



# NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

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**BID REFERENCE:** NITD/Chem. Engg./DST-Algae/2015/04

**Date:** 19/11/2015

To

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Dear Sir,

**SUB :** Invitation for quotations for supply and installation of Equipment /Accessories for the sponsored project entitled “*Phycoremediation of Cyanide from Coke-oven Wastewater and CO<sub>2</sub> Sequestration from Waste gas using a Mixed Consortium of Green Algae and Cyanobacteria: An integrated approach*” funded by Department of Science and Technology, Government of India (**Ref. No.** DST/IS-STAC/CO2-SR-191/14(G), dated November 24, 2014) as specified in **Annexure-II**.

1. You are invited to submit your most competitive quotation for the listed items of Equipment/ Accessories as per **Annexure–II**. Price bid form as per Annexure-I must be filled with complete numerical values. Please note that the item will include sub-items. **No separate quotations are required for sub-items.**
2. **Bid Price (Annexure-I)**
  - a) The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initializing, dating and rewriting.
  - b) All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price **F.O.R. NIT Durgapur.**
  - c) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
  - d) The bid price must be quoted in **Indian Rupees.**
3. Each bidder shall submit only one quotation for the said item. Manufacturer/authorized dealers of reputed brands of high technical quality with adequate after-sales support facilities are eligible to apply. The bidder must have supplied similar Item to reputed organization to their full satisfaction and furnish a list of the same.
4. **The bid submitted by the bidder must comprise the following:**
  - (a) Detailed technical specifications, conforming to the given specifications (vide Annexure – II), and literature /drawings /manuals of the Items/services to be supplied
  - (b) Authorized dealership certificate from the original manufacturer
  - (c) Credentials and list of organizations where the bidder supplied similar items
  - (d) Warranty period (3 years comprehensive on-site)
  - (e) Valid sales-tax / VAT clearance certificate
  - (f) Price bid as per Annexure-I
5. **The price quoted by the bidder will be considered only after satisfactory fulfillment of the techno-commercial conditions.**
6. **Validity of Quotation**

Quotation shall remain valid for a period not less than 60 days after the deadline date specified for submission.

**7. Evaluation of Quotations**

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e.

- (a) which are properly signed and
- (b) conform to the terms and conditions, and specifications.

**8. Award of contract**

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive, technologically acceptable and who has offered the lowest evaluated quotation price.

- 8.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

9. Payment shall be made immediately within 30 days after satisfactory installation, commissioning and acceptance of the Item.
10. Comprehensive onsite warranty shall be applicable to the supplied Items for a period of **36 months** from the date of satisfactory installation.
11. The Institute is **exempted from payment of custom and excise duty** on items mentioned below:
- a) Scientific and technical instruments, apparatus, equipment (including computers)
  - b) Accessories, spare parts and consumables thereof
  - c) Computer software, CD-ROM, recorded magnetic tapes, microfilms, and microchips.
12. The successful bidder must submit before the release of payment a valid bank guarantee on any nationalized bank of 10% of the order value towards **Performance Security** during the warranty period. Else, 90% of the payment will be released retaining 10% of the order value towards Performance Security during the warranty period.
13. **Liquidated Damage** will be applicable at the rate of 0.5% per week. The purchaser has the right to cancel the purchase order when LD accumulates to 10 %.
14. A bank draft or bank guarantee worth 2% of the quoted value payable to “**DST Carbon Algae**” at Durgapur will be enclosed with the bid by the bidder towards the **Earnest Money Deposit (EMD)**. The EMD shall remain valid for a period of **90 days**.
15. Settlement of any dispute will be made under the jurisdiction of Durgapur Court.
16. You are requested to provide your offer latest by 11.00 hours on **December 03, 2015**
17. The purchaser will open the bids at 11.30 hours on **December 03, 2015** in the Department of Chemical Engineering.
18. The bid document must be signed and sealed and enclosed with the bid as a token of acceptance of all terms and conditions in the bid document by the bidder.
19. The items must be delivered within **60 days** from the date of placement of purchase order at Chemical Engg. Dept. respective department.
20. All other terms and conditions of GFR 2005 of the Government of India will be applicable.

**21. Place of Delivery: Dept. of Chemical Engineering, NIT Durgapur.**

**22. Installation / commissioning / demonstration requirement: Installation, commissioning, complete demonstration, free training and successful running at Dept. of Chemical Engineering, NIT, Durgapur.**

I look forward to receiving your quotations and thank you for your interest in this project.

