



Indian Institute of Technology Madras

I.I.T.P.O., MADRAS-600 036

DEPARTMENT OF CIVIL ENGINEERING

Form for Inviting Quotations

Ref.No.CIE/INDU/2018/Microwave heating unit for pyrolysis

Date: 20/06/2018

SPEED POST

To

As per list enclosed

Dear Sirs,

DUE DATE: 04/07/2018

1. Quotations are invited in duplicate for the various item/ s shown below/overleaf/enclosed list.
2. **The Quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned and contain in 2 bid system i.e. Technical bid and commercial bid in two separate envelopes should be enclosed in a single envelope only so as to reach on or before the due date stipulated above.**
3. The Quotations should be valid for (90) **Ninety days from the due date and the period of delivery** required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms : Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for F.O.R. Madras. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment : Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later

Details as per enclosed list.

Yours faithfully

INDUMATHI M NAMBI

Note: (i) Quotation should be sent by SPEED POST only or to be delivered directly concerned
(ii) Firms are requested to submit the specifications of their product along with supporting technical Documentation/brochure instead of reproducing the specifications sent by us.

Technical Specifications of Research Grade Microwave heating unit for pyrolysis and remediation applications

1. Research grade microwave oven capable of delivering maximum power of 2.5-3 kW (frequency-2.45 GHz) consisting of microwave power controller (10-100% with 5% increment), time setter (1-180 min), temperature monitoring system (upto 1000°C) with PID controller, temperature measurement should be based on thermocouple .

The microwave radiation should be uniform from all the sides towards the central core which should be enabled by multiple magnetrons

2. Data acquisition of reactants temperature, either in a computer or in a USB drive

3. Provision for conducting reactions at constant microwave power input (actual power delivery)

4. Possible of conducting isothermal and non-isothermal heating modes

5. Rectangular cavity with spark free internal body for providing uniform wave distribution, and capable of pyrolyzing upto 2 - 3 kg of feedstock.

6. Other accessories with connections to the microwave chamber including water chiller, condensation unit, vacuum pump for collection/condensation of vapors.

7. Microwave power generator trip system for safe operation and microwave leak detection

8. Feed stock mixing should be possible via adjustable stirrer speed/turn table. All necessary piping, valves and accessories required for the system should be provided. Programming of PLC should be provided for the operation of Microwave Heating System

9. Provision of gas purging (N₂/H₂/CH₄) through the reactor during pyrolysis.

10. Emissions to be connected to mini catalytic oxidizer post condensor

11. Detailed operation manual or video demonstration should be provided

12. Warranty: minimum 1 year.

13. Power: 230 V, 50 Hz, Indian type socket should be provided.

A handwritten signature in black ink, consisting of stylized initials and a surname, located at the bottom right of the page.