



# BIDHAN CHANDRA KRISHI VISWAVIDYALAYA

COLLEGE OF AGRICULTURE, SUSUNIA  
CHHATNA, BANKURA, WEST BENGAL.

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## E-Tender

The Principal Investigator project entitle "Development of Soil, Plant and Water Testing Laboratory for Sustaining Soil Health and Agricultural Productivity in the Red & Laterite Zone of West Bengal" College of Agriculture, Susunia, Chhatna, Bankura(Extended campus of BCKV)are invited online quotations from the bona fide suppliers/ vendors for supplying the different Instruments as per pacifications stated below within **fifteen (15)days of publication**. Please mention terms & condition clearly against each item, if any, for supplying the Instruments.

- i) Price: The price of instruments including the imported ones should be quoted in each unit (including taxes and duties etc). However,quoted rates must be for destination including packing, insurance and delivery charges up to **College of Agriculture, Susunia, Chhatna, Bankura(Extended campus of BCKV)**West Bengal with satisfactory of good condition.
- ii) EMD: Vendors are required to pay the Demand draft amounting Rs. 10000/-(Rupees ten thousand) only (**xerox copy**) as specified along with their quotations. Without EMD quotations will not be considered for technical comparison. Demand Draft must be in favour of "**Bidhan Chandra KrishiViswavidyalaya**" payable at Kalyani (IFSC: SBIN0001082). Supporting document regarding exemption of demand draft must be submitted.
- iii) Supporting Documents:
  - a) Bid papers should accompany authorization certificate from original manufacturer, trade license, GST registration etc.
  - b) Photocopy (Self attested) of the original supporting document in favour of the specification – claim for each item must have to be submitted separately.
  - c) User list along with certificate from reputed users also need to be submitted.

Price bid of the vendors will be compared only if technical specificity as appended against each item is fulfilled. The Viswavidyalaya reserves the right to accept or reject any tender without showing reason.

**N.B : Please read the carefully terms and conditions of items.**

Chairman, CTC, BCKV

Principal Investigator  
"Development of a soil, plant and  
water testing laboratory....Red and  
laterite zone of West Bengal"-RKVY  
(RAFTAAR), COA, Susunia, BCKV  
Bankura, West Bengal

for uploading  
in the website of BCKV  
01/03/23

Name of InstrInstrument	Specification
<b>Atomic Absorption Spectrophotometer (AAS)</b>	Fully-integrated benchtop Double Beam Atomic Absorption Spectrometer (AAS) having the following specifications should be quoted: Model number and technical specification as claimed must be in the website for verification. Quote price must be in Indian rupees and includes delivery charges up to laboratory
	<b>TECHNICALSPECIFICATION</b>
<b>Monochromator</b>	Should have Littrow or better design with motorized drive for automatic wavelength selection and peaking. Mirror free fiber optics light transmission for maximum light throughput and best detection limit preferred
<b>Wavelength Range</b>	190 – 900 nm
<b>Diffraction grating</b>	1800 lines/mm blazed at 236 nm and 597 nm is preferred. Reciprocal Linear Dispersion: 1.6 nm/mm or better
<b>Background Correction</b>	Should have built-in continuum source double-beam background correction using high-intensity deuterium arc lamp.
<b>Spectral Bandwidths</b>	User selectable automatic slit widths of 0.2, 0.7 and 2.0 nm at their optimized slit height.
<b>Detector</b>	Wide-range segmented solid-state detector
<b>Lamp Turret</b>	Minimum 8-lamp turret with built-in power supplies slot for EDL/Super lamp should be quoted.
<b>Lamps Requirements</b>	1. Single or multi element Cathode lamp-Fe, Mn, Zn, Ni, Ca, Mg, K, Mo, B, Na, P, Si, Al. 2. Electrode less Lamp- As. Hg.
<b>Gas Controls</b>	Should have fully computer-controlled with oxidant and fuel monitoring. Keyboard-activated remote ignition system with air-acetylene. Acetylene flow should be automatically adjusted prior to the oxidant change when switching to or from nitrous oxide-acetylene operation.
<b>Safety Functions</b>	Interlocks to prevent ignition in absence of proper burner head, the nebulizer/end cap, or the burner drain system preferred.
<b>Sample Introduction System</b>	Modular sample introduction system consisting of the quick-change spray chamber, burner head and nebulizer units.
<b>Nitrous Oxide Burner Head, Hose Assembly</b>	Must be quoted if required for analysis of elements mentioned in tender specification.
<b>Data Control System</b>	Complete PC control using Windows based software operating under the Microsoft® Windows® 10 with complete control of the instrument and its major accessories plus data handling and storage should be quoted.
<b>Accessories</b>	(A) Suitable exhaust hood (B) UHP grade Acetylene gas filled cylinder (C) UHP grade Argon gas filled cylinder (D) UHP grade Nitrous Oxide gas filled (E) Double stage gas regulators for Acetylene, Argon & Nitrous Oxide (or imported if required) (F) Gas purification panel for above gases (G) 10 KVA online UPS
<b>On siteWarranty</b>	Three Year
<b>Installation/Demonstration</b>	Free of Cost

