

# सीएसआईआर-केंद्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान CSIR- CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE मैसूरु / MYSURU-570 020, भारत / INDIA

(Constituent Laboratory of CSIR, New Delhi (Ministry of Science & Technology)
An ISO 9001:2008, ISO 14001:2004 & ISO 17025:2005, NABL Accredited Laboratory

### **CORRIGENDUM**

Tender Ref: CFTRI/52362/25-26 Date: 15-10-2025

Tender ID: 2025\_CSIR\_252421\_1

The revised and final specifications for supply of High Performance Liquid Chromatograph (HPLC) based on the deliberations in Pre Bid Conference held on 28-10-2025 @ 11. 00A.M is uploaded herewith. All the prospective bidders are requested to take cognizance of the revised specifications and submit their bids accordingly on or before 03.00 p.m. on 17-11-2025.

All other terms and conditions of tender enquiry document remain unaltered.

Stores & Purchase Officer

CSIR-CFTRI, Mysore

Dt. 04-11-2025

# SPECIFICATION FOR HIGH PERFORMANCE LIQUID CHROMATOGRAPHY [HPLC):

- The HPLC system should have the following individual stackable self-contained HPLC modules.
- They must be capable of standalone operation and have internal diagnostics to monitor the instrument's performance and record in a logbook.
- Modules must be connected with high-speed transmission Technology to enhance the reliability and sensitivity of the HPLC.
- The instrument will be used for method development for nutraceuticals; hence the system should have the provision to accommodate minimum four columns along with automation control. The Instrument should select the column automatically based on the program
  - 1. Quaternary Gradient Pump
  - 2. Auto-Sample Injector with Accessories
  - 3. Column Oven & Columns
  - 4. Photodiode Array Detector
  - 5. Data Management System, Printer & Software

#### 1. Quaternary Gradient Pump

- It should be Quaternary Gradient pump.
- The flow rate should be set between 0.001 to 10 ml/ min.
- Flow rate accuracy should be  $\pm$  1 % or  $\pm$  0.5  $\mu$ l/min of set value whichever is larger
- Flow rate precision should be  $\leq 0.07 \%$  RSD.
- Pressure Range: From 500 Bar to 600 Bar.
- The standard gradient mixer should have a pump delay volume of 650  $\mu$ l.
- The composition precision should be less than  $\pm$  0.2 %
- Maintenance kit, reservoir tray (with 4 solvent bottles complete with fittings) & automatic rinsing kit must be supplied
- Membrane degassing unit should have minimum three flow lines with maximum operating flow rate should be up to 10 ml/min per flow line
- It must have a leak sensor as a safety feature and error status shall be transferred to the operating software
- It should include a drain-pan and should be equipped with self-cleaning capability that extends vacuum pump life by drawing in air when the pump is running

# 2. Auto-Sample Injector with Accessories

- The autosampler design should be a flow through needle design with variable injection volume with zero sample loss during injection
- Volume: 0.1 μl to 100 μl
- Loop injection using fixed vol. or variable vol. loop
- Injection time: Minimum ≤ 20 sec/sample or better
- It should be able to use four different solvents
- Temperature setting range 4°C to 40°C
- The carryover must be below 0.004 %

- The injection precision should be less than 0.25 % of RSD
- Number of samples to be processed automatically, random access up to for 1 ml, 1.5 ml, 96 wells, 384 wells microtiter plates or suitable higher capacity with sample preparation for auto-dilution

#### 3. Column Oven

- It should be forced-air-circulation/ Peltier type for uniform temperature distribution with a quick feedback mechanism to maintain constant temperature
- The temperature range should be from  $4^{\circ}$ C to  $85^{\circ}$ C  $\pm 0.1^{\circ}$ C precision
- The oven should have a solvent leak sensor
- It should be able to handle up to 3 x 30 cm columns or better
- Columns: The following columns should be supplied along with system
  - C18 column (5 μm x 4.6 mm x 250 mm)
  - C18 column (3 μm x 4.6 mm x 150 mm)
  - HILIC column (5 μm x 4 6 mm x 250 mm)

## 4. Photodiode Array Detector

- The wavelength range should be minimum 190 nm 800 nm
- The photo-diode array detector should have 1024 elements and an element resolution of 1.4 nm/element or better, must be available.
- Standard Cell: Optical path length 10 mm, Capacity: 8 13 μl. Pressure: 8 MPa
- Operating temperature setting range 4°C to 35°C
- Wavelength accuracy should be  $\pm 1$  nm
- The Drift must be  $\leq 0.9 \times 10^{-3} \text{ AU/Hour}$
- The Noise Level  $\leq 7 \times 10^{-6} \text{ AU}$
- Linearity should be equal or more than 2.0 AU
- Sampling rate should be more than 100 Hz
- Peak purity function should be available
- It should have automatic wavelength accuracy check at 4 wavelengths (UV & Vis) & wavelength correction

# 6. Data Management System & software

- Suitable system with minimum Intel Core i7, 14700 Processor, 1 TB SSD, 64 GB DDR 5 RAM, LAN card, 24" Full HD LED Monitor, Brand Preferred: Dell/HP
- Duplex Laser Jet printer with Scanner HP Laser MFP 323dnw Printer or equivalent
- It should cover full digital instrument control, qualitative and quantitative processing, report creation, self-diagnosis and auto-tuning
- Full 2D and 3D spectral analysis for Diode-Array Detector should be available.
- The self-diagnosis feature of the software should enable diagnosis of all detectors and all connected units.
- The software must have 'column management system for recording the column details and column usage, and perform customized continuous analyses, according to the conditions specified for each sample.

- The software should be capable of performing overlapping injections, analyze safety features where-in, when the mobile phase level goes down below the set threshold value, the software should trigger auto shutdown of pump and auto purge.
- The software should be able to monitor and quantitate minimum 8 different wavelengths simultaneously
- 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
- System suitability, System security as well as System check functions must be provided which comply with Good Laboratory Practice (GLP) and Regulatory Conformity.

#### Service, Warranty and Training

- Minimum one-year comprehensive warranty for the entire system with accessories, from the date of satisfactory installation and commissioning
- On-site installation, commissioning and training shall be conducted by a qualified trained engineer
- Vendor to provide a copy of Site-Preparation checklist.

#### Additional requirements

- Printed literature from the manufacturer to be provided in support of the technical specifications.
- A point wise compliance statement as per the specifications must be submitted along with the offer.
- Must provide list of installations in Govt. institutes in the last five years (at least 5 Nos.) with the contact details of user scientists.

#### **UPS System**

To provide online 3 kVA UPS system having pure sinusoidal wave with adequate battery backup at full load conditions for 30 minutes, to ensure, an uninterrupted power supply, for the entire HPLC System with all its accessories,