



MWave-5000

Microwave Chemistry Reaction Workstation

MWave-5000 multifunctional microwave chemistry workstation, integrating microwave synthesis, distillation, concentration, pressurized or decompressive reaction and low temperature microwave reaction together, is a multipurpose workstation for microwave chemistry researches. This product inherits technologies of former MAS microwave synthesis system and combines advanced microwave chemistry tools developed by world-leading industrial design companies. MWave-5000 has sturdy and durable mechanical structure and intelligent integrated system for data monitoring and software control. It is capable of working with external vacuum pump, low-temperature circulation cooling system and other commonly-used auxiliary equipment for chemical reactions; and therefore, it is a fully functional, convenient and modern chemical experimental instrument.

Technical parameters

Power supply:	220VAC 50/60Hz
Microwave frequency:	2450±50Hz
Maximum power:	1500W
Maximum microwave output power:	1000W, 0-1000W auto non-pulse continuous frequency conversion control (Inverter), the minimum power per 25W may be set.
Microwave chamber:	32L stainless steel chamber, PP protective lining
Pressure control system:	Piezoelectric crystal sensing system, pressure control range: 0-5MPa, precision: ±0.01 MPa
Temperature control system:	Platinum resistance temperature sensing system, measuring range: 0-250 C, precision ±1 C Infrared temperature sensing system, measuring range: 0-300 C, precision: ±1 C
Vessel pressure monitoring system:	Closed chemical reaction vessel, pressure range: 0-5MPa, working pressure range: 0-2MPa Bifunctional constant pressure control valve, with constant pressure of 2.0MPa
Exhaust system of furnace chamber:	Corrosion-resistant motor, with air rate of 5.8m ³ /min
Physical dimensions of the complete machine:	500 × 480 × 600mm (width × depth × height)
Net weight of the complete machine:	40Kg

Technical parameters of glassware for reaction

Volume of glass flask:	50ml, 100mL, 250mL, 500mL
Glass accessories:	Reflux condensing pipe, balance dispenser, oil-water separator and T connector, etc.
Negative pressure bearing range of glass flask:	0--0.01 MPa

Technical parameters of closed high pressure reaction vessel

Reaction vessel frame:	High tensile alloy material, pressure bearing range: 0-30MPa.
Material of reaction outer vessel:	High strength anti-bursting composite fibers
Volume of reaction vessel:	300mL, 500mL, 1000mL.
Material of reaction inner vessel:	TFM material
Maximum sustainable pressure:	15MPa
Maximum working pressure:	2MPa
Maximum sustainable temperature:	280 C
Maximum working temperature:	220 C
Typical applications:	Pharmaceutical synthesis, preparation of inorganic materials and extraction of active plant ingredients, etc.

Low temperature working environment and optional accessories

Proper jacketed system for low-temperature reaction can be used according to the actual experimental requirements.
The low-temperature operation may be conducted together with the application of low-temperature cooling circulator.

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Innovations



- It has three reaction conditions: normal pressure, under pressure and decompression;
- This product has pressurized reaction vessels with different volumes, and it can get real-time reaction temperature and pressure simultaneously. The maximum volume of pressurized vessel is 1L.
- Under pressured mode, the intelligent safety pressure control system may realize real-time overpressure alarm and auto pressure relief.
- The high resolution color screen with two LED displays, can show the experimental process visually and give the reaction parameters and curves in real time.
- It has a strong magnetic stirring system and can realize both closed and open vessel stirring.
- The stepped motor it equipped may control the reflux condensation lifting device precisely and conveniently.
- Its low temperature reaction cryotrap system (optional) may satisfy the requirement for low temperature experiment and microwave non-thermal effect theory study.

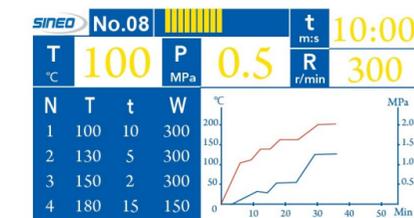
Vacuum distillation and concentration



- The liquid solvent may boil under low temperature by means of an external vacuum pump. It may accelerate the evaporation of solvent and then may get high-purity reagent and concentrate. Some materials may be influenced by high temperature, thus preventing the thermo-sensitive components being decomposed, lost or denatured; and at the same time, the microwave may speed up the heating and therefore save considerable amount of energies.

Convenient Software Control Function

- Connection with computer's Windows based software through USB port.



Perfect "active" & "passive" safety protections

Active safety protections:

- The proven platinum resistance temperature sensing system and the advanced piezoelectric crystal pressure control system may ensure the heating process proceed as per the preset procedures.
- The reliable design of control system and IR non-contacting temperature monitoring system ensure the reaction vessel working under controllable temperature and pressure, eliminating the possibility of damages caused by over temperature and pressure.
- The invincible outer vessel made of high tensile composite fibers eliminates all potential lateral blast and is much better than modified PEEK materials in the market.
- The vessel frame constructed by high strength metal draw bars can withstand the impact of vertical pressure inside the reaction vessel, thus ensuring a smooth heating process.

Passive safety protections:

- The bifunctional constant pressure safety valve may effectively ensure the chemical reaction under constant pressure and eliminate the possibility of breakdown caused by over pressure and damages to the equipment and personnel.



Application areas

- Synthesis of nano materials, metal-organic compounds and ionic liquids, etc.
- Synthesizing drugs and chemicals, assisting the organic synthesis, and developing pharmaceutical intermediates.
- Extracting active ingredients of plants and degrading organic pollutants.