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**CHNS  
Analyser**

Fully Automated PC controlled Elemental Analyses for Solids, liquid and semi-solid samples. Operating modes for measurement of CHNS, CHN, CNS, and S. Model number and technical specification as claimed must be in the website for verification. Quote price must be in Indian rupees and includes delivery charges up to laboratory.

Sample weight Range : up to 1000 mg for CHNS mode. It should be able to handle at least 10mg absolute carbon in CHNS mode.

Detection range : 0 to 100% for all elements ( C, H, N, S)

LOD : 50 ppm or better

Standard deviation :  $\leq 0.1\%$  of absolute.

Fully digital electronics that should be fully integrated in unit, no external control panels required

Should have mass flow controller/electronic flow controller for constant flow of carrier gas.

Quick swap clamp connections for fast maintenance.

<b>Furnace System</b>	<ul style="list-style-type: none"><li>• Should have two zone furnace system, separate for combustion and reduction with independent temperature control for each furnace. It should be possible to set difference temperature for combustion and reduction in CHNS mode.</li><li>• Controlled furnace Temperature should be <math>1200^{\circ}\text{C}</math> or more</li><li>• Furnace working on low voltage for safety and long life with 10 years warranty.</li><li>• Should have possibility to use ceramic/quartz ash finger to handle high halogen or fluorine contents sample.</li></ul>
<b>Separation System</b>	<ul style="list-style-type: none"><li>• Advanced Chromatographic separation of gases using Temperature programmed desorption technology.</li><li>• Complete instrument control over elution process with provision of auto zero of baseline after each element elution.</li><li>• Full separation of all analytes and there should be no peak tailing or peak overlap</li><li>• Sulphur being a crucial element, should be analysed with higher column temperature (separation column) than Nitrogen, Carbon, and Hydrogen. All necessary accessories/ options in this regard should be quoted as mandatory items</li></ul>
<b>Detector System</b>	<ul style="list-style-type: none"><li>• Oxygen intrusion free thermistor technology based Temperature stabilized TCD detector for measurement of C-H-N-S</li><li>• 10 year or more warranty on TCD.</li><li>• All the internal gas flow line should be heated to avoid condensation.</li></ul>
<b>Autosampler System</b>	<ul style="list-style-type: none"><li>• Electromechanical auto sampler system with 100 positions or more. The Autosampler should hold at least 500 mg of Soil Sample. Pneumatic autosampler is not acceptable.</li><li>• The autosampler should be zero blank and ensure complete removal of atmospheric gases before sample injection into the high temperature reactor/ furnace. It is a crucial scientific requirement and must be met.</li></ul>
<b>Carrier gas:</b>	Possibility of using Argon gas or Helium gas as a carrier gas. There should be option for automatic carrier gas switching from helium to Nitrogen or Argon or there should be option switch off the gas supply while the machine is at working temperature to save carrier gas and time.
<b>Software</b>	<ul style="list-style-type: none"><li>• should be Windows 10/11 professional based and should have display of set and actual pressures, flow rates, temperatures, number of samples analysed with provision for setting maintenance interval with warning when maintenance needed</li><li>• Should have <b>segmented</b> leak check through software to enable identification of exact position of leak.</li></ul>
<b>Consumables:</b>	To be supplied with consumables sufficient for 1,000 sample analysis in CHNS/CNS mode,

