



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 Hot Stage Microscope

Corrigendum Title: Revised Technical Specification based on PBC

Tender Ref: CFTRI/74241/2022-23 Date: 16-01- 2023

Tender ID: 2023_CSIR_141829_1

The revised final specification based on the discussion in Pre Bid Conference held on 23-01-2023 @ 11.30A.M is uploaded herewith.

All the prospective bidders are requested to take cognizance of the revised technical specification and submit their bids accordingly on or before 05.00 p.m. on 10/February/2023. Technical bid will be open on 13/February/2023@ 11.00A.M.

All other tender terms and conditions of tender remain unaltered.

Stores &Purchase Officer

CSIR-CFTRI, Mysore

Dt. 30-01-2023

Revised Technical Specification for Hot Stage Microscope Based on PBC

Application / End Use: To study starch / fat / biopolymers structural features & crystalline structure. To identify the *in-situ* gelatinization of starch, melting / re-solidification behaviour of bakery Fats / oil structures.

1	Description	<i>Hot Stage Microscopy</i>
2	Microscope Body	Microscope frame for transmitted and reflected light.
3	Focus drive	2-step or more focus drive for coarse / fine focusing, or ultra-focus and focus torque adjustment and adjustable focus stop with knobs.
4	Illuminator	Long life LED or Halogen (12V-100w) source. Illumination (LED) should provide 4000 K and above constant color temperature with essential filters.
5	Eyepiece tube	Trinocular arrangement 100:0, 0:100 or better.
6	Eyepiece	Pair of wide fields 10X focusable eyepiece with 22mm FOV or better.
7	Revolving Nosepiece	Quintuple or Sextuple revolving nosepiece (centrable feature) with a slot for analyser or DIC slider or other plate/sliders.
8	Polarizers & Analysers	180° or better rotatable analyser and suitable Polarizer.
9	Optical systems	Should be supplied with appropriate built-in conversion filters/suitable device for stain free and aberration free images with infinity corrected objectives and optical systems.
10	Stage	Circular / rotating graduated stage. The stage has flexible settings with bore holes for accessories like heating stage. Attachable Mechanical Stage should be supplied.
11	Objectives	<u>Dedicated Objectives for BRIGHTFIELD, POLARIZATION, DARKFIELD AND DIC:</u> <ul style="list-style-type: none"> ➤ 4X or 5X with numerical aperture (NA)= 0.12 or more ➤ 10X with N.A=0.25 or more ➤ 20X with N.A=0.40 or more

		<p>➤ 40X or 50X with N.A=0.5 or more</p> <p><u>Dedicated Objectives for PHASE CONTRAST:</u></p> <p>➤ 10X with N.A=0.25 or more</p> <p>Objectives (For all) - M plan semi apochromatic / plan flouer/semi-apochromat or equivalent objectives with long working distance or Extra-Long / Super-Long / Ultra-Long Working Distance objectives.</p> <p>At least 2 or 3 objectives should be compatible with heating stage.</p>
12	Condenser	Universal condenser system with 6 position disc and Condenser head suitable for heating stage application and Compatible for BF, DF, Phase, DIC, POL contrast.
13	Camera	<p>High Resolution Colour Image Capture module / System with driver software for compatibility. CMOS or CCD sensor 2/3". Pixel size 3.45 X 3.45micron or better, Dynamic Range 65dB, branded camera with 5 mega pixel or better. Fast live image capture with at least 30 fps at 2448 X 2048 or better.</p> <p>Fast USB-3 connection or more, Supported with Windows OS, Suitable C-mount adapter and other necessary accessories for camera should be provided. Item should be supplied with all supportive and essential accessories to make the system fully functional with microscope and hot stage.</p>
14	Heating Stage with Temperature Control software	<p><u>Heating/Freezing Stage System</u></p> <p>Temperature range -25°C to 120°C, with water circulator pump</p> <p>Sample area of 35mm x 35mm or more</p> <p>15mm XY manipulation as standard</p> <p>Sample holder for standard 76mm x 26mm microscope slides</p> <p>Quick-release gas valves for atmospheric control</p> <p>Swing out lid for easy sample loading</p> <p>Can be used with transmitted or reflected light</p> <p>Mounts directly to microscope table or substage</p> <p>Stage body size 166 ± 5mm x 90±3mm x 23.8±1mm</p> <p>Temperature stability and accuracy to 0.1°C</p> <p>Maximum heating / cooling rate of 0.1°C to up to 30°C/min</p>

