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ISO9001:2015 and UKAS Quality System Certification



## **TANK**

### *Microwave Digestion Workstation*



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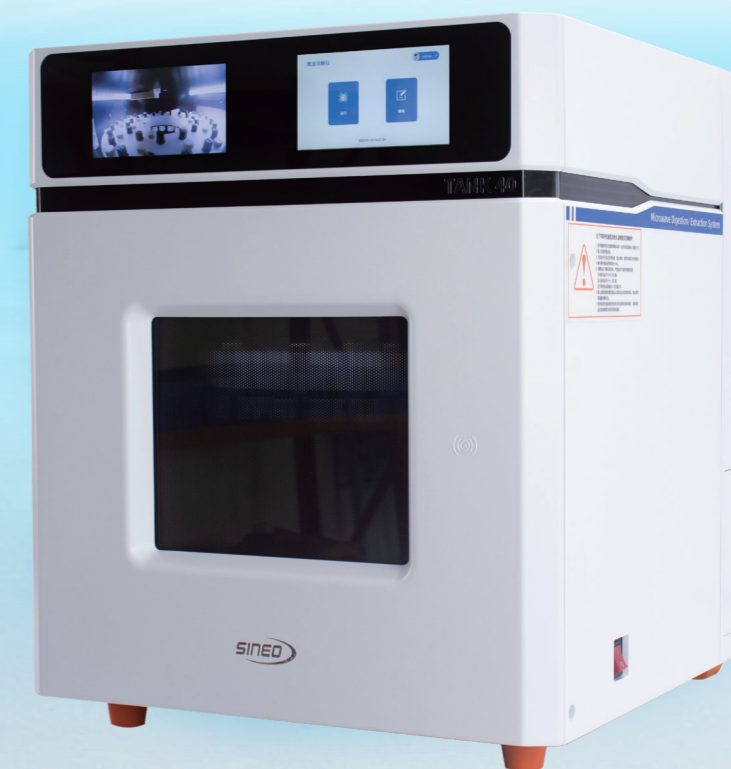
***Master of Microwave Technology***  
***Safe, Professional, and Efficient***

## About SINEO

Shanghai Sineo Microwave Chemistry Technology Co., Ltd. is one of the first manufacturers of microwave chemistry equipment in China, with nearly 30 years experience in the field. We have been awarded four BCEIA Gold Awards by China Association for Instrumental Analysis. Currently, we have over 20,000 customers in more than 60 countries and regions across the world. All of our products have passed CE certification.

Going forward, SINEO undertakes to carry out more researches on leading industrial technologies and sample preparation instruments with independent property rights. We strive to upgrade industrial quality standards for equipment originating in China. By doing that, we hope to make our products popular all over the world.

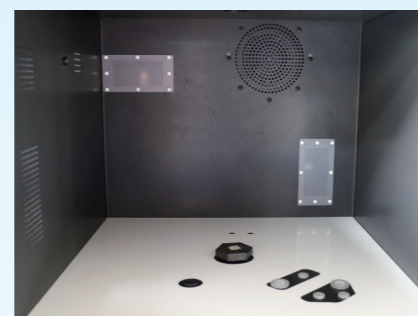
- Comprehensive Safety Guarantee
- Excellent Digestion Capability
- Smart Software Functions
- High Reliability
- Versatile Extensibility



## Main Features

### Comprehensive safety guarantee, combined with anti-corrosion capability

The furnace cavity is made of Grade 316L stainless steel, The 3D adjustable, explosion-proof security door, installed with buffer and choke (to prevent microwave leakage), is self-sealing, impact-resistant and with interlocking linkage mechanism. The aerospace composite fiber outer vessel, wholly sprayed with PFA coating, boasts both higher anti-corrosion and higher pressure-resistance levels, compared to those of PEEK materials. The 70MPa pressure-resistance and the 600° C heat-resistance capabilities guarantee the safe operation of users under extreme conditions.



### Dual magnetron inverter control system ensures consistent sample digestion

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

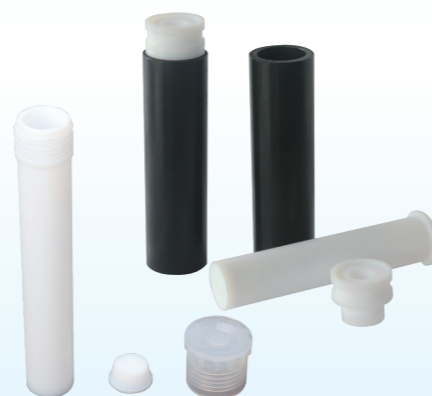


### Two LCD screen, displaying real-time operation and experiment status

The 7-inch color LCD touch screen displays real-time data, such as temperature, pressure, time, and steps. Swift switch to display of coordinate curves greatly facilitates users to better know what is going on with the experiment. The 5-inch color LCD screen allows clear, real-time observation of operation inside the furnace cavity. Equipped with interfaces, such as USB, network port or Wi-Fi, the vessel, once permitted, can be remotely operated and monitored through computer.

