INVITATION FOR TENDER FOR SUPPLY OF EQUIPMENT

Sealed tender offers are invited in two separate sealed covers (Technical and Commercial offers) from eligible manufacturers/suppliers or their direct Indian agents for the supply of the following equipment.

Microwave Solvo-thermal Reactor

Please send offers, ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE. The validity of the bid should be at least four months (120 days) or more from the date of the opening of this tender. Please ensure that your quotation reaches not later than 08.06.2015 at 15:00 hrs at the following address:

Dr. S. B. Majumder
Professor, Materials Science Centre,
Indian Institute of Technology Kharagpur,
Pin-721 302, West Bengal, India

Earnest money of Rs. 30,000/- is to be deposited in the form of Account payee Demand Draft in favour of IIT Kharagpur, payable at Kharagpur, India. Any bid which is not accompanied with an EMD shall be summarily rejected. Earnest money deposited will be forfeited if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender. No interest will be paid on the earnest money of the unsuccessful bidders.

<table>
<thead>
<tr>
<th>Tender Reference</th>
<th>IIT/SRIC/MSC/IIA/2015-2016/EQ/1, Dated: 27.04.2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price of Tender Document</td>
<td>NIL</td>
</tr>
<tr>
<td>Last Date and Time for submitting the tender document</td>
<td>08.06.2015, 15:00 Hrs (Indian time)</td>
</tr>
<tr>
<td>Time and Date of Opening of Bids</td>
<td>08.06.2015, 16:00 Hrs (Indian time)</td>
</tr>
<tr>
<td>Place of Opening tender offers</td>
<td>Department of Materials Science Centre, Indian Institute of Technology Kharagpur – 721 302, West Bengal, India</td>
</tr>
<tr>
<td>Address of Communication</td>
<td>As stated above</td>
</tr>
<tr>
<td>Contact Telephone Numbers</td>
<td>+91- 3222 - 28.3986</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:subhasish@matsc.iitkgp.ernet.in">subhasish@matsc.iitkgp.ernet.in</a></td>
</tr>
</tbody>
</table>
### Detailed Specifications for

**Microwave reactor of dry powder, slurry and solution based system**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameter</th>
<th>Required Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scope of the equipment</td>
<td>Synthesis of ceramic powders (mostly catalyst, gas sensor, and electrode for Li ion battery) for dry synthesis under homogeneous microwave in inert/vacuum condition. Solution reaction under atmosphere (reflux) and high ambient pressure in inert and reactive gas (mostly oxygen) environment.</td>
</tr>
<tr>
<td>2</td>
<td>Modes of operation</td>
<td>Batch synthesis under reflux and dry powders under vacuum &amp; inert ambient. Parallel reaction should be under high pressure mode.</td>
</tr>
<tr>
<td>3</td>
<td>Microwave cavity and magnetron</td>
<td>Single or dual magnetron, however, the cavity should have homogeneous distribution of microwave; cavity should be illuminated and must be resistant to chemical attack</td>
</tr>
<tr>
<td>4</td>
<td>Power output</td>
<td>At least 1100 W or more with ±1 watt increment. Should be possible to set time, temperature or power in pulsed or continuous mode</td>
</tr>
<tr>
<td>5</td>
<td>Temperature control and measurement</td>
<td>Both IR and fiber optic type. Should be equipped with a suitable temperature controller for accurate temperature control preferably ±0.5°C accuracy.</td>
</tr>
<tr>
<td>6</td>
<td>Pressure control</td>
<td>Pressure monitoring and control systems which can deliver pressure up to maximum limit of reaction vessel</td>
</tr>
</tbody>
</table>
| 7     | Reactor configuration                         | **Batch reactor volume**: 50 ml and 300 ml are preferred for dry synthesis under vacuum/inert. **Temperature**: working temperature should attain 250°C or more. Reactor should be equipped with a rotation system for homogeneous temperature **Pressure** at least up to 100 bar or better  
**Parallel reactor volume**: 30 ml to 100 ml or better  
**Pressure**: 30 to 100 bar (or better)  
**Number of reactor**: Minimum 2 max 10 (or more)  
**Stirring and temperature control**: Stirring in each vessel with temperature control probe  
**Reflux set up under ambient pressure**:  
**Volume**: 100 to 500 ml  
System should be equipped with inert gas purging and vacuum accessories. **Vacuum pump should be included in the main system** |
| 8     | Software and allied hardware                 | User friendly system to run and save experimental input parameter file and storage                                                                 |

