

Guide Line Microwave Reaction System



TANK

1. Which field does Microwave Reaction System used in?

Microwave digestion system has been widely used in the food, textile, plastic, geology, metallurgy, coal, bio-pharmaceutical, petrochemical, environmental monitoring, wastewater treatment, battery manufacturing, cosmetics and other fields.

2. What's the advantage of Microwave Reaction System?

Microwave digestion as an efficient sample pretreatment methods, it can well meet the requirements of modern analysis of the sample preparation process, with fast speed heating, uniform heating, low reagent consumption, energy efficiency, etc. Especially in volatile element analysis detected well to maintain sample integrity, with a high sample recovery.

3. What is method for the temperature control of the Microwave Digestion System? What are the characteristics of each one?

At present, on market microwave digestion Temperature control mode have infrared temperature control, thermocouple temperature control, platinum resistance temperature control, optical fiber temperature control etc.

Infrared temperature control, the work method is the infrared scanning and monitoring temperature data in the distance, its Non-contact temperature control, so the precision is low, temperature control accuracy is not high.

Thermocouple temperature control means the sensor test relative temperature via potential difference of the hot and cold end, it is easy to cause interference of the antenna effect of the microwave field uniformity spark lead to accidents, and in the microwave field, it has self-heating effects so that it could not be measured the real temperature of the tank.

Platinum resistance temperature control method with high accuracy, but also have Antenna effect, there will also be easy to produce sparks lead to security incidents.

Optical fiber temperature control method with direct fiber optic temperature measurement method, not affected by the microwave field, can provide high-precision measurement, with feedback information timely, temperature control accuracy, safety, etc., its the best microwave digestion temperature control currently.

4. What's the active safety measures microwave digestion system should have?

Firstly, it adopt high-precision temperature and pressure control system, the operator know machine operation via observe the data of the curve of the in change of temperature and pressure. Its software modules can take the initiative to stop the run when the slope out of control, it greatly reduce the possibility of explosion.

Secondly, it should with real-time temperature and pressure monitoring system when high-precision temperature and pressure control system failure, the system as a backup measure induct and stop the running in time in

order to ensure safety.

Thirdly, it should select high-strength and high temperature resistant material.

5. What are the substances can not be used by microwave digestion?

explosives (TNT, nitroglycerin, etc.), propellants, pyrophoric chemicals, perchlorate, glycols (ethylene glycol, propylene glycol, etc.), aviation fuel, acetylene compounds, various ethers, ketones, short carbon chain alkanes. never use nitric acid digestion phenol, triethylamine, and animal fat

6. What should we noticed when digest samples with Microwave Reaction System?

Firstly, the sample (especially the unknown samples) is added the acid, do not immediately placed it into microwave digestion system, you should observe the reactions for a while, if the sample with drastic action we need to put the sample stay for the period of time, some samples need to add the acid to soak overnight.

Secondly, for the aggressive sample and containing an explosive component of the sample, do not digest with microwave digestion system.

Thirdly, do not use perchloric acid to digest oil sample- sand high content of oil in the samples.

7. How to install Microwave Reaction System?

Firstly, Microwave Digestion System should be placed in

a firm, smooth test bed, it should not be covered at the top, left and right and it have a gap of more than 20 cm, the back should leaving a gap of more than 15 cm in order to get good ventilation.

Secondly, we should avoid the heating source, in order to avoid heating and water vapor into the microwave oven caused fault. It also should be away from the water source in order to avoid splashing caused leakage occurs dangerous.

Thirdly, do not close to strong magnetic material or with magnetic electrical appliances, because the external magnetic field will interfere with the oven magnetic field uniform distribution in order to the heating efficiency declined.

Fourth, normally laboratory condition required.

TANK Microwave Digestion System

Hanon TANK Microwave Digestion System adopts the international advanced double magnetron frequency microwave heating system and realizes the high power microwave balanced magnetic field safety heating.

Microwave Digestion System has been widely used in food, textile, plastic, geological, metallurgical, coal, biological medicine, petroleum chemical industry, environmental monitoring, sewage treatment, battery manufacturing, cosmetics, etc.

Characteristics

- Double magnetron variable frequency control system: It could adjust microwave output continuously. It makes the microwave field more uniform and more accurate that could ensure the sample digestion are uniform.
- The high accuracy pressure sensor could make the pressure control more precise.
- 7"LCD color touch-screen real time display the temperature and pressure curve.
- Built-in method library (20 methods) and the methods could be programmed.



safety protection function



optical fiber system



7"LCD color touch-screen

Multiple safety protection function

It has more than ten safety protection measures to ensure experiment safety, including temperature control system, pressure control system, explosion-proof security doors, thicken cavity with multi-layer TEFLON coating, High-power exhaust system, program with suspend or start at any time. Ladder-style control temperature system, the material is TFM for the vessel and aerospace composite material for the vessel cover, the vessel cap with PFA and the pressure shrapnel use PEEK.

Optical fiber temperature control system

The TANK adopts the internationally advanced optical fiber temperature control system. It avoids producing the spark which other temperature control mode caused, effectively eliminates microwave interference temperature control system and other factors. It not only achieves precision control temperature but also it is the most safe microwave digestion temperature control mode at present.

Remote Control System

TANK PRO only. Dasee on Wi-Fi technology, peer to peer control.

Note: "•" with the same technical index; "—" without

Technical data:

	TANK PRO	TANK BASIC	TANK ECO
Cavity	48L Resonant Cavity	•	•
Teflon coating	10	8	6
Power output	1600W	•	•
Digestion method	50 preinstalled methods, programing 100 methods	20 preinstalled methods, programing 50 methods	15 preinstalled methods, programing 30 methods
Max.temperature	305°C	•	•
Temperature accuracy	±1°C	•	•
Temperature control	Fuzzy PID	•	•
Pressure accuracy	±0.01Mpa	•	•
Vessel volume	100mL	•	•
Detection of abnormal temperature&pressure	COT	—	—
Vessel Max.Pressure	80MPa	75MPa	70MPa
Video Monitor	YES	•	•
Vessel quantity	1-12/batch	1-12/batch	1-10/batch
Cooling method	Forced air cooling	•	•
Interface	USB, RS232	—	—
Wifi Module	Optional	—	—
Power supply	220VAC±10%	•	•
Detection of abnormal voltage	Yes	•	•
Dimensions	520mmx595mmx660mm	•	•
Weight	67Kg	•	•