



18-IS-0045-TAT-18-MAD-0107



ISO9001:2015 and UKAS Quality System Certification



TANK eco *Microwave Digestion/Extraction System*



Hanon Advanced Technology Group Co., Ltd. (Headquarter)

Addr.: 4th Floor, Building 1, A3 Zone, Financial Business Center of Hanyu, Jinan, China 250101
Tel.: +86 531 88874440 Fax: +86 531 88874445
<http://www.hanonlab.com> Email: info@hanon.cc

SINEO Microwave Chemistry Technology Co., Ltd.

Addr: 6F, Building No. 92, 1122 North Qinzhou Road, 200235, Shanghai.
Tel.: +86-21-64700006, +86-21-54487841 Fax: +86-21-64080840
Email: marketing@sineo.cn

Sineo, Master of microwave core technology
Safe, Professional and Efficient

TANK eco **Microwave Digestion/Extraction System**

TANK eco Microwave Digestion/Extraction System has incorporated Sineo's 30 years' of experience in microwave research and development and is built for a wide range of applications in the market. It has been widely used in heavy metal analysis, extraction of organic pollutants, synthesis of material, etc.

TANK eco Microwave Digestion/Extraction System features safe operation, good flexibility, high durability. Its patented high-pressure digestion vessel design (invention patent: CN 102901663B) has greatly improved the digestion ability of tough samples, which is also equipped with multiple safety mechanisms to ensure the safe operation.

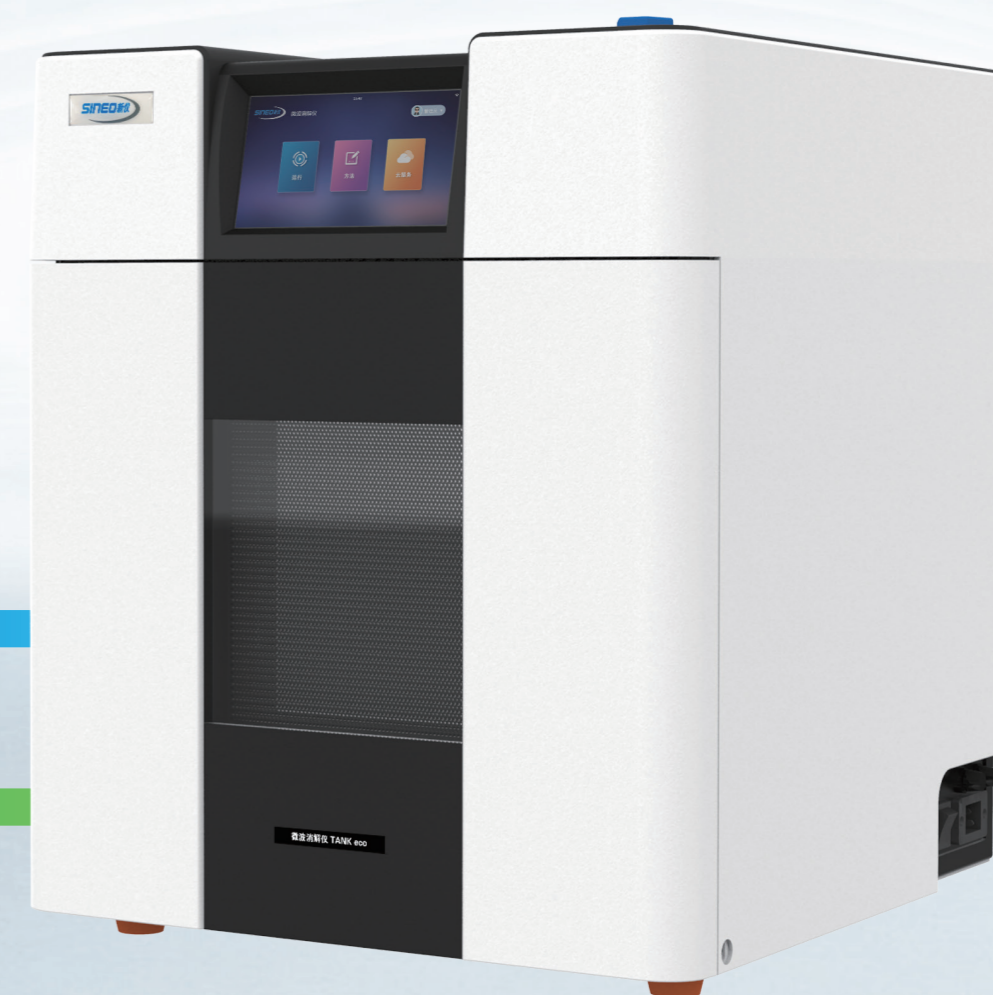
Safe Operation



Good Flexibility



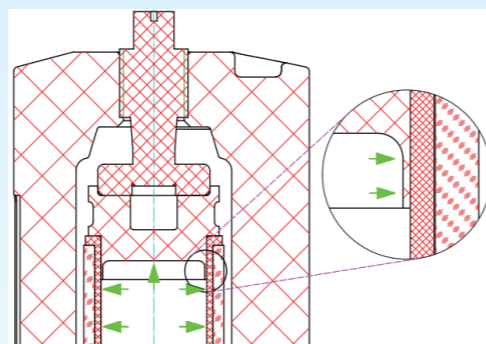
High Durability



Technical Features of Product

The fully-enclosed high-pressure digestion technology effectively improves the recovery rate and ensures the accuracy of results

