

Minutes of Pre-Bid Conference (PBC) held on 04-09-2024 for proposed procurement of "Advanced Gas Chromatography (GC) with Flame Ionization detector (FID) and Thermal Conductivity Detector (TCD) detectors - 1 No."

Chairpersons / Members of the Technical Sub Committee (TSC) present during PBC including domain experts present during PBC:-

1. Dr. N. Lingaiah, Chairman
2. Dr. Pratyay Basak, Member
3. Dr. G. Jithender Reddy, Member
4. Sri. D. Venkateswara Rao, Member
5. Dr. Sreepriya Vedantam, Member
6. IO Dr. A. Venugopal

Representatives of the following firm attended the PBC:

1. M/s Thermofisher
2. M/s Camtek
3. M/s Smart Labtech
4. M/s Shimadzu

The following points were discussed during the PBC:

Query raised by M/s. Thermofisher, and response of CSIR-IICT:

Query-1: Auto-injector for liquid analysis transfer turret of at least 16-sample is requested to make it for 8-sample

Response: agreed to change from 16- to 8-sample

Query raised by M/s. Shimadzu, and response of CSIR-IICT:

Query-1: Two six-port valves for parallel analysis in both FID and TCD

Response: Yes

Query-2: Asked to remove the word "independently" from Heated, automated valve boxes

Response: Agreed

Query raised by M/s. Smart Labtech, and response of CSIR-IICT:

Query-1: Detailed circuit diagrams can't be provided

Response: Agreed

Query raised by M/s. Camtek, and response of CSIR-IICT:

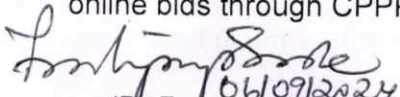
Query by e-mail: The purpose of second GSV, according to them one GSV can serve the purpose.

Response: One GSV can only inject the gas sample into one detector (either TCD or FID). In our application, we require to inject the gas sample simultaneously into two detectors i.e TCD and FID, which is possible only by accommodating two independently functioning GSV's

Other than the above queries, the IO has increased the comprehensive warranty to 36 months and also the essential accessories for a period of 3 years for which the attended parties have agreed.

Points clarified by CSIR-IICT Team during PBC:


The representatives of the participating firm/further informed that they do not have any issue or suggestion with respect to other points of tendered specifications and related requirements given in the tender document. Participating bidders have been informed that points raised by them during PBC will be examined by CSIR-IICT's **Technical Sub Committee (TSC)/Technical team** constituted for the purpose of procurement of said equipment and **post PBC changes** in tendered specifications and requirements to be agreed after due consideration of the same by TSC, **if any**, will be uploaded in **CPPP** as part of **revised/amended tendered specifications** along with CSIR-IICT website www.iict.res.in on or before ~~06.09.24~~. All bidders are requested kindly to take a note of the changes, if any, in tendered specifications subsequent to **PBC** held today, i.e. 04-09-2024 before they start submitting their online bids through CPPP.



(Dr. Pratyay Basak)
Ag. Chairman


(Dr. Jithender Reddy)
Member


(Dr. Sreepriya Vedantam)
Member


(Sri. D. Venkateswara Rao)
Member

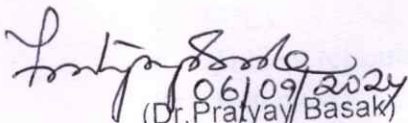

(Dr. A. Venugopal)
IO/PL


(Dr. N Lingaiah)
Member

The following changes has been made in tendered specification subsequent to PBC held on 04.09.2024

S. No.	Existing Specifications	Revised/Amended Specifications
1	Offline auto-injector for liquid analysis Includes transfer turret of at least 16-sample, parking post for GC and 10ul syringe.	Offline auto-injector for liquid analysis Includes transfer turret of at least 8-sample, parking post for GC and 10ul syringe.
2	Two six ported automated heated gas sampling valve (GSV) for on-line analysis with 0.1, 0.5ml and 1.0 ml loops.	Two six ported automated heated gas sampling valve (GSV) for on-line analysis with 0.1, 0.5ml and 1.0 ml loops for parallel analysis
3	Heated, automated valve-box for 02 GSV's can be operated independently	Heated, automated valve-box for 02 GSV's can be operated.
4	Detailed circuit diagrams, service and operation manuals.	Supply of service and operation manuals.
5	For smooth running of the instrument for period of a 2 years required spares should be provided.	For smooth running of the instrument for period of a 3 years required spares should be provided.
6	24 months comprehensive warranty	36 months comprehensive warranty


All the other tender terms remain unchanged. Bidders may please submit their bids accordingly.

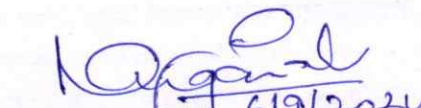

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(Dr N Lingaiah)
Member

GC specifications

Advanced Gas Chromatography (GC) with Flame Ionization detector (FID) and Thermal Conductivity Detector (TCD) detectors

GC Performance

- 1) Highly precise retention time repeatability (< 0.010 min or better)
- 2) Area repeatability ($< 2\%$ RSD or better), full EPC for all inlets and detectors.

