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DNA Shearing Instruments

Ultrasonic DNA fragmentation instrument SCIENTZ18-A

The Ultrasonic DNA Shearer uses an isothermal, non-contact method to shear, homogenize, and mix samples. It can process up to 18 samples at a time, with a minimum volume of 5µl. It offers high throughput, low sample loss, and no cross-contamination. It has become an indispensable standard tool for ChIP (chromatin immunoprecipitation) and DNA shearing research platforms. It offers a power of 300W (40-100%), ultrasonication time of 1-999s, cycle count of 1-999, cycle time of 0-999s, a DNA processing range of 100-1000bp, and intelligent storage of 20 sets.

model	**SCIENTZ18-A**		
power	300W (40-100%)		
Ultrasound time	1-999s		
Number of cycles	1-999 times		
Cycle time	0-999s		
Sample processing capacity	Standard	0.2ml, 18-well	5µl-50µl
		0.5ml, 12-well	30µl-150µl
	Optional	1.5ml-2ml, 8-well	100µl-800µl
		5ml, 8-well	500µl-2ml
DNA processing range	100-1000bp		
Smart Storage	20 groups		

Power supply voltage	AC220V/50Hz
Consumables	EP pipe
Standard	Chiller DC-0407
Water tank capacity	0.7L
Refrigeration power	300W
Temperature control range	4℃～normal temperature
size	240*398*275mm
power supply	220V

Non-contact ultrasonic DNA fragmentation instrument SCIENTZ08-IIIA

The SCIENTZ08-IIIA non-contact ultrasonic DNA fragmentor uses an isothermal, non-contact method to fragment, homogenize, and mix samples. It is sterile and capable of ultra-micro-fragmentation, even fragmenting chromosomes through a centrifuge tube. It is specifically designed for pre-processing DNA samples for next-generation sequencing and chromatin immunoprecipitation experiments. It features an adaptive frequency range of 20-400kHz, a power output of 2500W (0-100%), and can process up to 60 0.1ml samples. It comes standard with an independent thermostat and a temperature display accuracy of 0.1°C.

model	SCIENTZ08-IIIA
frequency	20-400kHz frequency automatic adaptation
Display Mode	7-inch high-precision touch screen
power	2500W (0-100%)
Total ultrasound time	0.1s-199 hours 59 minutes 59.9 seconds, adjustable
Working hours	0.1s-99.9s, adjustable
Interval time	0s-99.9s, adjustable (set to 0 for continuous mode)
Duty cycle	0.1-99.9%
Ultrasonic water tank volume	2.3L
Sample processing capacity	Can process up to 60 0.1ml samples
adapter	Standard configuration: 2 sets of 8×1.5/2 ml, 2 sets of 20×0.5 ml, and 2 sets of 30×0.1 ml centrifuge tube sample racks; Optional configuration: 5×5 ml, 6×10 ml, and 3×50 ml centrifuge tube sample racks;
Operating voltage/frequency	220V/50Hz
Cooling system	Standard independent constant temperature bath host
Temperature control range	2-40℃
Temperature display accuracy	0.1℃

