

**Request for Quote (RFQ) from domestic (India-based) manufacturers,  
Indian original equipment manufacturer or its authorized Indian distributor  
for procurement of quaternary gradient HPLC system with PDA detector**

**Summary**

Tender number:	OC/DPH/2021/HPLC
Tender date:	11 <sup>th</sup> August 2021
Item description:	Quaternary gradient HPLC system with PDA detector
Tender type:	Two bid system: Technical Bid (Part A) Commercial Bid (Part B)
Place of tender submission:	Office of the Chairman Department of Organic Chemistry Indian Institute of Science Bangalore 560012
Last date & time for Submission of tender:	25 <sup>th</sup> August 2021, 5:00 PM

Dear Sir/Madam,

This is a Request for Quote (RFQ) from domestic (India-based) manufacturers, Indian OEM, or its authorized Indian distributor only for procurement of quaternary gradient HPLC system with PDA detector at the Department of Organic Chemistry (OC), Indian Institute of Science, Bangalore.

All interested vendors shall submit a response demonstrating their capabilities to produce the requested equipment to the primary point of contact listed below.

With respect to this tender, the rules laid out by the Government of India in order No. P45021/2/2017-pp-BE-II issued by the Public Procurement Section, Department or Promotion of Industry and Internal Trade, Ministry of Commerce, and Industry, dated 4<sup>th</sup> June 2020, will be followed. As per this order, the government has defined a 'Class-I local supplier' as "a supplier or service provider whose goods, services or work offered for procurement, has local content equal to or more than 50%". A 'Class-II local supplier' is "a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%". Only Class-I and Class-II local suppliers are eligible to participate in this open domestic tender. Any "Non-local supplier," i.e., "a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%" is ineligible to participate in this tender.

The deadline for submission of proposals is 25<sup>th</sup> August 2021 by 5:00 PM. Proposals should arrive at:

Office of the Chairman  
Department of Organic Chemistry  
Indian Institute of Science  
Bangalore 560012  
India

Direct all questions concerning the acquisition to Dr. Durga Prasada Rao Hari by email only at: [dphari@iisc.ac.in](mailto:dphari@iisc.ac.in)

**General Terms and Conditions:**

1. Quote should come only from domestic (India-based) manufacturers, Indian original equipment manufacturer (OEM), or their authorized Indian distributor.
2. The bid should be submitted in the two-cover system, i.e., technical and commercial bids separately in sealed envelopes. The technical bid should contain all commercial terms and conditions, except the price.
3. The technical bid must contain a point-by-point technical compliance document. The technical proposal should include a compliance table that should explain your compliance in a "yes" or "no" response against each item in this RFQ. If the answer is "no," the second column should state the extent of the deviation. The third column should state the reason for the deviation if any. The fourth column can be used to compare your tool with that of your competitors or provide details as requested in the technical requirement below.
4. In the commercial bid, the price (in INR) should include delivery, installation, commissioning, and training (at least four users) at customer's location.
5. Provide certificates for the country origin of manufacturing for each line item. The price of every line item in the commercial bid should be quoted along with the total quoted price for the instrument to be operational (installed and ready to use) in our facility.
6. The covering letter should clearly state whether the vendor is a Class-I or Class-II local supplier. Failing this, the bid will be automatically rejected.

7. The vendor should state the percentage of the local content and provide self-certification that the item offered meets the minimum local content requirement. They should also give details of the location(s) at which the local value addition is made.
8. The lead time for the delivery of the equipment should not be more than three months from the date of receipt of our purchase order. It should be clearly mentioned in the technical and commercial bids.
9. All the quotations must be valid for at least 90 days at the time of submission.
10. The vendor should have supplied similar equipment in Central Universities, preferably in centrally Funded Technical Institutes (IITs, IISc, IISER, NIT). Please provide the details and contact information.
11. The vendor must not be blocked/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect should be provided.
12. Items in addition to that listed in the technical section that you would like to bring to our attention, such as datasheets, technical plots, etc., can be listed at the end of the compliance section.
13. Vendors are encouraged to highlight the advantage of their tools over comparable tools from the competitors.
14. If needed, a meeting for any technical clarifications can be scheduled with the undersigned by sending an email.
15. The Institute reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time before the award of contract without thereby incurring any liability of the affected bidder or bidders.
16. After the purchase order award, the vendor must provide an Order Acknowledgement within 30 days from the receipt of the Purchase Order.
17. Please quote the price of each optional line item separately. The quotations should be on for-IISc Bangalore basis in INR only.
18. The vendor should have a good track record of having previously supplied a minimum of 5 HPLCs in IISc and 50 or more HPLCs in Karnataka region and should be able to provide End User Certificates from at least five users.
19. If the goods 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.