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of temperature and pressure data. Data should be readable in any Windows operating system. Equipment should have extra port to connect printer and other additional hardware accessories. Separate workstation and a printer must be provided even if touch screen mode of operation is available. Software should be upgradable free of cost

<table>
<thead>
<tr>
<th></th>
<th>Safety features</th>
<th>Suitable interlock feature should be inbuilt to prevent emission of microwave and release of pressure in the reactor</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Power and power backup</td>
<td>220-230V/50-60 Hz with Indian type 3 pin socket. <strong>A suitable UPS must be quoted as optional item for uninterrupted use for 10-20 minutes in case of power failure</strong></td>
</tr>
<tr>
<td>10</td>
<td>Warranty</td>
<td>3 years comprehensive warranty must be provided</td>
</tr>
<tr>
<td>11</td>
<td>Engineer and service</td>
<td>Smooth service facilities must be provided as or when required. Engineers must be factory trained by the Principal</td>
</tr>
<tr>
<td>12</td>
<td>Compliance statement</td>
<td>Compliance statement for point No. 1-12 must be provided with relevant technical support of the company brochure. This needs to be followed strictly.</td>
</tr>
<tr>
<td>13</td>
<td>User list</td>
<td>User list with customer certification must be provided in the technical quote.</td>
</tr>
</tbody>
</table>
1. TENDER ARE INVITED COMPLYING THE REQUIREMENT FOR TENDER AS DETAILED IN THE TENDER SPECIFICATION TO BE SUBMITTED IN THE COMPANY’S / FIRM’S LETTERHEAD NEATLY PRINTED / TYPED DULY SIGNED BY AUTHORIZED PERSON WITH THE SEAL OF THE BIDDERS. ALL ENVELOPS CONTAINING THE TENDER SHOULD BE PROPERLY SEALED. SEPARATE ENVELOPS SHOULD BE USED FOR TECHNICAL AND PRICE BID AND INDICATION TO THEIR EFFECT MAY PLEASE BE SUPERSCRIBED ON THE ENVELOP.

THE FOLLOWING DOCUMENTS ARE REQUIRED FROM THE INDIAN AGENTS OF FOREIGN FIRMS:

1.1 FOREIGN PRINCIPAL’S PROFORMA INVOICE INDICATING THE COMMISSION PAYABLE TO THE INDIAN AGENT AND NATURE OF AFTER SALES SERVICE TO BE RENDERED BY THE INDIAN AGENT.

1.2 COPY OF THE AGENCY AGREEMENT WITH THE FOREIGN PRINCIPAL INDICATING THE NATURE OF AFTER SALES SERVICES, PRECISE RELATIONSHIP BETWEEN THEM AND THEIR MUTUAL INTEREST IN THE BUSINESS.

1.3 PLEASE ENCLOSE THE DOCUMENT(S) RELATED TO THE ENLISTMENT OF THE INDIAN AGENT WITH DIRECTOR GENERAL OF SUPPLIES & DISPOSALS (DGS & R) UNDER THE COMPULSORY REGISTRATION SCHEME OF MINISTRY OF FINANCE.

2. TECHNICAL CATALOGUE/LEAFLET SHOULD BE ENCLOSED WITHOUT FAIL. PROVIDE COMPLIANCE STATEMENT WITH RESPECT TO THE TECHNICAL SPECIFICATIONS MENTIONED ABOVE.

3. PLEASE CONFIRM WHETHER YOU ARE AUTHORISED TO QUOTE ON BEHALF OF YOUR PRINCIPALS AND IF SO, PLEASE ENCLOSE A COPY OF SUCH AUTHORISATION WITH YOUR QUOTATION.

4. PRICE BIDS FOR FOREIGN FIRMS: PRICES ARE TO BE QUOTED ON ‘EX-WORKS’ DULY PACKED OR ON “FCA/FOB” INTERNATIONAL PORT BASIS AND ALSO INCLUDING AGENCY COMMISSION PAYABLE TO YOUR INDIAN AGENTS, IF ANY SHOWING CLEARLY THE FOLLOWING BREAK UP:–

I) EX-WORKS PRICE
II) PACKING & FORWARDING
III) FREIGHT
IV) ANY OTHER RELEVANT EXPENSES.
V) TAXES PAYABLE BY THE INSTITUTE

INSURANCE WILL BE PAID BY OUR INSTITUTE SEPARATELY AND SHOULD NOT FORM PART OF THE QUOTED PRICE.

