



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai - 400076**

PR No.1000017934

RFx No. 6100000746

Technical Specifications for Microwave Synthesis System

S. No.	Item/Parts	Technical Specifications for the Microwave Synthesis System
1.	Model Name:	Make, model and model number of the instrument should be clearly mentioned. Photographs of the actual model should be provided.
2.	Microwave synthesis system	<ol style="list-style-type: none"> 1. System must have an integrated color touchscreen display with graphical display of reaction parameters viz. temperature, pressure, power and time. System preferably equipped with an integrated camera for viewing the reactions in real-time. 2. System should have in built magnetic stirring facility as well as standard cooling facility to be provided (Air compressor) 3. The microwave should be focused on to the reactants to ensure homogeneous heat distribution and create reproducible reaction conditions. 4. The reactor module should be able to handle organic synthesis, nanomaterials synthesis, zeolites, inorganic synthesis using various type of solvents (polar, non-polar, caustic)
3.	Microwave power	<ol style="list-style-type: none"> 1. Microwave heating system must have a measured minimum focused installed power of 850 watts & output power of 300 watts or more. The system should be monomode.
4.	Vessels	<p>The instrument must be capable of conducting pressurized as well as normal pressure reaction in the same system.</p> <ol style="list-style-type: none"> 1) Pressurize vessels of following specifications should be offered <ol style="list-style-type: none"> a) Volume: 10 ml and 30 ml and higher Operating Pressure: 30 bar (435 PSI) or more MOC: Glass No of Vials (10ml): 100 nos. Caps and septa – 100 nos. Vessel should be of vent & reseal technology Teflon coated magnetic stirrer (3mm)- 50 no Spill cup Pressure calibration tool, pressure regulator and tubing. Snap caps: 40 nos. Silicone septum: 100 nos 2) System should have facility to clean cavity in case of spillage. Suitable accessories which will withstand temperature of more than 260 degrees Celsius should be offered along with system.

		<p>3) Accessories must be provided to protect the instrument from damage at high temperatures.</p> <p>4) Suitable vessel for carrying out reactions not compatible with glass vessels</p>
5.	Temperature and pressure control systems	System should have infrared temperature control as standard, and the system should have pressure sensor as well. The system should also have a pressure attenuator.
6.	System software computer system, and power backup	<ol style="list-style-type: none"> 1. System software must automatically adjust the power delivery based upon sample load and pre-programmed control settings.. 2. Free future software up-gradations and re-installations if any.
7.	Warranty and maintenance	<ol style="list-style-type: none"> 1. System must carry a minimum three-year warranty.
8.	Training	The manufacturer should provide onsite training initially during installation
9.	Patents	System having patents will be preferred. Please mention patent number if so.