**Service, Training, and Warranty:**

1. The vendor must have local dedicated Sales & Service team & Application lab in Karnataka.
2. The vendor must demonstrate that it has a proven appropriate set-up and capability to provide after-sales service efficiently and effectively. The supplier should have a similar system in his facility to that proposed in this tender for training purposes.
3. On-site installation, commissioning, and training shall be conducted by a qualified factory-trained engineer.
4. Support should be available from Monday to Friday, 8.30 am to 5.30 pm (excluding Public Holidays), local time.
5. A declaration of Conformity certificate and System Validation certificate must be provided. All modules must be GLP compliant.
6. Warranty terms and additional warranty options are must for all the components. Please specify the service plan, like whether the local distributor will address the issue or the parent company. Minimum three years of complete system warranty should be given. If the system

requires service during the warranty period, the vendor must guarantee or replace of instrument for free. Vendor to have logistic support to ensure that over at least 95% of the service parts are readily available and upkeep delivery within 24 hours.

7. Terms and conditions for the annual maintenance contract beyond the warranty period should be mentioned.

8. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended.

Technical requirements: Please note that the requirements listed below are only guidelines. Vendors are requested to quote for equipment that meets the criteria to the best extent possible and list deviations, if any. Deviations are NOT an automatic reason for disqualification. A technical group will discuss them before making an informed decision.

### **Technical Specifications:**

The HPLC system shall include the following individual stackable self-contained modules, and it must be controllable, monitored, capable of performing system maintenance using Microsoft Internet Explorer web browser. Modules must be connected via fiber-optic noise-resistant high-speed transmission technology to enhance the reliability and sensitivity of the HPLC.

### **Solvent Delivery System:**

- It must be a high-speed double micro-plunger in-parallel pump with an automatic pulsation correction mechanism achieving pulse-free solvent delivery.
- It should have a flow rate resolution of 3 nL/min.
- The flow rate should be settable between 0.001 to 10 mL/min from micro to semi-preparative flow rates without any hardware changes.
- Flow rate accuracy should be  $\pm 1\%$  or  $\pm 0.5 \mu\text{L}/\text{min}$  of the set value, whichever is larger.
- Flow rate precision must be less than  $\pm 0.06\%$  RSD.
- The pressure setting range should be  $>5500\text{psi}$  or better.
- Pressure pulsation must not exceed 0.3 bar (0.03MPa).
- The gradient formation should be produced through quaternary low-pressure gradient mixing.
- The precision of composition must be less than 0.1% RSD.
- It should employ active check valves that allow stable delivery of even non-polar organic solvents such as hexane.
- Automatic rinsing of plunger must be available.
- It should be capable of standalone operation.
- It must have a leak sensor as a safety feature.
- It should have functions for maintenance and validation, which are accessible by a dedicated operation button.
- The vendor should supply five solvent bottles with caps.

### **Degassing Unit**

- Membrane degassing unit for 5 flow lines.
- Maximum operating flow rate up to 20 mL/min per-flow line.
- An internal capacity of 380  $\mu\text{L}$  per-flow line should be available to decrease the time required for replacing mobile phases and stabilization.
- It must have a leak sensor as a safety feature.
- Error status should be transferrable to the operating software.

- It should include a drain pan.
- A self-cleaning capability that extends vacuum pump life by drawing in air when the pump is running.
- The liquid contact surfaces of the degasser should employ special synthetic polymers designed for all solvents.

#### **Autosampler:**

- Sample injection volume should be variable between 0.1  $\mu\text{L}$  to 100  $\mu\text{L}$ .
- The injection system should be a variable injection volume type with zero sample loss during the injection.
- It must be capable of a fast injection time of 10sec/sample.
- The number of samples to be processed automatically, random access up to 70 positions for 1.5 mL.
- Flowline rinse capability both before and after sampling should be possible.
- Needle aspiration speed should be variable from 0.1 to 15  $\mu\text{L}/\text{sec}$ .
- Rinse aspiration rate should be variable from 1 to 35  $\mu\text{L}/\text{sec}$ .
- Injection volume accuracy within 1%.
- The injection precision should be less than 0.3% of the RSD value.
- It should have a leak sensor, automatic rack, and vial recognition as safety features.
- It should have functions for maintenance and validation, which are accessible by a dedicated operation button.
- It should be capable of coupling to an automatic rack changer in the future for high throughput analysis.
- Supply of at least 100 sample vials of 1.5 mL capacity, complete with caps and septa, should be included.
- The Autosampler should have a cooling/heating option to maintain the temperature 4  $^{\circ}\text{C}$  to 40  $^{\circ}\text{C}$ .
- It must be capable of a carry-over of no more than 0.0025%.

