DELHI POLLUTION CONTROL COMMITTEE
4thFLOOR, ISBT BUILDING, KASHMERE GATE, DELHI-06
visit us at : http://dpcc.delhigovt.nic.in

No. F. DPCC/ Lab/W/2018/P-14/1999 Dated: 10/01/2019

To
SEE, (IT Cell)
Delhi Pollution Control Committee
New Delhi-110006

Sub: Quotation for the purchase of Gas Chromatograph with detectors

Sir,

Sealed quotations are invited for the purchase of Gas Chromatograph with ECD, FID and NPD detectors

Specifications for the instruments are enclosed at Annexure along with quotation letter. Quotation must be reach in this office latest by 31.01.2019 at 4.00 PM at Enquiry counter, Delhi Pollution Control Committee, 4th floor, ISBT Building, Kashmere Gate, Delhi.

Terms and Conditions:

1. **The Agency must Produce/ enclose registration certificate of GST.**
2. The Specification mentioned in the quotation are fixed and no variation in the same shall be accepted.
3. The sealed envelope containing quotation shall be super scribed in the top of the envelope, "Quotation for the purchase of (Name of Instruments).
4. The rates should quoted for each item in the category exclusive of taxes as applicable.
5. Any item supplied of inferior quality shall be replaced without any extra charge.
6. The material should be supplied on F.O.R. basis.
7. Failure to supply the items within stipulated time shall be viewed seriously.
8. The payment shall be made after the receipt of material / Instruments.
9. Delivery period should be within 45 days.

The Competent Authority, DPCC reserve the all right to reject or accept any quotation without any reason thereof.

NMitra

(Dr. Nandita Moitra)
Senior Scientist (Water Lab)

Dr. NANDITA MOITRA
Senior Scientist
Delhi Pollution Control Committee
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Delhi Pollution Control Committee

Technical Specifications

Code no. 1		
Equipment Name: GAS CHROMATOGRAPH WITH ~~TCD~~, FID NPD & ECD DETECTOR WITH AUTO SAMPLER AND AIR SAMPLING PORT		
Quantity: 1(One)Nos.		
S.No.	**Specifications**	**Requirements**
1.0	**INSTRUMENT COMPOSITION**	
1.1	Gas Chromatograph	One set
1.2	Capillary Column with accessories	One set each of specified columns
1.3	ECD Detector	One set
1.4	FPD Detector	One set
1.5	FID Detector	One set
1.6	GC Data Station	One set
1.7	Auto Sampler	One set
2.0	**TECHNICAL SPECIFICATION**	
2.1	GC System	Computer controlled Data Workstation based computer compatible (GC). Built in Diagnostics and Comprehensive Self-Testing
2.2	Oven temperature programming ramps	At least 6 ramps and seven plateau
2.3	2.3 Heated zones	At least six including Oven, Two Injectors, Two Detectors and One Auxiliary; if FID, then three Injectors, two Detectors.
2.4	2.4 Display	Functional keyboard with four line alphanumeric display. Display include temperature and pressure / flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameters including method and Auto sampler information.
2.5	Memory protection	Power fail memory protection,
2.6	Storage facility	Unlimited methods and automated sequences.
2.7	Networking and data communication	LAN interface
2.8	Method editing facility	Non-active methods should have editing facility

		with automatic protection.
	Minimum Detectable limit	400 pg tri decane / ml with helium carrier
	Sensitivity	9 µV / ppm nonane at 160 mA at the bridge with detector temperature of 100 ^{0} C.
	Maximum temperature	400 ^{0} C in 1 ^{0} C increment.
	Linearity	>105 ± 5% entire range
	Make up gas	0 to 12 ml / min
	Reference gas	0 to 100 ml / min
	Standard EPC	For He, H_2, Ar or H_2matched to carrier gas type.
9.2	NPD Detector (FTD Detector)	NPD detector with direct heating with induction current.
	Minimum Detection limit	< 0.4 pg N/S, < 0.2 pg P/S with Azobenzene / Malathion / Octadecane mixture
	Selectivity	25000 to 1 g N/g C, 75000 to 1g P/g C with Azobenzene / Malathion / Octadecane mixture
	Dynamic range	>105 N, > 105 P with Azobenzene / Malathion mixture
	Operational Temperature Range	~ 400 0 C in 1 0 C increment
	Standard EPC	Standard EPC for three gases Air – 0-200 ml/min; Hydrogen 0-30 ml/min; Makeup gases 0-100 ml / min
9.3	FID Detector	Electronic pressure control
	Temperature operating limit	Operating temp. (maximum) should not be less than 450 ^{0} C
	Detection	Flame out detection facility
	Ignition	Auto Ignition facility
	Dynamic range	Linear dynamic range < ± 10%; 107 with N_2
10.0	**AUTOSAMPLER**	No. of sample vial Capable of accommodating minimum 100 nos. vials.
10.1	Syringe capacity	Upto six different syringe capacity
10.2	Washing solvent	Upto four different washing solvents in 4 ml vials
10.3	Injection port access	Access three injection ports without requiring an additional tower
10.4	Internal standard calibration	Automated internal standard calibration and "sandwich" technique
10.5	Programming	Completely programmable from Workstation software
11.0	**COLUMNS**	Bonded phase, fused silica capillary column with (one each)
		DB-1701 or equivalent 30 m x 0.25 mm ID having x 0.25 µm film thickness Film - 14% cyanopropyl phenyl and 86% dimethyl polysiloxane co-polymer column
		Ultra-125 m x 0.2 mm ID having 0.33 µm film thickness Film - 100% dimethyl polysiloxane
		HP-5-MS 60 m x 0.25 mm ID with 0.25 µm film thickness ultra-low bleed column

