

CRI/2022/NCB/11

**TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF
VERTICAL AUTOCLAVE**

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery, Installation, Commission & Training of 01 No Vertical Autoclave The bidder shall fill the columns 4 and 5. Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: Vertical Autoclave

PR NO:-		Vertical Autoclave			
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		
		<i>Detail</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
	Make				
	Model				
	Country of Origin				
	Country of Manufacturer				
1.	Autoclave Type	Top Loading, Floor Standing vertical autoclave			
2.	Chamber	stainless steel, 80 L or more			
		<i>Detail</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>

3	Lid	Manual upward opening with an interlock for safety, Electro-mechanical lid lock system or screw type single wheel lock preferred. Wingnut type not appropriate.			
4	Operating Temperature and Pressure	121°C to 135°C (1.2 to 2.15 kg/cm ²) 45 – 80 °C pre heating temperature, 45 – 60 °C heat retention phase, 65 – 100 °C dissolution phase, 105 – 135 °C sterilizing phase			
5	Keep Warm Temperature	45 °C to 60 °C			
6	Max. working pressure	0.255 MPa or higher			
7	Controller	A PID control by microprocessor is preferred			
8	Display panel	LED digital display, with the time and temperature display and process indicators			
9	Program Timer	0 or 1 min. to 99 hrs 59 min			
10	Safety features	Sensor failure detection, SSR short-circuit, Broken heater wire, Prevention of idle heating			

		<i>Detail</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
11	Preferred features	Key locking, forced cooling, Pattern locking			
12	Accessories	3 stainless steel mesh basket, Vapor cup, Drain bottle, and other required items			
13	Electrical Supply	240V, 50/60Hz			
14	Warranty	2 Years minimum			
15		Equipment shall be supplied with set of operation & service manuals in English in all the required specifications are highlighted			
16		5 year after sale service plan should be provided by the bidder with tender document			

CRI/2022/NCB/12

**TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF
01 NO HORIZONTAL AUTOCLAVE**

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery, Installation, Commission & Training of 01 No Horizontal Autoclave The bidder shall fill the columns 4 and 5. Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: Horizontal Autoclave (01 No)

PR NO:-		Horizontal Autoclave			
1	2	3	4	5	6
Line Item No	Description of Goods or Related Service	Technical Specifications and Standards			
		Purchaser's Requirements		Bidder's Offer	
			Yes(Y) / No(N)	Details of Bidder's offer	Remarks
	Make				
	Model				
	Country of Origin				
	Country of Manufacturer				
1.	Autoclave Type	Single Door, Cylindrical Horizontal (Front Loading) Chamber, Jacketed			
2.	Chamber	Cylindrical, 215 Liters or better, stainless steel, 4 mm minimum The construction of the chamber should be as per ASME guidelines			

3	Jacket	Cylindrical, Stainless-steel SS 304 preferred, 2 mm minimum			
4	Operating Temperature and Pressure	121°C to 135°C (1.2 to 2.15 kg/cm ²)			
6	Door	Hinged Door – manually operated, single lever opening & closing of door is preferred, stainless steel, more than 10 mm thickness			
5	Loading Trays	3 stainless steel loading trays			
6	Sealing (Gasket type)	Silicone rubber (Pneumatic)			
7	Safety features	electronic safety switch to ensure door is locked properly to start cycle, Door opens only when chamber pressure has normalized to room pressure			
8	Steam Generator	Inbuilt steam generator			
9	Process Control	automated control			
		The sterilization hold time range should be at least up to 99 minutes, and should be adjustable in steps of 1 minute			

		In case of power failure, resuming cycle once sterilization hold time has commenced			
		sterilization timer automatically readjusted if temperature falls below temperature set point			
10	Control panel	PLC controlled LCD–touchscreen			
11	Autoclave operation	<p>should be standard with at least 5 pre-programmed recipes (cycle library) and one customizable recipe</p> <p>In case of power failure, the Autoclave should give option of resuming cycle once sterilization hold time has commenced</p> <p>To ensure effective sterilization, if temperature falls below temperature set point, the sterilization timer should get automatically readjusted</p>			
12	Safety Valves	should be 1 each for chamber, jacket and steam generator, safety valves should be CE certified			
13	Air Vent Filter	0.2μ PTFE Membrane Filter Capsule			
14	Pressure Gauge	For Chamber and Jacket, Glycerin filled compound gauge			

15	Vacuum Pump	Water Ring or better, Air Removal Capacity in m ³ /hr: 27 or better Connected Load in HP: 2 HP minimum			
16	Steam Condenser	SS 304 shell & tube type			
17	Water In Pump for Steam Generator	Booster Pump should be provided for pushing water in the steam generator even during steam pressure			
18	Temperature band	should be Complies with HTM 2010 & EN 285			
19	Alarms	Continuous process status indication, over temperature alarm, low water cut-off alarm, end of cycle alarm, sensor open/short It should give automatic service and calibration reminders			
20	Temperature sensors / valves / transmitters	2 in chamber, 1 in chamber drain, 1 in jacket, 1 in steam generator preferred with real time cycle data printer,			
21	Electrical Supply	12-14 kW load, 415 VAC, 50 Hz, 3 Phase / 1N			

22	Water Supply	RO water system, compatible with the steam generator should be provided with the Autoclave			
23	Warranty	2 Years minimum			
23		Manufacturer should be ISO 13485:2016 and ISO 9001:2015 certified and the Autoclave should be CE certified.			
24		Manufacturer should have PED 2014/68/EU Module H certificate from a Notified Body			
25		Equipment shall be supplied with set of operation & service manuals in English in all the required specifications should be highlighted in Brochures/technical data sheets			
26		Letter of Authority from manufacturer should be submitted with the tender document, this should cover all the accessories requested.			
27		5 year after sale service plan should be provided by the bidder with tender document			

CRI/2022/NCB/13

**TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF
01 NO Stereo Microscope with Camera
Attachment**

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery & Installation of Stereo Microscope with Camera Attachment

The bidder shall fill the columns 4 and 5. Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Critical Specifications

PR NO:-						Stereo Microscope With Camera Attachment					
1	2	3	4	5	6						
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>									
		<i>Purchaser's Requirements</i>					<i>Bidder's Offer</i>				
					Details of Bidder's offer			Remarks			
	Make										
	Model										
	Country of Origin										
	Country of Manufacturer										
Stereoscope											
1.	Head	Trinocular, 450 inclined and rotatable 360 ⁰									
2.	Zoom Body & Objectives	Should be anti-fungal treated,									
3	Optical system	Greenough									
4	Eyepiece	10x eyepieces with a field diameter of at least 22 mm and with diopter adjustments, Should be anti-fungal treated									

6	Interpupillary distance	Interpupillary distance adjustment - At least 52 – 76 mm using 10x eyepiece			
5	Magnification range	At least from 7x to 45x			
6	Zoom Ratio	6.7 : 1 or better			
7	Field Of View Diameter	At least 5 – 32 mm			
8	Working Distance	At least 110 mm (without auxiliary lenses)			
9	Stand	thin and compact stage for fatigue-free operation with hands on the table with no arm rests			
10	Illumination	Reflected illumination, LED, through double goose neck, ability to control the light intensity, Average LED Life span 6000 hrs			
Camera					
11	Resolution	6 MP or better			
12		CMOS Sensor digital camera capable of imaging to computer screen with image analysis software Nosepiece			
13		Pixel Size at full resolution should be at least 3000 x 2000 at full HD			
14		Camera should operate at least 60 frames per second at full HD for live viewing			

15		Should be able to capture live and still images			
16		Should have automatic exposure and gain control for better imaging with clarity			
17		Should have at least five imaging modes			
18		Coaxial focusing system with an adjustable tension control and upper limit stop to prevent accidental damage to slides			
19		Should include compatible computer and UPS			
20	Power Supply	230v, 50/60Hz			
21	Warranty	1 year or more			
22	Accessories	Dust cover			
		Equipment shall be supplied with set of operation & service manuals in English in all the required specifications are highlighted			

CRI/2022/NCB/14
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF

01 NO Rotary Motorized Microtome

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery & Installation of Rotary Motorized Microtome

The bidder shall fill the columns 4 and 5. Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Critical Specifications

PR NO:-						Rotary Motorized Microtome					
1	2	3	4	5	6						
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>				<i>Remarks</i>					
		<i>Purchaser's Requirements</i>		<i>Bidder's Offer</i>							
				Details of Bidder's offer							
	Make										
	Model										
	Country of Origin										
	Country of Manufacturer										
1.	Mode	semi-automatic									
2.	Hand wheel	Ergo- hand wheel handle, lockable hand wheel									
3	Base plate	Distortion resistant									
4	Compatible embedding	paraffin. Resin									
5	Display panel	yes									
6	Section thickness	selection: 0 to 600 µm Section thickness increments:									

		<ul style="list-style-type: none"> · from 0 to 2 μm in 0.5-μm increments · from 2 to 10 μm in 1-μm increments · from 10 to 20 μm in 2-μm increments · from 20 to 100 μm in 5-μm increments · from 100 to 600 μm in 50-μm increments 			
7	Specimen Retraction	adjustable			
8	Blade holder base	Blade holder base repositioning (left-right) 50 mm			
10	Total horizontal specimen travel range	25-28 mm			
11	Vertical stroke length	70 mm			
12	Maximum specimen size	40*50 mm			
13	Trimming	10 μm and 50 μm			
14	Electric coarse feed	speed available: slow/rapid			
15	Specimen orientation	(X/Y): 8°			
16	Regulatory compliance	CE			
17	Operating temperature	+10 °C to +40 °C			
18	Other accessories	<ul style="list-style-type: none"> - Disposable Blade holder base with lateral displacement with finger protection guard - Pressure plate for Low profile blades - Pressure plate for High profile blades - Universal cassette clamp with adapter 			

		<ul style="list-style-type: none"> - Bottle of oil for drives, 50 ml - Waste collection Tray - Disposable Blades, low profile - Disposable Blades, high profile - Dust Cover 			
19	Power:	220-240 V, 50/60 Hz			
20		Equipment shall be supplied with set of operation & service manuals in English in all the required specifications should be highlighted in Brochures/technical data sheets			

CRI/2022/NCB/15
Supply, Delivery, Installation, & Commissioning
of
Ultra-Pure Water Purification System

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery, Installation, & Commissioning of Ultra-Pure Water Purification System. The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: Ultra-Pure Water Purification System

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Services</i>	<i>Purchaser's Requirements Detail</i>	<i>Technical Specifications and Standards</i>		<i>Remarks</i>
			<i>Yes (Y) / No (N)</i>	<i>Bidder's Offer Details of Bidder's offer</i>	
1	<u>Application</u>	1.1. The System should be capable of producing Ultra-Pure water (ASTM Type 1) for laboratory applications such as HPLC, GC, ICP-OES.			
2	<u>Product Details</u>	2.1. Make (<i>Please specify</i>) 2.2. Model (<i>Please specify</i>) 2.3. Country of Origin (<i>Please specify</i>) 2.4. Country of Manufacture (<i>Please specify</i>) 2.5. Year of Manufacture (<i>Please specify</i>)			
3	<u>Space Utilization</u>	3.1. Should be a compact design (<i>Please specify the dimensions</i>). Width should be < 500 mm.			

