SINEO

TANK PLUS

Microwave Digestion Workstation

Master of microwave technology

Safe, Professional and Efficient

TANK PLUS Microwave Digestion Workstation

TANK PLUS Microwave Digestion Workstation is a brand new product released by Sineo Microwave in 2017, which carries on the high quality of the TANK series. Sineo focus on safety, efficiency, convenient and durable use, and also provides many features. Through accurate temperature/pressure control and high-efficiency dual magnetron non-pulse microwave heating technology, it can effectively improve sample digestion. With more than 20 high-standard technologies, it ensures the safety of laboratory personnel. At the same time, intelligent UI design, cloud services and other functions bring a comfortable operating experience to users.

Main Features

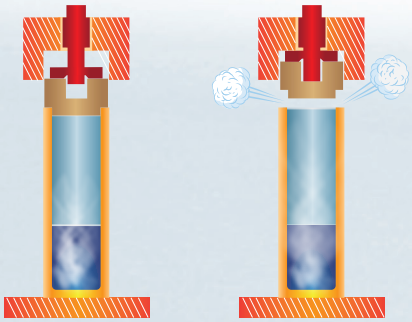
Patented structure—the prefect combination of high-throughput digestion and high-pressure digestion.

TANK PLUS comes standard with 40 high-pressure digestion vessels, achieving fully enclosed high-pressure digestion. It can also meet the digestion needs for tough samples. Having the fixed quantity pressure-relief design and automatic overpressure-relief protection to prevent vessel burst due to high pressure, TANK PLUS is the perfect combination of high-throughput digestion and high-pressure digestion.

High-strength aerospace composite fiber outer vessel, perfect within mechanical strength and corrosion resistance

The high-strength aerospace composite fiber outer vessel—Xtra Fiber has the advantages of unbreakable, racking-free and tearing-free, and its comprehensive performance in pressure resistance and anti-corrosion is superior to the traditional PEEK outer vessel. PFA spray completely wraps the composite fiber and provides excellent corrosion resistance (especially at the edge of the outer vessel). The pressure resistance can reach 70 MPa (about 10000 psi) and the temperature resistance can reach 600 °C, so as to ensure the user's operation safety under extreme conditions.

Safety Bolt design, being fully sealed and digested while achieving quantified safety pressure relief



Combining nearly 30 years of industry experience, Sineo adopts Safety Bolt structure design to ensure that the digestion vessel is completely sealed and leak-free under normal working conditions. In the overpressure state, the safety bolt is automatically lifted to complete the pressure relief and ensure the safe operation. Under normal operating conditions, the safety bolt will not break or no need for replacement, no safety hazards.

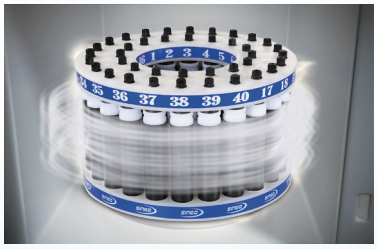
Optical-fiber and IR temperature measurement system, having precise temperature control and simultaneous monitoring of abnormalities to ensure accurate results and experiment safety

TANK PLUS comes standard with multi-core opticald fiber and dual-beam full scan infrared temperature measurement system. The fiber has a diameter of 2mm and a Teflon protective layer on the outside. The bend has a small radius of curvature, which is resistant to folding and has high flexibility. The service life is 5 times longer than that of single-core fiber. The fiber-optic temperature control system achieves precise temperature control while avoiding the antenna effect of the conventional metal sensors in the micro-wave field. Full vessel temperature scanning can effectively monitor the abnormal situation of digestion. If there is temperature abnormality, the workstation immediately stops the microwave emission and turns on the alarm.

High precision semiconductor pressure sensor with high corrosion resistance and high mechanical strength

TANK PLUS Microwave Digestion Workstation adopts improved semicon-ductor pressure sensor. The whole pressure conduction path is treated with anti-corrosion treatment. While the pressure is accurately measured, the service life of the sensor is greatly extended. This technology effectively improves the reliability of the workstation.

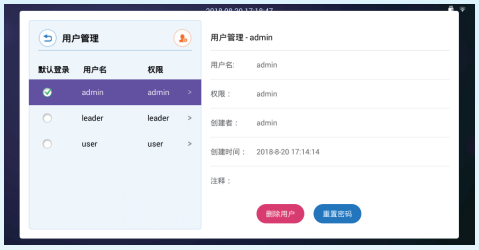
Dual magnetron inverter control system ensures consistent sample digestion



TANK PLUS Microwave Digestion Workstation adopts two-dimensional dual magnetron system and high-frequency closed-loop PID control, thereby realizing microwave continuous non-pulse output, more uniform microwave field in cavity, higher energy utilization rate, and consistent sample digestion.

Powerful and convenient software assistant in accordance with FDA 21 CFR Part 11

The software is designed and developed in Android system. It has the functions of electronic signature, hierarchical authority and audit trail, and complies with the relevant regulations of FDA 21 CFR Part 11. Provided with 8G local storage space, built-in expert method library, and 7-inch LCD touch screen which can display the temperature and pressure curve during operation in real time. The software automatically recognizes the turntable model and counts the number of vessels, saving manual counting and cumbersome input and making the experiment easier and more convenient.