### Full-vessel pressure control technology

The high-pressure digestion vessel adopts the safety bolt structure; while the auto-release vessel uses the elastic pressure relief and self-sealing technology. Under normal operation conditions, the vessels are completely sealed without leakage. Under overpressure conditions, Both paths will trigger a pressure release to ensure a passive pressure protection.



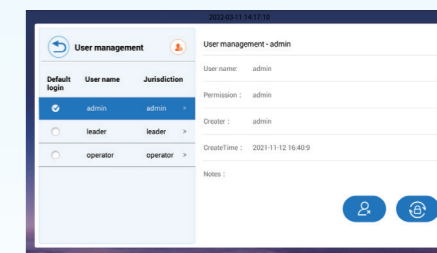
### Full-vessel precise temperature control and monitoring, ensuring safety and digestion performance

Non-contact mid-infrared sensors at bottom monitor and visualize real-time temperature change of sample solution inside each digestion vessel. The whole vessel temperature control system effectively monitors abnormal conditions during digestion experiment. Once abnormal temperature is detected, the vessel immediately stops microwave emission and starts to sound the alarm, so that experimental safety is not disturbed.



### Smart software operation, conforming to FDA 21 CFR Part 11

The vessel, running on the Android operating system, is convenient and multi-functional. It offers many functions, such as electronic signature, hierarchical permission and audit trail, all in conformity with relevant regulations of FDA 21 CFR Part 11. The software automatically identifies model of the turntable and automatically counts the number of vessels, making the experiment easier and faster, with the absence of tedious manual counting and input.



### Various supporting tools, making experiment easy and convenient

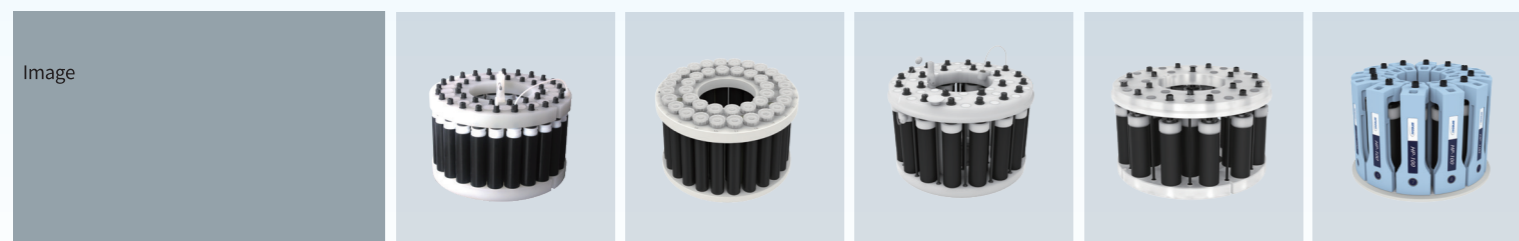
Various tools are supplied to reduce workload for operators and improve the work efficiency of sample preparation. For example, a mobile and flexible tool trolley is able to transfer rotor loaded with sample into and out of furnace cavity, avoiding direct contact between operator and digestion vessel for safety concerns.