- 3.2. Bench top or wall mount
- 4 **Water Purification method** 4.1. Adsorption by activated Carbon, catalysts, reverse osmosis, ion exchange, UV irradiation, sterile filtration (*Please Specify*)
- 5 **Feed water quality** 5.1. Tap water or Pre-treated water (*Please specify the conditions*)
- 6 **Production output** 6.1. Production rate must be > 5 L/min (*Please specify*)
6.2. Resistivity should be > 18.2 MΩ cm (*Please specify*)
6.3. Conductivity should be 0.055 μS/cm at 25 °C (*Please specify*)
6.4. Bacteria < 0.01 CFU/ml (*Please specify*)
6.5. No Particulates > 22 μm (*Please specify*)
6.6. TOC content should be < 5 ppb (*Please specify*)
- 7 **Storage** 7.1. The system must supply with an extra polypropylene storage tank capacity > 20 L (*Please specify the capacity*)

7.2. The system should have an in-built 5-8 L container to store water.

8 **Power supply**

8.1. The system should be suitable for use with 230 VAC, 50/60 Hz.

9 **Compatibility with International Standards**

9.1. Manufacturer needs to provide complete details of system compliance with the international standards.

10.1. User Manuals (Operational manual and Method manual), should be in English Language and supply in printed versions with the system.

10 **Required Documents**

10.2. Letter of authorization from manufacturer should be submitted with the tender document.

10.3. All requested information should be highlighted and numbered in the tender document for easy reference. If this is not available tender will be rejected.

11 **Warranty**

11.1. At least 1 year comprehensive warranty for system must be provided (longer the period is preferred).

(Please specify)

12 **After sale services**

12.1. The manufacturer must certify the availability and provision of spare parts/accessories at least 10 years following the commissioning of the equipment.

13 **Installation and Commissioning**

13.1. Complete Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience in supply and installation of such systems.
(Provide documentary evidence)

13.2. Provide a list of customers that you have provided such systems within the country. Purchase order copies should be attached with tender document.

CRI/2022/NCB/16
TECHNICAL SPECIFICATIONS
FOR
Supply, Delivery, Installation of ultra-low temperature (-
80°C) freezer

TECHNICAL SPECIFICATIONS

The bidder must fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 or providing wrong information in those columns may be a reason for the rejection of the bid. Details related to each technical specification should be highlighted and referenced to the page numbers of the manufacturer's catalog and/or operational manual. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Technical Specifications and Standards</i>					
	Description	Purchaser's Requirements	Yes(Y) /No(N)	Bidder's Offer	Remarks
1	Type	Vertical (Upright)			
2	Temperature range :	- 50 °C to - 86 °C with 1 °C increment			
3	Capacity	Around 650 – 700 L			
4	Shelves	Preferably 3 shelves separate interior doors			
5	Display	Digital, Touch			
6	Monitoring options (Alarm and alert notifications)				
7	Less than 5 °C peak variation within the entire cabinet				
8	Power supply 230V/ 50 Hz				
9.	Security features such as alarm setting, and lock systems (Pls. mention)				
10	Minimum noise level				
11	Minimum power consumption with less heat emission				
12	Long warm- up time from - 80 °C to - 50 °C				

	And short door opening recovery time (Pls. indicate the time)			
13	Warranty should be more than 5 years			

CRI/2022/NCB/17
TECHNICAL SPECIFICATIONS
FOR
Supply, Delivery, Installation, Commissioning &
Training of 01 No UV-VIS Spectrophotometer

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery, Installation, Commissioning & Training of 01 No UV-VIS Spectrophotometer The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

1	2	3	4	5	6
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		
		Detail	Yes(Y) / No(N)	Details of Bidder's offer	Remarks
1	Application	Spectroscopic analysis (quantitative determination of different analytes)			
2	Sample type	Liquid samples			
3	Product details	Brand Name (<i>Please specify</i>)			
		Model No (<i>Please specify</i>)			
		Country of Origin (<i>Please specify</i>)			

4	Optical design	Double beam			
5	Cuvette	Pair of standard cuvette (with lid) should be provided with the machine <i>(Please specify the size and material)</i>			
6	Spectral bandwidth	1 nm (190 to 1100nm)			
7	Light source	Halogen lamp and deuterium lamp (with auto / manual position adjustment)			
8	Life time of the light source	Please specify (documentary evidence should be given)			
9	Wavelength setting	0.1 nm increments (1 nm increments when setting scanning range)			
10	Wavelength accuracy	± 0.05 nm at D2 peak 656.1 nm and ± 0.3 nm or better for entire range			
11	Wavelength repeatability	± 0.025 nm or better			
12	Wavelength scanning speed	3000 to 2 nm/min or higher			
13	Stray light	Less than 0.005% at 220 nm (NaI) Less than 0.005% at 340 nm (NaNO ₂) Less than 0.15% at 198 nm (KCl)			

14	Photometric system	Double beam optics			
15	Photometric range	Absorbance: -4 to 4 Abs Transmittance: 0% to 400%			
16	Photometric accuracy	± 0.0015 Abs at 0.5 Abs ± 0.002 Abs at 1.0 Abs ± 0.004 Abs at 2.0 Abs			
17	Photometric repeatability	Less than ± 0.00005 Abs at 0.5 Abs Less than ± 0.00005 Abs at 1 Abs Less than ± 0.00007 Abs at 2 Abs			
18	Baseline stability	Less than 0.0005 Abs/Hr			
19	Baseline flatness	Less than ± 0.0003 Abs			
20	Noise level	Less than 0.00005 Abs			
21	Monochromator	LO-RAY-LIGH grade blazed holographic			
22	Detector	Silicon photodiode			
23	Sample compartment	Sample compartment for reference and sample (Should be able to upgrade in to multiple compartments in the future)			
		Should be resistance to chemical corrosion			
		Please specify the dimensions			

24	Display	LCD touch screen panels allows communication with inbuilt software			
		Touch pen should be provided			
		Touch panel protective sheet (optional)			
25	Power requirement	220VAC, 50/60Hz			
26	Environmental requirement	<i>Please specify</i>			
27	Software	A compatible software that can be used to control the spectrophotometer with a PC (The software should be based on Windows Operating system)			
		External control possible via USB			
		Data file saving format (<i>please specify</i>)			
28	Connectivity	Single USB – supports flash memory devices for method and data storage			
		Duplex USB – Supports connection to a windows computer running			
		Data exporting methods (<i>please specify</i>)			
29	Accessories (optional)	Two 10 mm semi micro cuvettes with PTFE lid			

30	Installation and commissioning	Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience for maintenance and services			
31	Training	On site operation training must be provided			
32	Warranty period	At least 1-year warranty (preference will be given to the warranty period more than 1 year)			
33	After sale facility	Bidder should have good aftersales facility with trained technicians and parts available locally to carry out any service/ repair immediately			
34	Spare parts, Accessories	At least 05 years (should be able to supply)			
		Warranty period (at least 1 year) Pl. specify			
		No of service per year (after free service)			
35	Charges for Service/Maintenance agreement	1 year – Free of Charge 2 year – 3 year – 4 year – 5 year – After 5 years –			

36	Installation and commissioning	Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience for maintenance and services			
37	Training	On site operation training must be provided			
38	Documentary Evidences	Manufacture product catalogs with requested information should be supplied			
		Manufacture authorization letter for the bidder to represent the given brand should be supplied			
		User reference list should be attached			

CRI/2022/NCB/18
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY AND INSTALLATION
OF
BENCHTOP FLUID BED DRYERS

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery & Installation of Benchtop Fluid Bed Dryer with Tub Assembly

The bidder must fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 or providing wrong information in those columns may be a reason for the rejection of the bid. Details related to each technical specification should be highlighted and referenced to the page numbers of the manufacturer's catalog and/or operational manual. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

If catalogue is referred to any of the specifications below, relevant information has to be highlighted and indicated with the appropriate line-item number.

1	2	3	4	5	6
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>		<i>Bidder's Offer</i>	
		Detail	Yes(Y) / No(N)	Details of Bidder's offer	Remarks
1	Temperature Control	Form room temperature (<300C) to 100 0C			
2	Time Setting	Digital			
3	Around 5 liter glass tub assembly with a filter bag				
4	Inlet filter	SS 250 mesh			

5	Outlet filter	Large Filter bag (Material – Nomex or Terylene)			
4	Low noise with compact Size				
8	Warranty	Pl. Specify.			

