



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

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**TECHNICAL SPECIFICATION :**

**TLC INTERFACED MASS SPECTROMETER**

Mass Detector should be used for the below applications:

- Should be used as a Stand-Alone Independent Compact Mass Spectrometer by using Direct Injection Mode/ Diverter valve. MS should have Power On/Off switch & take minimum time to re-build Vacuum to get ready for analysis.
- Reaction monitoring for compound identification and conformity via Direct Injection of crude reaction mixtures
- Should have capabilities to interface to TLC interface module for direct mass analysis of TLC spots (TLC-MS)
- Rapid pump down which allows availability for the system run samples just 30 minutes after being moved
- Should have connection to up to 16 digital and analog I/O to optimize the instrument for any chemistry workflow. The mass spec should be able to fit in a fume hood

**Technical Specifications:**

- System should be supplied with ESI (Electron Spray Ionization) – source.
- Polarity: Positive and Negative Ion Switching in single analysis should be possible.
- Mass Range must be at least from m/z 30 to 1,200 or better.
- Acquisition Speed: 10,000 Dalton/Sec or better (compatible with HPLC, UPLC and TLC-MS Interface).
- Accuracy: + 0.2 m/z units over entire acquisition range or better.
- Stability: + 0.1 m/z units over 12 hour – 18 deg C – 24 deg C Operating temperature or better.
- Polarity Switching Speed – 50 ms or better.
- Analyzer: Single Quadrupole analyzer having preferably automated mass calibration to calibrate the entire mass range of analyzer on startup or before run to ensure mass accuracy is desired.
- Nitrogen gas generator with purity of at least 99.5% and up to 100 psi pressure upto 35L/min capacity or better. Nitrogen gas generator should be supplied **IMPORTED**.
- Software for acquisition and interpretation of mass data to be included with suitable PC.
- Please include necessary consumables for Mass and TLC-MS interface for smooth operation.

- System should be supplied with TLC interface module.
- A device which can provide a simple, means of obtaining mass spectra directly from TLC plates which should combine with MS for quick identification of products in complex mixtures without additional sample preparation. System should be equipped with liquid pump for solvent delivery. Oval head for elution built-in and circular head for TLC spot elution.
- Warranty: One year from the date of successful installation/commissioning of equipment.