

超临界水热合成

Supercritical Hydrothermal System

Hydrothermal Synthesis是在热水和高压下, 依存mineral的溶解度, 使用 single crystal的合成方法难以直接熔化时经常使用的合成方法。水热合成中 Hydrothermal solution (or fluid) 的作用是水热合成时通过热和压力的传输媒介作为反应物, 溶剂, 表面吸附物, 催化剂等起到促进化学反应和结晶化的作用, 离子交换或萃取反应溶剂的侵蚀作用及固化作用体的作用。

超临界水热合成是说如果Hydrothermal Synthesis中的水在超临界的情况下在超临界的条件下使反应的收容性金属盐生成金属氧化物的合成反应。这个合成法是为了固体间的快速反应使用临界点以上的压力和温度, 提高临界点的压力和温度具有以下优点。

特征

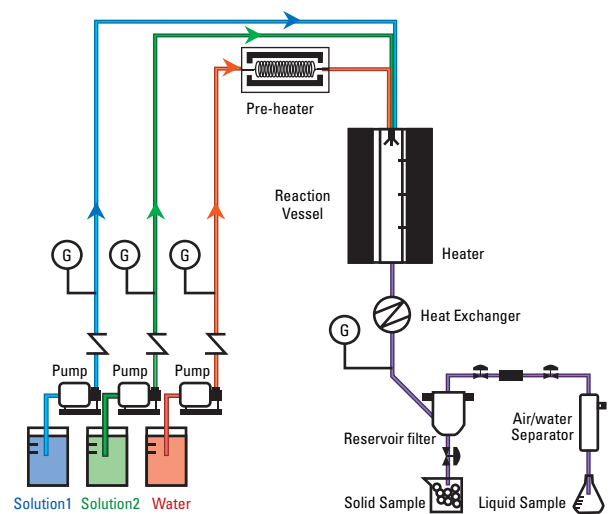
- 在溶剂中得到好的溶解
- 提高化学中的扩散
- 不会生成 hydroxyl group
- 通过温度和压力的操作调整物性 (过饱和度)
- 可以控制形状大小, 形态

适用领域

: 金属化合物纳米微粒生成

- 磨料 (SiO_2 , TiO_2 , SiO_2)
- 化妆品 (ZnO , TiO_2)
- 催化剂 (CeO_2 , TiO_2 , 铁氧化物)
- 贵金属 (PE, Pd)
- 电子元件用 (LiO_2 , SnO_2 , dolpeld ZnO , ITO , ATO , BaTiO_3 , SrTiO_2 , ZnO)
- 颜料涂料
- 光电子
- 瓷器

超临界水热合成工序



Specification

Type	SCHS 05	SCHS 10	SCHS PS
Product			
Reaction Vessel	<ul style="list-style-type: none"> - Material : INC600 + SUS316 - Max. Working : 40 Mpa@600 °C - Volume : 0.5 L - Cover Type : Bolt Closure - Gasket : INC600 - Filtering Vessel & System 	<ul style="list-style-type: none"> - Material : INC600 + SUS316 - Max. Working : 40 Mpa@600 °C - Volume : 1 L ~ - Gasketless - Filtering Vessel & System 	<ul style="list-style-type: none"> - Tube Type - Material : SUS316 - Max. Working : 40 Mpa@400 °C - Volume : 30 L ~ - Filtering Vessel & System
Pre-Heater	- Inline Double Type	- Inline Double Type	<ul style="list-style-type: none"> - Plange Sheath Type - Max. Working : 40 Mpa @450 °C - 380/440VAC, 3-ph, 100kw
High Pressure Pump	<ul style="list-style-type: none"> - Moter Driven Plunger Type - Max. Outlet Pressure : 40 Mpa - Max. Flow Rate : 12 ml/min - 220VAC, 3-ph, 1HP 	<ul style="list-style-type: none"> - Moter Driven Plunger Type - Max. Outlet Pressure : 40 Mpa - Max. Flow Rate : 1 L/min - 220VAC, 1-ph, 0.16 HP 	<ul style="list-style-type: none"> - Electro-Hydraulic Driven Piston Type - Max. Outlet Pressure : 40 Mpa - Max. Flow Rate : 30 L/min - 380/440VAC, 3-ph, 3HP - Accumulator
Reaction Heater	<ul style="list-style-type: none"> - Ceramic Mold Horizontal Type - 380VAC, 3-ph, 6kw 	<ul style="list-style-type: none"> - Ceramic Mold Horizontal Type - 380VAC, 3-ph, 6kw 	<ul style="list-style-type: none"> - Ceramic Mold Vertical Type - 380/440VAC, 3-ph, 10kw
Condenser	Shell & Tube type	Shell & Tube type <ul style="list-style-type: none"> - Max. Pressure : 40 Mpa - Temp Range : 0~50 °C - Cooling Rate : 450 °C → 30 °C 	Internal Coil type <ul style="list-style-type: none"> - Max. Pressure : 40 Mpa - Temp Range : 0~50 °C - Cooling Rate : 450 °C → 30 °C
Filtering Vessel	<ul style="list-style-type: none"> - Material : SUS304 - Max. Working : 40 Mpa@80 °C - Volume : 0.5L - Cover Type : Bolt Closure - MagneDrive - SUS Mesh Filter Integrated 	<ul style="list-style-type: none"> - Material : SUS304 - Max. Working : 40 Mpa@80 °C - Volume : 10L - Cover Type : Bolt Closure - MagneDrive - SUS Mesh Filter Integrated 	<ul style="list-style-type: none"> - Material : SUS304 - Max. Working : 40 Mpa@80 °C - Volume : 200L x 2 unit - Cover Type : Bolt Closure - MagneDrive - SUS Mesh Filter Integrated
Solution Tank	<ul style="list-style-type: none"> - Material : SUS304 - Volume : 0.1L 	<ul style="list-style-type: none"> - Material : SUS304 - Volume : 3L 	<ul style="list-style-type: none"> - Material : SUS304 - Volume : 70L
Receiver Tank	<ul style="list-style-type: none"> - Material : SUS304 - Volume : 0.1L 	<ul style="list-style-type: none"> - Material : SUS304 - Volume : 20L 	<ul style="list-style-type: none"> - Material : SUS304 - Volume : 2500L
Option	- Data Acquisition	- Data Acquisition	- Data Acquisition

* 基本式样以外的，也可和营业部负责人商议进行订制。