

# PreeKem

««« PreeKem Scientific Instruments Co., Ltd.

🏠 No.100-101 Building, No.2338 Duhui Road, Shanghai, China

🌐 P.C.: 201108

☎ Tel: +86-21-54427296 54426316 54426318

📠 Fax: +86-21-54427063

✉ E\_mail: [info@preekem.com](mailto:info@preekem.com)

🌐 Web: [www.preekem.com](http://www.preekem.com)

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## TOPEX+

### MICROWAVE DIGESTION SYSTEM



## THE NEW INTELLIGENT ERA IS COMING

(ES) Equipements Scientifiques SA - Département Bio-Tests & Industries - 127 rue de Buzenval BP 26 - 92380 Garches  
Tél. 01 47 95 99 90 - Fax. 01 47 01 16 22 - e-mail: [bio@es-france.com](mailto:bio@es-france.com) - Site Web: [www.es-france.com](http://www.es-france.com)

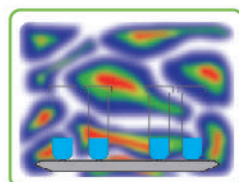


## CHINA NATIONAL AQSIQ DESIGNATED SUPPLIER

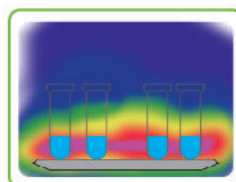


### Proprietary Microwave Energy Focusing

- High efficiency microwave emission
- Controlled and guided microwave deflection
- Uniform in-cavity microwave distribution



Microwave in common cavity



Microwave in TOPEX+ cavity



### Versatile rotor configurations

- Compatible with multiple rotor sizes
- Accommodating all sample types
- State-of-the-art auto venting-reseal mechanism



### Modernized operating interface

- 7" large touchscreen for intuitive operation
- 7" large LCD display of real-time run conditions



### Expert of Microwave Extraction

- High throughput: 40 samples in 30 minutes
- Ease of operation: effortless assembly of 110 mL extraction vessel
- Enhanced safety: in-vessel solvent sensor
- Superb recovery results enabled by magnetic stirring



### Multiple Application Modules

- Digestion
- Extraction
- Synthesis
- Desiccation
- Oxygen Combustion
- Protein Hydrolysis



### Total Solution for Pharmaceutical Industry

- Compliance with 21CFR PART 11
- User access interface, e-signature, and secure data storage
- Complete 3Q Audit Trail



ISO9001:2008



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THE PERFECT COMBINATION  
OF SCIENTIFIC WISDOM AND LEAN MANUFACTURING



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THE PERFECT COMBINATION  
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DETAILS DETERMINE QUALITY

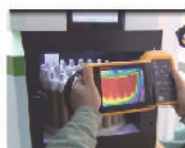
#### 01 Cavity

Industrial-quality components made of 316 stainless steel;  
Thickness >3mm;  
The whole cavity is built by seamless laser welding;  
Multi-layer Dupont PFA coating effectively protects cavity from corrosion.



#### 02 Microwave Source

Microwave generation via two staggered magnetrons;  
Roof microwave reflection and guide technique to enhance microwave density and heating efficiency.



#### 03 Safety features on the Door

Auto-locking system secures door while a digestion run is in motion;  
Floating cushion design allows instant pressure release and resealing after;  
Microwave disabled by the integrated emergency brake system when the door is not securely closed.

#### 04 Cooling System

Powerful corrosion resistant centrifugal fan;  
Strong convective air duct expedites cooling;  
Independent air duct avoids circulation of acidic vapors.

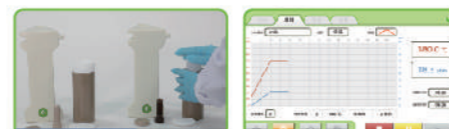
#### 05 Real-time safety viewing

Dual viewing window with HD camera;  
Surveillance of entire run in real time.



#### 06 Software

Built-in high-resolution touchscreen interface;  
Easy method setup with stylus pen;  
Instant digital display of run progress;  
Convenient storage, review, and export of run data.



#### 07 Full Vessel Temperature Sensor

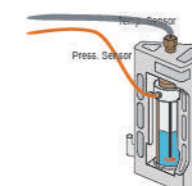
The real-time temperature of each vessel is constantly monitored by a side-wall IR sensor.

#### 08 High Accuracy Noise Sensor

In the event of an irregular sound inside of microwave cavity at 75db or greater, the noise sensor will trigger system shut-down to ensure safety.