Date:

.....

company Sea

Signature of the Bidder with

After Sale Service

Supply, Delivery & Installation of Benchtop Fluid Bed Dryers with Tub Assembly

The bidder shall fill the columns 3 and 4. Failure to provide the information requested in the columns 3 and 4 may be a reason for the rejection of the bid.

1	2		3	4	5
	<i>Purchaser's Requirements</i>		Yes(Y) / No(N)	Details of Bidder's offer	Remarks
1	Spare parts, Accessories	At least 05 years (should be able to supply)			
2	Warranty period	Pl specify			
3	No of <u>free</u> services per year	Pl specify			
4	Charges for Service/Maintenance agreement	1 year – Free of Charge 2 year – 3 year – 4 year – 5 year – After 5 years –		1 year – Free of Charge 2 year – Rs..... 3 year – Rs..... 4 year – Rs..... 5 year – Rs..... After 5 years – Rs.....	
5	No of service per year (after free service)	Pl specify			
6		Do you provide after sales service without signing service agreement? (As item No 4)			

After warranty period & Free Services	If you are supplying ON CALL service, how do you charge?			
	Please mention/submit details of ON CALL SERVICE charges.			

CRI/2022/NCB/19
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF

01 NO CHONS ELEMENTAL ANALYZER

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery, Installation, Commission & Training of 01 No CHONS Elemental analyzer The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: CHONS Elemental analyzer (01 No)

1	2	3	4	5	6
Line Item No	Description of Goods or Related Service	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		
		<i>Detail</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
1	<u>Application</u>	1.1. Elemental analysis (<i>i.e</i> Total C,H,O,N,S) in soil, charcoal, plant, water, food and fertilizer samples of both liquid and solid samples forms.			
2	<u>Product Details</u>	2.1. Make (<i>Please specify</i>)			
		2.2. Model (<i>Please specify</i>). The analyzer should be the latest model of the quoted brand			
		2.3. Country of Origin (<i>Please specify</i>)			
		2.4. Country of Manufacture (<i>Please specify</i>).			
		2.5. Year of Manufacture (<i>Please specify</i>).			
3	<u>System</u>	3.1. The System should be fully automatic, and unattended operation for 24/7 elemental analysis			
		3.2. Combustion approach should be Static and Dynamic.			

		3.3. System should have a combustion design with oxidation & reduction process			
		3.4. Reduction and oxidation systems should be specified. Durability, maintenance and spare parts should be mentioned.			
		3.5. Should have a furnace with Chromatographic separation by column for optimum analysis.			
		3.6. Equipment should be a fully workable system. If any other accessories, consumables are needed for complete operation supplier must quote for required accessories, consumables and chemicals.			
		3.7. System must run with minimum maintenance cost (<i>Provide documentation evidences</i>)			
4	<u>Furnace</u>	4.1. System should be upgradable at any time to add additional mode to suit the laboratory need such as obtaining isotopic data.			

		4.2. Same furnace should be used for combustion/pyrolysis of solid /liquid samples as per the application requirement.			
		4.3. The combustion and reduction ovens should have a 10 year warranty or more under standard operating conditions			
		4.4. The sample combustible temperature range should be within 1000 °C -1500 °C			
5	<u>Measurement Method</u>	5.1. Detection method and accuracy must not be influenced by the matrix type.			
		5.2. System should meet the requirements of international testing methods (ASTM, ISO, EN, CEN) (<i>Provide documentary evidences</i>)			
6	<u>Separation</u>	6.1. Gas chromatographic separation technique should be utilized for optimum and fast operation.			
7	<u>Detector</u>	7.1. Should have a Thermal Conductivity Detector (TCD)			
		7.2. Should have a Flame Photometric Detector (FPD) or an IR detector for trace sulfur (5 -10 ppm) determination			

8	<u>Sample preparation</u>	8.1.Solid sample preparation device and liquid sample sealing press (both) should be supplied			
9	<u>Analysis time</u>	9.1.Analysis time should be 5-10 min or lesser (<i>Please specify</i>)			
10	<u>Mode of Operation</u>	10.1. System should be able to operate at Multiple modes of operation CHN or CHNS Mode and Oxygen. (<i>Please specify</i>)			
11	<u>Cleaning and maintenance</u>	11.1. Should be able to clean easily, residues should not be remained inside the equipment after combustion.			
		11.2. The software should identify the maintenance requirements			
12	<u>Sample analysis</u>	12.1. Specify the max/min sample weights (<i>Should be between 0.1 mg to 1000 mg, depends upon sample nature</i>)			
		12.2. Analysis range should be from 1 ppm to 100% for all elements in any sample type (<i>Please specify</i>)			

		12.3. Specify the analytical range of each element C, H, N, S, and O in mgs. <i>(Should be between 0.001 mg to 20 mg or above)</i>			
		12.4. System must include a compatible Microbalance with a vibration free table for automatic input of sample weights.			
		12.5. Accuracy of analysis should be $\leq 0.3\%$			
		12.6. Precision of analysis should be $\leq 0.2\%$			
13	<u>Sample injection</u>	13.1. Should be through an auto sampler with > 60 sample positions <i>(Specify the number of sample positions)</i>			
		13.2. Include optional features required to analyze aqueous samples <i>(Please specify)</i>			
14	<u>Consumables and spare parts</u>	14.1. All consumables and required spare parts for analysis of 4000 samples should be provided with the system.			

		<p>14.2. The system should include a sample tray to accommodate > 40 samples to ease loading and unloading of sample vials.</p>			
		<p>14.3. The system must include ≥ 200 number of sample vials for liquid and solid sample analysis. If different vial types are used, provide 100 vials from each vial type separately.</p>			
<p>15</p>	<p><u>Computer and Printer</u></p>	<p>15.1.Brand new (HP, Asus or Dell) PC with Intel Core i7 hexacore processor with up to 4.6 turbo speed and 12MB cache memory, 16 GB DDR4 memory, 2 GB VGA, 1 TB SATA hard drive for storage, 22” wide LCD monitor (1920 x 1080), Networking: Integrated Gigabit Ethernet, Optical Mouse with scroll button, SATA Internal DVDRW, Registered Original 64-bit latest possible version of Windows operating system and Black and White laser Printer should be supplied with the instrument</p>			

16	<u>Gas Consumption</u>	16.1. Two (02) Nos Argon gas cylinders (47 L), (03) Helium gas cylinders, and (03) Oxygen gas cylinders should be supplied with the instrument. Any other necessary gases should be supplied in <i>(if required)</i> 03 Nos.			
		16.2. Gas regulators should be supplied for all necessary gases <i>(If required)</i> .			
		16.3. Supplier should mention the purity levels of gases required.			
		16.4. Gas saver and optimized combustion should be included for reducing furnace temperatures at user defined times and dates as well as reheating, calibration, automatic shutdown, and wake up feature should be included			
		16.5. System must be fully interlocked against gas failure			

17	<u>Software</u>	17.1. All necessary operating software required for intuitive graphical interface to visualize control configurations, diagnostics, measurement protocols, real-time data values etc. must be installed on the system			
		17.2. System should capable of collect and store data, performing advance calculations, recalculate results, run queries, and create reports.			
		17.3. The software should be based on Windows Operating system and should provide information on all system functions including monitoring of safety interlocks			
18	<u>Documents</u>	18.1. User Manuals (Operational manual and Method manual), Application notes and other relevant documents should be in English Language and supply in printed and electronic versions with the system			

		18.2. Full system maintenance documentation in English must be available. Indicate the service requirements of the machine and frequency for such service			
19	<u>Power supply</u>	19.1. The system should be suitable for use with 230 VAC, 50/60 Hz, without any external transformers			
		19.2. The system should have the facility to operate with direct AC power. Power supply and power cord must be included			
20	<u>Accessories</u>	20.1. The system must include an auto sampler with ≥ 60 sampling positions			
		20.2. The system should be supplied with a laboratory table suit for instrument installation (<i>Quote separately</i>)			
		20.3. The supplier should supply a compatible Micro-balance capable of direct transferring of data to the analyzer with a separate anti-vibration table.			

		20.4. A sample rack/tray should be included to the system to place ≥ 40 samples after weighing.			
		20.5. The system should be supplied with an isolation transformer for the safety of the instrument against power instability.			
21	<u>Spare Kit</u>	21.1. Spare kit should be supplied with all consumables required to analyze 4000 samples			
22	<u>Online UPS</u>	22.1.10 KVA Online UPS with 30 minutes power backup for the analyzer should be supplied			
23	<u>Chemicals and consumables</u>	23.1. Element standards should be supplied with the instrument for analysis of Carbon, Hydrogen, Nitrogen and Sulfur.			
		23.2. Standard Reference Materials for Soil, Leaf, Fertilizer and Food should be supplied with the system.			

24	<u>Documentations and supply qualifications</u>	24.1. Original Printed literature should be attached with the tender document. All requested information should be highlighted and numbered for easy reference. If this is not available tender will be rejected.			
		24.2. If the requested specifications are not available in the broacher, Manufacturer should confirm the availability of the features on his letterhead.			
		24.3. Letter of Authority from manufacturer should be submitted with the tender document, this should cover all the accessories requested.			
<u>Other Requirements</u>					
25	<u>Installation and commissioning</u>	25.1. Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience for maintenance and services of Elemental analyzers. <i>(Provide documentary evidence of authority from the manufacturer certifying sole local agent of Sri Lanka)</i>			

		<p>25.2. Provide a list of customers that you have provided this type of analyzers within the country. Installed equipment list with end user name, contact number, and institute should be provided with the tender document. Purchase order copies should attached with tender document</p>			
		<p>25.3. Performance test (accuracy, precision, recovery) during the installation should be done for all 4 elements C, N, H, and S with standard reference materials.</p>			
<p>26</p>	<p><u>Training</u></p>	<p>26.1. Complete on-site training on operation, maintenance, and calibration of analyzer should be provided by the manufacturer or manufacturer-trained technical expert for at least 6 trainees.</p>			
		<p>26.2. Should include advance application training for 3 users in manufacturer application center 3 months after successful installation of the instrument at the site.</p>			

27	<u>Warranty and After sale services</u>	27.1. Two-year warranty from the date of acceptance after satisfactory installation and commissioning of the system should be provided. And 10 years warranty should be provided for the detector and the furnace.			
		27.2. After Sale Services, Calibration and maintenance work should be done by the Local Agent. <i>(Provide the details of Technical capability)</i>			
		27.3. In the event of Instrument is malfunctioning local agent should attend to the job within 48 hours.			
28	<u>Documentary Evidences</u>	28.1. Submit documentary evidence for company registration, year of company registration, No of staff available to support the elemental analyzer			
		28.2. Bidder shall furnish the past supply records including, Name of the Institution, Type of Instrument, Contact details of the user.			

