date of receipt of written communication from us. If there is any delay in replacement or rectification, the warranty period needs to be extended by a year and/or face a penalty equal to the valuation of the equipment.
21. The technical bid will be opened first and evaluated.
22. Bidders meeting the required criteria as stated in Section 2 and 3 of these documents as well as the terms and conditions shall only be considered for Commercial Bid opening. Further, agencies not furnishing the documentary evidence as required will not be considered.
23. Following the opening of technical bid, a presentation may be sought from the bidder.
24. During the warranty period, the bidder shall be fully responsible for the manufacturer's warranty in respect of proper design, quality and workmanship of all the systems supplied. If there is any delay in replacement or rectification, the warranty period needs to be extended by a year and/or face a penalty equal to the valuation of the equipment.
25. During the warranty period, the bidder shall attend to all the hardware problems on site and shall replace the defective parts at no extra cost to the purchaser.
26. The Engineers of the parent manufacturer or bidding firm must install, demonstrate and provide the training on FT-IR spectrophotometer for two days at IISc, Bangalore without additional cost.
27. The bids should be valid for at least 90 days from the last date of submission of the quotation.
28. The price should be quoted in INR only. The cost should be inclusive of delivery till the IISc campus. Price offer must be on FOR-IISc Bangalore basis. Please note that IISc being a DSIR recognized research institution under GST notification no. 47/2017 and the items under this procurement is required for research purposes only, is eligible for reduced GST (5%). Please also include any available educational discounts in the commercial bid. IISc may issue the GST Exemption Certificate upon a formal request from the vendor along with a copy of invoice.
29. The decision of the purchase committee will be final.
30. IISc, Bangalore reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time period to award of construct without thereby incurring any liability of the affected bidder or bidders.
31. Tender documents that do not satisfy the "Terms and Conditions" listed herein will be disqualified.

32. The tender documents should be sent to the following address no later than 17:00 hours 6<sup>th</sup> June 2022.

The Chairman  
Civil Engineering Department  
Indian Institute of Science,  
Bangalore 560012  
Karnataka, India.  
Attn: D Nagesh Kumar