#### 09 Dual Reaction Control

PT sensor allows accurate temperature measurements inside the vessel;  
High-precision pressure sensor measures real-time pressure;  
PID control system stops microwave if the pressure is perceived over safe limit



#### 10 Pressure Rate Control Module

The software regulates the increase rate of pressure to avoid overpressure in some violent exothermic reactions;  
Control range: 0-10 bar/s

#### 11 Auto Overpressure Venting Technology

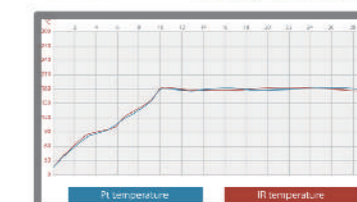
Triggered at a designated pressure threshold;  
Extends the lifetime of digestion tubes;



#### 12 Support of 21CFR PART 11

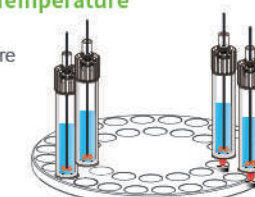
User access control  
Audit trail and data security

#### UP New IR Technology GRADE —Rtemp IR Sensor



#### Rtemp Sensor = 40 Immersion Temperature

Higher transmittance  
Direct measure real reaction temperature



#### Advantages of Bottom IR sensor

##### IR sensor with probe

A probe is submerged, which allows the interior surface to be measured. This is very accurate.  
Probes are more of a hassle to set up, and break over time.  
Only one probe is used in a control vessel.



##### IR sensor from bottom

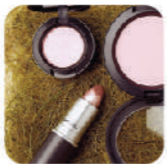
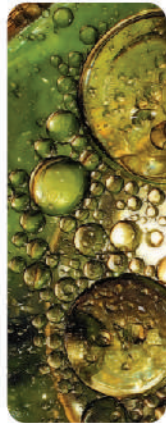
The bottom exterior surface is measured.  
This provides a more consistent measurement than a side sensor.  
Less solution can be used.



##### IR sensor from side

The side exterior surface of the vessel is measured.  
The vessel must be filled with enough solution to reach the sensor.  
IR signal is read from a longer distance.





DESERVE  
TO BE  
TRUSTED

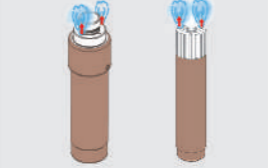
TOPEX+

SAMPLE PREPARATION EXPERT

Safety Design



Closed high pressure vessel



Auto-venting vessel

Microwave Extraction

SE-270

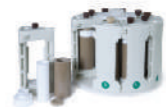


110mL extraction vessel

Closed Acid Digestion Vessel: High Performance

Type	KJ-100 Rotor	KJ-160 Rotor	GT-240 Rotor	GT-400 Rotor
Number of vessels	10	15	24	40
Liner material	TFM	TFM	TFM	TFM
Pressure jacket	PEEK	PEEK	PEEK	PEEK
Volume	100mL	100mL	100mL	60mL
Maximum operation pressure	60bar	50bar	35bar	20bar
Maximum withstanding pressure	150bar	120bar	100bar	100bar
Maximum operation temperature	260°C	250°C	240°C	220°C
Maximum withstanding temperature	310°C	310°C	310°C	310°C

Rotor Pictures



Specifications

Touch Screen	7" HD LCD screen
Microwave Cavity	Industrial special designed microwave resonant cavity
Material of Cavity	316L Stainless steel
AC Power Input	220-240v/50HZ,15A
Power Consumption	3200W
Maximum Microwave Power Output	1800W
Microwave Frequency	2450MHz
Microwave Emission Mode	Non-pulse continuous microwave output
Microwave Control Mode	High frequency closed-loop feedback (PID) control
Volume of Resonant Cavity	56L
Rotors	KJ-100 Digestion Vessel
	KJ-160 Digestion Vessel
	GT-240 Digestion Vessel
	GT-400 Digestion Vessel
	SE-270 Extraction Vessel
Pressure system	Pressure measurement range: 0-100bar
Temperature system	Temperature measurement range: 0-300°C
Exhaust system	Anti-corrosion converting-frequency centrifugal blower Maximum air-flow capacity is 5 m <sup>3</sup> /min
Ambient Temperature	0-40°C
Air Humidity	15-80%RH
Dimensions (W x D x H)	540mm× 640mm× 660mm
Weight	66Kg

Service and Technical support

All Preekem products are backed by our experienced applications support team and service department. Specialists from Preekem are at your service. Quick and efficient service reduces downtimes to a minimum.