		28.3. Provide evidence that Manufacturer agree to provide spare parts at least 10 years after installing the instrument			
		28.4. Manufacturer independently provide a written confirmation that they will provide their services and support even they change the Local Agent in Sri Lanka with the sign of most senior manager which is responsible for Sri Lankan market.			
		28.5. In order to get the maximum usage of the Instrument Manufacturer should agree to offer its technical advice free of charge			
29	<u>Service / Maintenance Agreement</u>	29.1. 5 year after sale service plan should be provided by the bidder with tender document 1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year – 5 year – After 5 years -		1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year – 5 year – After 5 years -	

CRI/2022/NCB/20
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION, COMMISSION
AND
TRAINING OF

A High performance liquid chromatographic system (HPLC)

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery, Installation, Commission & Training of for a High-performance liquid chromatographic system The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: High performance Liquid Chromatographic system (HPLC) system (01 Number)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>		<i>Bidder's Offer</i>	
		<i>Detail</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
1	<u>Application</u>	Sugar profile, Alcohols, Aflatoxin B1 and total aflatoxins, Polycyclic hydrocarbons, Water soluble / Fat Soluble vitamins, amino acids and other plant related analysis			
2	<u>Product Details</u>	2.1. Make (<i>Please specify</i>)			
		2.2. Model (<i>Please specify</i>).			
		2.3. Country of Origin (<i>Please specify</i>)			
		2.4. Country of Manufacture (<i>Please specify</i>).			

		2.5. Year of Manufacture (<i>Please specify</i>).			
	Description of Goods or Related Service		Yes(Y) / No(N)	Details of Bidder's offer	Remarks
3	<u>System</u>	3.1. The system should consist of zero dead volume connections.			
		3.2. The system shall comprise the following major components: 1. Degasser 2. Quaternary Gradient Pump 3. Auto Sampler 3. Column compartment 5. Diode array Detector 6. Refractive Index Detector 7. Fluorescence Detector 8. Accessories			
		3.3. Instrument should be a fully workable system. If any other accessories, consumables are needed for complete operation supplier must quote for required accessories, consumables and chemicals.			

		3.4. PC Control Software Control with a building database, possible to future upgrade of the system.			
	Description of Goods or Related Service		Yes(Y) / No(N)	Details of Bidder's offer	Remarks
4	<u>Degasser</u>	4.1. Should have built-in vacuum degassing unit			
		4.2. 4 channels of eluent lines should be available			
5	<u>Quaternary Gradient Pump</u>	5.1. Flow range should be 0.01 - 10 ml/min. Or higher range with 0.001 ml/min increments.			
		5.2. Pressure range should be maximum up to 5000 psi 1 ml/min flow rate or better			
		5.3. Flow Accuracy $\pm 1\%$ or better			
		5.4. Flow precision $\leq 0.08\%$ RSD at constant temperature or better			
		5.5. Dynamic seal wash, and automatic blending of mobile phase with respect to program should be available			

		5.6. Dwell Volume (Total system) should be < 1.2 ml or better			
		5.7. Composition precision should be < 0.15 % RSD or better at 1 mL/min. at constant temperature			
		<i>Description of Goods or Related Service</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
		5.8. Composition accuracy should be $\pm 0.5\%$ or better			
6	<u>Auto Sampler</u>	6.1. Injection volume range of 0.1 - 100 μL or better			
		6.2. Injection volume accuracy should be $\pm 1 \mu\text{L}$ or better			
		6.3. Injection linearity <0.5% RSD or better			
		6.4. Compatible to maximum pressure of 5000 psi 1 ml/min or better			
		6.5. 100 or more position capacity for 2 mL vials or better			
		6.6. 2ml auto sampler vials for sample injection. 1000 Nos should be supplied with the instrument.			

7	<u>Column compartment</u>	7.1. Temperature range up to 05-90 °C or better, (Mention temperature range available with equipment)			
		7.2. Temperature precision should be ± 0.1 °C or better			
		<i>Description of Goods or Related Service</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
		7.3. Column capacity for 2 columns with the length of up to 30 cm length HPLC columns			
8	<u>Diode Array Detector</u>	8.1. Detection type should be 512 element photodiode array (PAD) or better			
		8.2. The light source should be Deuterium or Deuterium and tungsten lamp (Minimum life time in hours should be mentioned).			
		8.3. The minimum sampling rate should be 80 Hz or better			
		8.4. Baseline noise should be $< 10.0 \times 10^{-6}$ AU, at 254nm or better			
		8.5. Drift should be $\leq 1.3 \times 10^{-3}$ AU/hr at 254 nm or better			
		8.6. Optical and digital resolution should be 1.2 nm or better			

		8.7. Wavelength range should be at least 190-700 nm or better			
		8.8. Wavelength accuracy should be ± 1 nm or better			
		8.9. Wavelength, polarity, peak width, lamp bandwidth, auto balance, wavelength range, threshold, spectra storage mode should be available			
		8.10. Should have spectral scanning feature and spectral identification, spectral library creation and 3D spectrum analysis			
	Description of Goods or Related Service		Yes(Y) / No(N)	Details of Bidder's offer	Remarks
9	<u>Refractive Index Detector</u>	9.1 Should be having principle of deflection type along with Range of analyzing data from 1.00 to 1.75 RIU Range or better			
		9.2 Measurement Range should be 7.00×10^{-9} RIU or better			
		9.3 It must have Temperature Control settings and 80°C Thermal Protector.			
		9.4. Cell volume must be 10 μ L with total volume or better			
10		10.1. Excitation wavelength range should be 200 to 850 nm or better			

	Fluorescence detector	10.2. Emission wavelength range should be 210 to 900 nm or better			
		10.3. Flow cell volume should be 12 µL or better			
		10.4. Light source should be Xenon lamp, 150 W , The warranty should be given: 2000-hour or 1-year (mention warranty type)			
		10.5. Sensitivity should be S/N, Raman peak of water ≥1000 or better			
		10.6. Wavelength repeatability should be ± 0.25nm or better			
		10.7. Wavelength accuracy should be ± 3nm or better			
		10.8. 2D and 3D scanning options and spectral analysis tools should be available			
		10.9. Post column derivatization unit/ Photochemical Reactor Should be provided for Aflatoxin analysis			
11		<u>Column</u>	11.1. C ₁₈ , 3.5 µm, 4.6 x 100 mm or equal column with guard column for analysis of vitamins, polyphenols, amino acids The columns should be able to analyse above analytes using the HPLC system.		

		<p>Analysis protocol should be supplied with the instrument</p> <p>Warranty of the column- Pl Specify</p>			
		<p>11.2. C₁₈ 5 µm , 4.6 x 150 mm or equal column for analysis of Affalatoxin</p> <p>The columns should be able to analyse above analytes using the HPLC system</p> <p>Analysis protocol should be supplied with the instrument</p> <p>Warranty of the column- Pl Specify</p>			
		<p><i>Description of Goods or Related Service</i></p>	<p><i>Yes(Y) / No(N)</i></p>	<p><i>Details of Bidder's offer</i></p>	<p><i>Remarks</i></p>
		<p>11.3. Sugar-Pak Column, 10 µm, 6.5 mm X 300 mm, 1/pk for analysis of sugar and sugar alcohol (mobile phase should be deionized water).</p> <p>The columns should be able to analyse above analytes using the HPLC system</p> <p>Analysis protocol should be supplied with the instrument</p> <p>Warranty of the column- Pl Specify</p>			

		<p>11.4. PAH C18 column, 120A,5µm, 4.6 mm,250 mm</p> <p>The columns should be able to analyse above analytes using the HPLC system Analysis protocol should be supplied with the instrument</p> <p>Warranty of the column- Pl Specify</p>			
12	<u>Solvent filtering Unit</u>	12.1. Solvent filtering unit with the 1L reservoir and pump for filtering should be supplied			
		12.2. Mobile phase filter unit with filter funnel and flask (capacity 1000ml).			
	<i>Description of Goods or Related Service</i>		<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
		12.3.Vacuum pump with moisture trap vacuum regulator should be provided			
		12.4. Maximum flow rate of 18 L/min or better should be available			
13.	<u>Sonicator</u>	13.1. Extremely powerful mixing and cleaning			

		<p>13.2. Fully adjustable, power – please specify</p> <p>13.3. modes: cleaning, dissolving, degassing, intense mixing/cleaning</p> <p>13.4. Dual frequency- Please specify</p> <p>13.5. Convenient digital display of all parameters.</p>			
14	<u>Requirement with Unit</u>	14.1. Should work efficiently and has a protection to Acidic pH mobile phase			
		14.2. Connecting Tubing's and ferrules to be provided			
		14.3. Should be provided with Platinum electrode for better sensitivity			
		<i>Description of Goods or Related Service</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
		14.4. Data Should be able to display: Online single signal, offline multiple signal, overlay, subtraction, zoom, user definable attributes (axes tick-marks baselines, compound names, fonts, scaling), temperature, pressure, flow.			

