Department of Basic Sciences and Social Sciences
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5th August, 2017

Notice Inviting Tender

Sealed quotations are invited from reputed manufacturers/authorized dealers for supply of instruments for the DST-SERB funded project entitled **"Conversion of Waste Plastic into Value Added Products"** under Dr M Mahato in the Department of Basic Sciences and Social Sciences, North-Eastern Hill University, Shillong. The instruments along with specifications are listed in the **Annexure-I**. The quotation should reach the undersigned by post on or before the **22 August, 2017 (up to 5:00 pm)**. Quotation received after the due date and time will not be entertained.
The undersigned reserves the right to accept or reject the tender without stating any reason whatsoever.

Terms and Conditions:

1. The supply should be completed within 30 days from the date of issue of supply.
2. The instruments should be delivered and installed without any additional cost.
3. Users list should be attached along with the quotation.
4. The company should provide factory trained engineers for maintenance.
5. Quotation should be inclusive of GST, transport, installation charge etc.
6. The payment will be completed only after the installation of the instruments. Necessary bank details should be provided along with the triplicate bills.

Sd/-

Dr. Mrityunjoy Mahato
(Principle Investigator, DST-SERB project)

Copy to:
1. NDVN, NEHU
2. DR (Academic), NEHU
3. Department of BSSS, NEHU

ANNEXURE-I

Table for Instrument and Its Technical Specification

Sl No	Instruments	Specification	Quantity
01	**CUSTOMISED ELECTRIC FURNACE**	(A) **FURNACE REACTOR NO : 1** Temperature Max. : 1000 ºC Operating temp.: 800 ºC (Continuous) Type : Tube Rating : 2.5 KW Power Supply : 220v,1 phase, AC, Light weight, high performance, power saving furnace Furnace made by welded heavy-duty mild steel angle iron frame. The furnace frame consist with double air gaps chambers and covered each chamber made by bright Mild Steel sheet Thermal Insulation: By high alumina insulation bricks with fibre ceramic board For ensure of good energy efficiency & rapid heating. Heating Element : Kanthal A1 Heating Element Thermocouple : Type K (Cr/AL) Temp. Control : Temperature will control by digital PID programmable Temperature Controller with dual display offering both .set point and measured temp. with one program and 8 segments with ramp and dwell. to control the slow cooling protocol. Input – Universal; Output – 0 -5 VDC Accuracy : ± 1 / 2 ºC Power control system: By auto manual thyristor drive unit Control Panel: Control panel consist with digital PID Controller, ammeter, voltmeter, thyristor, switch, relay, lamp, plug & cord. Safety : One auto control system for when the power cut off furnace will turn off but when the power ON by direct through DG OR electricity furnace will not start for heating after ON the control switch then the furnace will start. It is safe for DG and electricity consumption. GAS SYSTEM : One no gas flow meter with control valve for passing the gas through reactor tube. Reactor vessel : Made of Stainless steel with gas inlet and outlet system.	01 No

		(A) FURNACE REACTOR NO : 2	
		Temperature Max. : 1400 ºC Operating temp.: 1100 ºC (Continuous) Type : Tube Rating : 3.5 KW Power Supply : 220v,1 phase, AC, Light weight , high performance , power saving furnace furnace made by welded heavy-duty mild steel angle iron frame. The furnace frame consist with double air gaps chambers and covered each chamber made by bright Mild Steel sheet Thermal Insulation : By high alumina insulation bricks with fibre ceramic board For ensure of good energy efficiency & rapid heating. Heating Element : Kanthal A1 Heating Element Thermocouple : Type K (Cr/AL) Temp. Control : Temperature will control by digital PID programmable Temperature Controller with dual display offering both . set point and measured temp. with one program and 8 segments with ramp and dwell. to control the slow cooling protocol. Input – Universal; Output – 0 -5 VDC Accuracy : ± 1 / 2 ºC Power control system : By auto manual thyristor drive unit Control Panel : Control panel consist with digital PID Controller, ammeter, voltmeter, thyristor, switch, relay, lamp, plug & cord. Safety : One auto control system for when the power cut off furnace will turn off but when the power ON by direct through DG OR electricity furnace will not start for heating after ON the control switch then the furnace will start. It is safe for DG and electricity consumption. Water flow SYSTEM : One no water flow meter with control valve for passing the water through reactor tube. By the syringe pump. Reactor vessel : Made of Stainless steel with gas inlet , outlet and water inlet system.	
		N.B : 1. FURNACE 1 AND FURNACE 2 BOTH ATTACH WITH SINGLE UNIT. 2. BOTH FURNACE CONTROL SYSTEM WILL BE IN SEPARATE WITH ONE UNIT.	

		3. REACTOR 1 AND REACTOR 2 WILL BE CONNECTED ONE BY ONE FOR PASSING THE FUME AND STEAMS. 4. FOR GAS AND WATER FLOW SYSTEM 2 NOS FLOW METER AND CONTROL VALVE FOR CONTROL THE SPEED OF FLOW SYSTEM. 5. BOTH REACTOR WILL BE SUITABLE OPENABLE FLANGE FOR PUTTING THE SAMPLE INTO THE REACTOR. <u>Complete furnace with :</u> i) Digital microprocessor based PID programmable temperature controller and control system ii) All above said instruments / components iii) NABL calibration certificate iv) Tongs v) Safe control device / system. Vi) Operation Manual, warranty certificate vii) Necessary accessories for operate / maintenance the equipment like, Wrange, Plier, hand gloves, safety goggles, tester set, Etc. viii) Crucible / consumption boat for sample Complete furnace with above said component and digital microprocessor based PID programmable (with NABL Calibration Certificate) temperature controller.	
02	VERTICAL DIGITAL AUTOCLAVE	SIZE : Dia – 14" x Height – 22" Power Supply : 220 volt, 1 phase , AC, 50 Hz. Construction All Stainless steel Double wall construction, Lid is made of thick die pressed SS 304 sheet in mirror finish. The unit is fitted with 8 wing nuts to hold the lid at high pressure. Automatic Sterilizing cycle at 121°C. Autoclave Is Equipped With Sterilizing cycle is fully automatic & controlled by digital Controller coupled with sensor which senses the temperature of inner chamber. Working Pressure & Temperature The working pressure for sterilization process is 15 psi. The working Temperature for sterilization process is 121 ° C.	01 No
03	DIGITAL ANALYTICAL BALANCE	MAKE : WENSAR MODEL : MAB 220 Capacity : 220 gm Accuracy : 0.0001gm / 0.1 mg. Pan Size : Dia 90 mm. Readability : 0.1 mg Repeatability : 0.1 mg. Linearity : +.02 mg Response Time : 3 – 4 sec Calibration : Motorised Internal Tare Range : Full Power Supply : AC Adaptor 220V, 50-60 Hz Data Output : RS232C Terms & Condition : 1. Supply of the equipment should be with the best quality materials	01 No

		and components in the industries. 2. Installation, demonstrate and training of the equipment should be at the site. 3. Equipment should contained with Calibration certificate and manual. 4. Equipment should contained with necessary accessories like, Wrange, Plier, hand gloves, safety goggles, tester set, Etc. 5. Price : Inclusive of VAT, CST, GST 6. Packing : INCLUDING 7. Freight : INCLUDING 8. Delivery : 4 weeks after your confirm order 9. Taxes : INCLUDING 10. Payment : After installation on submission of triplicate bill to FO, NEHU 11. Inspection: At Our works 12. Installation: free of cost. But kindly arrange the lodging, boarding at your site. 13. Warranty : One year 14.Validity : 30 days.	

Address for sending the Quotation:

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