File No.: GA-25/2/2025-Gr.Admin-FSSAI
Food Safety and Standards Authority of India
(A statutory Authority established under the Food Safety and Standards Act, 2006)
(General Administration-Central Procurement Unit)
FDA Bhawan, Kotla Road, New Delhi – 110002

Dated: 09.07.2025

Corrigendum

Reference is invited to the GeM Bid No. GEM/2025/B/6232129 dated 15.05.2025 and the pre-bid meeting held on 28.05.2025.

2. In this regard, the Technical Specifications of the Atomic Absorption Spectrophotometer (AAS) have been revised and the same is being placed at Annexure-I.

3. Further, the Bid End Date is being extended upto 21.07.2025

4. All other Terms and Conditions shall remain the same.

(This issues with the approval of the Competent Authority)

9.7.2025

(Avinash Kusumakar)
Joint Director

Technical Specifications of Atomic Absorption Spectrometer (AAS)

General Tender Specification		
PC controlled true double beam fully automatic Atomic Absorption Spectrophotometer system for multi element measurement with the Unit for Flame (Air Acetylene and nitrous oxide- acetylene), Graphite Tube Atomizer (GTA), Chiller/Water circulating unit and Auto samplers for GTA. Instrument should meet the global food regulation requirements (like CODEX, USFDA, EU, FSSAI, etc.)		
S. No.	**Specification**	**Requirement**
1.	**Atomic Absorption Spectrophotometer**	i. PC controlled true double beam AAS for multi element measurement with deuterium background correction. ii. The sample and reference beams are to be measured Simultaneously for enhanced precision and detection limits.
2.	**Spectral bandwidth**	i. Computer controlled automatic with adjustable spectral bandwidth of 0.2 to 1.0 nm or better
3.	**Spectral Dispersion**	i. 1.6nm/mm or better
4.	**Monochromator**	i. The system should have quoted with optics having blazed holographic grating with minimum 1800 lines/mm. Wavelength range 190–900nm or better. ii. PC controlled wavelength selection and peaking.
5.	**Detector**	i. Wide range segmented solid state/ photomultiplier tube detector covering full wavelength range.
6.	**Sensitivity**	i. Sensitivity at least 0.7 abs for 5 ppm aqueous copper standard (traceable to ISO 17034) solution with air-acetylene flame.
7.	**Background Correction**	i. The system should have deuterium background correction for flame operation and Zeeman-effect background correction for graphite furnace.
8.	**Lamp**	i. Minimum eight or more lamps turret capable of holding different Hallow cathode and EDL lamps. System should be compatible with single and multi-element lamps. ii. Lamp selection, alignments and operating current should be software controlled. iii. Warranty for hallow cathode lamps must be at least 5000mA hours.
9.	**Gas Control**	i. Must be programmable through software for every element in flame mode. ii. Software controlled oxidant and fuel monitoring iii. Remote/Software controlled ignition of flame.
10.	**Burner**	i. Titanium burner heads of 10 cm length suitable for air acetylene and 5cm length for nitrous oxide-acetylene should be provided. Solid titanium burner head should have mechanism to quickly and easily replace to change analytical techniques. ii. The alignment of the flame in light beam should be fully automatic, using motorized burner mount for vertical and/ or horizontal burner adjustment and automatic software controlled self-optimization of the burner position.
11.	**Nebulizer**	i. The system should have high sensitivity, durable, acid and alkali resistant nebulizer with impact bead assembly.