		14.5 System start/stop, flow gradient time tables, pressure max/min for column protection, injection volume with or without sample pretreatment, column temperature, wavelength with or without time programming, spectral acquisition modes, and data acquisition rate determination should be available as a instrument parameters.			
		14.6 A standard set of user define report styles for sample reporting should be selectable from the report specification screen. Reports should be able to visualize on the screen, printer.			
		14.7 UV-visible spectra, acquired using a photodiode array detector, should be able to graphically select from a chromatograph signal for visual inspection and comparison or may be used for peak purity determinations, wavelength optimization and component identification through spectral libraries.			
	<i>Description of Goods or Related Service</i>		<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
15.	<u>Requirement with the supplier</u>	15.1. Installation, on site training and Validation should be provided. 15.2. Training for special application should be provided.			

16.	<u>Other Conditions</u>	16.1 Warranty period of 2 year manufacturer warranty (Conditions to be specified).			
		16.2 All the specifications should be marked on manufactures original literatures and the documents should be able to validate online with manufacture's website.			
		16.3 Should provide a very good after sales service and the Local agent's experience Should be declared. Well trained technical team should be available and the training certificates should be attached.			
		16.4 At least two contacts of reference institutes in Sri Lanka Should be provided where the Aflatoxins applications are performed with the same type of configuration. (systems should not be older than 5 years)			
		16.5 Software updates or reinstallation must be provided whenever a computer software/hardware defected / Malfunction occurs.			
	<i>Description of Goods or Related Service</i>		<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
17.	<u>Computer and Printer</u>	17.1 Brand new (HP, Asus or Dell) PC with Intel Core i7 hexacore processor with up to 4.6 turbo speed and 12MB cache memory, 8 GB DDR4 memory, 2 GB VGA, 1 TB			

		SATA hard drive for storage, 22" wide LCD monitor (1920 x 1080), Networking: Integrated Gigabit Ethernet, Optical Mouse with scroll button, SATA Internal DVDRW, Registered Original 64-bit latest possible version of Windows operating system and Black and White laser Printer should be supplied with the instrument			
18.	<u>Online UPS</u>	18.1 10 KVa UPS or manufacture recommended power protection system for Complete instrument with minimum 30 minutes backup			
19.	<u>Complete workable system</u>	19.1 Instrument should be a fully workable system. If any other accessory, consumable is needed for completed operation supplier must quote for required accessories, consumables.			
	<i>Description of Goods or Related Service</i>		<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>

20.	<u>Software</u>	20.1 The software should be based on Windows Operating system and should provide information on all system functions including monitoring of safety interlocks			
21.	<u>Documents</u>	21.1 User Manuals (Operational manual and Method manual), Application notes and other relevant documents should be in English Language and supply in printed and electronic versions with the system			
		21.2 Full system maintenance documentation in English must be available. Indicate the service requirements of the machine and frequency for such service			
23	<u>Power supply</u>	23.1 The system should be suitable for use with 230 VAC, 50/60 Hz, without any external transformers			
		23.2 The system should have the facility to operate with direct AC power. Power supply and power cord/connectors must be included			

	<i>Description of Goods or Related Service</i>		<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
24	<u>Accessories with the system</u>	24.2 The system should be supplied with an isolation transformer for the safety of the instrument against power instability.			
25	<u>Documentations and supply qualifications</u>	25.1 Original Printed literature should be attached with the tender document. All requested information should be highlighted and numbered for easy reference. If this is not available tender will be rejected.			
		25.2 If the requested specifications are not available on the broacher, Manufacturer should confirm the availability of the features on his letterhead.			
		25.3 Letter of manufacturer's Authorization should be submitted with the tender document, this should cover all the accessories requested			
26.	<u>Other accessories</u>	1.Laboratory table -01 no.The system should be supplied with a laboratory table that suit for instrument installation			

		<i>Description of Goods or Related Service</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
		2.High Speed Laboratory Blender with accessory – 01 no			
		3.Vacuum manifold with pump and accessories for sample preparation			
27	<u>Consumables</u>				
	Quantity	Description			
	1.HPLC Vials	Clear auto sampler Vials; 2 mL - 500 Nos. 14.2. Amber Colour Vials : 2 mL -200 Nos. with caps			
	2.Solvent filter membrane	Nylon or PTFE with 0.45 µ pore size , 1000 Nos			
	3.Immuno assay columns 500	Immuno assay columns for Sample extraction for aflatoxin			
	4.Microfilter paper-2 boxes	11cm Microfiber filter paper (100) in pack			
	5.Fluted filter -2 boxes	24cm Fluted filter paper (100) in the pack			

	6.disposable Plastic filter paper-10 packs	Plastic funnels 65cm disposable (10) in the pack			
	Description of Goods or Related Service		Yes(Y) / No(N)	Details of Bidder's offer	Remarks
	7.Disposable plastic beakers-4 packs	Plastic beakers disposable (25) in pack			
	8. Disposable plastic pipet tips -2 packs	Disposable plastic pipette tips (50) in pack			
	9. Standards-Aflatoxin - 5 vials	Aflatoxin Calibration B1,B2,G1,G2 Standards(mix)			
	6 Standards-Sugar- (5g from each)	Sugar Calibration: Glucose, Fructose, Galactose, Sucrose, Lactose, Manose			
	7. Acetonitrile - 2.5L *2	HPLC grade Acetonitrile (Shelf life should be around 1 year)			
	8. Methanol-2.5 L * 2	HPLC grade Methanol (Shelf life should be around 1 year)			
	9.Isopropyle alcohols-2.5 L * 2	HPLC grade Iso-Propyl Alcohol should be supplied with the instrument.			
	10. other consumables	Any other consumable that required for Aflatoxin analysis, should be quoted and			

		provided by the supplier at the time of installation.			
	Description of Goods or Related Service		Yes(Y) / No(N)	Details of Bidder's offer	Remarks
<u>Other Requirements</u>					
25	<u>Installation and commissioning</u>	25.1. Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience for maintenance and services of Elemental analyzers. <i>(Provide documentary evidence of authority from the manufacturer certifying sole local agent of Sri Lanka)</i>			
		25.2. Provide a list of customers that you have provided this type of analyzers within the country. Installed equipment list with end user name, contact number, and institute should be provided with the tender document. Purchase order copies should attached with tender document			

		25.3. Performance test (accuracy, precision, recovery) during the installation should be done for all 4 elements C, N, H, and S with standard reference materials.				
	Description of Goods or Related Service		Yes(Y) No(N)	/	Details of Bidder's offer	Remarks
26	<u>Training</u>	26.1. Complete on-site training on operation, maintenance, and calibration of analyzer should be provided by the manufacturer or manufacturer-trained technical expert for at least 6 trainees.				
		26.2. Should include advance application training for 3 users in manufacturer application center 3 months after successful installation of the instrument at the site.				
27	<u>Warranty and After sale services</u>	27.1. Two-year warranty from the date of acceptance after satisfactory installation and commissioning of the system should be provided. And 10 years warranty should be provided for the detector and the furnace.				

		27.2. After Sale Services, Calibration and maintenance work should be done by the Local Agent. <i>(Provide the details of Technical capability)</i>				
		Description of Goods or Related Service	Yes(Y) No(N)	/	Details of Bidder's offer	Remarks
		27.3. In the event of Instrument is malfunctioning local agent should attend to the job within 48 hours.				
28	<u>Documentary Evidences</u>	28.1. Submit documentary evidence for company registration, year of company registration, No of staff available to support the elemental analyzer				
		28.2. Bidder shall furnish the past supply records including, Name of the Institution, Type of Instrument, Contact details of the user.				

		28.3. Provide evidence that Manufacturer agree to provide spare parts at least 10 years after installing the instrument				
		28.4. Manufacturer independently provide a written confirmation that they will provide their services and support even they change the Local Agent in Sri Lanka with the sign of most senior manager which is responsible for Sri Lankan market.				
		<i>Description of Goods or Related Service</i>	<i>Yes(Y) No(N)</i>	<i>/</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
		28.5. In order to get the maximum usage of the Instrument Manufacturer should agree to offer its technical advice free of charge				
29	<u>Service / Maintenance Agreement</u>	29.1. 5 year after sale service plan should be provided by the bidder with tender document 1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year –			1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year –	

		5 year – After 5 years -		5 year – After 5 years -	
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CRI/2022/NCB/21
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION & TRAINING OF
01 KJELDAHL DISTILLATION UNIT WITH A
BLOCK DIGESTER

TECHNICAL SPECIFICATIONS

Invitation of Bids for the Supply, Delivery, Installation, Commission & Training of 01 Kjeldahl distillation unit with a block digester. The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: Kjeldahl distillation unit (01 No)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Services</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		
		<i>Detail</i>	<i>Yes (Y) / No (N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
1	<u>Application</u>	1.1. Determination of Total Nitrogen, Total Organic Nitrogen, Total Available Nitrogen in soil, plant, food, fertilizer and water samples.			
2	<u>Product Details</u>	2.1. Make <i>(Please specify)</i>			
		2.2. Model <i>(Please specify)</i>			
		2.3. Country of Origin <i>(Please specify)</i>			
		2.4. Country of Manufacture <i>(Please specify)</i>			

		2.5. Year of Manufacture (<i>Please specify</i>)			
3	<u>Space Utilization</u>	3.1. Should be a compact design (<i>Please specify the dimensions</i>).			
4	<u>Analysis method</u>	4.1. Auto Steam distillation, condensation to a receiver and manual titration (semi-automatic)			
5	<u>System specifications</u>	5.1. Variable output steam generator with safe addition of steam			
		5.2. Cooling water flow control for a minimum waste			
		5.3. Distillate temperature monitor			
		5.4. Reagent level alarms			
		5.5. Tube replacement sensor			
		5.6. Over-heat alarms			
		5.7. Automatic tube draining			
6	<u>Design</u>	6.1. Housing material should be chemical resistant (please specify).			
		6.2. Should comprise an automatic safety door with an interlocking system.			
		6.3. A removeable drip tray should be available under the distillation tube.			
		6.4 Maintenance-free, chemical resistant Splash head			
		6.5. Efficient condenser with minimum water consumption.			

