Date: 09/12/2025

Minutes of Pre-Bid Meeting

फाइल क्र.: PUR/EQP/03/(2025-26)

विषय: **Dual View, Polychromator based Inductively Coupled Plasma- Optical Emission Spectroscopy (ICP-OES) with Microwave Digestion System.**

A Pre-bid meeting regarding the procurement of the instrument was held on 09/12/2025 from 12:00 Noon onwards in Saranjamshala.

The meeting was attended by the following members:

1. Dr. Mohd. Akram Khan, Chief Scientist, Head EESD
2. Dr. Rajesh Patidar, Principal Scientist, Domain Expert, Internal / Chairman-TSC
3. Mr. Nikhil Rajendra Gorhe, Principal Scientist, Member TSC
4. Dr. Mohd Shafeeq M, Senior Technical Officer II, Member TSC
5. Dr. Shabi Thankaraj Salammal, Principal Scientist, Indenter

Representatives of two instrument manufacturing companies attended the meeting and their details are given below:

1. M/s Agilent Technologies India Pvt. Ltd., Mumbai, represented by Mr. Pravin Pathak.
2. M/s Labindia Analytical Instruments Pvt. Ltd., Vadodara, represented by Mr. Ram Lodhi

During the pre-bid meeting, firms raised the following queries that have been replied by the committee member:

M/s Agilent Technologies India Pvt Ltd

S/No.	Annexure Points	Request for amendment	Response
1	Point No 20 of technical specification (Unpulsed control over entire range with suitable increments)	Unpulsed control over entire range with 1Watt increments	Not considered (It is already mentioned in the tender document that to provide **with suitable increments**)
2	Point No 22 of technical specification (Capable of digesting 1gm or more material)	Capable of digesting 0.5gm (500mg) or more material as the quantity varies with respect to the nature of samples.	Accepted and recommended for amendment accordingly.

3	Point No 28 of technical specification	At least one year of satisfactory performance certificate of one number of ICP-OES and MDS to be provided from the Indian Central and State Government Organizations/PSU/Academic and Research organizations to be provided.	Accepted and recommended for amendment accordingly.

M/s Labindia Analytical Instruments Pvt. Ltd

S/No.	Annexure Points	Request for amendment	Response
1	Point No 4 of technical specification (The spectrometer must cover full spectral range from 167-780 nm or wider)	Floated specs don't cover full range. Full range is 165 nm to 900 nm. We recommend 165nm to 900nm. Kindly revise the wavelength range for wider sample analysis. Specs floated in tender will not cover wider elements.	Not considered (Already requested to quote 167-780nm or wider)
2	Point No 5 of technical specification (The system should be able to analyze any wavelength needed, can be used in radial, axial, mixed viewing (Radial & Axial) modes or synchronous dual view in a single run)	System should be capable of axial and radial reading in a single run. True Simultaneous Synchronous system. In the tender specs it is mentioned OR word to confuse the vendor. Request you to please remove OR word instead of that put (True Simultaneous synchronous) so that everyone can quote their High- end model.	Not considered (The higher end models are for very high throughput samples i.e. more than 300 samples per day), which is not required. Moreover, it will exceed the budget.

Other Technical Specifications and terms and conditions of the tender document will remain the same.

09/12/2025

Dr. Shabi T S
(Indentor)

11/12/2025

Mr. Nikhil Rajendra Gorhe
(Member)

11/12/25

Dr. Mohd. Shafeeq M
(Member)

11/12/2025

Dr. Mohd. Akram Khan
(HOD)

11-12-25

Dr. Rajesh Patidar
(Domain Expert, Internal / Chairman-TSC)

Annexure-III

Specification Revised after Pre-bid Meeting Held on 09/12/2025

Dual View, Polychromator based Inductively Coupled Plasma- Optical Emission Spectroscopy (ICP-OES) with Microwave Digestion System

