Department of Chemical Engineering
Indian Institute of Technology, Delhi

January 08, 2013.

Subject: Quotation for CE- ESI-TOF system

Following Specification are required for CE- ESI-TOF system

The system should have Time of Flight geometry, capable of carrying out MS experiments. The instrument should have the following minimum specifications:

1. Mass Range	The instrument should have a minimum mass range of 25 – **20000** m/z
2. Mass Resolution	The instrument should have a mass resolution of 20,000 or more.
3. Mass accuracy	The instrument should have a mass accuracy of <2 ppm in MS mode with internal standard. System should have INVAR flight tube to eliminate thermal mass drift due to temperature changes to maintain excellent mass accuracy.
4. Mass Stability	Should maintain a mass accuracy of **<2** ppm over wide temperature range (15 to 35°C).
5. Dynamic range	Should have an in scan dynamic range of **5** decades for co-eluting compounds.
6. Scan speed	Should have a minimum scan rate of **20** spectra per sec in MS mode.
7. Ionization sources	Should come with a High sensitive **ESI source**, with orthogonally oriented to the ion optics. The source should have a provision for infusing reference standards along with the sample.
8. Sensitivity	System should have a pg level sensitivity for the test standard. The sensitivity should be 10 pg of reserpine should produce S/N ratio of 30:1 and injected on column.
9. Single point of control	CE and ToF MS should be from same manufacturer and compatible with Agilent HPLC 1260 system or Acuity UPLC H Class Bio-Waters System, The instrument should have a single point of control for both the MS detector and the CE.
10. Ease of use	The instrument should have a automatic tuning and calibration modes without having to make any major changes in the configuration for ease of use and user friendliness. A syringe pump for infusion should be quoted.
11. Data dependent Modes	Precursor selection based upon intensity of n-highest (or n-lowest) or relative or absolute threshold; exclude mass list and preferred mass list.
12. Software	Software for data acquisition, processing and quantitation should be incorporated for all CE, HPLC and ToF MS. The software should have a provision to calculate the molecular formula based on accurate mass measurement and Glycan analysis.

Specifications for CE System

13. Compatibility	Used in series mode, as the separations component of a CE/MS
14. Pressure System	-100 to +100 mbar on inlet or better
15. Injection Mode	Self-correcting injection system with injection from inlet or outlet. Programmable range: up to 10,000 seconds or better.
16. Capillary cassette	High-speed forced-air cooler with Peltier element Temperature range: 10 °C below ambient, up to 60 °C or better.
17. Detector	Should have Real time UV-Visible diode-array detector (190–600 nm) with temperature control or better Baseline noise: <50 µAU or better 1 µM 4-hydroxy-aceto-phenon injected at 50 mbar for 5 sec, 3 x 50 µm bubble cell capillary, signal/noise >6 or better
18. Safety features	Current leak detection: low current limit, Liquid leak sensor, Safety sensors at door and cover disabling high voltage, Vial sensor should be present in the system.
19. Autosampler	50 Vial position carousel or better.
14. Warranty	Instrument should be covered under warranty (parts & Labour) for a minimum of four years. Additional AMC should be quoted separately for one year.
15. Nitrogen Generator	A suitable Nitrogen generator and any other accessory to be quoted which required for the efficient functioning of the instrument should also be quoted in the main offer.

Specifications for Fluorescence Detector:

1. Detection Mode	:	Multi-signal fluorescence detector with rapid online scanning capabilities and spectral data analysis.
2. Performance	:	Single wavelength operation: a) Raman (H2O) > 500 (noise reference measured at signal) Ex 350 nm, Em 397 nm, dark value 450 nm, standard flow cell b) Raman (H2O) > 3000 (noise reference measured at dark value) Ex 350 nm, Em 397 nm, dark value 450 nm, standard flow cell Dual wavelength operation:Raman (H2O) > 300 Ex 350 nm, Em 397 nm and Ex 350 nm, Em 450 nm, standard flow cell.
1. Light source	:	Xenon flash lamp, normal mode (20 W), economy mode (5 W), lifetime 4000 hours..
2. Excitation Monochromator	:	Concave holographic grating, F/1.6, blaze 300

			nm,, Range 200 – 1200 nm and zero-order, bandwidth 20 nm
3.	Emission Monochromator	:	Concave holographic grating, F/1.6, blaze 400 nm,, Range 280 – 1200 nm and zero-order, bandwidth 20 nm
4.	Date accusation rate	:	74 Hz or better.
5.	Time Programming baseline	:	Up to four signals, response time, PMT gain, behavior (append, free, zero), spectral parameters
6.	Wavelength repeatability	:	± 0.2 nm
7.	Wavelength accuracy	:	±3 nm

Please send the above quotation latest by 28 / 01 / 2013.

Terms and Conditions:

1 Quotations must be made in sealed envelopes. Technical and Commercial bids must be sent separately in two sealed envelopes and then put together in one envelope. The quotes must reach the following address by 28th January, 2013 by 17: 00 hours latest.

Prof. A. S. Rathore
Department of Chemical Engineering
Block II, Room No. 94,
Indian Institute of Technology, Delhi
Hauz Khas, New Delhi – 110016

2 Price must be quoted FOR destination.
3 Please specify warranty periods.
4 Indian agency certificate must be enclosed. Proprietary certificate might be enclosed if applicable.
5 Payment through L/C.
6 Validity of quotation should be at least 3 months.
7 Period of delivery should be mentioned.
8 Educational discount should also be mentioned.
9 IIT will provide with duty exemption certificate at time of clearance.

Remarks: The Institute reserves the right to accept or reject any all the quotations without assigning any reason thereof.