

MICROWAVE SYNTHESIZER

Photo of Instrument:



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| Instrument Name | MICROWAVE SYNTHESIZER |
| Instrument Model & Serial No. | Monowave 200 |
| Instrument Make | Anton Paar |
| Category of Instrument | |
| Description of Instrument | A microwave synthesizer is a specialized instrument used in chemistry for the rapid and controlled synthesis of various compounds using microwave radiation. This technology has gained popularity due to its ability to accelerate chemical reactions, reduce reaction times, and improve overall efficiency compared to traditional heating methods. |
| Instrument Technical Description and Major Specifications (This Specifications Limited to Major 5) | <p>Microwave Cavity: The core component of a microwave synthesizer is the microwave cavity, where the reaction vessel is placed. This cavity allows the efficient coupling of microwave energy with the reaction mixture. The cavity design can vary, and there are both single-mode and multi-mode instruments.</p> <p>Control Unit: Microwave synthesizers come with a control unit that allows users to set and control various parameters such as temperature, power, and reaction time. This control is essential for ensuring the</p> |

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| | <p>reproducibility of reactions and optimizing conditions for specific synthesis goals.</p> <p>Reaction Vessels: Specialized reaction vessels designed to withstand microwave conditions are used in these synthesizers. These vessels are typically made of materials that can absorb microwave radiation effectively and are designed to handle the pressure and temperature conditions associated with microwave-assisted reactions.</p> <p>Max. pressure: 30 bar Technique: Microwave Synthesis Max. temperature: 300 degree Celsius</p> |
| Application of Instrument (Limited to Major 4 or 5) | <ul style="list-style-type: none"> • Organic synthesis • Materials science • Nanotechnology. • They can be used for the synthesis of small organic molecules, peptides, polymers, and various other compounds |
| Type of Sample Required for Analysis/Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions | <p>Organic Compounds</p> <p>Inorganic Compounds</p> <p>Nano-material Synthesis</p> |
| Types of Analysis/Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions | Microwave Synthesis |
| Faculty In-Charge Name / Email / Contact | <p>Prof. Shiny Joseph shiny@nitc.ac.in 04952285404</p> |
| Technical Staff Name / Email / Contact | <p>Muhammed Munaver Muhammedmunaver@nitc.ac.in 04952285484</p> |
| Location of Instrument | Instrumentation Lab |
| Other Details | |

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User Charges:

| S.NO. | Type of Analysis/Testing | Internal - within Department of NITC | Internal - Other Departments NITC | External Academic Educational Institutes | National Labs | Industry |
|-------|--------------------------|--------------------------------------|-----------------------------------|--|---------------|----------|
| 1 | Microwave Synthesis | | 500 | 1000 | 1000 | 2000 |

Slot Booking and Payment Work Flow:

- Discuss the slot availability with the technical staff in the instrumentation lab of chemical engineering department.
- Collect the request form.
- Payment should be at the accounts section of the institute.
- Get the request form signed from the faculty in charge.
- Submit the request form and samples in the instrumentation lab.