PRICE BIDS FOR INDIAN FIRMS: PRICES ARE TO BE QUOTED ON F.O.R., IIT KHARAGPUR, ON DOOR DELIVERY BASIS CLEARLY SHOWING THE BREAK UP.

5. PERIOD OF VALIDITY: BIDS SHALL REMAIN VALID FOR ACCEPTANCE FOR A PERIOD OF 120 DAYS FROM THE DATE OF OPENING.

6. INDIAN AGENTS ADDRESS AND PERCENTAGE OF AGENCY COMMISSION INCLUDED IN ABOVE F.O.B./EX-WORKS PRICE. (THIS WILL BE PAID TO THE INDIAN AGENTS IN INDIAN RUPEES ONLY AND NOT IN FE). PLEASE ENCLOSE COPY OF AGENCY AGREEMENT ENTERED INTO WITH YOUR PRINCIPALS INDICATING THE NATURE OF AFTER SALES
SERVICES OF INDIAN AGENTS, PRECISE RELATIONSHIP & MUTUAL INTEREST IN THE BUSINESS.

7. **MEASUREMENTS/WEIGHT:** NETT/GROSS OF THE CONSIGNMENT. IN CASE OF AN ORDER, YOU SHALL USE AIR WORTHY PACKAGE (AS APPLICABLE) DULY CERTIFIED WITH DOCUMENTS – PLYTO – SANITARY CERTIFICATE (AS PER QUARANTINE ORDER 2003).

8. **SCOPE OF SUPPLY:** SHOULD INCLUDE FREE INSTALLATION AND COMMISSIONING

9. **PAYMENT TERMS** FOR FOREIGN FIRMS

   A) 100% PAYMENT THROUGH SIGHTDRAFT/FOREIGN DEMAND DRAFT/LC (EXCEPTIONAL CASES)/SWIFT TELE TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION.

   B) BANK CHARGES ON LC/SD (WITHIN INDIA APPLICANT ACCOUNT AND OUTSIDE INDIA TO BENEFICIARY ACCOUNT).

**PAYMENT TERMS** FOR INDIAN FIRMS

   A) 100% PAYMENT THROUGH CROSSED ACCOUNT PAYEE CHEQUE / ELECTRONIC TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION.

   B) ENSURE MENTIONING

   i) BANK DETAILS OF THE BENEFICIARY AND PAN NUMBER

   ii) FULL NAME AND ADDRESS OF THE BENEFICIARY ON WHOM ORDER HAS TO BE PLACED

10. WHETHER ANY EXPORT LICENCE IS REQUIRED FROM YOUR GOVERNMENT, IF SO, PLEASE CONFIRM WITH DETAILS.

11. COUNTRY OF ORIGIN OF THE GOODS IS TO BE MENTIONED.


13. **LIQUIDATED DAMAGES:** THE STORES SHOULD BE DELIVERED / DISPATCHED TO DESTINATION AND READY FOR OPERATION NOT LATER THAN THE DELIVERY DATE SPECIFIED. IF THE SUPPLIER FAILS TO DELIVER ANY OR ALL THE STORES OR PERFORM THE SERVICE BY THE SPECIFIED DATE, LIQUIDATED DAMAGES AT 1% PER MONTH OR PART THEREOF IN RESPECT OF THE VALUE OF STORES WILL BE DEDUCTED FROM THE CONTRACT PRICE SUBJECT TO A MAXIMUM OF 5%. ALTERNATIVELY, THE ORDER WILL BE CANCELLED AND THE UNDELIVERED STORES PURCHASED FROM ELSEWHERE AT THE RISK AND EXPENSE OF SUPPLIER.

14. **PATENT RIGHTS:** THE SUPPLIER SHALL INDEMNIFY THE PURCHASE AGAINST ALL THIRD PARTY CLAIMS OF INFRINGEMENT OF PATENT, TRADEMARK OR INDUSTRIAL DESIGN RIGHTS ARISING FROM USE OF THE GOODS OR ANY PART THEREOF IN INDIA.

