CSIR-Central Glass & Ceramic Research Institute
KOLKATA (WEST BENGAL) INDIA

CORRIGENDUM

REFERENCE NO. : - P/NC/14/GKG/SO/OTE/25-26 **DATE: 21/08/2025**

NAME OF EQUIPMENT: SUPPLY, INSTALLATION, COMMISSIONING, DEMONSTRATION & TRAINING OF "GAS CHROMATOGRAPHY INSTRUMENT WTH TCD-METHANIZER FID" [CPP PORTAL TENDER ID: 2025_CSIR_242924_1].

NOTE: The Bids must be submitted in the Central Public Procurement Portal (URL:https://etenders.gov.in/eprocure/app) only. Manual/Offline bids shall not be accepted under any circumstances. Bidders should quote in INR only.

CONSEQUENT TO THE PRE-BID MEETING HELD ON 07/08/2025, THE REVISED TECHNICAL SPECIFICATION IS ATTACHED IN ANNEXURE – A GIVEN BELOW:-

BIDDERS SHALL ALSO NOTE THAT AS PER CLARIFICATIONS GIVEN BY DPIIT VIDE THEIR O.M. No. P-45021/2/2017-PP(BE-II)-Part (4) Vol. II dated 08th July, 2025 REGARDING EXEMPTION LIMITS OF SMALL PURCHASES MADE BY SCIENTIFIC AND RESEARCH INSTITUTIONS, THE TENDERED ITEM QUALIFIES TO FALL UNDER CATEGORY OF "***SMALL PURCHASES***". ACCORDINGLY, THE TENDERED ITEM STANDS EXEMPTED FROM THE PROVISIONS OF PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA) ORDER DATED 2017 ISSUED BY THE GOVERNMENT OF INDIA. A COPY OF THE AFORESAID GOVERNMENT OF INDIA OFFICE MEMORANDUM NO. P-45021/2/2017-PP (BE-II)-Part (4) Vol. II dated 08th July, 2025 IS AVAILABLE ON THE WEBSITE OF DPIIT AT https://dpiit.gov.in/sites/default/files/ScientificResearch_Institutions_09July2025.pdf

All other Tender terms and conditions remain unchanged.

21/8/2025

बोधिस्वत्त धर / Bodhisattwa Dhar
भण्डार एवं क्रय अधिकारी / Stores & Purchase Officer
Stores & Purchase Officer
सीएसआईआर-केन्द्रीय काच एवं सिरामिक अनुसंधान संस्थान
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Annexure-A

GAS CHROMATOGRAPHY INSTRUMENT WTH TCD-METHANIZER FID

REVISED TECHNICAL SPECIFICATION

I. Name of the instrument: Gas Chromatography instrument with TCD - Methanizer FID for analysis of H_2, N_2, O_2, CO, CO_2, CH_4 and hydrocarbon upto C_6

II. Scope of Work: Supply, Installation, Testing and Commissioning of Gas Chromatography instrument with TCD - Methanizer FID for analysis of H_2, N_2, O_2, CO, CO_2, CH_4 and hydrocarbon upto C_6

III. Technical specifications:

Gas Chromatograph system with electronic control for the detection of H_2, N_2, O_2, CO, CO_2, CH_4 and hydrocarbon up to C_6 in minimum 20 ppm level detection from an inline and batch system

