HYDROTHEMAL AUTOCLAVE

(USER MANUAL)

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1. Working Principle

Hydrothermal synthesis reactor, also known as polymerization reactor, high-pressure digestion tank, high pressure tank, reactor, pressure soldering, digestion tank, hydrothermal reactor, experimental reactor. Hydrothermal synthesis reactor is a kind of closed container which can decompose insoluble matter. It used for atomic absorption spectrometry and plasma emission analysis of the pre-treatment. It also used for small doses of synthetic reaction. It is used in the tank strong acid or alkali and high temperature, and high pressure closed environment to achieve the purpose of rapid digestion of insoluble substances. The In the gas phase, liquid phase, plasma spectroscopy, atomic absorption and atomic fluorescence and other chemical analysis methods to do sample pre-treatment. Is has been used for the determination of trace elements and trace elements during digestion of the efficient sample assistant. It can use in the determination of lead, copper, cadmium, zinc, calcium, manganese, iron, mercury and other heavy metals. It can also be used as a high temperature resistant and high-pressure anti-corrosion and high purity reaction vessel, as well as organic synthesis, hydrothermal synthesis, crystal growth or Sample digestion extraction and so on. The hydrothermal reactor uses for the sample pre-treatment digestion of heavy metals, pesticides, food, sludge, rare earth, aquatic products, organic matter and so on. Therefore, in the petrochemical, biomedical, materials science, geochemistry, environmental science, food science, commodity inspection and other departments of the research and production is widely used.

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2.Performance Characteristics

1. Excellent corrosion resistance, no harmful substances spill, reduce pollution, the use of safety.

2.After heating, boost, can quickly and intact to dissolve in the conventional conditions challenging to dissolve the sample and contains volatile elements of the sample.

3. Beautiful appearance, reasonable structure, simple operation, shorten the analysis time, reliable data.

4. There are PPL bushing, generating care, can be acid, alkali and so on.

5. Can replace platinum crucible to solve the high purity alumina trace element analysis of the sample treatment problem.

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2.1 Technical Parameters

Model	Capacity	Material	Remark
AUTO10X	**10ml**	**Shell made up of quality Stainless Steel: Liner material is Special PTFE**	**1. Safe temperature is 200° C** **2. Working pressure ≤3Mpa (surface pressure)** **3. Tempe heating and cooling speed: ≤ 5℃/min**
AUTO25X	**25ml**		
AUTO50X	**50ml**		
AUTO100X	**100ml**		
AUTO150X	**150ml**		
AUTO200X	**200ml**		
AUTO250X	**250ml**		
AUTO300X	**300ml**		
AUTO400X	**400ml**		
AUTO500X	**500ml**		
AUTO1000X	**1000ml**		
AUTO1500X	**1500ml**		
AUTO2000X	**2000ml**		

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2.2 Use the Environment

1. Ambient temperature 10 ℃ -30 ℃
2. Relative humidity ≤ 80%
3. Atmospheric pressure 86 ~ 106Kpa

2.1 Device Description

❖ ***The accessories in Figure 1 are described in the following table*** :

1	2	3	4	5	6
SS kettle body	**PTFE Lined**	**SS Lid**	**SS Bar**	**PTFE Lined Lid**	**SS Gland**

- **FIGURE NO.1**

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2.4Method of Operation

- The reactants poured into a Teflon bushing or PPL bushing, and the feed factor is less than 0.8.

- Make sure that the kettle body is positioned correctly (with the raised face facing down) and then put in a Teflon bushing or PTFE bush and upper gasket. Tighten the lid and tighten the lid with a screw.

- The hydrothermal synthesis reactor placed in a heater, and the temperature raised to the desired reaction temperature at a predetermined heating rate. (Less than the specified safe use temperature

- When the intra-abdominal temperature is lower than the boiling point of the reactant system solvent, the kettle cover could opened for subsequent operation. . To be the end of the reaction to its cooling, but also in strict accordance with the provisions of the rate of cooling operation to facilitate the safety and reactor life.

- After confirming that the temperature inside the kettle is lower than the boiling point of the solvent of the reactant system, loosen the kettle cap with a screw and then open the lid.
- Hydrothermal synthesis reactor after each use promptly to clean it, so as not to rust. Kettle body, kettle cover seal to pay particular attention to clean, and to prevent damage to its bumps.

Cleaning method

- The newly purchased hydrothermal reactor is cleaned freshly bought hydrothermal reactor for the first time to clean, slightly add some alkaloids to the liner or boiled for some time. The first time the use of hydrothermal reactor, must not quickly heat, to slowly increase the temperature cannot make the temperature is too high (such as 200 degrees Celsius), or PTFE lining easily deformed. From 150 degrees Celsius began to maintain a few hours, and finally at 200 degrees Celsius and then keep a few hours, then remove the natural cooling. Moreover, later the experimental temperature of 200 degrees Celsius when the water heat reactor liner does not appear deformation of the situation.

- The reaction of water heat reactor reaction medium, cleaning methods are also different The samples of the hydrothermal reactor are different, and the cleaning method is different. If the sample is acidic, it is recommended to use alkaline materials for cleaning. If it is alkaline, it is recommended to use acidic materials for cleaning.

2.5Precautions

1. The temperature of the external heating is not more than 280 ℃, heating rate: ≤ 5 ℃ / min, you can use the PID temperature control system to control the temperature, cooling rate: ≤ 5 ℃ / min, the safety pressure of 3MPa.

2. When the reaction completed when the kettle body naturally cooled to room temperature, can open the kettle cover, absolutely cannot pressure with the demolition

3. The kettle should not fill more than 80%.

Product quality feedback card

Purchase date:

Product mode		**Production No**	
Date of use		**Date of failure**	
Quality conditions:			
Signature of user		**Zip code**	
Contact address		**Contact phone**	
Views of the relevant departments of the company: **Signature of person in charge: Date:**			

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