



राष्ट्रीय विज्ञान शिक्षा एवं अनुसंधान संस्थान, भुवनेश्वर  
(परमाणु उर्जा विभाग, भारत सरकार का एक स्वयं शासित संस्थान)  
**NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, BHUBANESWAR**  
(AN AUTONOMOUS INSTITUTE UNDER DEPT. OF ATOMIC ENERGY, GOVT. OF INDIA)

***Notice Inviting E-Tender No.: NC-000824-RIN4001-SPS-21-22***

***VACUUM BASED PLASMA TREATMENT SYSTEM FOR CLEANING &  
SURFACE MODIFICATION***



**NATIONAL INSTITUTE OF SCIENCE EDUCATION & RESEARCH  
JATNI CAMPUS, P.O. – BHIMPUR-PADANPUR, VIA-JATNI  
KHURDA – 752050, ODISHA, INDIA**

**Notice Inviting E-Tender**

**For**

**VACUUM BASED PLASMA TREATMENT SYSTEM FOR CLEANING &  
SURFACE MODIFICATION**

E- Tenders are invited on behalf of the Director, National Institute of Science Education and Research, Jatni from the manufacturers(Indian or Foreign) and their authorised reseller/Indian agent only for supply & installation of the following items:-

<i>Sl. No.</i>	<i>Name of the Items</i>	<i>Tender No.</i>	<i>Name of Department</i>	<i>Qty. No.</i>	<i>Tender Fee in INR</i>
1.	<b>Vacuum Based Plasma Treatment System for Cleaning &amp; Surface Modification</b> (As listed in the technical bid)	NC-000824-RIN4001-SPS-21-22	SPS	As per technical bid	<b>1,500.00</b>

<i>Sl. No.</i>	<i>Name of the Items</i>	<i>Tender No.</i>	<i>Name of Department</i>	<i>Qty. No.</i>	<i>EMD in INR</i>
1.	<b>Vacuum Based Plasma Treatment System for Cleaning &amp; Surface Modification</b> (As listed in the technical bid)	NC-000824-RIN4001-SPS-21-22	SPS	As per technical bid	NIL against Bid Security Declaration as attached

Performance Bank Guarantee: Within ten (10) days of the award of contract, the vendor shall furnish a performance bank guarantee amounting to 3% of the purchase order value in the form of bank guarantee in favour of “the Director, National Institute Of Science Education & Research”, Jatni valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. BG should be from any nationalized/ scheduled bank in India.

- **Tender Enquiry No** : **NC-000824-RIN4001-SPS-21-22**
- **Last date of submission of E-bid** : **02/02/2022 up to 11.00 A.M**
- **Opening of Technical Bid** : **04/02/2022 at 11.00 A.M**

The details of general tender terms & conditions can be downloaded from <https://eprocure.gov.in> or Tender Free View Link from NISER Website <https://www.niser.ac.in/content/tender>.

**FIC (Stores & Purchase)**

# **Bid Security Declaration**

(In Company's letterhead)

**Invitation to Bid/Request for Expression of Interest No.**  
[NC-000824-RIN4001-SPS-21-22]

To

National Institute of Science Education & Research, Bhubaneswar

Post-Bhimpur-Padanpur,

Via- Jatni,

District- Khurda, India

PIN-752050.

I/We understand that, according to your NIT conditions, bids must be supported by a Bid Security. In lieu of the Bid Security, we submit the following undertaking:-

“I/We declare that we will be suspended/ disqualified for tendering with the entity for a period of 1 (One) year from the date of receipt of notice from you, if we withdraw or modify our bid during the validity period **OR** fail to sign the Contract **OR** fail to submit Performance Security (if applicable) before the defined deadline **OR** fail to execute contractual obligation within the stipulated time.”