Sl. No.	Criteria	Specifications
1	**Carrier Gas**	• Argon and Helium (Compatible with both)
2	**Column Oven**	• Volume - Minimum 12 litres to accommodate more than one column and ease of handling those columns maintaining uniform heating and cooling rates. • Operating temperature range: Ambient +5 or less to 450 °C or wider • Temperature set-point resolution: 0.1°C. • Heating rate: 50°C/min or higher • Cool down rate: 450°C to 50°C in 10 mins or less time • Programming: Minimum 7 ramps • Temperature Stability (Ambient rejection): 0.01°C • All temperature and time functions should be electronically controlled and displayed on the touch screen
3	**Flow and Pressure Controller**	• AFC (Advanced Flow Control)/PPC(Programmable Pneumatic Control) for Injectors and detectors • RT Repeatability SD ≤ 0.008 min • Area Repeatability RSD ≤ 2% • Pressure set-point resolution: 0.01psi. • Programme Flow: Minimum 5 step • Programme Pressure: Minimum 5 step
4	**Injection Unit**	• No. of Injection Unit: Minimum 02 • Programmable Temperature range: 50° C to 450° C or wider in 1° C increment. • Pressure setting range: 0.001 - 100 psi. or wider • Packed inlet: Minimum 01

		• Mode of injection: Automatic and manual • Removable glass liner for trapping non-volatile residues should be provided • Repetitive constant volume of gas sample injections • Suitable Injector port should be provided for sample introduction through off-line syringe injection. • Suitable Injector port should be provided for sample introduction through on-line injection. • All accessories should be included for online injection directly from reactor and should be programmable for sample volume, frequency, etc. • **Split/Splitless Injection:** Split/Splitless Injector with split ratio 9999.9 :1 or better.
5	**Detectors for detection of the specified gases (H_2, N_2, O_2, CO, CO_2, CH_4 and hydrocarbon upto C_6)**	
5.1	Thermal Conductivity Detector (TCD) with AFC (Advanced Flow Control)/PPC(Programmable Pneumatic Control)	• Compatible with 1/4", 1/8", 1/16" and capillary columns • Temperature at least 400°C, 1°C resolution • Linear dynamic range $\geq 10^5$ • Minimum Detectable Level ≤400 pg/mL He (carrier gas) • Data Acquisition Rate 300 Hz or better
5.2	Flame Ionization Detector (FID) with AFC (Advanced Flow Control)/PPC(Programmable Pneumatic Control)	• Compatible with 1/4", 1/8", 1/16" and capillary column • Temperature at least 450°C, 1°C resolution • Flameout detection • Linear dynamic range $\geq 10^7$ • Minimum Detectable Level ≤1.2 pg Carbon/sec • Data Acquisition Rate 300 Hz or better • Flame Ignition - Automatic software controlled
5.3	Methanizer	• Nickel Catalyst Converter to convert low level of CO and CO_2 into CH_4 (100 percent CO and CO2 Conversion)
6	**Automatic Gas Sampling/ Switching Valve**	• Automatic heated 6 port gas sampling valves (Electric actuator /pneumatic actuator type with purge housing to reduce air leakage)- 2 nos. minimum • Automatic heated 4 port gas sampling valves - 1 nos minimum • Valves should be controllable through GC System Interface without requiring PC Control.

		• Wall Mount Pressure Controllers for Gas Sampling Valves/other valves • Necessary accessories for the detection of all mentioned gases in a single run. • System should be factory fitted with test chromatogram attached with the system. • Sample loop in the range 20 µl, 50 µl,100 µl ,250µl, 500µl and 1ml with nuts & ferrules
7	**Column**	• Necessary column suitable for the detection of the above mentioned gases to be factory fitted. • Column / Injector type: • Capillary column (Al_2O_3/Na_2SO_4 or equivalent) – length 30 meter or more. Qty – 2 nos • Packed column (matrix 60/80 Carboxen-1000 support or Equivalent) – length 15 ft. or more, Qty – 2 nos
8	**System control Software**	• Software Should be able to fully control the chromatograph system. Original licensed Chromatography software for control and acquisition of GC parameters with features like online & offline data processing and report generation: **One complete set** • Software should support Integration, Overlay, Calibration, Post run calculations, user calculation etc. • Software should have capabilities like electronic signature, Audit trail etc. • Software should be a network-based solution and can be accessed from any network computer. • Software should satisfy with the requirements of the 21 CFR Part 11 directive of the FDA.
9	**Computer**	• One suitable desktop computer with UPS and laser jet printer (Dell/HP or equivalent). • Computer specification: Software compatible PC, Processor Intel Core i7/8 GB DDR4/ 1TB/ Windows 10 original, 19 Inch Screen/DVD/Wifi and Ethernet connectivity/Wireless key board, printer, mouse and Antivirus (Make: Quick Heal or Kapersky with at least 3 years license)
10	**Calibration standard**	• Calibration Standard must be supplied. • Calibration Standard CH_4, H_2, O_2, N_2, CO, CO_2 and hydrocarbon upto C_6 in balance Argon 1.6 ltrs or larger capacity in suitable composition (both in ppm & % level)
11	**UPS**	• 6 KVA UPS with minimum 30 minutes battery backup (Reputed Make; Compatible with the full GC system) - 01