		ii. It should be able to provide adjustable uptake rates between 2 and 6ml/min and the material of the nebulizer and related vent should be inert to acid/alkali solutions and organic solvents such as Methyl isobutyl Ketone.
12.	**Spray Chamber**	i. It should be inert with flow spoiler/impact bead assembly.
13.	**Flame Safety Function**	i. Interlocking system to prevent ignition, if the proper burner head, the nebulizer/end cap, or the burner drain is not correctly installed, the liquid level in the drain vessel is incorrect, or gas pressures are too low. ii. Interlocks also should automatically shutdown burner gases if aflame is not detected, or if any of the other interlock functions are activated. iii. Provision to include for the safe shutdown from all operating modes in the event of a power failure. iv. Separate flame shields for the protection of operator from the heat and radiation to be provided.
14.	**Others**	i. Air filter, acetylene and nitrous gas dual stage regulator with pre heater required tubes & fittings. ii. Suitable exhaust system including stainless steel fume hood with ducting, minimum one hp motor should be supplied and installed at site by the vendor.
15.	**Readout/Display**	i. Display facility for absorbance as well as concentration, Display of errors or error codes, absorbance range at least upto 2.0Abs.
16.	**Integration time**	i. Integration time should cover at least 0.2 to 50seconds range
17.	**Measurement**	i. Measurements of mean, RSD and CV, Background only mode, Integration of peak height and peak areas.
18.	**Accessories/Spares with Flame AA System**	
19.	**Vapour Generation Assembly (VGA)**	i. Hydride/mercury vapor generator with option of using with a programmable auto sampler for volatile metals like Hg, As, Se, Sn. ii. VGA should be either coupled to flame or by electrical heating. iii. Essential accessories for VGA should be quoted separately.
20.	**Absorption Cell**	i. The absorption cells material should have no effect of the high heat of the flame and the cell for the analysis of Mercury should be of a closed cell design.
21.	**Cell Design holder**	i. The design of the cell holder should give a firm and easily adjustable (for alignment) mounting on the burner head.
22.	**Hollow Cathode lamps & Electrodeless Discharge Lamps (EDLs)**	i. Hollow Cathode lamps: Pb, Cd,Cr,Fe,Cu,Zn,Al,Be,Co,Mn, and Se ii. HCL/EDL lamps for Hg, As & Sn iii. Software should auto detect type of lamp with element
23.	**Standard Solutions required**	i. **Single element standard Solutions required:** 1000 ppm certified standard (tracebale to ISO 17034) solutions (100 ml each) to be quoted for Pb, Hg, Cd, Cr, Fe, Cu, Zn ,Al, Be, Co, Mn, As, Se
24.	**Air Compressor with Air Filter**	i. Oil free air compressor with pressure regulator, necessary tubing and connectors and should meet the air supply requirements of AAS operation. ii. Specification of the Proposed air-compressor to be furnished.
25.	**Corrosion Resistant**	i. Resistant to acidic vapour and the drain valve (if any) should be made of stainless steel or equivalent corrosion resistant material.
26	**Gas cylinders**	ii. Acetylene gas cylinders -2 Nos

		iii. Argon gas cylinders -2 Nos iv. Nitrous Oxide Gas cyclinders. -2 Nos v. The above gas cylinders shall be supplied with high purity of gas & necessary documents (purity, hydro test, Petroleum and certificate from Explosive Safety Organization (PESO) etc)
27.	**Gas Regulators**	i. Nitrous Oxide Gas regulator (two stages) with heater, with necessary tubing and connectors. -2 Nos ii. Acetylene gas regulator (two stages) with necessary tubing and connectors. -2 Nos iii. Nitrogen regulator (two stages) with necessary tubing's and connectors. -2 Nos
28.	**Graphite Tube Atomizer**	i. Should be computer controlled fully enclosed graphite tube system consisting of stabilized temperature/total pyrolytic Graphite platform.
29.	**Gas Supplies**	i. Provision of two gas supplies (program selectable) with independent control over the gas supply through the furnace.
30.	**Temperature Range**	i. Temperature range ambient to 2600°C or more in 10°C increments
31.	**Feedback system**	i. Feedback system for furnace temperature control, interlocks for water, gas, temperature, furnace door, graphite tube Damage and mains power.
32.	**Temp. Programming**	ii. At least twelve or more steps temperature programming facility with flexibility of program selection, ramp time, gases, iii. Gas flow and read trigger for each temperature step.
33.	**Control**	i. Computer controlled with appropriate provision for printout of the furnace and sample parameters
34.	**Display**	i. Calibration data/graphs, temperature profiles, signal graphics and the instrument status
35.	**Chiller/ Cooling Water Re-circulation Unit**	i. Refrigerating water circulation unit of appropriate capacity for smooth functioning of equipment. No discharge of water from this water circulation unit. (Details of the proposed arrangement to be provided)
36.	**Autosampler**	i. Auto sampler with Removable sample tray with minimum 80 sampling positions for sample and reference solutions and 1 overflow container for pipette washing should be quoted for Graphite Tube Atomizer with Injection volume up to 70 micro litre or more. ii. Control of auto samplers through software.
37.	**Optics**	i. System should have fiber optics or Czerny-Turner optics or better optics design for maximize light throughput for improved detection limits.
	DATAWORKSTATION	
38.	**Software**	ii. Should provide complete control of instrument with instrument status display and its various accessories. iii. Should provide accurate and reproducible time averaged, integration, non-averaged integration, multi level calibration. iv. Software should handle instrument linear absorbance reading, concentration, or emission intensity, integration time, built-in statistics, v. calibration equation control, slope of analytical curve using operator selective calibration standard vi. Built-in interface for computer connection and use of optional accessories.

