Tender Notification No.: NITT/R&C/CHY/SA/DST/2010-11/20
Tender Document

Name of the component: Electrochemical Impedance Analyzer with solar simulator

Quantity required: 1No.

EMD Amount: `40,000/-

Delivery: 8 weeks from the date of purchase order

Last Date of submission of Tender: 13.10.2010 upto 3.00 p.m.

Address for submission of Tender: Dr. S. Anandan
                                Assistant Professor
                                Department of Chemistry
                                National Institute of Technology
                                Tiruchirappalli - 620 015
                                Phone: +91-9444052074
                                E-Mail: sanand@nitt.edu

Date of opening of bid: 13.10.2010 at 3.30 p.m.
DEPARTMENT OF CHEMISTRY

Tender Notification No.: NITT/R&C/CHY/SA/DST/2010-11/20  Dated: 23.9.2010

NOTICE INVITING TENDER

The National Institute of Technology, Tiruchirappalli (NITT) is an autonomous body under MHRD, GOI, imparting Technical Education and engaged in Research Activities. It is proposed to procure the following component for the departmental academic/research activities.

Sealed Quotations under two cover system are invited for the following component subject to the following terms and conditions, from the reputed manufacturers or their authorized dealers so as to reach this office on or before scheduled date and time. The technical cover will be opened on the same day in the presence of bidders or their authorized agents who may choose to be present.

Name of the component: Electrochemical Impedance analyser with solar simulator

Quantity required: 1 No.

EMD: `40,000/-

Time for completion of supply after placing purchase order: 8 weeks

Last Date of submission of Tender: 13.10.2010 upto 3.00 p.m.

Tender to be submitted at the following address:

Dr. S. Anandan
Assistant Professor
Department of Chemistry
National Institute of Technology
Tiruchirappalli - 620 015
Phone: +91-9444052074
E-Mail: sanand@nitt.edu

Place, Date and time of opening of bid:

Date: 13.10.2010  Time: 3.30 p.m  Venue: Dean (R&C) office/Admin Block

Note: The Institute shall not be responsible for any postal delay about non-receipt / non delivery of the bids or due to wrong addressee.
1. The bidder should give details of their technical soundness and provide list of customers of previous supply of similar items to Universities, Institutes or Government Departments/Undertakings/public sectors with contact details. The details of the agency/profile should be furnished along with the copy of all related documents.

1.1 Bids are to be submitted under two cover system.

Cover 1:
Cover 1 should contain the following:

a. EMD - Earnest Money Deposit (EMD) is to be remitted by way of Demand Draft drawn on any Nationalised bank in India by Demand Draft drawn on any scheduled bank in favour of “The Director, NIT, Trichy” payable at Trichy should be submitted. EMD shall bear no interest. Any bid not accompanying with EMD is liable to be treated as non-responsive and rejected.

b. Technical pamphlets

c. Detailed technical specification

d. The agency should furnish copy of license certificate for manufacture/supply of the item.

e. The agency should furnish Income Tax PAN number

f. Warranty period offered for the tendered item to be specified. If the warranty period is not conforming with the schedule of requirements given in section 3 of the document, the bid is liable to be treated as non-responsive and rejected.

g. Duly filled up technical questionnaire, if any

h. Duly filled up deviation schedules to technical specification

i. Copy of supply orders completed during the last three years ending 31-12-2008.

j. If the prices are revealed in the cover 1, the offer will be summarily rejected

1.2 The cover 1 shall be superscribed as ‘Technical cover’ duly indicating the Tender reference No. and the due date of opening.

1.3 Cover 2:
Cover 2 should contain the following
Cover 2 shall contain Price only and shall be superscribed as ‘Price Cover’ duly indicating the Tender Reference No. and the due date of opening.

Each Cover shall be sent in a double sealed cover. The inner covers (Cover 1 and Cover 2) should be sealed individually with the seller's distinctive seal and superscribed with the tender reference no. and due date of opening. Both the inner covers shall be placed in a common outer cover which shall also be sealed with seller's distinctive seal and superscribed with the tender reference no. and due date of opening.

Mention “Kind Attention:………………………………, and submit at the address given in the Notice Inviting Tender.

Cover 1 will be opened on the scheduled date and time mentioned in the tender enquiry. Cover 2 of the technically and commercially suitable offers alone will be opened on a date which will be intimated to the qualified bidders.
2. The agencies should submit their rate as per the format given in Section 4 of the Notice Inviting Tender in this cover. Rate should be quoted in Indian Rupee. The rate should be quoted both in words and figures. All the pages of the bid should be signed affixing the seal. All corrections and overwriting should be initialed.

3. The tender will be acceptable only from the manufacturers or its authorized supplier.

4. The bid shall be in the format of price schedule given in Section 4. The contract form as per format given in section 5 shall be submitted. Incomplete or conditional tender will be rejected.

5. Details of quantity and the specifications are mentioned in Section 3 appended to this Notice Inviting Tender.

6. The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities. It must be delivered and installed in good working condition.

