

Subject: Reply of CUH on the queries raised by the bidders during the Pre-bid Meeting held on 30/07/2026.

Name of Equipment: *Microwave Synthesizer* ~~Flash Chromatography~~ for the Department of Chemistry.

Sr. No.	Name of Firm	Reference to NIT No. CUH/E&GA/HEFA/CIC/2026-27/52	Bidder's comment/observations	Reply from CUH
1.	M/S Spectrum	1. Microwave Power Minimum microwave power 280 W or more, with power density 900 W/litre or more. The microwave power should be adjustable from 0 to 800 W, with a built-in controller to ensure accurate and stable heating during reactions.	In a focused single-mode microwave synthesizer, temperature is controlled through intelligent power modulation rather than operating continuously at maximum wattage. A power range up to 400 W is sufficient for achieving 300°C under pressurized conditions.	Should be read as: Microwave Power Minimum microwave power 280 W or more, with power density 900 W/litre or more.
		2. Hardware a. The system must support manual or modular reagent addition and be compatible with inert atmosphere operations, either through sealed vessels or gas purging provisions. b. The cavity should accommodate both: ✓ Sealed vessels ranging from 5 mL to 30 mL or more c. Instruments should be offered with a suitable air compressor for faster cooling. Software-controlled magnetic stirring should be integrated, with adjustable speeds up to a maximum of 1200 rpm, to support a variety of reaction types and viscosities.	Stirring above 900 rpm is generally not required for sealed microwave reactions and may not improve reaction performance under pressurized conditions. Most commercial microwave synthesizers operate safely up to about 900 rpm.	Please read as 900 rpm or above
		3. Built-in Camera facility Camera facility to view and record, and take images of the reaction to record/monitor the progress of the reaction.	Camera-based monitoring is available only with a limited number of manufacturers and is not essential for microwave-assisted synthesis because reactions occur inside sealed pressurized vessels. Reaction progress is evaluated using temperature, pressure and programmed parameters.	No change
		4. Accessories Microwave distribution. The system should have a facility to clean the cavity in case of spillage. Suitable accessories should be provided. 1. Vacuum/Pressure Relief Valve: Glass with PTFE stopcock, compatible with joint system	External vacuum pressure relief valves are generally used in conventional reflux systems. Closed-vessel microwave synthesizers incorporate internal certified pressure safety mechanisms.	S. No. 1 to 10 are removed. S. No. 11 read as: Consumables Startup Kit: Extra seals (200), septa (200), caps (200), stir bars (20 sets each)

	2. Clamps and Retort Stand: Metal stands with universal clamps for flask and condenser. 3. Microwave-compatible reaction Vessels: Sizes: 10, 30 mL; Materials: PTFE-TFM, SiC, Borosilicate glass; up to 300°C/100 bar. 4. Leak-Proof Caps (PEEK or TFM): High chemical resistance, compatible with septa/valve ports 5. Septum Caps: PTFE or silicone-lined, puncture-resistant 6. Teflon-Coated Silicone Seals: Microwave-safe, reusable, available in multiple diameters 7. Magnetic Stir Bars: PTFE-coated, 5–40 mm, oval or cylindrical, suited for vessel sizes. 8. Microwave Rotor or Sample Holder: Holds multiple vessels (6–15), ensures uniform 9. Syringes: Leak-proof sampling port, 1–20 mL range, for sample withdrawal or injection 10. Sample handling tools: Long tongs, heat-resistant gloves, vessel holders 11. Consumables Startup Kit: Extra seals, septa, caps, stir bars (10 sets each recommended) 12. Cleaning Tools: Vessel brushes, seal cleaners, PTFE-safe cleaning liquids	These accessories are intended for conventional glassware setups and have no functional role in sealed microwave synthesis. Multi-position rotors are features of multimode microwave systems or digestion systems. A monomode microwave synthesizer performs one reaction at a time with highest microwave energy density. Not all microwave reaction vessels permit in-situ sampling. Sampling ports are manufacturer-specific accessories and are not essential for routine microwave synthesis. Heat-resistant gloves and vessel holders are sufficient for safe handling. Long tongs are not mandatory for all systems. Cleaning procedures vary among manufacturers depending on vessel construction and coating. Dedicated cleaning liquids are not mandatory.	S. No. 12 no change.
	5. Upgradeable features availability FOR SOLID-LIQUID SYNTHESIS (Pressurized) ✓ Rotor with up to 15 slots, allowing flexible runs from 1 to 15 vessels (single-vessel use must be supported). ✓ Minimum 8 vessels to be provided initially. ✓ Temperature range: 25°C to 300°C, with a heating rate $\geq 5^\circ\text{C}/\text{sec}$; working temperature: up to 260°C. ✓ Pressure capacity: up to 300 psi or more. ✓ Compatible with 10 mL, 30 mL, more volume vessels for micro- to mid-scale synthesis.	This specification represents multimode/high-throughput microwave technology, whereas the tender specifies a monomode microwave synthesizer. These technologies are different and should not be mixed. Silicon carbide vessels are manufacturer-specific accessories. Glass reaction vessels are internationally accepted for routine microwave synthesis.	This is removed

