



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 Microwave Assisted Extraction System**

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

**Tender Ref: CFTRI/74244/2023 Date: 27-09- 2023**

**Tender ID: 2023\_CSIR\_169015\_1**

The revised specification based on the proceeding of the Pre Bid Conference held on 06-10-2023 @ 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 30/Oct/2023 by 02.00 p.m.

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

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

भंडार एवं क्रय नियंत्रक  
Controller of Stores & Purchase  
सीएसआईआर-सीएफटीआरआई, मैसूरु  
CSIR-CFTRI., Mysuru-570020

# Revised Technical Specifications for Microwave Assisted Extraction System

## Microwave Assisted Sample Preparation System:

Microwave Digestion system capable of carrying out extraction applications for plant **materials**, etc.

The system should meet the following technical specification requirements:

## Specifications of Microwave Oven:

- Should have operating power of **1800 watts** or higher with continuous unpulsed power output with dual magnetrons settable in 1-watt increment.
- Cavity volume must be **more than or equal to 60 Liters** to accommodate various accessories with built-in high performance vessel cooling system. The airflow must be variable and controlled by system software.
- Should have IR temperature sensor for remote/non-invasive measurement of temperature.
- To ensure user safety during handling, vessels must be cooled inside the oven. Removal of hot, pressurized vessels and the use of external cooling devices like water bath is not acceptable.
- System must have built-in LCD touch screen display of size **6.5" or higher** for all routine operations and system should have built in manuals and videos on board. System should have on board memory of **25 GB** or more. External displays are not acceptable.
- Should have the Magnetic Stirrer Unit and required Safety Systems for handling Organic Solvents for carrying out Solvent Extraction and synthesis applications.
- System should be upgradable with high pressure rotor of 60 positions or more for high throughput for micro sample.

## High performance Multi mode Rotor system (01 no):

- Rotor System must be capable of processing **15 or more** reaction vessels simultaneously.
- Must have **temperature measurement and control on each individual vessel including reference vessel** position via **temperature/pressure** sensor for highest safety during runs.

## Vessel Specifications (Qty. 15 or more vessels):

- Volume: 100 ml or more
- Maximum Operating Temperature and Pressure: 240 deg C at 40 bar or more
- Maximum Vessel Design **Temperature: 300 deg C or more.**
- Reaction vessel must have reliable metal safety disks for overpressure protection. Operation via self-venting is not acceptable to prevent contamination and escape of gases.
- **Must have simple hand tightening or tools for closure.**

## Sensor System:

- Should have pressure monitoring with pressure increase rate control for **all vessels including reference** vessel with **transmission** of data to system electronics.

- Should have IR sensor/s for all vessels for accurate temperature measurement.
- There should not be any electronic plugs/sockets inside the oven cavity to prevent corrosion and damage to the pressure or temperature sensors.

Safety Features:

- System must have (magnetically) resealing safety door for safe release of overpressure.
- Should have software safeguards for rotor identification and over-pressure settings.
- Should have adequate protection for magnetron protection from reflected energy
- All Rotor Vessels including Reference Vessel of Microwave Assisted Digestion and Extraction System should have utmost safety (working with high pressure/high temperature conditions) norms and blast of Rotor Vessels should not happen. An undertaking should be provided by all vendors regarding complete safety compliance in this matter.

**Essential Accessories:**

1. Data Acquisition system (DELL/HP) with the following specification:

Chipset Series: Intel Q Series, Chipset Number: Intel Q670 Generation 12, Number of Cores per Processor: 12, Processor Description: Intel Core i7 12700, Operating System (Factory Pre-Loaded): Windows 11 Professional, RAM Size (GB): 8, RAM Speed: 3200, RAM Expandability up to (using spare DIMM Slots in GB): 64, Type of Drives used to populate the Internal Bays: SSD, Total SSD Capacity (GB): 1TB, Cabinet Form Factor Tower: 13.1 to 26 Litres, Monitor Techology: TN, LED Backlit Monitor Size (INCHES) : 21.5, Monitor Resolution (PIXELS): 1920x080, Wi-Fi 6 AX200 + Bluetooth 5.0, Wired Mouse & keyboard , On Site OEM Warranty (Year): 3.

2. Online pure sinewave 5 kVA UPS with 30 minutes backup on full load conditions with SMF batteries, warranty 2 years, for both UPS and SMF batteries, from the date of satisfactory installation (APC/ ABB/ Emersion Vertiv)
3. LaserJet Multifunctional Colour Printer (HP/Brother)