7. The Institute reserves the right to cancel or reduce the quantity included in the schedule of requirements at any time after acceptance of the tender with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work/supply in full but he did not derive in consequence of the foreclosure of the whole or part of the works.

8. Performance Security of 5% of the contract value in terms of Bank guarantee by scheduled banks shall be given by the successful bidder for the total period of warranty.

9. **Release of EMD:** The EMD shall be released after receipt of performance security from successful bidder.

10. **Validity of bids:** The rate quote should be valid for a minimum of 90 days. No claim for escalation of rate will be considered after opening the Tender.

11. **Imports:** In case, goods are to be imported, the Indian agent should furnish authorization certificate by the principles abroad for submission of the bid in response to this Notice Inviting Tender.

12. **Clarification of Tender Document:** A prospective bidder requiring any clarification of the Tender document may communicate to the contact person given in this notice inviting tender.

13. **Amendment of tender document:** At any time prior to the last date of receipt of bids, Institute may for any reason, whether at its own initiative or in response to a clarification requested by prospective bidder, modify the Tender document by an amendment.

14. **The Institute may at its own discretion extend the last date for the receipt of bids.**

15. The bids shall be written in English language and any information printed in other language shall be accompanied by an English translation, in which case for the purpose of interpretation of the bid, the English translation shall govern.

16. The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids without assigning any reasons therefor. The decision of the Institute Purchase Committee is final in all matters of tender and purchase.

17. The bidder should give the following declaration while submitting the Tender.
DECLARATION
I/we have not tampered/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our tender will be summarily rejected and full Earnest Money Deposit (EMD) will be forfeited and I/we am/are liable to be banned from doing business with NIT, Trichy and/or prosecuted.

Signature of the Bidder : .................................................................

Name and Designation : .................................................................

Business Address : ........................................................................
.................................
.................................

Place :

Date : Seal of the Bidder’s Firm

18. Any other details required may be obtained from the contact person given in the notice inviting tender during the office hours.
1. The rates should be quoted in Indian Rupee F.O.R. NIT, Trichy for supply within India.

2. In case of import both CIF and / or FOB rate should be quoted. All components of expenditure to arrive at Chennai need to be explicitly specified.

3. The bidder shall indicate the excise duty exemption for the goods if applicable

4. The Institute is eligible for customs duty and excise duty exemption.

5. The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any.

6. Rate quoted should be inclusive of Testing, commissioning and installation of equipment and training.

7. **Payment**: No advance payment will be made. Payment will be made only after the supply of the item in good and satisfactory condition and receipt of performance security by supplier. In case of imports, the payment will be made through LC after installation and performance security need to be submitted at the time of LC commitment.

8. Guarantee and Warrantee period should be specified for the complete period conforming to the section 3 of this tender document.

9. Period required for the supply and installation of item should be specified conforming to the section 3 of this tender document.

10. In case of dispute, the matter will be subject to Tiruchirappalli, Tamil Nadu Jurisdiction only.
**Name of the Component to be procured:** Electrochemical Impedance analyser with solar simulator

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Details of the Items</th>
<th>NIT’s Specification</th>
<th>Bidder’s specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Make and Model of Potentiostat/Galvanostat</td>
<td>Specify make and model of Instrument</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Compliance Voltage</td>
<td>$\pm30V$ at 2 Amps</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Current</td>
<td>$\pm2A$ at 30 Volts</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Gain bandwidth</td>
<td>1 MHz</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Bandwidth of Electrometer</td>
<td>$&gt;4$ MHz</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Input Impedance</td>
<td>$1\Omega//8$ pF</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Applied Voltage</td>
<td>$\pm10V$ extendable to $\pm30V$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Current Ranges</td>
<td>$\pm10nA$ to $1A$ in several ranges</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Resolution of Applied Potential</td>
<td>$30\mu V$</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Resolution of current at 10 nA range</td>
<td>$50$ fAmp</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>System Rise Time</td>
<td>250 nSec</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>IR compensation range</td>
<td>0 to 200 $M\Omega$ at 10 nA, 0 to 20 $M\Omega$ at 100 mA</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Digital I/O Lines</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>D/A Converter</td>
<td>Three Channel, 16 bit</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Current Integrator module</td>
<td>For separating capacitive current from faradaic current</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Dynamic IR compensation module</td>
<td>Dynamic IR compensation mode for high resistive environment</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Extreme low current detection module</td>
<td>For fA current range</td>
<td></td>
</tr>
</tbody>
</table>