**Date: -**

**Place: -**

Signature of the Bidder

**(with Company seal)**



**TECHNICAL BID  
SUPPLY AND INSTALLATION  
OF  
VACUUM BASED PLASMA TREATMENT SYSTEM FOR CLEANING & SURFACE  
MODIFICATION  
FOR  
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI  
Notice Inviting E-Tender No. NC-000824-RIN4001-SPS-21-22**

Vendor Name				
SL. No.	Item Specification	Quantity (In Nos.)	Accepted/Not Accepted (Kindly Mention)	Please specify if any deviation
1	<p><b>Specifications for Vacuum based Plasma Treatment System for Cleaning and Surface Modification:</b></p> <p><b>Introduction:</b> This should be microprocessor- controlled benchtop plasma treatment system for surface activation, cleaning and modification of a wide range materials including polymers, metals, glass and ceramics, silicon substrates or any other substrates.</p> <p><b>Vacuum Chamber Dimension: Specifications:</b></p> <ul style="list-style-type: none"> <li>• Stainless Steel chamber</li> <li>• Minimum 150 mm Inner Diameter x 280 mm length or higher to allow petrdish of up to 10 cm diameter</li> <li>• Chamber should have a hinge door</li> <li>• Appropriate view glass to observe oxygen plasma generation</li> <li>• Should be compatible for glass, Silicon, ITO, FTO and other substrates as per the requirement of the user.</li> <li>• Detailed list of materials which can be cleaned and which material which needs to avoided should be clearly specified by the vendor.</li> </ul>	<b>1 No.</b>		

**Power specifications:**

- 40 KHz frequency with continuously variable power output over the range 0-200W.
- Power can be set with precision through digital control

**Gas flow control:**

- Two MFC gas inlet for controlling the flow of upto 100 sccm or better
- Digital Mass flow controllers
- Resolution: 0.1% of full scale or better
- Repeatability: +/-0.3% of reading
- Leak rate: <0.1% of full scale

**Second MFC gas inlet:**

- Second mass flow controller to enable the connection of a second gas which can be used independently or together with the gas inlet to create a binary gas mixture (for example oxygen and argon) or to create higher pressure of oxygen to increase the effect of plasma cleaning.
- Fully integrated mixing to control the fraction of gas.
- Software control of mixing ratio.

**Powered Electrode:**

Aluminum and Stainless Steel

**Control system:**

- Microprocessor controlled embedded in the system.
- All the processes such as vacuum, plasma, power setting, power matching, plasma cleaning and venting, required for oxygen plasma generation and cleaning should be controlled through software/HMI
- Color touchscreen to control all the operations of the system

- Software and control system to store multiple recipes.
- All parameters should be appropriately detected and the vendor should specify all the parameters, which is measurable through the software.
- The software should have the capability of multiple level user access.

**Vacuum System:**

- Two stage oil-free dry Rotary pump.
- Base pressure < 0.005 mbar or better.
- Pumping speed of 6 m<sup>3</sup>/hr or better
- 1.5 m stainless steel flexible bellows
- All necessary KF clamps and seals required for the complete installation of the system should be provided.
- Appropriate pirani gauge to monitor the vacuum range covering the complete scale of operation.
- Pressure for surface activation and cleaning should be clearly specified by the vendor.

**Additional requirements:**

- Manufacturer must supply representative results showing:
  - a) Plasma cleaning contamination removal demonstration e.g. XPS spectra of carbon peak reduction on metallic sample and (ii) Images/data of progressive removal of carbon from a suitable holey carbon grid (such as used in microscopy) in order to display effective and controlled carbon removal. Following images should be provided along with the tender.
  - b) Data in support of making the glass substrates hydrophilic should be provided.
- Details of the Indian local representative who would be responsible for the service of the instrument should be provided.

	<ul style="list-style-type: none"> <li>• List of similar instruments provided in reputed national institutes like (IIT, IISER, TIFR etc) and international institutions should be provided. PO can be asked at a later stage as per the requirement of NISER.</li> <li>• The instrument should comply with Class 1000 Cleanroom</li> <li>• Training to at least 2 users in the NISER lab should be provided.</li> <li>• Complete user manual should be provided.</li> </ul> <p><b>Optional Items:</b> Maintenance kit for dry pump which include items like :</p> <ol style="list-style-type: none"> <li>a) Replacement pump tip seal</li> <li>b) Spare vacuum clam and seal</li> <li>c) Spare O-ring seals</li> </ol>		
2	<p>Above items should carry 1-year free comprehensive warranty from the date of installation. In case the tenderer provides warranty less than 01 year then he has to give justification for lesser period of warranty. Without justification, his tender is liable to be rejected.</p>		

**Contact for information: (Only E-mail enquiries will be entertained)**

**For Technical Information:-**

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School of Physical Sciences  
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