		6.6. Easy mounting of the distillation tube and tube-in-place safety			
		6.5. Digital display			
		6.6. External titrator connection			
7	<u>Pumping system</u>	7.1. Type of the pumping system (please specify)			
		7.2. Addition of Alkali, Receiver solution and Dilution water should be automatic.			
		7.2. Addition of steam and removal of waste should be automatic.			
8	<u>Software and program features</u>	8.1. Analysis program should be user friendly, fully editable for all instrumental parameters.			
		8.2. Number of the different storable programs should be mentioned			
9	<u>Performance parameters</u>	9.1. Recovery; > 99 %			
		9.2. Precision; 1 % RSD			
		9.3. Analysis range 0.1 mg-N – 200 mg-N or better.			
		9.4. Analysis time < 4 min			
		9.5. Distillation capacity; 40 mL/min or better			
10	<u>Accessories</u>	10.1. Should provide 03 nos. of borosilicate 250 mL distillation tubes			

		10.2. Should provide 03 Nos. of chemical resistant waste collection tanks (>20 L)			
		10.3. Should provide separate reagent storage tanks for, water, Alkali and Receiver solution.			
11	<u>Compatibility with International Standards</u>	11.1. Manufacturer needs to provide complete details of system compliance with the international standards.			
12	<u>Power supply</u>	12.1. The system should be suitable for use with 230 VAC, 50/60 Hz.			
13	<u>Required Documents</u>	13.1. User Manuals (Operational manual and Method manual), should be in English Language and supply in printed versions with the system.			
		13.2. Letter of authorization from manufacturer should be submitted with the tender document.			
		13.3. All requested information should be highlighted and numbered in the tender document for easy reference. If this is not available tender will be rejected.			
14	<u>Warranty</u>	14.1. A minimum 2 years comprehensive warranty for system must be provided. <i>(Please specify)</i>			

15	<u>After sale services</u>	15.1. The manufacturer must certify the availability and provision of spare parts/accessories at least 10 years following the commissioning of the equipment.			
16	<u>Installation and Commissioning</u>	16.1. Complete Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience in supply and installation of such systems. (Provide documentary evidence)			

Equipment: Block digester (01 No)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Services</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		
		<i>Detail</i>	<i>Yes (Y) / No (N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
1	<u>Application</u>	1.1. Acid digestion of Soil, plant, cereals, food, fertilizer and water samples			
2	<u>Product Details</u>	2.1. Make (Please specify)			
		2.2. Model (Please specify)			
		2.3. Country of Origin (Please specify)			

		2.4. Country of Manufacture (<i>Please specify</i>)			
		2.5. Year of Manufacture (<i>Please specify</i>)			
3	<u>Space Utilization</u>	3.1. Should be a compact design (<i>Please specify the dimensions</i>).			
4	<u>Specifications</u>	4.1. Chemical resistant design			
		4.2. 20 nos. of digestion wells			
		4.3. Should include a Scrubber system			
		4.4. Temperature range, Ambient to 420 °C			
		4.5. Digestion time (please specify).			
		4.6. Lift connection or the exhaust head should properly fit to the digestion tubes.			
		4.7. Digestion Application memory (please specify)			
		4.8. Number of applicable digestion steps (please specify)			
		4.9. Operator level program customizing ability should be possible.			
		4.10. Power supply 240 V/ 50 – 60 Hz			
5	<u>Accessories</u>	5.1. 40 numbers of additional digestion tubes should be included.			
		5.2. Tube hanging rack, stainless steel, should be included.			

		5.2. All other accessories if necessary for complete operation should be provided			
6	<u>Compatibility with International Standards</u>	6.1. Manufacturer needs to provide complete details of system compliance with the international standards. (Please mention)			
7	<u>Required Documents</u>	7.1. User Manuals (Operational manual and Method manual), should be in English Language and supply in printed versions with the system.			
		7.2. Letter of authorization from manufacturer should be submitted with the tender document.			
		7.3. All requested information should be highlighted and numbered in the tender document for easy reference. If this is not available tender will be rejected.			
		7.4. User Manuals (Operational manual and Method manual), should be in English Language and supply in printed versions with the system.			

8	<u>Warranty</u>	8.1. A minimum 2 years comprehensive warranty for system must be provided. <i>(Please specify)</i>			
9	<u>After sale services</u>	9.1. The manufacturer must certify the availability and provision of spare parts/accessories at least 10 years following the commissioning of the equipment.			
10	<u>Installation and Commissioning</u>	10.1. Complete Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience in supply and installation of such systems. <i>(Provide documentary evidence)</i>			

CRI/2022/NCB/22
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION, AND
COMMISSIONING OF
01 NO LABORATORY FUME CUPBOARD

TECHNICAL SPECIFICATIONS

Invitation of Bids for the Supply, Delivery, Installation, & Commissioning of 01 No Laboratory Fume Cupboard The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment 1: Laboratory Fume Cupboard (01 No)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Services</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		
		<i>Detail</i>	<i>Yes (Y) / No (N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
1	<u>Type of Hood</u>	1.1. Low Constant Volume (LCV) Type Bench Fume Hood			
2	<u>Product Details</u>	2.1. Make <i>(Please specify)</i>			
		2.2. Model <i>(Please specify)</i>			
		2.3. Country of Origin <i>(Please specify)</i>			
		2.4. Country of Manufacture <i>(Please specify)</i>			
		2.5. Year of Manufacture <i>(Please specify)</i>			
3	<u>System Dimensions</u>	3.1. Overall Dimension: Should be \geq Width 1500 x Depth 800 x Height 2000			
		3.2. Internal Dimension: Should be \geq			

		Width 1300 x Depth 650 x Height 800			
4	<u>Fume Hood Superstructure</u>	4.1. Must be non-metallic construction			
		4.2. Must ensure total chemical resistance and superior durability			
		4.3. Noise must be < 70 dB (<i>Please specify</i>)			
5	<u>Fume Hood Worktop</u>	5.1. Worktop must be chemical resistant phenolic resin construction			
		5.2. Interior must be with smooth finish, easily cleanable panels			
		5.3. Must include a cup sink for drainage with a water tap			
		5.4. System should include a LED lamp of > 15 W (<i>Please specify</i>)			
6	<u>Fume Hood Sash</u>	6.1. Minimum 5 mm thick toughened glass, height adjustable			
		6.2. Shall be motorized or manually operating (<i>Please specify</i>)			
		6.3. Sash must be vertical rising type.			
7	<u>Exhaust System</u>	7.1. PVC exhaust ducts of standard length 4 m.			
		7.2. Internal diameter should be > 200 mm. (<i>Please specify</i>)			

		7.3. Should compose with a speed adjustable, built-in centrifugal blower.			
8	<u>Power supply</u>	8.1. Should be supplied with a single phase and the system should be compatible to use with a 230 VAC, 50/60 Hz power supply			
		8.2. Must include > 1 No 15 A 3 pin waterproof sockets with switch (500 W). <i>(Please specify)</i>			
9	<u>Fume Hood under Cabinets</u>	9.1. System must include twin door cabinets at the bottom to store chemicals.			
10	<u>Compatibility with International Standards</u>	10.1. Manufacturer needs to provide complete details of system compliance with the international standards SEFA & ASHRAE.			
11	<u>Required Documents</u>	11.1. User Manuals (Operational manual and Method manual), should be in English Language and supply in printed and electronic versions with the system.			
		11.2. Letter of authorization from manufacturer should be submitted with the tender document.			

		11.3. All requested information should be highlighted and numbered in the tender document for easy reference. If this is not available tender will be rejected.			
12	<u>Warranty</u>	12.1. A minimum 2 year comprehensive warranty for system must be provided. <i>(Please specify)</i>			
13	<u>After sale services</u>	13.1. The manufacturer must certify the availability and provision of spare parts/accessories at least 10 years following the commissioning of the equipment.			
14	<u>Installation and Commissioning</u>	14.1. Complete Installation and commissioning should be provided by the Local Agent. Should have minimum 10-year experience in supply and installation of such systems. <i>(Provide documentary evidence)</i>			
		14.2. Provide a list of suppliers that you have provided such systems within the country. Purchase order			

		copies should be attached with tender document.			
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CRI/2022/NCB/23
TECHNICAL SPECIFICATIONS
FOR
SOIL CO₂ FLUX MEASUREMENT CHAMBER

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Soil CO₂ Flux Measurement Chamber. The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: Soil CO₂ Flux Measurement Chamber

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		
		<i>Detail</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	<i>Remarks</i>
1	<u>Application</u>	The system must have the facility to measure the rate of diffusion of CO ₂ from the soil surface. The soil CO ₂ flux chamber must be compatible to use with the LI-6800 infrared gas analyzer.			
2	<u>Product Details</u>	2.1. Make <i>(Please specify)</i>			
		2.2. Model <i>(Please specify)</i> . The analyzer should be the latest model of the quoted brand			
		2.3. Country of Origin <i>(Please specify)</i>			
		2.4. Country of Manufacture <i>(Please specify)</i> .			
		2.5. Year of Manufacture <i>(Please specify)</i> .			
3	<u>Chamber Volume</u>	4000 - 5000 cm ³			
4	<u>IRGA Volume</u>	50 - 70 cm ³			

5	<u>Measurement area (soil)</u>	200 - 400 cm ² (10-20 cm diameter)			
6	<u>Measurement temperature range</u>	0 - 50 °C			
7	<u>Measurement temperature accuracy</u>	± 0.5 °C			
8	<u>Accessories</u>	The system must have the facility and all necessary accessories to connect the chambers to the sensor head of Li-6800 IRGA to measure soil CO ₂ flux.			
9	<u>Complete Workable System</u>	After installation, instrument should be a fully workable system. If any other accessory, consumable is needed other than the quoted items above for complete operation, the supplier must quote in this document. Please specify required accessories, consumables and chemicals with your prices			