Support by the cloud service function, expanding the storage capacity while keeping the data in safe.

TANK PLUS Microwave Digestion Workstation is provided with the cloud service function, wherein data, method and other information are kept and shared. Unlimited expansion of data storage is available while making no compromise on the data security. The users can download the latest version of software from public cloud server. The system is updated online and the user experience is greatly improved.

The digester integrated dual LCD screen display, clearly showing the digestion state and experiment process

English operating software can display parameters such as temperature, pressure, time, and steps in real time. Ready to switch to the coordinate curve interface at any time and help observe the real-time temperature and pressure changes during the experiment. This helps the users to understand the experimental process and improve the digestion solution. In addition, through the 5-inch video observation window, the inside of the furnace chamber can be observed more clearly and comprehensively.

A variety of supporting tools available, easy to take experiment

A variety of convenient operation tools can reduce the workload of the operator and improve the efficiency of sample preparation. For example, the flexible trolley can help the experiment personnel to easily put the high-flux turntable filled with the sample into or out of the cavity, avoiding direct contact between the worker and the digestion vessels, and ensuring the safety of the experiment personnel. The electrical torque wrench makes it easy to close and open the digestion vessels.

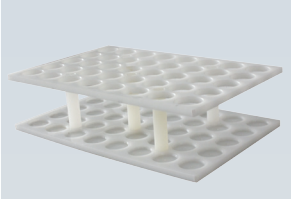
Parts

Inner vessel

Master vessel cap

Standard vessel cap

40- high-intensity carousel



40- digestion vessel rack

Optical fiber probe

Electrical wrench

TK-20 hotplate

Trolley

Wide Range of Applications

Microwave digestion technology utilizes the permeability and activation reaction ability of microwaves to heat the reagents and samples in the closed vessel, which can increase the pressure and temperature, thereby greatly increasing the reaction rate and shortening the sample preparation time. Microwave digestion is widely used in many fields and is a commonly used digestion technology.

Environment and Ore

The pretreatment process of soil, sediment and solid waste samples can be completed according to relevant national standard methods or EPA standard methods, and the digestion results are satisfactory.

Food and Medicine

It is widely used in the pretreatment process of trace heavy metal elements in food and medicine.

Health and Disease Control

The high-throughput product design meets the simultaneous digestion needs of clinical samples and effectively improves work efficiency.

Petrochemical

It also has a good digestion effect for petrochemical products or by-products that are difficult to dissolve, and has a large user base in petrochemical enterprises.

Teaching and Science Research

Microwave heating has the advantages of fast and good homogeneity and selectivity. It has been widely used in the synthesis research of various new materials, especially for the synthesis of nanomaterials.

Metallurgy

It can also achieve good digestion effect for resins, rubbers and various polymers that are difficult to digest, and can provide a convenient analysis method for scientific evaluation of the performance and quality of materials.

TANK PLUS Microwave Digestion Workstation Parameters

Power	220~240VAC 50/60Hz 20A
Microwave source	2450MHz, dual magnetron design, high energy microwave emission
Installation power	3800W
Maximum output power	2000W
Microwave cavity	66L large volume 316L stainless steel cavity, inner and outer multi-layer corrosion-resistant Teflon spray
Explosion-proof safety door design	Safety door designed based on 3-D directional explosion-proof mechanism, anti-microwave leakage integrated with anti-flow groove structure design
Pressure monitoring system	High-precision novel semiconductor pressure sensor with pressure control range: 0~10MPa (1450psi), control accuracy ±0.01MPa
Temperature monitoring system	Non-metallic multi-core optical fiber + full tank IR dual temperature measurement, temperature control range: -40~305 °C, temperature control accuracy: ±0.1 °C
Passive protection system	COT real-time temperature and pressure anomaly monitoring system can automatically alarm and cut off microwaves to protect users' safety when temperature and pressure anomalies occur in any one of the reaction vessels.
Software	Android system; video SOP; built-in method library; cloud service, data storage and sharing; Wi-Fi remote connection, etc.
Communication ports	With USB port and network cable port
Video Monitoring	With an internal camera for real-time monitoring of the operation of the digestion vessel in the chamber
Furnace exhaust system	Cool to room temperature for less than 15 minutes
Microwave extraction module	Normal pressure extraction experiment
Working environment	0~40℃ / 15~80%RH
Overall physical size / net weight	600*685*660 (Width*Depth*Height)/62kg

Vessel type	Self-pressure relief vessel	High pressure digestion vessel
Batch numbers	12 Vessels	40 Vessels
Inner Vessel material	TFM	TFM
Outer Vessel material	Aerospace composite fiber	Aerospace composite fiber
Rotor frame structure	Independent Frame vessel structure	High-strength integrated Carousel
Reaction vessel volume	100mL	70mL
Maximum design temperature	300℃	300℃
Highest design pressure	10MPa (1450psi)	10MPa (1450psi)
Image		

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ISO9001:2015 and UKAS Quality System Certification

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