		Option for glass and silicon carbide (SiC) vials for high-temperature reactions.		
		6. No. of vessels No. of vessels with caps/septum: 100 number of 10 ml, 50 number of 30 mL, 100 septum, 50 snap caps, and 20 stir bars should be provided as a standard supply.	Exact consumable quantities differ among manufacturers. Equivalent total consumables are more appropriate than fixed numbers.	This should be read as: No. of vessels with caps/septum: 100 number of 10 ml, 100 number of 30 mL, 200 septum, 50 snap caps, and 20 stir bars should be provided as a standard supply
		7. Required accessories System should be quoted with all required accessories to operate the equipment, and a suitable air compressor and colour laser printer should be quoted.	Some manufacturers provide integrated compressed-air cooling, whereas others use built-in air-cooling mechanisms with identical performance	Please read as: System should be quoted with all required accessories to operate the equipment, and a suitable air compressor or in-built air-cooling mechanisms. Colour laser printer should be quoted.
2.	Anton Paar	1. Accessories The system should have a facility to clean the cavity in case of spillage. Suitable accessories should be provided. 1. Vacuum/Pressure Relief Valve: Glass with PTFE stopcock, compatible with joint system 2. Clamps and Retort Stand: Metal stands with universal clamps for flask and condenser. 3. Microwave-compatible reaction Vessels: Sizes: 10, 30 mL; Materials: PTFE-TFM, SiC, Borosilicate glass; up to 300°C/100 bar. 4. Leak-Proof Caps (PEEK or TFM): High chemical resistance, compatible with septa/valve ports 5. Septum Caps: PTFE or silicone-lined, puncture-resistant 6. Teflon-Coated Silicone Seals: Microwave-safe, reusable, available in multiple diameters 7. Magnetic Stir Bars: PTFE-coated, 5–40 mm, oval or cylindrical, suited for vessel sizes.	Vacuum/Pressure Relief Valve: Glass with PTFE stopcock, compatible with joint system Clamps and Retort Stand: Metal stands with universal clamps for flask and condenser. Microwave-compatible reaction Vessels: Sizes: 10, 30 mL; Materials: PTFE TFM, SiC, Borosilicate glass; up to 300°C/100 bar.	In accessories, points 1 to 2 deleted. Point 3: Microwave-compatible reaction Vessels should be stable up to 350°C. Point no. 4 to 11 deleted. Point no. 12 no change.