10	<u>Software</u>	10.1. All necessary operating software required for intuitive graphical interface to visualize control configurations, diagnostics, measurement protocols, real-time data values etc. must be installed on the system			
		10.2. The software should be based on Windows Operating system and should provide information on all system functions including monitoring of safety interlocks			
11	<u>Documents</u>	11.1. User Manuals (Operational manual and Method manual), Application notes and other relevant documents should be in English Language and supply in printed and electronic versions with the system			
		11.2. Full system maintenance documentation in English must be available. Indicate the service requirements of the machine and frequency for such service			
12	<u>Spare Kit</u>	Spare kit should be supplied with all consumables required to analyze 1000 samples			

13	<u>Documentations and supply qualifications</u>	13.1. Original Printed literature should be attached with the tender document. All requested information should be highlighted and numbered for easy reference. If this is not available tender will be rejected.			
		13.2. If the requested specifications are not available in the broacher, Manufacturer should confirm the availability of the features on his letterhead.			
		13.3. Letter of Authority from manufacturer should be submitted with the tender document, this should cover all the accessories requested.			
<u>Other Requirements</u>					
14	<u>Installation and commissioning</u>	Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience for maintenance and services. <i>(Provide documentary evidence of authority from the manufacturer certifying sole local agent of Sri Lanka)</i>			

15	<u>Training</u>	Complete on-site training on operation, maintenance, and calibration of analyzer should be provided by the manufacturer or manufacturer-trained technical expert for at least 6 trainees.			
16	<u>Warranty and After sale services</u>	16.1. Two-year warranty from the date of acceptance after satisfactory installation and commissioning of the system should be provided.			
		16.2. After Sale Services, Calibration and maintenance work should be done by the Local Agent. <i>(Provide the details of Technical capability)</i>			
		16.3. In the event of Instrument is malfunctioning local agent should attend to the job within 48 hours.			
17	<u>Documentary Evidences</u>	17.1. Submit documentary evidence for company registration, year of company registration, No of staff available to support the elemental analyzer			

		<p>17.2. Bidder shall furnish the past supply records including, Name of the Institution, Type of Instrument, Contact details of the user.</p>			
		<p>17.3. Provide evidence that Manufacturer agree to provide spare parts at least 5 years</p>			
		<p>17.4. Manufacturer independently provide a written confirmation that they will provide their services and support even they change the Local Agent in Sri Lanka with the sign of most senior manager which is responsible for Sri Lankan market.</p>			
		<p>17.5. In order to get the maximum usage of the Instrument Manufacturer should agree to offer its technical advice free of charge</p>			

18	<u>Service / Maintenance Agreement</u>	5 year after sale service plan should be provided by the bidder with tender document 1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year – 5 year – After 5 years -		1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year – 5 year – After 5 years -	
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CRI/2022/NCB/24
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY & COMMISSIONING
OF

01 NO PLANT CANOPY ANALYZER

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery & Commissioning of 01 No Plant Canopy analyzer. The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: Ultra-Pure Water Purification System (01 No)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>	<i>Bidder's Offer</i>		<i>Remarks</i>
		<i>Detail</i>	<i>Yes(Y) / No(N)</i>	<i>Details of Bidder's offer</i>	
1	<u>Application</u>	1.1. Measurement of Leaf Area Index (LAI) of short canopies, tall canopies , non-uniform canopies, and isolated trees			
2	<u>Product Details</u>	2.1. Make <i>(Please specify)</i>			
		2.2. Model <i>(Please specify)</i>			
		2.3. Country of Origin <i>(Please specify)</i>			
		2.4. Country of Manufacture <i>(Please specify)</i>			
3	<u>Accuracy</u>	3.1. Should be accurate in daylight condition should not require specific sun angle and cloud cover			
4	<u>GPS integration</u>	4.1. Should integrate location data using GPS to facilitate mapping			
5	<u>Optical sensor</u>	5.1. Two optical sensors should be provided.			

		5.2. Two connectors for optical sensor interface cables should be provided.			
		5.3. Two connectors for Radiation sensors should be provided.			
		5.4. Wavelength range should be 350 – 490 nm			
6	<u>Console</u>	6.1. Should have a LCD display			
		6.2. Memory should store more than 100 MB (more than 1 million readings)			
7	<u>Power requirement</u>	7.1. Should be supplied through batteries (<i>Specify the number and the type</i>)			
		7.2. Battery life should be more than 70 hours with the optical sensor attached.			
8	<u>Handling feasibility</u>	8.1. System should be light and weight should be less than < 800 g with batteries			
9	<u>Operating condition</u>	9.1. Should be able to operate at a temperature range of 10 to 45 °C			
		9.2. Should be able to operate at a RH condition between 0 – 90 %			
10	<u>Warranty</u>	10.1. A minimum 2 year comprehensive warranty for system must be provided. (<i>Please specify</i>)			

11	<u>After sale services</u>	11.1. The manufacturer must certify the availability and provision of spare parts/accessories at least 10 years following the commissioning of the equipment.			
12	<u>Software</u>	12.1. All necessary operating software required for intuitive graphical interface to visualize control configurations, diagnostics, measurement protocols, real-time data values etc. must be installed on the system			
		12.2. System should capable of collect and store data, performing advance calculations, recalculate results, run queries, and create reports.			
		12.3. The software should be based on Windows Operating system and should provide information on all system functions including monitoring of safety interlocks			
13	<u>Documents</u>	13.1. User Manuals (Operational manual and Method manual), Application notes and other relevant documents should be in English Language and supply in printed and electronic versions with the system			

		13.2. Full system maintenance documentation in English must be available. Indicate the service requirements of the machine and frequency for such service			
14	<u>Spare Kit</u>	14.1. Spare kit should be supplied with all consumables required to analyze 4000 samples			
15	<u>Documentations and supply qualifications</u>	15.1. Original Printed literature should be attached with the tender document. All requested information should be highlighted and numbered for easy reference. If this is not available tender will be rejected.			
		15.2. If the requested specifications are not available in the broacher, Manufacturer should confirm the availability of the features on his letterhead.			
		15.3. Letter of Authority from manufacturer should be submitted with the tender document, this should cover all the accessories requested.			
<u>Other Requirements</u>					

16	<u>Installation and commissioning</u>	16.1. Installation and commissioning should be provided by the Local Agent. Should have minimum 5-year experience for maintenance and services. <i>(Provide documentary evidence of authority from the manufacturer certifying sole local agent of Sri Lanka)</i>			
		16.2. Provide a list of customers that you have provided this type of analyzers within the country. Installed equipment list with end user name, contact number, and institute should be provided with the tender document. Purchase order copies should attached with tender document			
17	<u>Training</u>	17.1. Complete on-site training on operation, maintenance, and calibration of analyzer should be provided by the manufacturer or manufacturer-trained technical expert for at least 6 trainees.			

18	<u>Warranty and After sale services</u>	18.1. Two-year warranty from the date of acceptance after satisfactory installation and commissioning of the system should be provided.			
		18.2. After Sale Services, Calibration and maintenance work should be done by the Local Agent. <i>(Provide the details of Technical capability)</i>			
		18.3. In the event of Instrument is malfunctioning local agent should attend to the job within 48 hours.			
19	<u>Documentary Evidences</u>	19.1. Submit documentary evidence for company registration, year of company registration.			
		19.2. Bidder shall furnish the past supply records including, Name of the Institution, Type of Instrument, Contact details of the user.			
		19.3. Provide evidence that Manufacturer agree to provide spare parts at least 10 years after installing the instrument			

		19.4. Manufacturer independently provide a written confirmation that they will provide their services and support even they change the Local Agent in Sri Lanka with the sign of most senior manager which is responsible for Sri Lankan market.			
		19.5. In order to get the maximum usage of the Instrument Manufacturer should agree to offer its technical advice free of charge			
20	<u>Service / Maintenance Agreement</u>	20.1. 5 year after sale service plan should be provided by the bidder with tender document 1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year – 5 year – After 5 years -		1 year – Free of Charge 2 year – Free of Charge 3 year – 4 year – 5 year – After 5 years -	

CRI/2022/NCB/25
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF
TEXTURE ANALYZER

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery, Installation, Commission & Training of Texture analyzer The bidder shall fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 may be a reason for the rejection of the bid. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

Equipment: Texture analyzer (01 No)

1	2	3	4	5	6
Item No	Description of Goods or Related Service	Technical Specifications and standards			
		Purchaser's requirements	Bidder's Offer		Remarks
		Details	Yes (Y)/ No (No)	Details Bidder's Officer	
1	Application	Texture, analysis of coconut based products, fruits related items			
2	Brand Name	Please specify			
3	Model No	Please specify			
4	Country of Origin	Please specify			
5	Required period	4 to 6 weeks			
6	Manufacture Authorization	Please specify			
7	Instrument Type	Stand-alone, Computer controllable/Software controlling			
8	Software	Custom Testing, Data Analysis and decision making			
		21CFR compliant			

		up to 10 additional customized test methods			
9	Test Modes	Single Compression/compress and hold			
		Texture Profile Analysis			
		Multiple Compression Cycle			
		Tensile/Tension Test			
		Gelatine Strength/Gel Strength Analysis			
		Puncture Test for Hardness – Fruits and Vegetables, Small samples etc.,			
		Bulk extrusion test			
		Consistency test			
		Deformation test			
10	should be able to test	Texture, hardness, separability and stickiness of processed food such as butter, jam, coconut chip and cookies and fresh fruits			
		Extensibility, firmness (Dough properties) of dough and bread			
		Tensile strength coir and edible film and other polymeric material			
11	For software installation and data output Computer and printer	PC with Core i3 4GB, windows operating system LCD monitor – please specify			

		black and white printer			
12	Load Range	10.0 kg – 15.0 kg approximately			
13	Load Resolution	1 g – 2 g approximately			
14	Speed	Range : 0.1 – 10 mm/s Approximately			
		Accuracy: +/- of 0.1% set speed			
15	Position	Range: 0.1-10.0 cm			
		Resolution: 0.1 mm			
		Accuracy: 0.1 mm			
16	Power	220-240 V/50-60 Hz			
17	Data Connection	USB and/or RS-232			
18	Accessories	Standard probes/ and needed accessories of kits/tables and fixing parts should be supplied with the units.			
19	Additional probes should be supplied to measure the characteristics	Three Point Bend Fixture for hardness testing of biscuits and chips samples/ required to supply other accessories of table and fixing devices			
		<i>Magness-Taylor Probes for puncture test to measure hardness of fresh fruit and vegetables/ required to supply other accessories of table and fixing devices</i>			
		<i>Dual Grip Fixture for tensile testing of thin films, coir or integrity of seals for packaging/ required to supply</i>			

		other accessories of table and fixing devices			
20	On-site Training for Instrument & Software	Required			
21	Spare parts, Accessories	At least 05 years (should be able to supply)			
		Warranty period (minimum 1 year)			
		No of service per year (after free service)			
22	Charges for Service/Maintenance agreement	1 year – Free of Charge 2 year – 3 year – 4 year – 5 year – After 5 years –			
23	After warranty period & Free Services	Do you provide after sales service without signing a service agreement?			
		If you are supplying ON CALL service, how do you charge?			
		Unit price (without VAT) Rs			