### TANK Microwave Digestion Workstation Parameters:

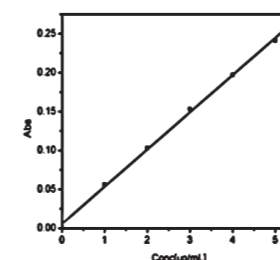
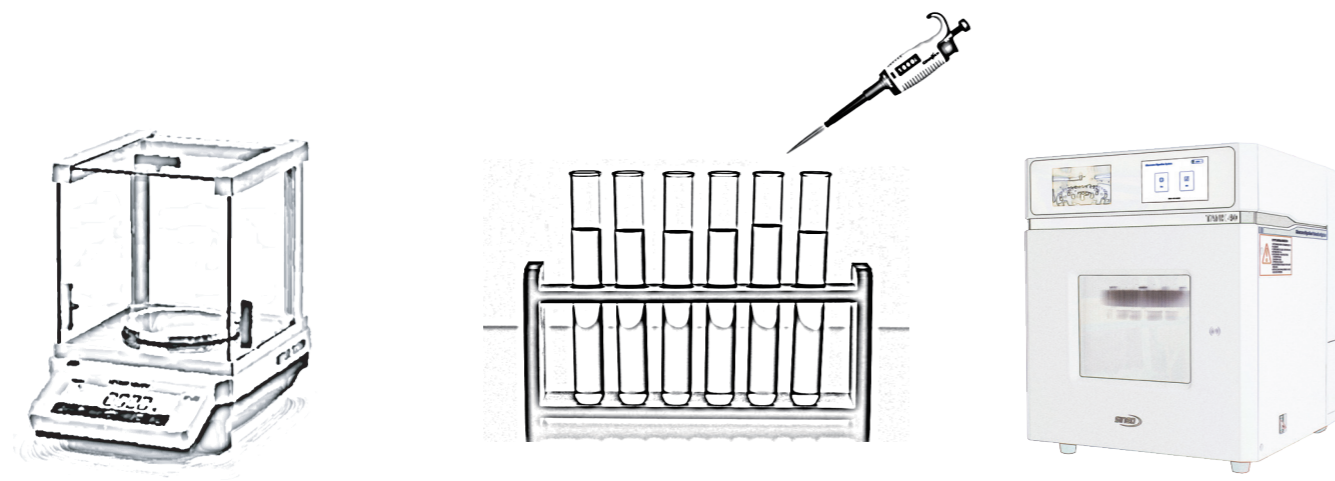
Power	220~240VAC 50/60Hz 16A
Working environment temperature	0~40°C
Relative humidity for working environment	15~80%RH
Microwave source	2450MHz; Maximum microwave output power 2000W, emitted from Dual magnetron inverter high-energy microwave field; non-pulse continuous microwave output
Installed power	3800W
Microwave cavity	Grade 316L stainless steel microwave resonant cavity, with a wall thickness of more than 3mm, sprayed with multi-layer PFA coating
Furnace exhaust system	Automatically adjusted air volume; cooling to room temperature in less than 15 minutes
Software system	Android operating system (8G memory), built-in video SOP, application method library, electronic door lock, etc.
Overall physical size/net weight	570mm×650mm×680mm (Width × depth × height) /65kg

Vessel type	High-Pressure	Auto-release	High-Pressure	Ultra High Pressure	High Pressure (Frame)
Vessel numbers	40 vessels	40 vessels	24 vessels	18 vessels	12 vessels
Inner vessel material	TFM	TFM	TFM	TFM	TFM
Outer vessel material	Aerospace composite fiber	Aerospace composite fiber	Aerospace composite fiber	Aerospace composite fiber	Aerospace composite fiber
Inner vessel volume	70mL	55mL	110mL	100mL	100mL
Maximum temperature	300°C	300°C	300°C	320°C	300°C
Maximum pressure	15MPa	15MPa	15MPa	15MPa	15MPa



### Wide range of applications

Microwave digestion technology heats reagents and samples in closed containers through microwave penetration and activation. It greatly speeds up reaction and shortens sample preparation time, with increased pressure and reaction temperature in digestion vessel. Microwave digestion is a commonly seen digestion technology widely applied in many fields.



Curve equation:  $[A] = K_1[C] + K_0$   
 $K_1 = 0.0478, K_0 = 0.0057$  Linear correlation coefficient: 0.99925

NO.	Sample mass/g	Cd concentration /ng·mL <sup>-1</sup>	Cd content /ng·g <sup>-1</sup>	RSD/%	
1	1.01034	1.562	38.65	1.4252	
2	1.01257	1.480	36.54	1.1046	
3	1.01083	1.457	35.97	1.0832	
4	1.01256	1.529	37.75	1.1430	
5	1.01155	1.533	37.85	1.3106	
6	1.01281	1.526	37.68	1.0844	
Mean value		1.515	37.40	—	
RSD/%		3.9		—	
Spike recovery	Spike amount /ng·mL <sup>-1</sup>	Recovery rate /%	Measured value /ng·mL <sup>-1</sup>	Standard value /ng·mL <sup>-1</sup>	Uncertainty /ng·mL <sup>-1</sup>
	1	0.4	98.75	74	3
	2	0.6	97.00		
	3	0.8	92.88		
4	1.0	93.4			