Its patented fully-enclosed high-pressure digestion technology (invention patent: CN 102901663B), it will not leak during the entire digestion process and can improve the digestion ability; it demonstrates better digestion in the tough samples and those prone to high pressure, especially for the elements that are easily volatile, and the test results are satisfactory.



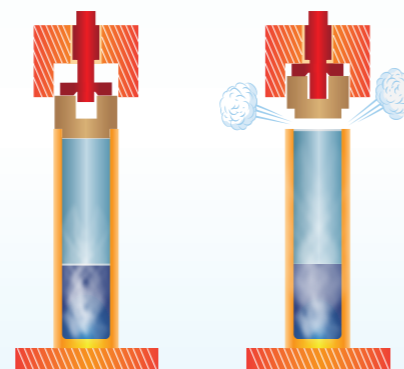
Outer vessel made of high-strength aerospace composite fiber, with both mechanical strength and anti-corrosion ability

The outer vessel of high-strength aerospace composite fiber; the overall coating of PFA completely wraps the composite fiber, which is non-bursting, non-explosive and non-tearable and whose comprehensive performance in terms of pressure resistance, anti-corrosion, etc. is better than the conventional PEEK materials (especially the protective capability at the edge of the outer vessel). The compressive strength is up to 70MPa (about 10,000psi), and the temperature resistance is as high as 600°C, ensuring the user's safe operation.



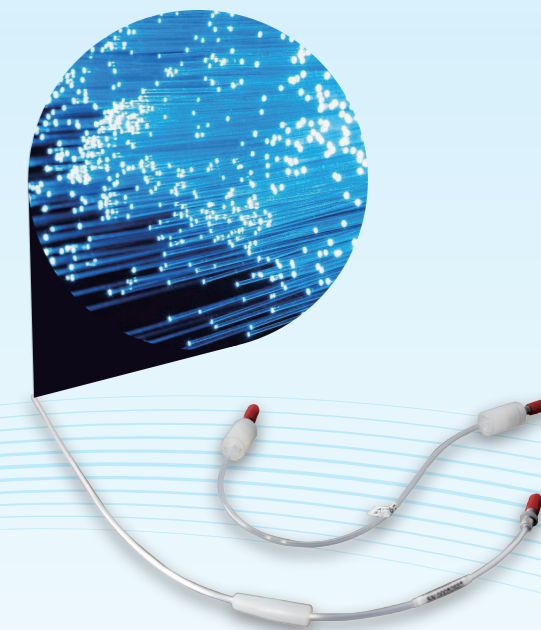
The patented safety bolt design can provide quantitative and safe pressure relief

With nearly 30 years of experience in this industry, Sineo employs a safety bolt structure design (invention patent: CN 104971787 B) to ensure that the digestion vessel is completely sealed and leak-free under the normal working conditions, and the safety bolt will be automatically raised to trigger a pressure relief once overpressure, ensuring the safe operation. Under normal operating conditions, the safety bolt will not break or need to be replaced, and therefore, no consumables are required.



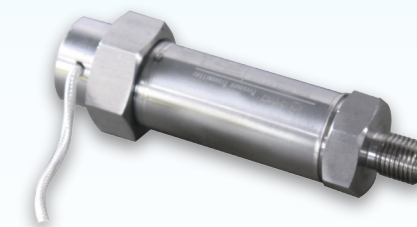
The optical fiber and IR temperature measurement system provides precise temperature control while monitoring any abnormality, thereby ensuring accurate results and safety

TANK eco Microwave Digestion/Extraction System is provided with a full vessel IR temperature monitoring system as standard configuration, with a multi-core integrated optical fiber temperature measurement system OPTIONAL. The full vessel temperature monitoring system can effectively monitor any abnormal conditions. If a temperature abnormality occurs, the microwave transmission will be immediately stopped and a beep will alarm. The diameter of optical fiber is 2mm with Teflon protective layer; the bending radius of curvature is small, and the bending resistance and flexibility is strong; its service life is 5 times longer than that of single-core optical fiber. The optical fiber temperature control system is precise, and also avoids the antenna effect of the conventional metal temperature sensors in the microwave field.