**Electrochemical Impedance analysis**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Details of the Items</th>
<th>NIT’s Specification</th>
<th>Bidder’s specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Impedance range</td>
<td>$1\mu$Hz to $1$ MHz or higher</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Frequency resolution</td>
<td>0.003%</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Input bias voltage range</td>
<td>$\pm5$ V</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>AC amplitude</td>
<td>0.2 mV to $350$ $mV_{rms}$ in potentiostatic mode</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Current range in galvanostatic mode</td>
<td>0.0002 to 0.35 times or higher</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Impedance potentiostatic</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Impedance galvanostatic</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**General Electrochemical methods needed**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Details of the Items</th>
<th>NIT’s Specification</th>
<th>Bidder’s specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Cyclic and Linear sweep voltammetry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Sampled DC voltammetry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Hydrodynamic linear sweep voltammetry with module</td>
<td>With RDE module and setup</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Normal pulse voltammetry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Differential pulse voltammetry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Technique</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Normal Differential pulse voltammetry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Square wave voltammetry</td>
<td>With frequencies up to 2000 Hz</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>AC voltammetry (with 1st &amp; 2nd harmonic)</td>
<td>With frequencies up to 250 Hz</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Stair case potentiostatic and galvanostatic voltammetry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Chronoamperometry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Chronocoulometry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Chronopotentiometry (with potential ramp)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Chrono charge/discharge for super capacitor application</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>AC voltammetry (with 1st &amp; 2nd harmonic)</td>
<td>With frequencies up to 250 Hz</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Stair case potentiostatic and galvanostatic voltammetry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Chronoamperometry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Chronocoulometry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Chronopotentiometry (with potential ramp)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Chrono charge/discharge for super capacitor application</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>DC and Differential pulse amperometry</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Potentiometric stripping</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Differential pulse stripping</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Current and potential noise measurement</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Linear Polarization</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**Electrochemical and Impedance Software**

- Windows based software capable of doing all electrochemical techniques
- Should compatible with Windows XP, vista, Windows 7
- Should have inbuilt electrochemical spread sheet
- For user programmable formula
- Impedance plots, admittance plots, Mott Schottky plots, Nyquist plots, Bode Plots & Epsilon Plots
- Should get all type of data
- Equivalent circuit description
- Latest with maximum number of equivalent circuits
- Kramer Kroenig’s test
- Should be possible to check the data

**Programmable furnace for high temperature experiments**

- Digital controller for temperature variations
- Yes
- Temperature range
- Ambient to 300°C
- Four probe set up
- One number
- Two probe set up
- One number

**Solar simulator**

- Make of the instrument
- Specify the make and model of the instrument
- Lamp
- 150W Xenon lamp
- Beam size
- Square 30 mm x 30 mm
- Filter
- Global AM 1.5
- Controller
- Programmable controller for varying intensity of the beam

**Computer**

- Core i3 processor operating at more than 3.0 GHz, 3 GB SD RAM, 350 GB HDD, 52 x
- Branded DELL/HP/IBM
| DVD read/write combo drive, 6 USB Ports, 21” wide screen LCD Colour Monitor, 101 Keys Keyboard, Optical mouse and speaker. |
|---|---|
| Optional accessories |
| Optional | Upgradable to Bipotentiostat |
| Corrosion cell | Complete cell set up for doing corrosion test |
| Booster for higher currents | 10 A / 20 A |
| Terms and Conditions |
| Validity of the quotation | 180 days from the date of quotation |
| Payment | Letter of credit |
| Delivery | 6 weeks from the date of purchase order |
| Mode of delivery & insurance | Mention |
| Guarantee / Warranty | 12 months or higher |
Name of the Component to be procured : Electrochemical Impedance analyser with solar simulator  

Specifications : List attached  

Quantity : 1 No.  

Any other details/requirement : List attached  

Warranty period required : One year or more  

Delivery schedule expected after release of purchase order (in weeks) : 8 weeks  

EMD (in Rupees) : `40,000/-  

Performance Security to be given by Successful bidder after release of purchase order (in Rupees) : 5 % of the equipment cost
SECTION : 4 PRICE SCHEDULE

[ To be used by the bidder for submission of the bid ]

1. Component Name : 

2. Specifications (confirming to Section 3 of Tender document-enclose additional sheets if necessary) : 

3. Currency and Unit Price : 

4. Quantity : 

5. Item cost (Sl.No.3 & Sl.No.4) (in Indian Rupee) : 

6. Taxes and other charges :
   (i) Specify the type of taxes and duties in percentages and also in figures :
   (ii) Specify other charges in figures :

7. Warranty period (confirming to the Section 3 of Tender document. This should be mentioned in Technical bid also in order to get qualified for Financial bid) : 

8. Delivery Schedule (confirming to the Section 3 of Tender document) : 

9. Name and address of the firm for placing purchase order : 

10. Name and address of Indian authorized agent (in case of imports only) :

Signature of the Bidder : .................................................................

Name and Designation : ............................................................... 

Business Address : ..............................................................................
...........................................................................................................

Place :

Date : Seal of the Bidder’s Firm
1. (Name of the Supplier’s Firm) hereby abide to deliver the ………………………………by the delivery schedule mentioned in the Section 3 tender document for supply of the items if the purchase order is awarded.

2. The item will be supplied conforming to the specifications stated in the tender document without any defect and deviations.

3. Warranty will be given for the period mentioned in the tender document and service will be rendered to the satisfaction of NIT, Trichy during this period.

Signature of the Bidder       : ……………………………………………………………………………

Name and Designation         : ……………………………………………………………………………

Business Address             : ……………………………………………………………………………
                                ……………………………………………………………………………
                                ……………………………………………………………………………

Place :
Date : Seal of the Bidder’s Firm