		VAT (Rs)			
		Unit price (with VAT) Rs			

CRI/2022/NCB/26
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF
COMPOUND MICROSCOPES WITH CAMERA

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery & Installation ,Commission & Training of Compound Microscopes with Camera

The bidder must fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 or providing wrong information in those columns may be a reason for the rejection of the bid. Details related to each technical specification should be highlighted and referenced to the page numbers of the manufacturer's catalog and/or operational manual. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

If catalogue is referred to any of the specifications below, relevant information has to be highlighted and indicated with the appropriate line-item number.

1	2	3	4	5	6
<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>		<i>Bidder's Offer</i>	
		Detail	Yes(Y) / No(N)	Details of Bidder's offer	Remarks
1	Observation method	Multiple Observation methods – Specify Yes/No Brightfield as the Standard method Simple polarized			

		Phase contrast Darkfield (Optional)			
2	Optical system	IOS			
3	Head	Trinocular 360 rotating Interpupillary distance (mm), preferred in the range of 50-75 mm Dioptric adjustment, required, specify on which tube			
4	Eyepieces	Field Number 22mm – Large Specimen View Magnification 10x Higher eye point is needed for glass wearers			
5	Nosepiece	Positions- Quintuple Revolving nosepiece with reverse rotation			
6	Objectives	Type: IOS W-PLAN Parfocal distance (mm) : Specify Standard objectives: 4x/0.10, W.D. 17.3 mm 10x/0.25, W.D. 10 mm 40x/0.65, W.D. 0.54 mm 100x/1.25 (Oil/Water), W.D. 0.13 mm (All should be with Anti- fungal treatment)			
7	Focusing System	Coaxial coarse and fine with focus memory lock Fine resolution 2 μ m preferable, if not specify Fine total travel (per single rotation) – Specify in mm Fine graduations: 100 preferable Coarse total travel: Specify in mm			
8	Stage Type	Type and moving mechanisms: Double layer, reckless Stage Dimensions: Specify Stage XY Moving range (mm) : Specify Vernier scale accuracy : 0.1mm			

		Slide holder : 2 Slide holder			
9	Condenser	Swing-out type (If different Specify), Centrable and removable Abbe condenser with focusable by rack and pinion with aperture scale Condenser Numerical aperture (N.A.): Specify Diaphragm Type : Iris			
10	Transmitted Illumination	Full Kohler illumination Type : X-LED ³ Light Source Power (W): Specify Life time: Longer the better Specify in hours Brightness control: manual			
11	Power Supply	External with Multi-plug			
12	Microscope Accessories	Specify all the accessories included			
	Technical Specifications of Digital Microscope Camera				
13	Purpose	Compatible with the above quoted microscope, and capture images of the microscope field to be used for scientific purposes			
	Make				
	Model				
	Country of Origin				
	Country of Manufacturer				
14	USB Camera resolution (MP)	8 MP			
15	Camera resolution (n° of pixels: W x H)	Specify, Higher the better			

16	Color	Color. Able to capture images in color			
17	Sensor Technology	CMOS			
18	Image Format	Specify			
19	Pixel Size (mm)	Specify			
20	IR filter	Yes			
21	Camera Power	PC USB			
22	C-mount	Yes			
23	Camera accessories	Calibration Slide USB cable (1.8m)			
24	Camera Software	Camera Software (image processing software) should be provided by the manufacturer for free of charge Should be Compatible with the following OS Windows 7, Windows 8, Windows 10 (32Bit) Windows 10 (64Bit), Osx (MAC Osx) starting from Version 10.7.5, Linux			
25	Warranty	Microscope: 10 years Camera: 2-3 years			
26	Spare parts availability	Microscope: 10 years Camera: 2-3 years			
27	Local Agent authorization letters	Yes			
28	User reference list	For the Past 5 Years			

CRI/2022/NCB/27
TECHNICAL SPECIFICATIONS
FOR
SUPPLY, DELIVERY, INSTALLATION,
COMMISSION AND
TRAINING OF
DISSECTING STEREO MICROSCOPE WITH
CAMERA AND COMPOUND LIGHT MICROSCOPE
WITH CAMERA

TECHNICAL SPECIFICATIONS

Invitation of Bid for the Supply, Delivery & Installation ,Commission & Training of Dissecting Stereo Microscope with Camera and Compound Light Microscope with Camera

The bidder must fill the columns 4 and 5 (**Print clearly**). Failure to provide the information requested in the columns 4 and 5 or providing wrong information in those columns may be a reason for the rejection of the bid. Details related to each technical specification should be highlighted and referenced to the page numbers of the manufacturer's catalog and/or operational manual. Supplier should certify the information provided here by a company seal with a signature of an authorized officer.

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<i>Line Item No</i>	<i>Description of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>			
		<i>Purchaser's Requirements</i>		<i>Bidder's Offer</i>	
		Detail	Yes(Y) / No(N)	Details of Bidder's offer	Remarks
	Dissecting Stereo Microscope with camera				
1	Microscope	The microscope shall have magnification range at least 7x to 48x.			

		<p>The microscope magnification can be extended up to 250x with supplementary lenses and eyepieces</p> <p>Microscope should have built-in apochromatic corrected zoom optics for sharp, distortion-free 3D image over the whole visual field.</p> <p>The resolution of the optics should not be less than 430 LP/mm.</p> <p>The microscope should be capable of observing large specimen field size of 35mm or more.</p> <p>There should be a cold light LED source illumination should be available with lamp life time of approx. 50,000 hours to reduce maintenance cost.</p> <p>Double Spot Illuminator should be supplied along with the system & both the illuminators can be upgradable for polarizing applications</p> <p>The standard free working distance should be 90 mm or above.</p> <p>The working distance should be upgradable up to 280 mm or better.</p> <p>It should confirm to British Standard 230V AC 50Hz single phase with external power supply adapter.</p>			
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		Different types of adapters should be supplied with the system and that should be compatible for existing power cords in the laboratory.			
2	Camera	<p>It should be a CMOS colour camera with Rolling Shutter.</p> <p>Pixel count should not be less than 8 MP & Pixel size should be at least $.85 \mu\text{m} \times 1.85 \mu\text{m}$ with 8 mm Image diagonal. Exposure time range should be at least 0.07 ms up to 1 s</p> <p>It can be connected with HDMI, USB 3.0 Type C, Ethernet, Micro-D Frame rate should be 28 fps for HDMI & Ethernet, for USB 3 it should 0-30fps</p> <p>The camera operating software should be supplied from the microscope manufacturer and should have live image display capability through software.</p> <p>Software should be capable of Interactive measurement: length, contour-based measurement data (area, box, perimeter, gray values), angle and should also be able to do the text annotations in the captured image.</p> <p>Should be able to support image formats of TIFF, SHQ, HQ, SQ-L, SQ-H and JPEG with automatic and manual exposure and with auto white balancing.</p> <p>Should also have functions for 2x and 4x live zooming and video recording.</p>			

Compound Light Microscope with camera				
1	Microscope	<p>Paired wide field focusable eye pieces (10x FOV 22 mm) should be supplied with each unit and it should be suitable for insert graticule and pointer.</p> <p>Focus range 15 mm</p> <p>Both eyepieces should be equipped with ± 5 diopter adjustment for fatigue free observation and should be secured against unauthorized removal.</p> <p>Reverse tilted with 4 position nosepieces with precision click stops. 4x/0.1 & Working distance 31 mm or better 40x/0.65 Working distance 0.72 mm or better</p> <p>Oil immersion objective 100x/1.25 Working distance 0.30 mm or better</p> <p>The unit shall have anti-fungal coated optical lenses.</p> <p>Splitting Ratio: 50% visible: 50% documentation.</p>		
2	Camera	<p>8-megapixel integrated colour camera, 2.2 X 2.2 μm pixel size, exposure time of 0.7ms to 2 s and frame rate of 30 fps.</p> <p>It should be able to work at a speed of 30fps @3800 x 2160 frame size (HDMI mode).</p> <p>Software should be capable of Interactive measurement: length, contour-based measurement data (area, box,</p>		

	<p>perimeter, gray values), angle and should also be able to do the text annotations in the captured image.</p> <p>Software should have facility to acquire images, edit files and export into various formats.</p> <p>It should confirm to British Standard 230V AC 50Hz single phase with external power supply adapter.</p> <p>Should have an external power supply unit for easy repair and the prevention of electric shock in case of power leakages and country specific adapters should be supplied with the system.</p>			
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