



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
Materials Management Division
For IIT GOA

Liquid Chromatography-Single Quadrupole Mass Spectrometer System (LC-MS)
for:

Quantification and confirmation of small molecules, synthetic organic chemistry applications, medicinal chemistry applications, other target compounds in known /unknown matrices.

1. Core Specifications

Item	Specifications	Description
1	One Vendor Solution	Both the Liquid Chromatograph and Quadrupole mass spectrometer must be manufactured, supplied and installed by a single vendor to provide a seamless integration between the LC and MS
2	Service and Support	Both the Liquid Chromatograph and Mass Spectrometer must be fully supported by the supplier to provide a seamless instrument diagnostics between the LC and MS. At least 10 years spares support need to be provided.

2. Specification for Single Quadrupole MS System

Item	Specifications
1	Ion Source Must have ESI probe and should have easy upgradability and changeability to APCI, APPI or multimode sources. APCI source should be offered too.
2	Mass Range 10-2,000 amu or better
3	Analyzer Type Quadrupole Analyzer
4	Mass Accuracy



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	Optional
5	Scan Speed
	10,000 Da/Sec or better
6	ESI Sensitivity (SIM Mode)
	The instrument should give pg level sensitivity and 10 pg on column injection of Reserpine should produce S/N ratio at least better than 700:1
7	Spectral Accuracy
	Optional
8	Linear Dynamic Range
	Must have 6 orders of linear dynamic range
10	SIM Dwell Time
	Should be 5 msec or better
11	Vacuum System
	Highly efficient vacuum systems consist of Turbo molecular pumps followed by rotary mechanical pumps must be provided
12.	Resolution: Unit Resolution
13.	Mass Stability: 0.1 Da across 12 hrs

3. Liquid Chromatograph Specifications



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Item	Specification	Description
1	Pump	Must be Quaternary gradient pump capable of high pressure mixing and delivering solvents at a min 8,000psi pressure or better. Suitable degasser to be supplied along with the system.
2	Flow Rate	Must be 0.001-5ml/min in 0.001ml increment or better
3	Flow Precision	Must be less than 0.07% RSD
4	Flow Accuracy	Must be better than 1%
5	Composition Accuracy	0.5% or better
6	Composition Range	Settable range should be 0-100%
7	Auto Sampler	Must be capable of holding at least 100 samples or better. Carryover should be less than 0.05% as measured for Caffeine calibrant. Needle should be stainless steel; Quote for min 2 needles.
8	Column Compartment	Column oven should go till 80 Deg C Temperature stability ± 0.1 Deg C Preferably should have capacity to hold multiple columns
9.	Detector	DAD/PDA Detector 190-700 nM with accuracy of 1 nM No. of Diodes should be >1000 elements The light source should include Deuterium as well as Tungsten lamps
10.	Columns	C8 and C18 (1 each) column
11.		The tool kit and starter kit should be quoted for routine running and maintenance of HPLC system

4. Data Management System

Item	Specifications with Description
1	High Power latest processor computer and required software to control the system to be supplied along with instrument 24 inches LED monitor for the computer
2	Integrated software to control MS and LC together



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	The software should be capable of doing qualitative and quantitative work on LC-MS platform.
3	The Software shall be capable of auto calibration and all quantitative work flow

Notes:

- 1. Warranty:** Instruments should be covered with comprehensive warranty (spares and servicing) for at least 3 years from the date of installation
- 2. UPS:** 10 KVA online UPS of 30 mins or more backup should be quoted.
- 3. Printer:** A laser printer which will be connected with the LC-MS system should be quoted.