



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 for High Performance Liquid Chromatograph (HPLC)**

**Corrigendum Title: Revised Technical Specification based on PBC**

**Tender Ref: CFTRI/52353/24-25 Date: 16-12-2024**

**Tender ID: 2024\_CSIR\_219700\_1**

The revised final specification based on the discussion in Pre Bid Conference held on 26-12-2024 @ 10.00A.M is uploaded herewith.

All the prospective bidders are requested to take cognizance of the revised specification and submit their bids accordingly on or before 03.00 p.m. on 16-01-2025.

**All other tender terms and conditions of tender remain unaltered.**

**Controller of Stores & Purchase  
CSIR-CFTRI, Mysore  
Dt. 03-01-2025**

## **Revised Technical Specification based on PBC High Performance Liquid Chromatograph (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 & Software**

### **1. Quaternary Gradient Pump**

- It should be Tertiary or Quaternary Gradient pump.
- The flow rate should be set between 0.001 to 10 ml/min in 0.1 ul/min step.
- Flow rate accuracy should be  $\pm 1\%$  or  $\pm 0.5$  ul/min of set value whichever is larger
- Flow rate precision should be less than  $\leq 0.06\%$  RSD @ 1ml/min
- Maximum Pressure: 500 bar or better
- The standard gradient mixer should have minimum system delay volume
- The composition accuracy should be below 0.5%
- The composition precision  $\leq 0.2\%$  RSD
- Maintenance kit, reservoir tray (with 4 solvent bottles complete with fittings) & automatic rinsing kit must be supplied
- It should have functions for maintenance and validation which are accessible by a dedicated operation button.
- 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. It should be equipped with self-cleaning capability that extends vacuum pump life by drawing in air.

### **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  $\mu$ l to 100  $\mu$ l with below 1% accuracy
- Loop injection using fixed loop [20  $\mu$ l] should be available as an option for reducing the delay volume.
- Injection time: Minimum < 20 sec/sample or better
- It should be able to use four different solvents
- Needle aspiration speed: 0.1 to 15  $\mu$ l/sec

- Rinse aspiration rate : 1 to 35 $\mu$ l/sec
- Temperature setting range : 4 to 40°C
- The carry over must be below 0.004 %
- Injection volume accuracy must be below  $\pm$ 1%
- The injection precision should be less than 0.25% of RSD
- Number of samples to be processed automatically, random access upto for 2ml , 96, 384 wells microtitre plates
- Dedicated operational key functions for maintenance and validation

### 3. Column Oven

- It should be forced-air-circulation/Peltier or better for uniform temperature distribution with a quick feedback mechanism to maintain constant temperature
- The temperature range : 10 - 65°C  $\pm$  0.1°C precision with complex temperature programming in linear and step programs
- The oven should have a solvent leak sensor
- Dedicated operational key functions for maintenance and validation
- It should be able to handle up to 4 x 30 cm columns or better

**Columns:** The following column should be supplied along with system :

- C18 column ( 5 $\mu$ m , 4.6mm \* 250mm)
- YMC Pack C-30 column (5 $\mu$ m , 4.6mm \* 250mm)
- HILIC column ( 5 $\mu$ m /3 $\mu$ m , 4.6mm \* 250mm/150 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:10mm, Capacity:8-13 $\mu$ l , Pressure:8MPa
- Operating temperature setting range 5 to 35°C
- Wavelength accuracy should be  $\pm$ 1 nm
- Peak purity function should be available.
- It should have automatic wavelength accuracy check at 4 wavelengths (UV & Vis) & wavelength correction
- It must have data rate of 80 Hz or better

### 5. Data Management System & software

- Suitable system with minimum Intel Core i7 (14700), 1 TB SSD, 64GB DDR5 RAM, LAN card, 24" FHD Monitor, Brand Preferred: Dell /HP
- Laser printer: HP LaserJet Pro 400 M401dn
- 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, perform should perform customised continuous analyses according to the conditions specified for each sample.
- The software should be capable to perform overlapping injections, analyze safety feature where in when the mobile phase level goes down below the set threshold value, the software should trigger auto shutdown of pump, autopurge