S. No	Parameter	Technical Specifications
1.	Spectrometer	➢ DUAL VIEW (Radial and Axial). ➢ Polychromatic spectrometer with a resolution of 0.007 nm or better at 200 ±2 nm. ➢ 20 minutes or lesser warm up time from the cold start or stand-by mode. ➢ Integration time: 7 seconds or less. ➢ Capable of detecting more than 70 elements.
2.	Sample Introduction system	➢ Should have minimum four or more channels peristaltic pump. ➢ The sample introduction system (including nebulizer, spray chamber and injector) should be corrosion resistant.
3.	Gas flow control	• System should be equipped with variable MFC controllers/electronic flow control system for all the gases. • Variable plasma gas Flow: 8-14 L/min. • Variable auxiliary gas Flow: 0-1.5 L/min. • Nebulizer gas Flow: 0-1.5 L/min. • Additional gas flow (O_2 or air): 0 - 0.2 L/min along with sample introduction kit for direct organic solvent introduction. • The total gas consumption must be less than 20 L/min.
4.	Detector and wavelength range	➢ Should be equipped with segmented-array charge-coupled device (SCD)/Charge injection Device (CID)/Charge Coupled Device (CCD). ➢ Sealed detector ➢ The actual resolution of the system should ≤0.007 nm or better at 200 ±2 nm. ➢ The spectrometer must cover full spectral range from 167-780 nm or wider. ➢ Anti-blooming protection to enable the simultaneous measurement of trace level analytes in the presence of major matrix constituents. ➢ System should be able to analyze all wavelengths in a single run by axial and radial views in a single method.
5.	Plasma View	➢ Vertical torch with automatic alignment facility for high matrix samples. ➢ Polychromator based Dual viewing optics under computer and software control. ➢ The system should be able to analyze any wavelength needed, can be used in radial, axial, mixed viewing

11-12-25

		(Radial & Axial) modes or synchronous dual view in a single run. ➢ Instrument should be capable of measuring higher (ppm) and lower concentrations (ppb) in a single run. ➢ For high total dissolved solid (TDS) sample analysis, suitable kit (accessories) to be provided. ➢ Automatic plasma ignition and shut off mechanism to be provided.
6.	RF generator	➢ Power wattage: Tunable in the range of 1000 - 1500 watts. Suitable watt increment in dual view without compromising any application desired in the specification depending on the ionization potential of elements. Frequency: 27 or 40 MHz ➢ Suitable chiller from the same make/branded to be provided.
7.	Back Ground correction and Spectral interference	➢ System should have the facility of simultaneous background correction. ➢ The system must be able to read and apply manual or automatic spectral interferences correction in addition to background correction. ➢ The system should correct or automatically stabilize the wavelengths in whole wavelength range. ➢ System should have software corrections like Inter Element Corrections (IEC), Multi-spectral fitting (MSF) or equivalent for the better resolution and background corrections automatically through software.
8.	Gas consumption	➢ Argon gas consumption should be 20L/min or less. (Please mention complete Argon consumption in L/min including Plasma, Auxiliary and Nebulizer). ➢ Any other gas required should be clearly mentioned and cylinders should be provided. ➢ System should have suitable provision to cut the tail plume of plasma like shear gas or cool cone technology. In case compressor is used, all the consumables must be provided during warranty period for the proper functioning of compressor.
9.	Hydride Generator	Dedicated and separate Hydride generator accessary should be provided for hydride forming elements like As, Hg, Se, Sb etc., in main item. The Hydride generator should have an arrangement by which only the hydride gas should enter into the plasma.
10.	Software	➢ Software should enable for quantitative analysis, method of standard addition etc. ➢ There should be flexibility to export data to excel file. ➢ Software should enable user for linear through zero, linear intercept, weighted linear, standard additions methods, and addition calibration methods in software.

		➢ Software must be offered with lifetime/10 years free software upgrades along with minimum one offline license. ➢ The software should enable the user to use interference correction techniques like element corrections (IEC), multi-spectral fitting (MSF) or equivalent etc. ➢ Software should also have comprehensive wavelength library (>30,000 lines) with indication of preferred line for each element. It should feature automatic identification of possible spectral interferences when selecting a particular wavelengths and should have search mode for identification of unknown wavelengths.
11.	Accessories	➢ Vendor should supply suitable refrigerated chiller of appropriate capacity along with the system with warranty. The system should preferably use water/coolant to retain life of chiller and instrument. The onus of supplying chiller fluid upto the warranty period of the instrument is with the vendor. ➢ Exhaust system. ➢ User and hardware manuals should be provided in both hard and soft copies. ➢ Appropriate windows (licensed)-based branded computer with 27 inch monitor (branded). PC: i7 with 16 GB RAM, 1TB SSD/HD. ➢ Other accessories as per proper functioning of ICP-OES requirements like air compressor, filled UHP argon cylinders (quantity 4 of having volume ≥ 200cf), filled UHP nitrogen cylinders – if required (quantity 2 of having volume ≥ 200cf) having suitable dual stage regulator, purification panels and cylinder safety mechanism should be provided. ➢ 10 kVA UPS or higher with minimum 60 minutes backup should be provided. ➢ Multielement NIST traceable standard solution. (1,000 µg/mL): Ag, Al, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Sr, Ti, Zn. Quantity: 100mL ➢ Yttrium internal std – 1000ppm Quantity: 100mL ➢ Silicon Standard -1000 ppm Quantity: 100 mL ➢ Vibration free table of appropriate size to carry ICP-OES, microwave digester and PC. ➢ 5 liter each trace elemental grade HCl, HNO_3, H_2SO_4 and H_2O_2. ➢ 500mL of trace elemental grade HF. ➢ Proper stable earthing less than 1V or as per requirment should be arranged by the vendor.

