

Details for CRF Website – NITC

INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER

**Photo of Instrument:**



<b>Instrument Name</b>	INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER (ICP-MS)
<b>Instrument Model &amp; Serial No.</b>	Nexion1000 , 815N2062801X
<b>Instrument Make</b>	PerkinElmer
<b>Category of Instrument</b>	Elemental Analytical instrument
<b>Description of Instrument</b>	ICP-MS is a powerful analytical technique that combines the capabilities of inductively coupled plasma (ICP) with mass spectrometry to detect and quantify trace elements in a variety of sample types.
<b>Instrument Technical Description and Major Specifications</b> (This Specifications Limited to Major 5)	<b>1) Inductively Coupled Plasma (ICP) Source:</b> <ul style="list-style-type: none"><li>• The ICP serves as the ionization source by creating a high-temperature plasma.</li><li>• Radiofrequency (RF) energy is used to generate the ICP, which is a state of matter consisting of ionized gas with a high temperature (around 10,000 K).</li></ul>

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	<p>2) <b>Mass Spectrometer:</b></p> <ul style="list-style-type: none"> <li>• The mass spectrometer is responsible for separating and detecting ions based on their mass-to-charge ratio (<math>m/z</math>).</li> <li>• It typically consists of an ionization chamber, mass analyzer, and a detector.</li> </ul> <p>3) <b>Vacuum System:</b></p> <ul style="list-style-type: none"> <li>• ICP-MS instruments have a vacuum system to maintain low pressure within the mass spectrometer, allowing efficient ion transmission.</li> </ul> <p>4) <b>Multi-Element Capability:</b></p> <ul style="list-style-type: none"> <li>• ICP-MS instruments are designed for multi-element analysis, enabling the simultaneous detection of a wide range of elements in a single sample run.</li> </ul> <p>5) <b>Sample Introduction System:</b></p> <ul style="list-style-type: none"> <li>• Nebulizer: Converts liquid samples into a fine aerosol for introduction into the ICP.</li> <li>• Spray Chamber: Helps in further desolvation and introduction of the aerosol into the plasma.</li> <li>• Sample Introduction Device: Ensures precise and controlled sample introduction.</li> </ul>
<p><b>Application of Instrument</b> (Limited to Major 4 or 5)</p>	<ul style="list-style-type: none"> <li>• Environmental analysis</li> <li>• Geological studies</li> <li>• Pharmaceutical research</li> <li>• Chemical Industry</li> <li>• Clinical Research</li> </ul>
<p><b>Type of Sample Required for Analysis/Testing (Quantity, Pre-Preparation, State etc.)</b> <b>Guidelines for Sample Submission –</b></p>	<p>Sample should be a Clear liquid sample without any suspended particles, Should be free from Carbon and HF.</p>

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<b>User Instructions</b>	
<b>Types of Analysis/Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions</b>	Elemental analysis.
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<b>Technical Staff Name / Email / Contact</b>	Muhammed Munaver Muhammedmunaver@nitc.ac.in 04952285484
<b>Location of Instrument</b>	Instrumentation Lab
<b>Other Details</b>	

### User Charges

S.NO.	Type of Analysis/Testing	Internal - within Department of NITC	Internal - Other Departments NITC	External Academic Educational Institutes	National Labs	Industry
1	Elemental analysis	700 (First element) + 150 per element	1400 (First element) + 300 per element	1400 (First element) + 300 per element	2800 (First element) + 450 per element	700 (First element) + 150 per element

Sample Analysis/ Testing Requisition Form (For uploading in CRF Website):

1. Specific Requisition form for each Major Instrument Which Generating High IRG
2. Common External Requisition Form for All minor Instruments

Slot Booking and Payment Work Flow:

- Discuss the slot availability with the technical staff in the instrumentation lab of chemical engineering department.
- Collect the request form.
- Payment should be at the accounts section of the institute.
- Get the request form signed from the faculty in charge.
- Submit the request form and samples in the instrumentation lab.