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	<b>Accessories</b>	Vendor should quote for complete system including the following items		
		<b>S. No.</b>	<b>Details</b>	<b>Quantity</b>
		1	PC (Intel Core i5 or better , RAM-At least 8GB RAM, SSD 512 GB, Hard drive-1TB or more, Screen size-21'' or more, At least 3 USB 2.0 ports Windows 10, 64-bit), Black & white laserjet Printer	01
		2	UHP grade Helium Gas with double stage regulator	01
		3	UHP grade Oxygen Gas with double stage regulator	
	<b>Necessary documents:</b>	1. Catalogue in original. 2. All technical specifications should be printed on the manufacturers catalogue/ data sheet. <b>Separate sheet will not be acceptable.</b> 3. Please include the list of minimum 10 users in India.		
	<b>On-site Warranty</b>	Three Year		
<b>3</b>	<b>Double Beam UV VIS Spectrophotometer:</b>	Microprocessor based UV-VIS Spectrophotometer for operation on 220V / 50Hz. <ul style="list-style-type: none"> <li>▪ Stand-alone operation as well as complete control through PC with PC software supplied as standard</li> <li>▪ Double beam optics with Czerny-Turner monochromator</li> <li>▪ Wide wavelength range of 1,100 nm to 190 nm</li> <li>▪ Variable Spectral Bandwidth 0.5, 1, 2, 4, 5 nm</li> <li>▪ Wavelength setting in 0.05 nm</li> <li>▪ Wavelength accuracy of <math>\pm 0.1</math>nm for D<sub>2</sub> spectral line</li> <li>▪ Wavelength repeatability of <math>\pm 0.1</math>nm</li> <li>▪ Variable wavelength scanning speed: <math>\geq 3,000</math> nm/min</li> <li>▪ Slew rate : 4800 nm/min</li> <li>▪ Ultra low stray light of &lt;0.05% at 220nm NaI, 360nm NaNO<sub>2</sub></li> <li>▪ Wide Photometric range of -3.0 to +3.0 Abs and 0 to 300 %T</li> <li>▪ High Photometric Accuracy of <math>\pm 0.002</math> Abs (0~0.5 Abs)</li> <li>▪ High Photometric Repeatability of Less than <math>\pm 0.001</math> Abs (0~0.5 Abs)</li> <li>▪ Baseline stability: <math>\leq 0.0004</math> Abs/30 min (500 nm, one hour after light source turned ON)</li> <li>▪ Baseline flatness: <math>\pm 0.001</math> Abs (1100 ~ 190 nm, one hour after light source turned ON)</li> <li>▪ Ultra low Photometric noise of &lt; 0.0008 Abs (500 nm)</li> <li>▪ Dual source – high intensity Halogen lamp and Deuterium lamp with built-in light source auto position adjustment</li> <li>▪ High sensitivity Silicon Photodiode detector</li> <li>▪ 3 or more USB ports for high speed PC and printer connectivity</li> <li>▪ All operational modes as standard – Photometric; Spectrum; Quantitation; Kinetics, Time Scan, Bio-method in stand alone and PC mode.</li> <li>▪ Large sample compartment compatible with wide range of accessories.</li> <li>▪ Must supply one pair of 10mm path length Quartz Cuvettes of 3.5 ml volume as a standard supply</li> <li>▪ 12 months warranty from the date of installation</li> </ul> <b>On site Warranty : Three years</b>		

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