		<p>Response time of <1 second at 5°C/min at 50°C</p> <p>System controller, Water circulator pump/ Tubes, connection cables, USB cable, specific power cord.</p> <p>Suitable Adapter plate and clamps / Condenser extension lens.</p> <p>Item should be supplied with all supportive and essential accessories to make the system fully functional. Software should be compatible with heating stage including ramp temperature setting.</p>
15	Image Analysis Software	<p>Compatible software for image analysis and recording with proper license and having the following features:</p> <ul style="list-style-type: none"> ➤ Live image acquisition, pan and zoom, scale bar, video conversion from snap/image & Extended measurements module. ➤ Automated image capture & movie generator. ➤ Basic interactive measurements such as distance, angles, rectangles, circles angle ruler, and line ruler etc. ➤ Camera operation should be precisely controlled by software. ➤ Periodical updates of the software should be provided free of cost. ➤ Original licensed version of the software should be provided. ➤ Instruction manuals of the software should also to be provided in hard/soft versions <p>Software should be capable of performing functions related to all mentioned modes.</p>
16	DIC prism	DIC prism insert for 20X objective.
17	Essential accessories / Part of the system	Necessary DIC prism slider, ring attachment, Tubes, top lens, Filter, beam splitter, diaphragms, stage clamps and reflector or any required accessories should be supplied with the microscope/ hot stage, to make the system fully functional.
18	Computer, Printer and UPS	Branded computer (factory installed software, Licenced windows 10/11, 64bit, MS office packages – commercial licence) with i9 processor (11 th Generation or better), 32 GB ram, 2TB SSD + 2TB HDD, 4GB or higher NVIDIA graphics card, Keyboard and Mouse, licenced anti-virus software, DVD writer, Speaker, Connectivity- WiFi 5 (11ac, 2x2) or better Bluetooth 4.0, 26” or above ultra-wide screen LED monitor, USB HD Webcam with Built-in Mic or Inbuilt HD Web CAM, USB 3.0/1394b firewire port, USB 3.2 Type-C, suitable HDMI and RJ45 ports. The

		<p>system should compatible with the microscope / hot stage and camera software.</p> <p>All-in-One Color Laser Print or ink tank, Auto- Duplex, Scan & Copy, ADF with Built-in Ethernet and Wi-fi Direct.</p> <p>Branded Online 5 KVA UPS (Battery shall be of Sealed Maintenance free (SMF) or VRLA type), 30 minutes back up at full load condition.</p> <p>Protection - Input Over/Under Voltage, Output Overload, Short Circuit, Battery Low/High, Battery reversed polarity & thermal overload.</p> <p>Alarms- Audible Alarms should be provided for Mains Fail, Battery Low and Fault Conditions.</p>
19	Instrument table & chairs (Ergonomic workplace)	<p>Microscope Table (Top surface - granite and Plywood table with required cupboard/drawers, footrest) or Antivibration Table.</p> <p>Dedicated table or bench (Plywood) for water circulation pump.</p> <p>Ergonomically optimized Adjustable swivel chairs with Back Rest / Arm, back angle adjustment, Smooth large castor wheels with low noise level, two-way adjustable headrest - 2 Nos</p> <p>Suitable microscope forearm support/ Rest – 3 Set</p>
20	Warranty	<p>Minimum 1 year warranty for all parts of the equipment, Computer, accessories, printer, UPS and batteries.</p> <p>Vendor should guarantee the availability of the spares and accessories for the system for minimum of 10 years.</p>
21	Training	<p>The supplier shall provide on-site training with regular operation and maintenance of the instrument. Application specialist should provide special training about sample analysis.</p>
22	Spares	<p>Spare LED/halogen lamps (minimum 1)</p> <p>Dust cover, microscope slide (1x26x76-box of 100- 15 No's), liquid crystal cell (pack of 1 nos.), 22mm diameter glass lid/base window (0.3mm thick) box of 100 -1No, Cover slip (square or rectangular) box of 100 – 15 No's and silicon rings for lid and base (set of 4).</p>