

**DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY: TIRUCHIRAPPALLI - 620 015**

24.01.2014

Tender Notification No.: No.: NITT/ F. No.: SIF 009/ PLAN 2013-14 dt: 19.12.2013

Specification for ICP-MS

Original tender specification	Amended specification
Spectrometer with Quadrupole	No Amendment
RF- generator with dynamic frequency ~ 27/40 MHz. Full PC Control	No Amendment
Continuously variable power from 500 W to 1600 W	No Amendment
Mass flow controllers (MFCs) for all plasma gases with the ability to add more additional MFC's to the system to control other gases.	Mass flow controllers (MFCs) for all plasma gases with the ability to add more additional MFC's to the system to control other gases.(total MFCs should be >=5)
PFA concentric nebulizer with minimum aspiration rate	No Amendment
Software controlled peltier cooling system spray chamber for optimum stability during the analysis of aqueous and organic samples	No Amendment
Automatic gas connectivity. Supplied with high purity 2.5 mm ID quartz self-aligning injector as standard.	No Amendment
Compatible with a range of application specific injectors (different Materials, internal diameters)	No Amendment
Computer controlled plasma positioning in all three dimensions, x, y and z	No Amendment
Plasma viewing system for simplified plasma optimization	No Amendment
Easy access to the user for replacing sample and skimmer cones plus the extraction lens	No Amendment
Fixed voltage, 3D focusing, maintenance free lens defect ions, removing neutrals from the ion beam while maintained high ion transmission.	No Amendment

Collision cell technology (CCT) plus reaction cell technology (RCT) to reduce mass interference.	Collision cell technology (CCT) plus reaction cell technology (RCT) to reduce mass interference. All possible Reactive gases (100 % purity) Ar gas cylinder, N ₂ gas cylinder and H ₂ gas, NH ₃ gas to be quoted with respective regulators System should capable of low mass cutoff and high mass cutoff with band pass tuning.
High performance, full size, quadrupole mass analyzer , covering the mass range 4-238 amu or better.	No Amendment
Resolution : 0.5 to 1.2 amu or better	No Amendment
Design delivers low abundance sensitivity and ultra-fast scanning.	No Amendment
Discrete dynode electron multiplier detector providing greater order of dynamic range via simultaneous analogue, pulse counting detection.	Discrete dynode electron multiplier detector providing greater than eight order of dynamic range via simultaneous analogue, pulse counting detection. MFC and all the three modes of analysis to be performed in a single run <ol style="list-style-type: none"> 1. The back ground signal to noise level ratio will be less then 1 cps 2. Oxide ratio Ceo/Ce should be less than 2 % 3. Double charged ratio should be less than 3% 4. Scanning speed should be 2000amu/sec or better
Software control platform for optimum performance, Full remote access and instrument for remote monitoring of the system.	No Amendment
Switching between CCT & RCT operation is fully automatic and is possible within a sample acquisition.	No Amendment
Turning solution & Multi elemental Performance solution as Standard.	No Amendment
Ar gas cylinders, He gas cylinders, N ₂ and other gas cylinders with	Ar gas cylinders, He gas cylinders, N ₂ , NH ₃ and other gas cylinders

suitable regulators for CCT analysis (each 3 numbers, high purity).	with suitable regulators for CCT analysis (each 3 numbers, 100% purity).
Auto sampler for liquid analysis	No Amendment
The sample introduction system should have very low dead volume with low uptake rate to reduce the waste generation	No Amendment
Standard samples for day to day analysis and calibration	No Amendment
Suitable oil free rotary pump and turbo molecular pump	No Amendment
20 kV UPS with 10 hour backup	20 kVA UPS with 3 hours backup
Exhaust system to vent the gas	No Amendment
System to maintain the humidity , <i>room temperature and other necessary parameters for optimum performance of ICPMS system.</i>	No Amendment
Compatible computer with latest configuration 500 GB memory, Windows operating 8 system, DVD & Bluray RW, Laser Printer.	No Amendment
Optional Accessories: Microwave digestion system for preparation of samples	Optional Accessories: Microwave digestion system for preparation of samples. High pressure vessel 4 nos with five years warranty. Pressure and temperature sensors.
Comprehensive warranty for 3 years	Comprehensive warranty for 5 years
	5% bank guarantee for 5 years towards the supply of spare components after the warranty period.

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