		8. Microwave Rotor or Sample Holder: Holds multiple vessels (6–15), ensures uniform microwave distribution 9. Syringes: Leak-proof sampling port, 1–20 mL range, for sample withdrawal or injection 10. Sample handling tools: Long tongs, heat-resistant gloves, vessel holders 11. Consumables Startup Kit: Extra seals, septa, caps, stir bars (10 sets each recommended) 12. Cleaning Tools: Vessel brushes, seal cleaners, PTFE-safe cleaning liquids	Microwave Rotor or Sample Holder: Holds multiple vessels (6–15), ensures uniform microwave distribution Syringes: Leak-proof sampling port, 1–20 mL range, for sample withdrawal or injection Sample handling tools: Long tongs, heat-resistant gloves, vessel holders Cleaning Tools: Vessel brushes, seal cleaners, PTFE-safe cleaning liquids	
		2. Upgradeable Features availability <u>FOR SOLID-LIQUID SYNTHESIS (Pressurized)</u> ✓ Rotor with up to 15 slots, allowing flexible runs from 1 to 15 vessels (single-vessel use must be supported). ✓ Minimum 8 vessels to be provided initially. ✓ Temperature range: 25°C to 300°C, with a heating rate $\geq 5^\circ\text{C}/\text{sec}$; working temperature: up to 260°C. ✓ Pressure capacity: up to 300 psi or more. ✓ Compatible with 10 mL, 30 mL, more volume vessels for micro- to mid-scale synthesis. ✓ Option for glass and silicon carbide (SiC) vials for high-temperature reactions.	FOR SOLID-LIQUID SYNTHESIS (Pressurized) Rotor with up to 15 slots, allowing flexible runs from 1 to 15 vessels (single-vessel use must be supported). Minimum 8 vessels to be provided initially.	This is deleted
3.	CEM Scientific India Pvt. Ltd.	1. Microwave Power: Minimum microwave power 280 W or more, with power density 900 W/litre or more. The microwave power should be adjustable from 0 to 800 W, with a built-in controller to ensure accurate	Minimum microwave power 280 W or more, with power density 900 W/litre or more. The system must have a built-in	Should be read as: Microwave Power: Minimum microwave power 280 W or more, with power density 900 W/litre or

		and stable heating during reactions.	controller to ensure accurate and stable heating during reactions.	more.
		2. Hardware: d. Software-controlled magnetic stirring should be integrated, with adjustable speeds up to a maximum of 1200 rpm, to support a variety of reaction types and viscosities.	Software-controlled magnetic stirring should be integrated, with adjustable speeds up to 1200 rpm or more, to support a variety of reaction types and viscosities.	Should be read as: Hardware: d. Software-controlled magnetic stirring should be integrated, with adjustable speeds 900 rpm or above, to support a variety of reaction types and viscosities.
		3. Accessories: The system should have a facility to clean the cavity in case of spillage. Suitable accessories should be provided. 1. Vacuum/Pressure Relief Valve: Glass with PTFE stopcock, compatible with joint system 2. Clamps and Retort Stand: Metal stands with universal clamps for flask and condenser. 3. Microwave-compatible reaction Vessels: Sizes: 10, 30 mL; Materials: PTFE-TFM, SiC, Borosilicate glass; up to 300°C/100 bar. 4. Leak-Proof Caps (PEEK or TFM): High chemical resistance, compatible with septa/valve ports 5. Septum Caps: PTFE or silicone-lined, puncture-resistant 6. Teflon-Coated Silicone Seals: Microwave-safe, reusable, available in multiple diameters 7. Magnetic Stir Bars: PTFE-coated, 5–40 mm, oval or cylindrical, suited for vessel sizes. 8. Microwave Rotor or Sample Holder: Holds multiple vessels (6–15), ensures uniform microwave distribution 9. Syringes: Leak-proof sampling port, 1–20 mL range, for sample withdrawal or injection 10. Sample handling tools: Long tongs, heat-resistant gloves, vessel holders 11. Consumables Startup Kit: Extra seals, septa, caps, stir bars (10 sets each recommended)	Kindly remove these points as these are not relevant or required in the monomode microwave synthesizer.	In accessories, points 1 to 2 deleted. Point 3: Microwave-compatible reaction Vessels should be stable up to 350°C. Point no. 4 to 11 deleted. Point no. 12 no change.

		12. Cleaning Tools: Vessel brushes, seal cleaners, PTFE-safe cleaning liquids		
		4. Upgradeable features availability FOR SOLID-LIQUID SYNTHESIS (Pressurized) ✓ Rotor with up to 15 slots, allowing flexible runs from 1 to 15 vessels (single-vessel use must be supported). ✓ Minimum 8 vessels to be provided initially. ✓ Temperature range: 25°C to 300°C, with a heating rate $\geq 5^\circ\text{C}/\text{sec}$; working temperature: up to 260°C. ✓ Pressure capacity: up to 300 psi or more. ✓ Compatible with 10 mL, 30 mL, more volume vessels for micro- to mid-scale synthesis. ✓ Option for glass and silicon carbide (SiC) vials for high-temperature reactions.	Kindly remove these points as the upgradation of the parallel rotor-based system is not possible in the asked system. The upgradation asked itself is a separate instrument. Hence it has no relevance in this instrument.	This is deleted.