		vii. Comprehensive quality control Protocols facility including blank, multiple quality control standards, QA/QC audit trail and calibration failure. viii. Original licensed version software of current generation to be provided.
39.	**PC & Printer**	i. Branded PC with minimum configuration: Latest i7coreprocessor, Windows based, 1TB HDD, 23 inch LED monitor, 16 GB RAM and (BW) laser printer with 16 PPM should be supplied along with The instrument. ii. Optical mouse and keyboard
40.	**Additional Items**	i. Following items to be supplied with instrument. ii. Manufacturers Standard Operation Kit including all required items, tubing's, fittings for startup/regular operation of instrument.
41.	**Spare & Consumables**	i. Essential spares & consumables for the operation for each of the following units should be quoted for 5 years warranty period: a) Flame AAS (basic unit, burner system) b) Vapour generation assembly c) Consumables for graphite furnace atomizer autosampler to be quoted d) Required Graphite tubes should be provided each year till 5 years warranty period
42	**UPS System**	i. Suitable capacity of Online UPS system for AAS instrument with isolation transformer for 1 hour back up time of reputed brand to be supplied by vendor (make and model of UPS to be furnished)
43	**Warranty**	i. Minimum 5-year standard warranty for the entire system and sub-systems ii. Warranty should be covered for all accessories and 3rd party items provided with the system. iii. For delay in attending break-down call beyond 2 working days a penalty @ ₹5,000/- per day shall be charged. Such amount will be deducted from any amount due or which may become due to the supplier. The warranty period shall automatically stand extended by the number of days taken to rectify the defects (beyond 2 days).
44	**After sales service/Post Warranty**	i. Should have a good after sales service/technical support capable of reaching at short notice the places where AAS is proposed to be installed. Visits and unlimited breakdown calls by service/application support, engineers should attend immediately without fail for the AAS including UPS system. ii. Troubleshooting training (Instrumentation/Application) as and when required shall be provided free of cost. iii. The application and method development support must be rendered for minimum 30 days during the warranty period. iv. The vendor should also assure supply of spares, accessories, consumables and service for at least 10 years including. v. Terms and conditions for the AMC & CMC, after the warranty period has to be specified. vi. Quote for AMC & CMC for 6th, 7th, 8th, 9th & 10th years, to be submitted separately. vii. The CMC shall include parts cover all hardware including detector, as well as wear and tear consumables, PM kit (yearly), annual calibration along with documentation.

		viii. **AMC/CMC price quoted by the vendor will be considered as independent price.It will not be considered for finalizing the L1.**
45	**IQ/OQ/PQ**	i. IQ/OQ and PQ will be performed by user with company support, should be done free of cost with necessary traceable standards along with necessary performance kit standard solutions ii. OQ/IPV with report should be done free of cost with supply of 1-PM Kit and 2-PM visits each year till warranty period and calibration standards during warranty period.
46	**Training Component**	i. The supplier will have to carry out the successful installation at our laboratory premises (where ever the system will installed) & provide on-site comprehensive 5/7 days training for scientific personnel operating the system at supplier's lab & from 2nd year till warranty end period 5/7 days training will be given at the user's lab premises.
47	**Experience**	i. The supplier should have executed at least Minimum 20 or more of the model/series of model quoted successful installations among which 5 should be installed in Government institutes. ii. The Complete users list for the quoted model in India, with contact addresses, emails and phone numbers should be provided