

## CHAPTER - 4

<b>CORRIGENDUM</b>	
<b>TECHNICAL SPECIFICATION OF MICROWAVE SYNTHESIZER</b>	
<b>Items</b>	<b>Detail</b>
<b>Application Range</b>	Microwave assisted single/monomode organic synthesis system should be able to handle the synthetic reactions involving routine Organic, caustic solutions, Nano materials synthesis, Organometallic, fluorination, catalysts using metal, non-polar solvents like toluene, hexane etc.
<b>Power Output</b>	Microwave power of minimum 300 W or higher
<b>Maximum Pressure</b>	20 bar or greater
<b>Maximum Temperature</b>	250°C or greater
<b>Solvent range</b>	System must be able to effectively heat polar as well as non-polar solvents like Toluene, Dioxane etc. to elevated temperature without heating aids
<b>Temperature Measurement</b>	IR measurement or Fiber optic
<b>Sensor</b>	Integrated Pressure Sensor to measure, display as well as document reaction pressure.
<b>Magnetic Stirrer</b>	Should have inbuilt magnetic stirrer device with variable speed at least 900 rpm or more to ensure uniform temperature in the reaction .
<b>Reaction vessel</b>	Glass vessels for non-corrosive reaction and special vessels for corrosive reactions.
<b>Printing facility</b>	Direct printout to PDF files or export of data to excel via USB ports
<b>Display</b>	Large inbuilt Touch-screen display with capability for online graphical display of reaction parameters like pressure, power and temperature and review of previous reaction runs.
<b>Consumables</b>	All necessary consumables should be supplied with the instrument, as per standard package offered, including user manuals. (i) Stir Bars for variable volume or provided vessels, Caps, Silicone Septum must be quoted in the main offer along with the instrument for trouble free operation. (ii) Vendor must also quote for the following consumables items: Borosilicate Glass Vessels: 100 pcs of each vessel sizes. Snap caps (100 pcs) Silicone Septum (200 pcs) Magnetic Stir bars: for variable vessels size, 50 pcs each
<b>Service and Maintenance</b>	(a) There should be at least one service engineer and one application scientist based in India trained on the same quoted instrument. (b) Should have frequent visits from both service engineer and application scientist in warranty period. (c) An user's list should be provided highlighting installment of similar equipment in other research institutes in India in the recent past. (d) A good record in supply and service to other research institutes will be considered as a positive point for a particular company.
<b>UPS</b>	5 KVA UPS with at least 1 hour backup
<b>Installation and User training</b>	The machine should be installed at NIPER-R and be made fully functional by the company and training should be provided to user.
<b>Spare Parts</b>	Availability of spare parts of the machine for ten years from the date of installation should be specified.
<b>Warranty</b>	3 year warranty for the instrument.
<b>Certificate of biosafety</b>	Provide biosafety certificate
<b>Optional</b>	The system must be upgradable in future with an autosampler with minimum 12 reaction vessels handling (10 mL and 30 mL) for unattended operation. The system must be upgradable with an integrated camera for monitoring the reactions with display on the screen of the instrument.