12	**Gas & other requirements**	• UHP Grade Hydrogen Gas with Double Stage SS Diaphragm Regulator-1 set • UHP Grade Argon Gas with Double Stage SS Diaphragm Regulator- 1 set • UHP Grade Zero Air Gas with Double Stage SS Diaphragm Regulator- 1 set • UHP Grade Helium Gas with Double Stage SS Diaphragm Regulator-1 set • Gas purification (Molecular sieve Filters, Charcoal Filters for moisture trap, oxygen trap, hydrocarbon trap etc.) panel with fittings for all gases – one number each • Tedlar Bag- 20 nos (1 litre capacity; reputed make) • Gas tight Syringes 1 ml – 03 number
13	**Other consumables**	Septum: 100 Nos., Nut: Capillary (10 Nos), Graphite Ferrule: 0.53 mm ID, 0.32 mm ID, 0.25mm ID capillary column each quantity: 10Nos, Soap bubble flow metre: 2 Nos, Leak Solution: 1Nos, Tool for maintenance and operation: 1 set
14	**Comprehensive Warranty**	• 01 Year comprehensive warranty from the date of commissioning • 01 Year extended warranty after the completion of the Standard warranty
15	**Installation and commissioning**	Installation and commissioning should be done at the premises of CSIR-CGCRI, Kolkata
16	**Training**	• On – site training of the 4 persons for 4 working days to complete satisfaction of the user
17	**Further addition of injectors & detectors**	• Provision should be there with the system for the addition of at least 01 injector and 01 detector
18	**Power supply available at the purchaser's site**	• 230 ± 10 V, AC, 50 Hz (3 phase input, 400±20 V, AC, 50 Hz)
19	**Utilities**	• Bidder must clearly specify the utilities required like power, space, installation environment, plan layout etc in the technical bid for the successful installation & commissioning and smooth operation of equipment/ instrument.
20	**Supporting documents**	• Supporting document should be provided for showing the level of detection (minimum 20 PPM for all above mentioned gases) • The bidder must provide detailed technical specification of the offered equipment/ instruments in their technical bid, which must be supported by document like technical brochure, catalogue, factory data sheet or equivalent.

21	**Compliance statement**	• The bidder must submit a technical compliance statement with the technical bid in tabular format indicating compliance of technical specification of the bid against each technical specification of the bid and also deviation, if any must be indicated in the compliance statement with proper justification.
22	**General criteria**	• Bidder must provide schematic Process & Instrumentation diagram of the system along with the technical bid. • System must be factory fitted with all necessary hardware and tested in the factory. • The offer must be descriptive with detailed specifications of the offered system, mentioning all required items (Not only line items) with supporting documents/literatures.
23	**Order copies & User List**	• Reference Order copies & users list must be submitted with the technical bid. • Bidder should have minimum 4 nos. installations done in IITs, NITs, State or Central Universities or any other government organization. User details with contact no./ email ids must be provided
24	**Acceptance & Performance**	• Equipment/instrument acceptance is subject to the successful installation & commissioning and demonstration of all the performance of the system as per specifications in the purchase order at CSIR-CGCRI, Kolkata.