

## Main technical parameters of MDS-8G Closed Vessel Microwave Digestion/Extraction System

Power supply:	220 VAC 50/60Hz 15A
Microwave frequency:	2450MHz
Complete machine installation power:	2600W
Max. output power:	1200 W, provide non-pulse continuous automatic variable frequency control
Pressure measurement control system:	Piezoelectric crystal pressure sensor, controlled pressure scope:0-10MPa (1500psi), accuracy: $\pm 0.01$ MPa
Temperature measurement control system:	High-precision platinum resistance temperature sensor, measured temperature scope:0-300°C, accuracy: $\pm 1^\circ\text{C}$
Outer sample reaction vessel:	Anti-explosion outer vessel made of composite fiber which cannot be cracked, broken or torn under the action of explosion
Inner sample reaction vessel:	TFM material
Cavity exhaust system:	Corrosion-resistance centrifugal fan with high power, exhaust air rate: 5.5m <sup>3</sup> /min
Physical size of complete machine:	540 × 520 × 490 mm (W × D × H)
Net weight of complete machine:	40 KG



## Supporting super-strength frame closed reaction vessel with 8 or 10 rotors

### MP-100 closed high pressure reaction vessel with 8 rotors:

Max. pressure:	15MPa (2250psi)
Max. sustained temperature:	300°C
Max. working temperature:	250°C
Inner vessel volume:	100 ml
Outer vessel material:	super strength composite fiber material
Inner vessel material:	TFM
Max. batch processing quantity:	8 vessels



### MP-100 closed high pressure reaction vessel with 10 rotors:

Max. pressure:	15MPa (2250psi)
Max. sustained temperature:	300°C
Max. working temperature:	250°C
Inner vessel volume:	100 ml
Outer vessel material:	super strength composite fiber material
Inner vessel material:	TFM
Max. batch processing quantity:	10 vessels



## Applicable sample types

Food and medicine (such as milk, milk products and health food), cosmetics, agricultural by-product, fisheries products, biological tissue, various feeds, energy & fossil, geology & mineral resources, environmental resources, metal, alloy, ceramics, RoHS, medicament, Tibetan medicine, and domestic wastes, etc.

**SINEO Microwave Chemistry Technology (China) Co., Ltd**

[www.sineo.cn](http://www.sineo.cn)

Add: 3F, South Building, 227 Guan Sheng Yuan Road, Cao He Jing Hi-Tech Zone, Shanghai, China 200235  
Tel: 86-21-64700006, 54487840, 54487841, 54487842, 54487843  
Fax: 86-21-64080840 Email: [marketing@sineo.cn](mailto:marketing@sineo.cn)

**SINEO**

[www.sineo.cn](http://www.sineo.cn)

# MDS-8G

## Closed Vessel Microwave Digestion/Extraction System





# MDS-8G Closed Vessel Microwave Digestion/Extraction System

MDS-8G Closed Vessel Microwave Digestion/Extraction System is the microwave sample preparation instrument with excellent performance and reliable quality which is manufactured by improving the original MDS-8 closed vessel microwave chemistry workstation with newest materials and production technique by Sineo Microwave Chemistry Technology (China) Co., Ltd. Outer vessel made of super strength composite fiber material, which is only equipped for advanced high-end microwave digestion system is applied in MDS-8G;

it has light weight, durable performance and strong transverse impact-proof; it cannot be cracked or broken under the action of explosion; its strength is higher than all other polymer engineering plastics and even steels. In this way, fusible, inflammable and explosive defects of polymeric plastic under high temperature and pressure are eliminated thoroughly and safety of operation is improved greatly. MDS-8G is applicable to microwave digestion, extraction, synthesis and many other application fields.

## Technical Advantage



Outer vessel is made up of super strength composite fiber material. The outer vessel cannot be broken, torn and cracked under the action of explosion, and meanwhile it is provided with various features of corrosion resistance, high-temperature resistance, and impact resistance, pressure-withstanding. Thus, it far exceeds the outer vessel manufactured with PEEK and fundamentally resolves the potential safety hazard during the use by operators.



The combined application of quantified vertical blast pressure-relief technology and outer vessel made of composite fiber material do avoid the personal injury and damage to instruments caused by traverse bursting due to sudden reaction or violated sample-preparation during digestion. Thus, this product can be really compliant with safety design concept of vertical blast.



The instrument adopts piezoelectric crystal sensing and high-precision temperature sensing up to international advanced level capable of improving the accuracy for pressure and temperature measurement. The piezoelectric crystal sensing technology can allow the sample in master vessel to be completely isolated during pressure measurement to prevent several problems such as leakage from traditional gas-guide tube and enclosed interface of waterline pressure and cross contamination of samples.



The instrument maintains the non-pulse continuous microwave heating technology and ideally achieves the automatic closed-loop control of microwave power based on pressure and temperature feedback in order to realize the purpose of accurate control on reaction parameters and accurate display for congruent relationship between pressure and temperature and changing process during reaction. Meanwhile, trend curve of pressure, temperature and time can be switched into from time to time for the convenience of observation and analysis of operators.



Combined passive protection measures, pop-up buffer safe anti-explosion chamber door and high-strength safe protective cover forms the vertical security and protection system to allow the operators to feel relieved.



## Technical Index:

- 1) Piezoelectric crystal pressure sensor conducts real-time control and displays pressure in digestion vessel and pressure rise curve, with scope of 0–10MPa (1500psi), and accuracy of  $\pm 0.01$ MPa
- 2) High-precision platinum resistance temperature sensor conducts real-time control and displays temperature in digestion vessel and temperature rise curve, with controlled temperature scope of 0–300°C and accuracy of  $\pm 1$ °C.
- 3) High throughput sample processing allows up to 8 or 10 samples to be simultaneously processed. In addition, 1–8/10 samples can be processed respectively.
- 4) High-pressure closed digestion vessel adopts high strength frame structure with safe and reliable anti-explosion mechanism. Auxiliary vessel-opening design with reduced pressure makes the operation easier and more convenient. The double-layer vessel structure: the maximum pressure can exceed 15Mpa (2250psi); the maximum temperature  $\geq 300$ °C and the volume is 100ml. The inner vessel adopts TFM material, and the outer vessel adopts super strength composite fiber material.
- 5) The structure of pop-up buffer safe anti-explosion chamber door: when something abnormal occurs, the pop-up buffer structure can guarantee that operators are safe and chamber door structure is undamaged.
- 6) The forced cooling of all reaction vessels in chamber have the program prompt alarm for safety cooling. In addition, the cooling can be done outside the chamber. Since the composite fiber material has unique conductivity for heat, cooling speed is faster and the utilization ratio of chamber will be higher.
- 7) The design of uniform chamber (microwave resonance cavity) can guarantee that all samples are processed at the same time. In addition, the multiple anticorrosion coating can guarantee the chamber resists the corrosion from various acid gases and solvents.
- 8) The high-power exhaust system is equipped with chamber, thus every reaction can be done in the environment which is ventilated, safe and easy to observe reaction for a long period of time.



MDS-8G