5.4	Compatibility	Solid Phase Micro Extraction (SPME) system
6.0	**SPLIT / SPLITLESS INJECTOR**	Forward inlet pressure programming with an optimized modular, uniform thermal profile for split / splitless injections
6.1	Flow control	Electronic pressure / flow control
6.2	Temperature control	Upto 400°C for split/splitless injector with 1°C increment
6.3	Solvent / back flush facility	Solvent Rejection and back flush
7.0	**PTV INJECTOR**	
7.1	Injection volume	Large volume splitless injections
7.2	Pressure/flow control	Electronic pressure/flow control
7.3	Operating temperature	Upto 400 °C
7.4	Programme ramps	Atleast 3 temperature programme ramps
7.5	Solvent Back flush facility	Solvent rejection and back flush
8.0	**DETECTORS(COMPULSORY)**	Detector combination would be ECD-FPD
	Temperature range	Upto 400 °C
	Detector mounting	Two detectors should be mounted; one detector to be standby.
	Pressure control	EPC and electronic on/off facility for all detector gases
	Auto zero & protection	Detector with makeup gas and automatic zeroing facility and overheat protection
	ECD Detector	Coaxial design based on Ni63 Source
8.1	Linear Dynamic Range should be	Better than 10^4
	Departure from linearity should be	Less than ±1% for the entire range
	Operating temperature (maximum)	400 °C
	Pressure / Flow control	Electronic pressure/flow control
	Minimum Detection Limit (MDL)	
	Makeup Gas	Argon / 5% Methane or Nitrogen
8.2	FPD Detector	Electronic pressure control, Wavelength version with detector of phosphorous &sulphur with filter change.
	Temperature operating limit	Upto 400 ^{0}C
	Dynamic range	Better than 10^6
9.0	**Optional Detectors**	Optional detectors (TCD / NPD / FID) to be selected as per requirement.
9.1	Thermal Conductivity Detector	Thermal conductivity detector with excellent sensitivity to all compounds excluding the carrier gas, capillary column compatible, filament

13.1	Operation / maintenance manual	Operation and maintenance manual
13.2	Application Notes	Application notes in (CD) for pesticides, PAHs, PCBs, PCPs, VOCs, THMs, Dioxins & Furans in environmental samples
13.3	Service manual	Service manual
13.4	N_2 Gas Regulator	N_2 gas complete stainless steel regulator (2 stage) with necessary tubing and connectors (1 No.)
13.5	Hydrogen gas regulator	H2 gas complete stainless steel regulator with (2 stage) with necessary tubing and connectors (1 No.)
13.5	Zero air regulator	Zero air complete stainless steel regulator (2 stage) with necessary tubing and connectors (1 No.)
13.6	Tool kit	One set of required tools
13.7	Gas Cylinders	H_2, N_2 and Zero Air with purifier and moisture trap
		High pressure stainless steel cylinder filled with high purity 99.999% gases. Gas capacity 7 m^3, water capacity 47 liters. Cylinder should be ISI marked conformed to IS-7285 specifications. Flat bottoms fitted with valve cap pointed as specified under gas cylinder as per IS-3224 complete with neck ring and cylinder cap: Hydrogen – one Nitrogen - one Zero – one
14.0	**SPARES & CONSUMABLES**	Spares and consumables sufficient for two years trouble free operation should be included in the offer and supplied with each system
14.1	Column nut	2 Nos.
14.2	Washer	2 Nos.
14.3	Graphite / vespel ferrules different sizes	20 Nos. Each
14.4	Inlet Septa (self-sealing for injectors)	200 No's
14.5	O ring	20 Nos.
14.6	Copper tubing with connectors	50 mtrs.
14.7	Micro syringes for manual injection (5 µl)	4 Nos.
14.8	Micro syringes for manual injection (10 µl)	4 Nos.
14.9	Copper tube cutter	1 No.
14.10	Auto sampler vials (2 ml)	500 Nos.
	Auto sampler septa and caps	2000 Nos.