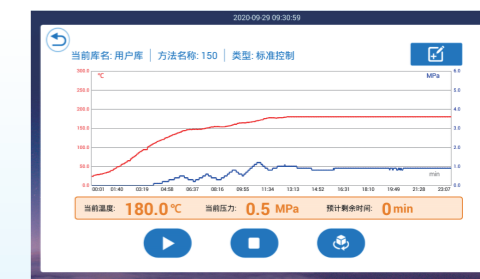
High-precision semiconductor pressure sensor, with strong corrosion resistance and high mechanical strength

TANK eco utilizes an improved semiconductor pressure sensor, whose entire pressure transmission path has undergone special anti-corrosion treatment. In addition to accurate pressure measurement, the service life of the sensor has been greatly extended with improved reliability.



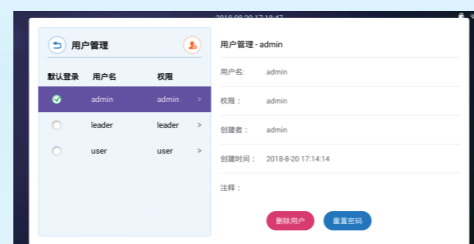
7-inch LCD touch screen clearly displays the digestion status and experiment process

The operating software can display the parameters such as temperature, pressure, time and steps in real time and switch to the coordinate curve interface at any time to check the real-time temperature and pressure changes during the experiment. It can help users understand the experiment process and improve the digestion plans.



Powerful and convenient software with FDA 21 CFR Part 11

The software was designed and developed based on the Android system, provided with the functions such as electronic signature, limits of authority and audit trail, and in line with FDA 21 CFR Part 11 rule. 8G storage, built-in expert method library, and a 7-inch LCD touch screen that can display the temperature-pressure curve during the operation in real time. The software can automatically count the number of vessels, making the experiment easier and simpler.



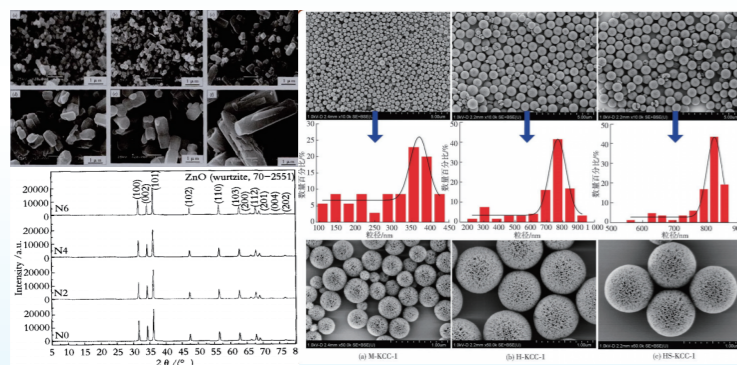
"Cloud Service" function, the storage can be unlimitedly expanded while ensuring data security

TANK eco is equipped with the "cloud service" function so that data, methods and other information can be stored and shared in the cloud, unlimited expansion of data storage under the premise of ensuring data security can be provided, and the latest version of the software can also be downloaded from public cloud servers to provide an online update of the system, comprehensively improving the user experience.



Multiple functions of microwave digestion, microwave extraction and microwave synthesis

TANK eco workstation can provide multiple functions, which can be equipped with an organic solvent leakage sensor, complete pre-processing before microwave digestion and extraction and can also be capable of research of microwave assisted synthesis.



Specification of TANK eco:

Power supply	220~240VAC 50/60Hz 20A
Microwave source	2450MHz, high-energy microwave field transmission
Installed power	1800W
Maximum output power	1000W
Microwave cavity	Large-volume 316L stainless steel cavity, internally and externally coated with multi-layer corrosion-resistant Teflon
Explosion-proof door design	Self-popping explosion-proof sliding furnace door, integrated structure design with prevention of microwave leakage
Pressure measurement system	High-precision semiconductor pressure sensor, with pressure control range: 0~15MPa, accuracy ±0.01MPa
Temperature measurement	Full vessel IR temperature control system, with temperature control range: -40~305°C, accuracy: ±0.1°C;
control system	Optional multi-core integrated optical fiber temperature control system, with temperature control range: -40~305°C, accuracy: ±0.1°C
Passive protection system	COT real-time abnormality monitoring system, which can automatically beep and cut off the microwave when an abnormality occurs to any reaction vessel; Safety Bolt design, providing vertical and quantitative release of overpressure
Software system	Android system; Built-in method library; Cloud methods, data storage and sharing; Wi-Fi remote connection, etc.
Communication interface	USB interface and internet interface
Exhaust system	High-power corrosion-resistant turbo fan, high-efficiency turbulent air cooling, less than 15 minutes cooling down to room temperature
Working environment	0~40°C / 15~80%RH
Physical size / net weight	480mm×560mm×575mm (Width × depth × height) /45kg

Model of reaction vessel	MP-100
Batch capacity	Standard configuration 6 vessels, up to 8 vessels
Material of inner vessel	TFM
Material of outer vessel	Aerospace composite fiber
Rotor frame type	Single Frame type
Volume of reaction vessel	100mL
Designed temperature	300°C
Designed pressure	15MPa (2,200psi)