GC Flow Control

- 1) Highly precise electronic pneumatic control (EPC) or electronic flow control (EFC) or pneumatic pressure control (PPC) for injectors, detectors and auxiliary gases controllable through input keyboard or GC software. The precise pneumatics and temperature control must be evident with chromatographic performance of the instrument.
- 2) Pressure set point of at least 0.001 psi. Flow or pressure set point parameter for on each inlet/injector or detector should be displayed on screen.
- 3) Automatic control of split vent, automatic setting of split flow rates and split ratios by software.
- 4) Alarm facility for heater, sensor and gas flow faults.

GC Oven

- 1) Temperature range ambient to 450°C .
- 2) Temperature set-point resolution should be 0.1°C or better.
- 3) Maximum temperature ramp up to 75°C per minute or better.
- 4) Oven must support 16 or more oven ramps with 19 plateaus with high accuracy.
- 5) Fastest cooling down rate for oven (less than 6 minutes for cooling from 300°C to 50°C).
- 6) Ambient rejection: $< 0.01^{\circ}\text{C}$ per 1°C or better.
- 7) Oven must have sufficient volume to be able to accommodate up to two columns.

Inlet/Injector

- 1) One purged packed injection port with maximum temperature 400°C , adapters included for $\frac{1}{4}$ inch, and $\frac{1}{8}$ inch packed columns and 0.530mm capillary columns. Electronic septum purge flow control. EPC pressure range: 0 to 100 psi
- 2) One programmable capillary split/Split less with temperature vaporizer (PTV) inlet with maximum operating temperature range 425°C or more, split ration 8000:1 or better. Must be able to connect capillary columns with internal diameter ranging from 0.53, 0.32.025 and 0.1mm ID.
- 3) Offline auto-injector for liquid analysis Includes transfer turret of at least 8-sample, parking post for GC and 10ul syringe.

- 4) USB Keyboard & Mouse / USB External DVD R/w,
- 5) 1 Giga Ethernet port, Wi-Fi, Bluetooth, Web Cam
- 6) 22" FHD Wide Led Screen, MS Office 2021 Business
- 7) Windows 10 Pro 64 bit (Included License Windows 11Pro 64 Bit)

Essential accessories

For smooth running of the instrument for period of a 3 years required spares should be provided.

Installation, Warranty and Training

- 1) Necessary pre-installation advice should be sent immediately before shipping the instrument.
- 2) At least 36 months comprehensive warranty from the date of commissioning.
- 3) Onsite operation and maintenance training.
- 4) Complete demonstration of installation checkout specifications failing which instrument will not be accepted.
- 5) Supply of service and operation manuals.
- 6) A certificate of the principal firm be included stating the instrument spares and service will be available 10 years after the supply.

Terms and conditions for instrument

- 1) The supplier must provide installation, commissioning and complete training to users without any additional cost and supply relevant operating and servicing manuals in printed and soft formats.
- 2) The supplier must demonstrate that they have appropriate setup and capability to provide after sales technical support and timely servicing of the instrument. In addition, list of existing users of similar instruments from other institutes should be provided along with the availability of trained and efficient service engineers.
- 3) The tender document must enclose valid standard specification documents from the company and every specification must be a part of that standard document.
- 4) The instrument should be designed and manufactured under a quality system registered to ISO 9001, Declaration of conformity should be submitted.
- 5) The system should have been supplied to a minimum of 3 reputed labs/institutes in the last 3 years, proceeding to the tender date.
- 6) A satisfactory performance certificate from minimum 3 or more users of the above must be submitted for performance evaluation.

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- 4) Inlet Temperature programming should be 6 ramps or more. EPC pressure range: 0 to 100 psi.
- 5) All injection ports are should be independently heated.

Automated gas sampling valve (GSV)

- 1) Two six ported automated heated gas sampling valve (GSV) for on-line analysis with 0.1, 0.5ml and 1.0 ml loops for parallel analysis. Gas sampling valve diagram should be attached with offer
- 2) Heated, automated valve-box for 02 GSV's can be operated.

Detectors

One highly sensitive Flame Ionization Detector (FID)

- 1) Flame out detection and automatic re-ignition.
- 2) Maximum temperature of FID should be 425°C or better.
- 3) Minimum Detection Level for the detector should be at least 10ppm.
- 4) Data acquisition rate 400Hz or more.
- 5) Linear dynamic range should be greater than 10^7 or better.
- 6) FID for analysing oxygenates (such as Methanol, formaldehyde, formic acid & DME).
- 7) Gaseous products injection should be done using Gas sampling valve with 6-port GSV.
- 8) He gas should be the carrier gas for this detector.
- 9) Liquid products should be injected using offline injection
- 10) Suitable capillary column for product separation.

One Thermal Conductivity Detector (TCD)

- 1) Maximum temperature of TCD should be 400°C or better.
- 2) To be analyzed for permanent gases such as H₂, N₂, C₁, CO, CO₂ & C₂
- 3) Linear dynamic range should be greater than 10^5 or better.
- 4) Filament protection: standard.
- 5) Data Acquisition rate 100 Hz or more.
- 6) Ar/He, Nitrogen, Air and hydrogen lines should have separate controls for both detectors.
- 7) Minimum Detection level should be 100ppm for all the permanent gases and for CO it should be at least 2000ppm with respect to Ar as carrier gas.

Data acquisition and analysis

The GC with dual channels should be supplied along with PC high performance system and suitable operating software, to operate two channels simultaneously.

The PC should meet below specifications:

- 1) Intel Core i5 12th Generation 12500 Processor
- 2) 8 GB Memory / Onboard UHD Graphic
- 3) 1 TB Nvme Solid State Drive, 7 USB Port,

