

Minutes of Pre-Bid Conference (PBC) held on **19-01-2024** for proposed procurement of
"Supply, installation and commissioning of ONLINE GAS CHROMATOGRAPH SYSTEM" –

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. Jithender Reddy, Member
4. Dr Sreepriya Vedantam, Member
5. Shri D Venkateshwar Rao, Member
6. IO/PL – Dr. C. Sumana

Representatives of the following firm attended the PBC:

1. M/s. Camtek Labs, Uppal, Hyderabad
2. M/s
3. M/s
4. M/s
5. M/s

The following points were discussed during the PBC:

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

Query-1: Regarding **S.No.:2** The alarm facility for faults can be changed to warning.

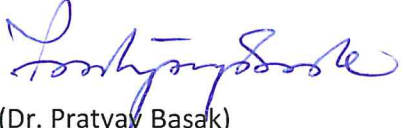
Response-1: The **Spec. No.:2** will be changed to "Warning for faults concerned to heater, sensor and gas flow".

C. Sumana
(IO/PL)

Points clarified by CSIR-IICT Team during PBC:

The firm informed that they do not have problem with other points of tendered specifications and requirements. Participating bidders have been informed that points raised by them during PBC will be examined by CSIR-IICT's **Technical Sub Committee (TSC)** 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**.

Minutes of the PBC with changes agreed (if any) will be uploaded in due course at **CPPP** for information and reference of prospective bidders on or before **24-01-2024**. All bidders are requested kindly to take a note of changes in tendered specifications subsequent to PBC held today, i.e. 19-01-2024 before they start submitting their online bids through CPPP.



(Dr. Pratyay Basak)
Member



(Dr Jithender Reddy)
Member



(Dr Sreepriya Vedantam)
Member



(Sri. D Venkateshwara Rao)
Member



(Dr. C. Sumana)
IO/PL



(Dr. N Lingaiah)
Chairperson

Revised Specifications/Corrigendum

File Ref. No. PUR/IICT/DMS/759/RE/23-24

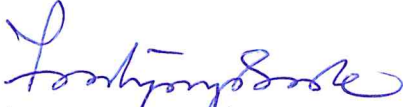
Dt 19.01.2024

▪ Spec No. 2

Flow Control:

- Precise electronic pneumatic control (EPC) for injectors, detectors, and auxiliary gases controllable through GC software.
- Automatic control of split vent, automatic settings of split flow rates and split ratios by software.
- Provision for varying set point of flow or pressure for each inlet/injector and detector with a display on the screen.
- *Warning for faults concerned to heater, sensor, and gas flow.*