Small Spray Dryers

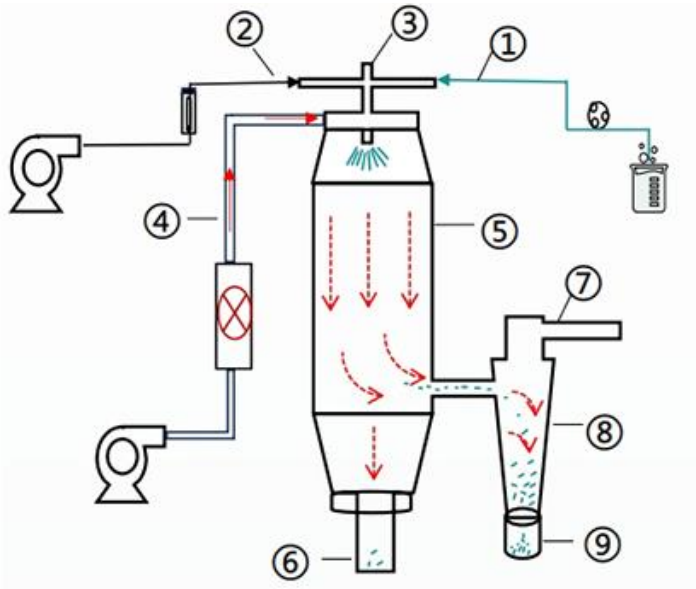
FY-SPRAY Mini spray dryer

The FY-SPRAY Mini spray dryer utilizes advanced spray drying technology, converting liquid samples into dry powder in a very short time. Ideal for laboratory environments, it provides a highly efficient and precise small-scale spray dryer for research users in new materials, food, chemical, traditional Chinese medicine, and pharmaceutical industries. It features a maximum evaporation rate of 1800 ml/h, an inlet air temperature of 30°C to 250°C ± 1°C, and an outlet air temperature of 30°C to 150°C ± 1°C. The dryer also features a 3.0 kW/220V electric heating system. The dryer is constructed from 2520 stainless steel and uses imported atomizing nozzles from the United States, with a standard 0.7 mm diameter dual-fluid nozzle.

Product Description

The FY-SPRAY Mini spray dryer uses advanced spray drying technology, which can convert liquid samples into dry powder in a very short time. It is more suitable for use in laboratory environments. It provides an efficient and precise small spray dryer for scientific research users in new materials, food, chemicals, traditional Chinese medicine, pharmaceuticals, etc.

Workflow



Features

• Desktop design, easy to operate, with 4-layer paint process, beautiful appearance

• Stable operating system with simple and intuitive interface

• Leading spray effect Using imported atomizers and production standards, it is in a leading position in the industry

• High-standard manufacturing technology and materials High-temperature resistant borosilicate glass drying tower, AISI 316L material, well-known first-line brand accessories

• High sealing performance Strictly control powder leakage, including multiple sealing treatments, spray drying process will not leak

Application Scenario

solid powder

1: solution 2: droplet 3: solid powder

Granulation/encapsulation

1: Solid/Liquid 2: Binder/Film-forming or Carrier Solvent 3: Mixed Solution of 1 and 2 4: Liquid 5: Granulation/Encapsulation

Solid dispersants

1: Drug 2: Polymer 3: Solvent 4: 123 mixed solution 5: Droplets 6: Solid dispersion

Application Areas

Applied in the fields of biomedicine, chemical manufacturing, and food industries.

Case Study

Case 1: Development and production application of amorphous solid dispersion preparations

Deucravacitinib (DEU) is a drug used to treat moderate to severe plaque psoriasis. Previous studies have shown that the DEU hydrochloride crystalline form has high bioavailability. However, studies have found that the hydrochloride is prone to disproportionation reactions in the formulation, leading to instability issues. To address this issue, the original research company adopted a new formulation strategy in the third phase of clinical trials - using hydroxypropylcellulose acetate succinate as a protective agent, and then spray drying it into an amorphous solid dispersion. Through this improvement, the absolute bioavailability of the final product reached 99%, successfully achieving the drug's market launch case.

In this case, spray drying technology plays a crucial role in addressing drug solubility, enhancing bioavailability, and improving stability. Through rational formulation design and process optimization, the advantages of spray drying technology can be fully utilized, providing strong support for drug development and production.

Case 2: Spray drying for drying silica

Precipitated silica, also known as white carbon black, is an important reinforcing material in the rubber industry. Silica is produced by two methods: vapor phase and precipitation. The vapor phase method produces high purity and excellent performance, but the production process is energy-intensive, technically challenging, and expensive. In contrast, the precipitation method offers mature technology, simple operation, and significant cost advantages. However, during the drying and dehydration process, ultrafine particles tend to agglomerate, affecting performance.

Studies have shown that spray drying can produce silica with uniformly dispersed particles, high specific surface area and oil absorption values, which meets the recommended matching curve of oil absorption value and specific surface area and is suitable as a reinforcing agent for high-performance tires and colored tires.

model	**FY-SPRAY Mini**
Maximum evaporation water	1800ml/h; water
Feed rate	Peristaltic pump delivery: 0~72ml/min
Inlet air temperature	30~250℃±1℃
Air outlet temperature	30~150℃±1℃
Pipeline electric heating capacity	3.0KW/220V; Material: 2520 special stainless steel
Inlet and outlet air temperature monitoring	Pt-100, intelligent PID control
Spray system	Imported atomizing nozzle from the United States, standard 0.7mm diameter dual-fluid nozzle
Average drying time	1.0~1.5 seconds
Automatic blockage removal device	The frequency of automatic needle unblocking and dredging is adjustable, and the cycle setting range is 0~60 seconds/time
Electrical standards	Schneider Electric standard production
Dimensions (H x W x D)	922mm*570mm*470mm
Power supply voltage	220/230V, 50~60Hz
Rated power of the whole machine	3.6KW/220V
Machine weight	58kg

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