SPECIFICATION FOR ANALYTICAL CUM PREPARATIVE HPLC SYSTEM

Complete Analytical cum Preparative HPLC System with Binary Gradient Pumps, Auto sampler with sample cooler, Column Oven, PDA Detector, Fraction Collector, Workstation Software etc, should be offered for analytical method development and scaling up to Semi-Preparative Applications

Solvent Delivery Unit	• High pressure binary gradient system consisting of 2 pumps should be offered • Flow rate : 0.001 mL/min to 20mL/min or better • Flow-rate accuracy: ± 1% • Flow-rate precision: 0.1 %RSD • Pressure tolerance : 6,000 and above • The same pump should be used for analytical method development and preparative scaling up.
Gradient Mixer	• Gradient Mixer for Analytical Application and Semi Preparative Application should be offered
Auto sampler with Sample Cooler for Analytical Application	• Injection volume range: 0.1 to 100 µL as standard • Linearity: > 0.9999 • Injection volume accuracy: 1% • Injection volume precision: RSD 0.3% • Pressure Tolerance of 5000 psi or above should be offered. • The Carry over must be below 0.005% or better • Suitable Rack for handling 1.5 ml or 2ml Vials should be offered • Sample Vial (1.5 ml or 2 ml) – 500 No's should be offered • Sample Cooler: 4°C to 40°C • 2 ml sample loop should be offered • Column Switching Valve for switching the flow from Analytical to Preparative should be offered
Column Oven	• Temperature setting range 4˚C to 60˚C or better • Temperature setting in steps of 1˚C • Temperature control range : Upto 60 deg C • The oven compartment should accommodate Multiple Columns and Electronic column switching valve.
Columns	The following columns with suitable guard column should be offered. • C18 Analytical Column , 250 X 4.6 mm id (or similar size), 5u - 1 number • C8 Analytical Column , 250 X 4.6 mm id (or similar size), 5u - 1 number • C18 Semi Preparative Column 250 X 10 mm, 5 micron (or similar size): 1 number

Automated Column switching valve for method development studies	• Column switching valve should be Electronic and Software Controlled to be provided as standard. • Should be able to switch between at least 6 columns.
Photo Diode Array Detector	• Light source: Deuterium (D2) lamp • Number of diode elements: 512 or more • Wavelength range: 190nm to 800nm • Bandwidth: 1.2 nm • Wavelength accuracy: 1 nm • Wavelength reproducibility: 0.1nm • Noise: <± 10 x 10^{-6} AU or better • Drift: < 1 x 10^{-3} AU/h or better • Linearity 2.0 AU or above (ASTM standard) • Functions: Contour output, spectrum library, MX plotting • PDA detector with both Analytical Flow cell and Preparative flow cell should be quoted
Fraction Collector	• Automatic Fraction Collector controlled by the offered Software should be offered • Flexible approach to manual and automated fraction collection • Should have facility to collect small scale fractions • Necessary Vials and Rack should be offered
Chromatography Software and Computer	• Software compliant with GLP standards and capable of controlling all the HPLC Modules through PC with data acquisition, data control , chromatogram and special analysis facilities. • Easy operation with 64 bit Windows based software. • Online 3D Image window for contour and snapshot functions. • System suitability, System security as well as System check functions has provided which comply with Good Laboratory Practice & Good Manufacturing Practice (GLP&GMP) • Software should comply with 21 CFR Part 11 Regulations • The complete HPLC System should be controlled through the offered software
Warranty and Training	• Warranty : **3** years from the date of installation should be offered • Basic training for a period of one week after installation & commissioning of the equipment to technical personnel to be provided at our site. An extended training after couple of months should be offered to clarify any hardware, software and application queries. • At least one Periodical training per year should be conducted during the warranty period at our site on method development and Purification.

Vendor Eligibility Criteria:

- The same model of the instrument must have been supplied to other or same (IIT Madras) National Institutions such as IITs, IISERs or CSIR Labs.
- AMC must be quoted as optional (after 3 years)
- 21CFR part 11 compliance ready, CE Certificate, or also database for the instrument software must be provided.
- Installation report and previous POs must be supplied.