The bid must be addressed to:

Dr. Susmita Dutta

(Principal Investigator)

E-mail: susmita\_che@yahoo.com

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### Specification for Ion Chromatography System

Ion Chromatography system for analysis of all Anions like fluoride, chloride, nitrate, nitrite, phosphate, sulphate, chromate, speciation of arsenic, selenium, silicate, borate, cyanide, sulphide, carbonate, acetate, formate, oxalate, phenols, etc, Cations like lithium, sodium, potassium, calcium, magnesium, Ammonium, including all aliphatic amines and transition metals like Zn, Cd, Pb, Fe, Mn, Ni, Co, etc. The system should be able to perform with metal-free flow path for both suppressed and non-suppressed conductivity applications. The system should be PC based with data acquisition and system control through the same software. The software should be able to identify various components like Columns, Pump, Detector, etc., automatically. The system should have the components with following technical specifications.

#### **PUMP:**

- 1) One number of high pressure pump of serial dual piston type with selectable 0.001 to 10mL/min flow rate with a flow reproducibility of  $\pm 0.1\%$ . Pump should have the following specifications:
  - Serial dual pistons with two inert check valves.
  - Resolution of flow rate : 0.001mL
  - Pulsation : Lower than 1%
  - Pressure range : 0 – 5000 psi

**Detectors:** Conductivity detector and Electrochemical detector should be in single housing which would facilitate tandem detection. The respective detectors should have following technical specifications

#### **Conductivity Detector:**

- 1) One number of conductivity detector for analysis of anion and cation, should be microprocessor based with a Thermostated micro-flowcell conductivity block with a stability of  $\leq 0.001^{\circ}\text{C}$ . The user should be able to set temperature of the conductivity block between 20 – 50°C.
- 2) Conductivity measurement range: 0 – 15000  $\mu\text{S}/\text{cm}$ .
- 3) Electronic noise  $< 0.1\text{nS}/\text{cm}$  at 1 $\mu\text{S}/\text{cm}$  level

#### **Electrochemical Detector:**

Electrochemical Detector for cyanide, sulphide analysis should be quoted. The detailed specifications are as under:

1. Should have operating Modes of DC, Pulse amperometry and Scan.

2. Three electrode measuring cell with relevant working Electrode
3. Solid phase maintenance free reference electrode
4. Potential Range: -5.00 to + 5.00 V
5. Measuring Range: 2 nA to 2 mA
6. should be able to measure both current and charge
7. Tandem detection with other detectors in line should be possible

**Column Housing:**

Housing should be able to identify the columns and set the optimal operating conditions for column operations.

**IC Columns:**

IC columns for analyses of anions as mentioned above including cyanide, sulphide silicate, borate, fluoride, carbonate, phenols, etc., cations, amines, transition metals should be quoted with respective guard columns. The columns should have electronic chip to store data and history of column use. It should also be possible to record the number of injections and the working hours.

**Injector:**

Dual position 6-Port injector valve with fast response time and controlled through software.

**Suppressor:**

Suppressor should have high loading and high back-pressure (at least up to 320 psi) tolerance with continuous regeneration. The suppressor should be able to take flow rate up to 10 mL/min. At least 8 year warranty should be provided along with manufacturer certificate indicating the warranty. Suppressor should have 100% solvent compatibility.

**Data Work station:**

Software for data acquisition & processing system along with complete system control should be offered. The necessary software should be fully Windows based. The software should be able to control the system.

**Inline Sample Preparation System:**

The system should be provided with Inline sample preparation system (using reliable technique applicable for industrial wastewater) which can treat sample with high matrix effect so as to provide clean samples to the IC system. The entire setup should be controlled by software and should be automatic.

**Automatic Potentiometric Titrator:**

Automatic Potentiometric Titrator for pH/ Acid-base aqueous Titration for acidity/alkalinity application should be offered.

**Others:**

- 1) Three years instrument warranty on the instrument
- 2) No gas should be required for the entire operation of the system.
- 3) Essential spares/ consumables should be offered along with IC system
- 4) Branded PC (I-5): Intel (PIV), Dual Core, 4 GB RAM (Min), 500 GB HDD, DVD Combo Drive, 19" LCD Monitor, Optical Mouse, Key board etc. Complete with windows 7 preloaded or equivalent configurations compatible with software and Laserjet Mono printer should be offered.
- 5) Rate for AMC may be quoted separately yearwise beyond warranty period in the same envelope.