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



(Dr. Pratyay Basak)
Member



(Dr. Jithender Reddy)
Member



(Dr. Sreepriya Vedantam)
Member



(Sri. D Venkateshwara Rao)
Member



(Dr. C. Sumana)
IO/PL



(Dr. N Lingaiah)
Chairperson

TECHNICAL SPECIFICATIONS OF ONLINE GAS CHROMATOGRAPH (GC) SYSTEM

S.No	Parameter	Specifications
1	Sample Analysis	<ul style="list-style-type: none"> Gaseous mixture of CH₄ (0.1-50%), CO (0.1-20%), CO₂ (0.1-20%), H₂ (0.1-50%) and N₂ (0.1-100%) in vol% The RSD must be less than 2 %
2	Flow Control	<ul style="list-style-type: none"> Precise electronic pneumatic control (EPC) for injectors, detectors, and auxiliary gases controllable through GC software. Automatic control of split vent, automatic setting of split flow rates and split ratios by software. Provision for varying set point of flow or pressure for each inlet/injector and detector with a display on the screen. Warning for faults concerned to heater, sensor, and gas flow
3	Oven	<ul style="list-style-type: none"> Temperature Range: Ambient to 450°C Set point resolution: less than or equal to 0.1°C Ramp Temperature: Up to 100°C/min Support 18 or more oven ramps with 19 plateaus Fast Cooling from 400°C to 50°C within 5 minutes
4	Columns	<ul style="list-style-type: none"> 2 Columns: Packed Column and Capillary Column Packed Column must have Molecular Sieve (2.4m*1/8 inch) and Porapak/Hayasep-P (2.4m*1/8 inch) Capillary Column must have Molecular Sieve (25m*0.53mm) Porapak/Hayasep-P (25m*0.53mm)
5	Injector	<ul style="list-style-type: none"> One purged packed injection port with temperature more than or equal to 400°C, and adapters for 1/4-inch and 1/8-inch columns and 0.53 mm capillary columns One capillary split/spitless inlet with a temperature more than or equal to 400°C, split ratio 8000:1 Provision to connect capillary columns with internal diameters ranging from 0.53, 0.32.025 and 0.1mm ID. EPC pressure range: 0 to 100 psi All injection ports should be independently heated.
6	Detectors	<ul style="list-style-type: none"> One TCD with standard filament protection <ul style="list-style-type: none"> Operating temperature greater than or equal to 400°C Data Acquisition rate of more than or equal to 100 Hz One FID with methanizer <ul style="list-style-type: none"> Provision for flame out detection and automatic re-ignition. Operating temperature greater than or equal to 425°C Data acquisition rate greater than or equal to 500 Hz Methanizer for low levels of CO and CO₂ detection
7	Detection Limits	<ul style="list-style-type: none"> TCD Limits for H₂, N₂, CH₄, CO, CO₂ in packed/capillary column: Minimum of 1-2 ppm and Maximum of 100% FID Limits for CH₄ in packed/capillary column: Minimum of 1-2 ppm and Maximum of 100% Methanizer Limits for CO, CO₂ in capillary column: Minimum of 1-2 ppm and Maximum of 100%
8	Sampling	<ul style="list-style-type: none"> Provision for up to 100 unattended sample analysis One multiport (6 port) automated heated gas sampling valve (GSV) for online analysis with 0.25ml, 0.5ml and 1 ml loops.

C. Asale
25 Jan 2024

		<ul style="list-style-type: none"> • Provision for online and offline gas sampling through same purge pack
9	Repeatability	<ul style="list-style-type: none"> • Retention time repeatability: ≤ 0.06 % RSD • Area repeatability: ≤ 2 % RSD at constant temperature and pressure
10	Carrier Gas	Should be able to use Ar, He, N ₂ and H ₂
11	Gas Cylinders with regulators	N ₂ (99.95%), CH ₄ (99.95%) cylinders (30kg) with dual-stage regulators
12	Software	Compatible software for GC data acquisition, analysis and storage with auto tune and auto calibration features. Instrument data acquisition software update should be provided free of cost for the quoted version.
13	Personal Computer	Suitable PC compatible with the instrument
14	Spares/ accessories	Required spares should be provided for smooth running of the instrument for a period of 2 years
15	Warranty	At least 24 months comprehensive warranty from the date of commissioning
16	Installation and Training	<ul style="list-style-type: none"> • Necessary pre-installation advice should be sent immediately before shipping the instrument. • Detailed circuit diagrams, service, and operation manuals. • Onsite operation and maintenance training for at least 2 people. • Complete demonstration of installation checkout specifications failing which instrument will not be accepted. • A certificate from the principal firm should be included stating the instrument spares and service will be available 10 years after the supply. • Tool kit for regular operation and maintenance should be provided. • The equipment and software should be installed at CSIR-IICT and tested to meet the specifications free of cost.
17	Terms and Conditions	<ul style="list-style-type: none"> • 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. • The supplier must demonstrate that they have an appropriate setup and capability to provide after-sales technical support and timely servicing of the instrument. • A list of existing users of similar instruments from other institutes should be provided along with the availability of trained and efficient service engineers. • The tender document must enclose valid standard specification from the company and every specification must be a part of that standard document. • The instrument should be designed and manufactured under a quality system registered to ISO 9001, Declaration of conformity should be submitted. • The system should have been supplied to a minimum of 3 reputed Central Government labs/institutes in the last 3 years. • A satisfactory performance certificate for the system from a minimum of 3 or more users must be submitted for performance evaluation.

C. J. J. J.