		➢ Necessary civil work (ducting for exhaust) for installing ICP-OES like ducting to arranged by vendor.
12.	**Others**	➢ Pre installation requirements- Complete technical details of pre installation requirement should be furnished along with the technical bid. Our institute will only provide the installation room, required electrical outlet, AC and water connections. Vendors are expected to supply all other accessories for installation and smooth operation of the equipment. ➢ Suitable tool kit, spares and consumables kit is to be included in the order and the items supplied should be mentioned. ➢ There should be live color camera in software or a window to view plasma for method development and remote diagnostics. ➢ Publically available application notes to be provided for various sample analysis. ➢ Instrument should have a provision to screen the elements. ➢ Provision of instrument health monitoring system should be available.
13.	**Additional Consumables**	i. Torch: 3 nos ii. Alumina/Equivalent Injector: 2 No iii. Injector adapter kit: 2 No iv. Peristaltic pump tubing, Inlet/Outlet: 50 Nos v. Nebulizer: 2 No vi. O-ring kit for torch, injector – 2No vii. Torch bonnet: 3 No, if required viii. HF resistant kit/accessories
	Microwave Digestion System (MDS)	
14.	Material to be digested	Industrial waste, polymers, organic molecules, geological samples, ceramics and metals
15.	Number of vessels	8 or more
16.	Maximum pressure	100 bar or more
17.	Maximum operating temperature	230°C or more with all the eight vessels in acid medium.
18.	Microwave Power	1900W or more
19.	Magnetron Frequency	2.45 GHz or suitable
20.	Microwave Power Control	Unpulsed control over entire range with suitable increments
21.	Temperature Control	Real-time contactless temperature monitoring system for each vessels.
22.	Vessel	1. Microwave transparent and acid resistant inert polymeric materials like TFM / PTFE / Fluoro polymer. 2. Capable of digesting **0.5gm (500mg) or more material**. 3. Vessel volume 100 mL or more. 4. Nonmetallic vessels to be provided

23.	Pressure Control	All vessels should have over pressure release mechanism to avoid over pressurising for safe operation.
24.	Cavity and Lid/door	Should be made up of corrosion resistant stainless steel and multilayer fluoropolymer coating for physical protection as well as chemical resistance.
25.	Oven Access	Lid/door with hardware and software safety interlocks to be provided.
26.	Other requirement	• Instrument should be offered with additional rotor or provision inserts (PTFE and quartz (9 each)) within the offered vessels for micro sample digestion with the low acid volume. • Manuals/ cook books and tutorials should be provided in soft and hard copies for MDS. • 1 years warranty on ICP-OES and MDS • Appropriate training to be provided for different type of sample matrixes such industrial waste, geological, biological, food samples, etc. for digestion and analysis. Minimum four users to be trained onsite for about a week. • Spare parts including software and hardware should be available for at least 10 years. • Unloading at site, unpacking, shifting, commissioning and installation should be done by the supplier/authorized dealer of OEM.
27.	**To be quoted separately**	• 1 year additional warranty to be quoted separately for ICP-OES and MDS. • Rare earth element mix standard for ICP-OES to be quoted separately (Quantity:100ml; concentration: 50ppm). • If the MDS is capable of holding more than 8 vessels, then the price of additional vessels with all the accessories to be quoted separately. Rate per set to be quoted to digest more than 8 samples as and when required.
28.	Qualification Criteria	Vendor should furnish evidence of supply, installation and commissioning of at least 3 systems of ICP-OES and MDS in last five years in Indian Central and State Government Organizations/PSU/Academic and Research organizations, PO and contact details of the users to be provided. At least one year of satisfactory performance certificate of **one number** of ICP-OES and MDS to be provided from the Indian Central and State Government Organizations/PSU/Academic and Research organizations to be provided.

उपस्थिति पत्रक /Attendance sheet

दिनांक/ Date:09.12.2025

विषय/ Sub: TSC's meeting for the ICP-OES on 09.12.2025 at 11.00 am.

Following firms attended the pre-bid meeting

S/n	Name of Bidders	Signature of bidders
1	Pravin Pathak Agilent Technologies (I) Pvt Ltd	
2	LABINDIA ANALYTICAL Ram Lodhi	
3		
4		
5		

डॉ शाबी टी ,
(मांगकर्ता/ विभाग प्रमुख)

डॉ. निखिल गोरहे
(सदस्य)

डॉ मो. शफीक एम
(सदस्य)

डॉ. राजेश पाटीदार
(डोमेन एक्सपर्ट, इन्टरनल/ अध्यक्ष TSC