



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 FT- NIR Spectrometer for reflection measurement**

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

**Tender Ref: CFTRI/52340/23-24 Date: 21-08- 2023**

**Tender ID: 2023\_CSIR\_165046\_1**

**The revised specification based on the proceeding of the pre bid conference held on 29-08-2023 @ 11. 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 20/Sep/2023 by 02.00 p.m.**

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

**Controller of Stores &Purchase  
CSIR-CFTRI, Mysore**

## Revised Technical Specifications for FT- NIR Spectrometer for Reflection Measurement

- Design: Rugged, sealed and desiccated housing
- Spectral Range: 11,500 – 4,000  $\text{cm}^{-1}$ . (Wavelength 800 nm to 2500 nm)
- NIR Source: Tungsten, air cooled
- Laser: Class 1 laser with average life 5 years warranty
- Resolution: 2-5  $\text{cm}^{-1}$
- Wavenumber repeatability (RMS): 0.04  $\text{cm}^{-1}$
- Wavenumber accuracy: 0.1  $\text{cm}^{-1}$
- Photometric accuracy: 0.1% T
- Measuring time: 10-20 seconds
- Detector: Thermoelectrically cooled InGaAs detector
- Minimum 5 years warranty on Interferometer
- Operating environment:
  - o Operating temperature: 5° C to 35° C or more
  - o Power requirement: 100-240V AC, 50 Hz
  - o Humidity: <80% relative, non-condensing
- Sampling Accessories:
  - NIR spectrometer should be compatible with various sampling accessories to accommodate different sample types (solid, liquid, semisolid/viscous sample and any other food matrix) and measurement techniques (Reflection, transfectance, and transmission mode).
  - o Variable temperature setup for analysis of samples at different temperatures.
  - o External standards for calibrations shall be provided.
  - o NIR sample accessories such as sample holders, plates, vials, cuvettes, and Spinning Accessory are required for the analysis of solid, liquid, or semi-solid samples (minimum of 5 each).

## **Data Analysis Software:**

o It should be accompanied by branded (HP/Dell/IBM etc) dedicated computer for data acquisition. Minimum configuration of the computer with latest generation Pentium i9 Quid, A high-quality 32-inch LED monitor with a high-resolution display (4K), 32 GB DDR5 RAM, Primary Drive: 1 TB NVMe SSD for fast data access and application loading, Secondary Drive: 10 TB HDD (7200 RPM) for sample data storage and archiving. It should be included with MS WINDOWS 11 OS that is compatible with Data analysis software. Future upgrades of this data analysis software, compatible to future OS of Windows 11 and all future versions, must be provided free of charge.

## **Connectivity and Control:**

o Connection to PC or LAN: USB, WIFI or Ethernet interface

o System should allow for data transfer, remote control, and integration with laboratory systems.

o Separate Branded computer (HP/DELL/IBM) with 32-inch monitor is required for robust statistical data including multivariate analysis, parallel to the data acquisition system for seamless analysis. It shall feature a latest-generation Pentium i9 Quid or higher processor for rapid data processing, 64 GB of high-speed RAM, and a 1 TB NVMe SSD for quick data access. An external 10 TB HDD to be provided sample storage and Nivida RTX 3090 graphics card. Statistical software SOLO™ (<https://eigenvector.com/software/solo/>) and Unscrambler™ should be supplied with media and with valid perpetual license. GraphPad Prism™ with valid perpetual license should also be supplied. Future upgrades of this data analysis software must be provided free of charge. The system should easily be upgradable with extra RAM slots up to 64 GB and storage options.

o The workflow/flowchart for method development, and database support for different proximate parameters pertaining to cereals, pulse, and other food matrices to be provided.

o One printer HP LaserJet Pro MFP 4104fdw or equivalent Printer and other accessories required for the complete working of the unit and software should be included.

o UPS system for the smooth and uninterrupted functioning of the equipment to be installed along with the system. 10 KVA UPS online system (APC/ Emerson /equivalent) with parallel system (1 working and 1 stand by) including SMF batteries (Quanta/Exide/equivalent) to have 3 hours back-up on full load conditions.

▪ Warranty: Minimum of two years from date of installation.

▪ Please provide the Annual Maintenance Contract (AMC) rate per year in the BOQ/financial bid for a period of 5 years from the date of post warranty (This would not be part of the financial comparison).

▪ Installation, demonstration and training to be given free of cost at our site.

▪ All the accessories essential for the application and its functions of the system should be provided along with additional NIR source with desiccants is required.