15. ONLY THOSE BIDDERS WHO’S BIDS HAVE BEEN TECHNICALLY FOUND ACCEPTABLE WILL ONLY BE INVITED FOR PARTICIPATION IN THE PRICE BID.
16. THOSE BIDDERS WHO DO NOT RECEIVE ANY COMMUNICATION FOR PARTICIPATION IN PRICE BID OPENING MEETING MAY PRESUME THAT THEIR BID HAS NOT BEEN ACCEPTED BY THE INSTITUTE.

17. CONDITIONAL OFFER WILL NOT BE ACCEPTED.

18. LATE TENDERS I.E. TENDER RECEIVED AFTER THE DUE DATE AND TIME OF SUBMISSION AS MENTIONED ABOVE SHALL NOT BE ACCEPTED.

19. BIDDERS TO ENCLOSE THE FOLLOWING DOCUMENTS:-

A) CURRENT INCOME TAX AND SALES TAX CLEARANCE CERTIFICATES AND PAN NO.

C) BANKER’S SOLVENCY CERTIFICATE

C) SUMMARY OF AUDITED STATEMENT OF ACCOUNTS FOR THE LAST THREE YEARS TO BE ENCLOSED AND FINANCIAL HIGHLIGHTS AND THE KEY PERFORMANCE DURING THE LAST THREE QUARTERS TO BE ENCLOSED AS PER FORMAT:-

COMPANY’S KEY PERFORMANCE

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>JAN. TO MARCH</th>
<th>APRIL TO JUNE</th>
<th>JULY TO SEPT.</th>
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<tbody>
<tr>
<td>GROSS REVENUE</td>
<td></td>
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<tr>
<td>PROFIT BEFORE TAX</td>
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<tr>
<td>PROFIT AFTER TAX</td>
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<tr>
<td>RETURN ON INVESTED</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CAPITAL (ROIC)</td>
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D) CUSTOMER SATISFACTION CERTIFICATE FROM ONE SUCH ORGANIZATION IS TO BE ATTACHED WITH THE TECHNICAL BID AND PRICE BID.

E) NAME AND ADDRESS OF MINIMUM THREE CLIENTS TO WHOM SUCH EQUIPMENT HAVE BEEN SUPPLIED SHOULD BE MENTIONED.

20. WARRANTY / GUARANTEE: THIS COMPREHENSIVE WARRANTY / GUARANTEE SHALL REMAIN VALID FOR 36 MONTHS AFTER THE GOODS (OR ANY PORTION THEREOF AS THE CASE MAY BE) HAVE BEEN DELIVERED AND COMMISSIONED TO THE FINAL DESTINATION.

21. THE INSTITUTE DOES NOT BIND ITSELF TO OFFER ANY EXPLANATION TO THOSE BIDDERS WHO’S TECHNICAL BID HAS NOT BEEN FOUND ACCEPTABLE BY THE EVALUATION COMMITTEE OF THE INSTITUTE.

22. ALL TENDERS (UNLESS OTHERWISE SPECIFIED) ARE TO BE SUBMITTED / HANDED OVER TO DR. S. B. MAJUMDER, MATERIALS SCIENCE CENTRE, INDIAN INSTITUTE OF TECHNOLOGY, KHRAGPUR - 721 302 AND ACKNOWLEDGEMENT TO BE OBTAINED.
1. IIT Kharagpur authority may accept or reject any or all the bids in part or in full without assigning any reason and does not bind itself to accept the lowest bid. The Institute at its discretion may change the quantity / upgrade the criteria / drop any item or part thereof at any time before placing the Purchase Order.

2. Promptly make arrangements for repair and / or replacement of any damaged item (s) irrespective of settlement of claim.

3. In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.

4. For any query pertaining to this bid document correspondence may be addressed to Dr. S. B. Majumder, at the address mentioned above.

LAST DATE FOR SUBMISSION OF SEALED BIDS: 08.06.2015

1) Please Note that the Institute remains closed during Saturdays & Sundays and all specified government holidays.

2) Fax, e-mail Tender will not be accepted.

3) The General Terms and Conditions as stated above relate to supply of stores / equipment /assets etc. and for specific service other terms and conditions of the Institute will apply.

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