	Auto sampler spare syringes	1.0 µl – 5 Nos. 5.0 µl – 5 Nos. – additional
15.0	**WARRANTY**	Comprehensive warranty with spares for three years from the date of installation of the instrument should be covered. AMC amount for next two years also to be quoted after warranty.
16.0	**OPERATION AND MAINTENANCE TRAINING**	The supplier has to impart on-site operation training at the time of installation followed by Complimentary (all expenditure inclusive) one week training to two scientists on application, Routine maintenance and software training at their application laboratory in India.
17.0	**GENERAL CONDITIONS OF SUPPLY**	1.The instrument and all its sub units should operate on 230 ± 10 volts 50 Hz power supply. 2. All the operation and maintenance manuals, circuit diagrams, application notes and application software's to be supplied should be in English language. 3. The supplier / manufacturer should have Indian agent to provide after sales service. 4. The main unit and all the sub units of the instrument should be serviced by the Indian representative of supplier. 5. The Bidder should be a manufacturer/authorized representative of a manufacturer, who must have designed, manufactured, tested and supplied two numbers of such equipment similar to the type specified in the past five years, which shall be in successful operation for atleast 2 years as on the date of bid opening. 6. The bidder should furnish the information on past supplies and their satisfactory performance. 7. Bidders shall invariably furnish documentary evidence (client's certificate – atleast two) in support of the satisfactory operation of the equipment as specified above. 8. Notwithstanding anything stated above the purchaser reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the purchaser. 9. 80% amount of the bill will be released at the time of shipment. The balance 20% will be released after satisfactory commissioning of the instrument. This amount will be released and bank guarantee of equivalent amount has to be provided by the supplier till end of warrantee period.

		Film - 5% di-phenyl and 95% dimethyl polysiloxane copolymer column
		Ultra-225 m x 0.2 mm ID having 0.33 µm film thickness, Ultra low bleed column Film - 5% diphenyl and 95% dimethyl polysiloxane copolymer column
12.0	**DATA STATION**	
12.1	Licensed Application Software	With basic programming facility, Accurate and Reproducible Integration
	Data acquisition	Atleast three simultaneous chromatograms and data acquisitions Reintegration Report Multilevel Calibration Baseline Correction Area Calculation Background Subtraction and Custom/tailored report format facility should be in-built
	Memory Protection	Battery backup for memory protection
	Data export / import	Data Export/Transformation to data base software i.e., Excel and Access should be supplied with the system
	Quality control	Software for Quality Control Protocols
	Data display / handling	Software for data display, handling, data export/import and reporting
12.2	Computer System (latest specification)	
	Make	Reputed brand such as HP/Compaq/IBM/Dell
	Processor	Intel Core 2 Duo processor3.0 GHz or above
	RAM	4 GB (upgradeable to 8 GB)
	HDD	500 GB ultra DMA or higher HDD (7200 RMP),
	Monitor	21" TFT-LCD Flat Colour (Digital)
	CD ROM	52x CD-ROM
	DVD-CDRW	32x DVD-ROM and CDRW-Combo Drive Max speed 48x24x48
	Ports	2 Serial, 1 parallel and 2 USB front 6 Rear USB2 PS/2 Port, 1VGA integrated Port1line in/out port,
	Key board	104 Key IBM Compatible
	Mouse	Optical mouse with pad
	Ethernet	32 bit auto selectable 10/100 MBPS
	Graphics	Internet ready with integrated Graphics
	Sound	Integrated sound card and inbuilt stereo speakers
	Printer	HP LaserJet Printer 1200 x 1200 dpi 12 PPM Coloured
12.3	Software	Pre-loaded Windows 7.0 Professional / Windows XP Professional latest version operating system with Licensed CD should be compatible with operational software.
		MS Office 2000 Standard with media, manual and Licensed CD
		Preloaded Antivirus with latest version along with Licensed CD
13.0	**ACCESSORIES**	

Mishra