



Indian Institute of Technology Kanpur

National Centre for Flexible Electronics

Enquiry Number: SCDT/FLEXE/2017-18/12

Date: 08/08/2017

Opening Date: 17/07/2017

Closing Date: 08/08/2017 Revised & Extended 17/08/2017

Subject: Purchase of Gas chromatography–mass spectrometry (GC-MS)

Sealed Quotations from prospective vendors are invited by Samtel center for display technologies, IIT Kanpur for the purchase of "**Gas chromatography–mass spectrometry (GC-MS)**" with following specifications:

Note: All vendors are requested to submit "technical and financial bids" together in separately sealed envelopes.

Specifications for Gas chromatography–mass spectrometry (GC-MS)

GC Specifications

System should be capable of supporting two inlets and three or more detector ports simultaneously, should have electronic pneumatic / pressure controls for all the gases and should have Chromatography Data system which is based on Microsoft Windows operating system for instrument control, data acquisition, data analysis, quantization, automation & customization with online and offline sessions provided.

System should also have capability of locking / adjusting the retention time so that same retention time can be reproduced from system to system and the method should be electronically transferred. NIST 2014 library along-with AMDIS /DRS software should be provided.

The instrument should meet the following requirements:

1	Provision to install two or more columns at a time.
2	Operating temp range of oven from near ambient to 450°C
3	Oven temp ramp rate of oven should be 120°C /min or better
4	Possible to program 15 temp ramps (16 plateaus) or better
5	15 EPC/PPC channels for inlets, detectors or auxiliary gases or more

6	Flow sensor for control & storage of split ratio
7	Possible to use capillary columns of 50, 100, 250, 320 microns and above
8	The pressure set points should be adjustable by increments of 0.001 psi up to 100 psi Maximum temperature attainable should be 400°C or more
9	Inlets: Two split/split less Capillary inlets should be provided along 5 syringes.
10	The system should have one FID detector with the following specification or better: <ul style="list-style-type: none"> • MDL: < 1.5 pg c/s OR BETTER (SPECIFY THE COMPOUND) • Dynamic range: > 10⁷ • Data acquisition rate: up to 400 Hz or better All gases flow should be adjustable/controlled by software with no manual control.
11	The system should have one Thermal Conductivity detector with the following specification or better: <p>Dynamic range: 10⁵ or better, Electronic Flow Control (EFC), Temp. Range: Up to 400°C or more</p> All gases flow should be adjustable/controlled by software with no manual control.
12	Head Space Sampler: Head Space Sampler with minimum 10 vials capacity with Pneumatic control. It should be transfer line based with loop system for precise quantification and it should be from same manufacturer. Transfer Line to the GC temperature range: 50 to 200 Degrees or better. It should be quoted with crimper & deCapper. 200 Glass vials must be included in the offer.
13	Auto sampler: Having capacity of 15 vials or more with area reproducibility of 0.3% RSD or less along with 200 vials.
14	Columns: minimum three columns for VOCs and pesticides analysis

MS SPECIFICATIONS: LAN based quadruple MS system with non-coated inert source conforming to International safety standards, designed and manufactured under a quality system registered to ISO 9001 with appropriate computer & printer to support the system from original manufacturer. Should include turbo molecular pump with 250 liter/second capacity or more with EI source

- Mass range of 2-1000 amu in 0.1 amu steps
- Mass axis stability should be 0.10 amu/48 hrs
- Scan speed up to 20,000 scan/second or better
- Ion source temp up to 350°C for better sensitivity for active compounds and it should be programmable. Transfer line temperature: 100-350°C

- e. Quadrupole temperature: 150-190⁰C. Quadrupole should be heated to keep quadrupole clean for a longer period.
- f. Ionization energy range 5-220eV
- g. Ionization current range: 1-315 µA or more
- h. EI source should be inert to active compounds and should be programmable.
- i. EI scan sensitivity and is a must parameter to demonstrate at least: 1500:1 S/N for 1 pg OFN scanning from 50-300 amu at nominal m/z 272 ion
- j. EI SIM Instrument detection limit of 10 fg or better for OFN standard.
- k. The mass spectrometer shall have the capability to create a 90 SIM ion groups with up to 45 ions per group or more.
- l. Preferably Mass Spectrometer must utilize a Quadrupole Mass filter consisting of a Monolithic Quartz Structure.
- m. Spectral libraries: NIST latest version with license
- n. The GCMS system should be quoted with the following capability for:
 - Replacement of GC column without venting MS vacuum which results in elimination of GC/MS downtime
 - Splitting of one column effluent to FID and MSD with software controlled flow so that both detector have the same RSD. The device should have pressure controlled carrier flow and should be controlled by software

Thermal Desorption System:

Thermal Desorption system for sampling with Peltier cooling facility and complete software control. Also quote for the required accessories for operation of thermal desorption system.

Specification of Thermal Desorption system:

- i. The thermal desorber must be compatible with the application range
- ii. It must be possible to quantitatively retain ultra-volatiles from at least 1.5 L of air or gas without liquid cryogen for unattended on-line monitoring, with optimum sensitivity and minimal user intervention.
- iii. The TD must allow the simultaneous analysis of volatiles and semi-volatiles
- iv. The TD system must be compatible with samples containing trace (i.e. sub ppt) and high (ppm / low %) concentration levels
- v. Micro Chamber for the analysis of Volatile Gases.
- vi. Loading rig for standards.

[# Please quote your best specification available with your company against the aforementioned tender specification. All the vendor will be thoroughly evaluated by the technical and purchase committee. Alternative technologies will also be considered depending upon our applications.](#)

Terms and Conditions:

1. Evaluation will be done on the basis of technical specifications as per our tender notice.
2. Vendor must provide technical compliance sheet against tender specs along with supporting document.
3. Financial bids will be open only for those, who meets all technical specification.
4. Please do mention tender number clearly on envelop.

5. Please send the name and contact details of the person to whom company had supplied a similar systems. Committee may ask for the feedback.
6. The supplier must have supplied systems to institutions of national and/or international repute.
7. Price should be quoted in F.O.R - IIT Kanpur.
8. Payment terms & condition is 70% against delivery, 20% after installation and 10% after successful running of equipment for 3 months & approval.
9. Warranty/Guarantee should be clearly mentioned. The Warranty must start from the date of installation at IITK. Second and third year warranty must be quoted as optional.
10. Installation, demonstration, and training-sessions at IIT Kanpur will have to be provided by the manufacturer or the vendor for the quoted system.
11. Quotation should carry proper certifications like proprietary certificate, authorization certificate from manufacturer, etc.
12. Validity of quotation should be at least for 60 days.
13. Maximum educational discounts should be applied.
14. Institute is exempted for partial custom duty (CD applicable to IIT Kanpur is 5.15%).
15. Institute is exempted from payment of Excise Duty under notification No. 10/97.
16. The delivery period should be specifically stated. Earlier delivery may be preferred.
17. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.

Kindly send the quotation in sealed envelope latest by 2.00PM on 17/08/2017 to the following address;

To,
Prof. Siddhartha Panda,
Room No.305,
Samtel Centre for Display Technologies (SCDT),
Indian Institute of Technology Kanpur, Kanpur – 208016, Uttar Pradesh, India