

**CENTRE FOR BIOMEDICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY-DELHI
HAUZ KHAS, NEW DELHI-110 016.**

Dated: 24.01.2013

Notice Inviting quotations

Sealed quotations in **separate envelops of technical and commercial bid kept in one sealed outer envelope** are invited for **upgradation of High performance Liquid Chromatography (Existing Binary HPLC to Quaternary System)** as per specifications given below. Your sealed quotation should reach latest by 3.30 P.M. on 8.02.13 to the **Head, Centre for Biomedical Engineering, Indian Institute of Technology, Delhi (IIT Delhi), Hauz Khas, New Delhi-110016** attention **Dr. Veena Koul**. Your quotation should be super-scribed **“Quotation for Upgradation of existing High Performance Liquid Chromatography.**

Technical Specifications for **Up gradation of High Performance Liquid Chromatography.**

Binary Pump

Flow rate 0.001 to 10.000 mL/min for each pump.

Flow precision: 0.1% RSD

Flow accuracy: $\pm 1\%$

Max operating pressure: 6000psi

Compressibility compensation: Programmable

Plunger guiding system: Floating, self aligning mount

Flow calibration: Programmable.

Operating pressure limits: Programmable high and low low pressure limits, user selectable in psi, bar, kPa.

Column Heater

Workable temperature range - Ambient to 80°C.

Refractive Index Detector

Measurement range: 7.0×10^{-9} to 5.0×10^{-4} RIU

Flow rate: 0.1 to 10.0 ml/min., analytical to narrowbore applications.

Flowcell: Fused, quartz.

Cell volume: 10ul

Cell pressure: <100psi maximum with built-in pressure relief valve

Linear Dynamic Range: <5% over +/- 5.0 x 10⁻⁴RIU

Temperature control: Internal oven: 30 - 55 0C, +/-0.5 oC, settable in 1oC increments.

Refractive Index range: 1.00 to 1.75 RIU

Noise: < 1.5 x 10⁻⁹ RIU mode.

Drift: < 1.0 x 10⁻⁷ RIU/hr.

Time constant: 0 - 5.0 seconds

Attenuation settings: 1 to 500 x 10⁻⁶ RIU. 1 to 1024 maximum 410/2410 emulation mode.

Automatic Optical Zero Signal Polarity Switch coupled to Auto-zero, Optical Zero Meter and adjustment with Refractive Index test samples.

Photo Diode Array Detector

Wavelength Range : 190-800nm

Wavelength Accuracy : ±1nm

Wavelength Repeatability: ±0.1nm

Photodiodes should be 512 or more

Optical resolution: 1.2 nm or better

Linearity range: >_5% at 2 AU, propylparaben at 257nm

Base line noise: 10x10⁻⁶ Au, 10nm cell at 254nm

Drift: ≤1.0x10⁻³/Au/hr/°C, dry cell 254nm

Data acquisition rate: Upto 80Hz.

Light source: Deuterium lamp with 2000 hour warranty

Flow cell design: Taperslit for reduced RI effects

Sensitivity setting range: 0.0001 - 2.0000 AUFS (under software control).

Filter setting range: 0, 0.1, 0.2, 0.5, 1, 2, 3.

Flowcell design: Reversed TaperBeam, Refractive Index corrected.

Pathlength: 10mm (Standard).

Cell Volume: 8ul (Standard).

Pressure: 1000psi (standard).

Wetted materials: 316 stainless steel, fused silica, Tefzel.

Peak purity software

Auto threshold for peak purity

3D Spectral contrast algorithm account for random system noise in spectral comparisons.

Polystyrene Standard Kit Low-Mid Mw

Polystyrene standard low to medium molecular weight range

Polystyrene Standard Kit Mid-High Mw

Polystyrene standard medium to high molecular weight range

Organic Based GPC Columns

THF Based – Series of columns with Mn 500 – 5,00,000

DMF Based – Series of columns with Mn 500 – 5,00,000

Aqueous based columns

Series of columns with Mn 500 – 5,00,000

Reverse phase C18 Columns

Symmetry Reverse phase C18, 5 μ m, 100Å, 4.6 mm \times 150 mm length

Symmetry Shield Reverse phase C18, 5 μ m, 100Å, 4.6 mm \times 150 mm length

Chromatography Manager Software Update

Suitable Software for Control, acquire and process HPLC data

Breeze 2 upgrade from Breeze

2487 UV Detector CPU PCB

PC, Printer & UPS

Suitable Computer and Printer should be provided with the System along with 2KVA UPS.

OPTIONAL

Autosampler

2 microtiter plates according to SBS standards; 2x96-well high/low and 2x384-well low formats, 2X48-vial or 12-vial trays any combination of plates is allowed

Vial/Plate dimensions (includes cap): Maximum plate/ vial height: 4.7 cm (1.9 in.) (includes septa or cap mat)

Loop volumes: 5,10,20,100 (standard), and 500 μ l; 10mL loop (standard) for prep option

Dispenser syringe: 500 ul standard or 2500 ul optional

Vial detection: Missing vial/well plate detection by sensor

Wash solvent : Integrated wash solvent bottle

Injection modes: Full loop,partial loopfill, and partial loop needle overfill mode

RSD \leq 0.5% for partial loop overfill injections injection volumes $>$ 10uL

Reproducibility: RSD $<$ 0.3% for full loop injections

RSD $<$ 1.0% for partial loopfill injections,injectionvolumes $>$ 10 uL

Carryover: $<$ 0.05% with programmable needle wash

Injection volume: 0 to 9,999 uL (with 1 uL increment), depending on system settings

Injections per vial/well : Maximum 99 injections

Terms & Conditions: Quotations should be placed in **separate envelops of technical and commercial bid, kept in sealed outer envelope**

1. The quotations must have validity of at least three months.
2. Quotation must include insurance and air-freight charges, delivery period of the items (CIF, New Delhi).
3. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated clearly.
4. Detailed Brochures should accompany the offer.
5. If the bidder is an authorized dealer then the authorized Indian dealership certificate from the principles should be enclosed.
6. Warranty of the system must be given in the quotation.
7. Payment will be through irrevocable letter of Credit.
8. In case the items are proprietary products of the company, Proprietary item certificate from the manufacturer stating the same must be provided with the quotation.
9. Training / Installation should be provided.
10. Institute reserves the right to accept or reject any or all the quotations without assigning reasons thereof.