#### **Column Oven:**

- It should be a block heating type for uniform temperature distribution with a quick feedback mechanism to maintain a constant temperature even when power source voltage fluctuates.
- The temperature range should be from – 15  $^{\circ}\text{C}$  to + 60  $^{\circ}\text{C}$ .
- Temperature control precision should be  $\pm 0.1$   $^{\circ}\text{C}$ .
- The oven should have a temperature limit device and temperature fuse, and a solvent leak sensor.
- It should have functions for maintenance and validation, which are accessible by a dedicated operation button.
- Capable of complex temperature programming in linear and step programs.
- It should have built-in slots for valve control functions.
- It should be able to handle up to 2 x 25 cm columns.

#### **Columns:**

The vendor should provide the following columns along with the HPLC system.

- One 250 mm x 4.6 mm 5-micron C-18 column
- One 150 mm x 4.6 mm 3-micron C-18 column
- One CHIRALPAK IA, Analytical 150 x 4.6 mm, 5  $\mu\text{m}$

- One CHIRALPAK IB, Analytical 150 x 4.6 mm, 5  $\mu\text{m}$
- One CHIRALPAK IC, Analytical 150 x 4.6 mm, 5  $\mu\text{m}$

**HPLC microliter syringes:**

- Two 25  $\mu\text{L}$
- One 100  $\mu\text{L}$

**Photodiode Array Detector (PDA):**

- The wavelength range should be 190 nm - 800 nm with 1024 Elements.
- Device resolution should be at 0.6 nm/device.
- The flow cell must be temperature controlled from 19 °C to 50 °C.
- A conventional flow cell [10  $\mu\text{L}$  volume, 10 mm cell path length, 12 MPa pressure max.] with temperature control should be available as standard.
- Wavelength accuracy should be  $\pm 1$  nm.
- The data acquisition rate should be 100 Hz.
- A deuterium lamp [D2] should be available as a light source for UV and visible wavelengths, respectively.
- The Drift must be equal to or smaller than  $0.5 \times 10^{-3}$  AU/Hour & Noise Level must be equal to or smaller than  $0.3 \times 10^{-5}$  AU.
- It should have an automatic wavelength accuracy check using an in-built Ho filter (241.5 nm/360.8 nm) and a D2 lamp (656.1 nm/486.0 nm).
- The flow cell must be temperature controlled from 19 °C to 50 °C.
- It should have a built-in Dynamic Range Extension Calculator that automatically calculates peak area and height, utilizing spectrum similarity in the high concentration range where UV signal is saturated.
- It can enable the complete separation of eluted peaks on tailing peaks, as well as visualization of impurity peaks overlapping the target component peak. By taking derivative values from specified wavelengths of the spectrum obtained with the photodiode array detector and visualizing them as a chromatogram.

**System Controller:**

- It should function as a communication bus module with data buffering capability.
- It should acquire up to 24 hours for one analysis at a 500ms sampling rate.
- It must be controllable from a web-based interface via a network.
- It must be compatible with wireless networking.
- It must come with an expert function in that if the pressure falls below the specified value, the expert function will automatically purge the mobile phase.
- It should store up to 20 analysis files with a total of up to 400 steps of time programs.

**Chromatographic Software:**

- The operation of the system should be straightforward and intuitive via state-of-the-art 32-bit Windows 7 based software.
- It should cover full one-point digital instrument control, qualitative and quantitative processing, report creation, and self-diagnosis.
- The sample schedule wizard function should be standard.
- There should be an online help function context sensitive.
- The reporting format should be flexible and easy to use in any desired format.

- The data can be converted to other formats. Spread Sheet software and word-processing software can be readily employed to provide data in tables or graphs through industry-standard protocols.
- The software should allow automatic execution of system checks, auto-purge, and baseline checks.
- Software must have its own log files for complete audit trails.
- An audio-visual multi-media CD-ROM for Maintenance and Troubleshooting must be provided.
- System suitability, security, and check functions must be provided that comply with Good Laboratory Practice (GLP) and Regulatory Conformity.

**Other requirements:**

- The payment terms should be specified in the commercial proposal, which should be consistent with IISc's domestic purchase policies.
- Please provide details of the number of trained personnel in India, the number in the southern region, or Bangalore who can service the instrument.
- Please include other options currently available which can be added in the future.
- The vendor should attach product brochures along with the technical bid.
- The vendor should supply standard accessories with additional SS/plastic tubing, ferrules, wrenches, etc.

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