



SD-15A, Lab scale Spray Dryer (Organic Solution)

SD-15A Lab scale spray dryer is equipped with inert loop system to handle organic solvents safely. Furthermore, it conserves resources and environment due to its functional principle, it can be used to dry the samples of aqueous solutions and organic solvents.

It assembles many of new designs, for example, small shape for free moving, combining air compressor and electrical heater inside the cabinet, sight glass for inspecting. PLC controller with English operation interface.



Safety:

SD-15A Inert loop spray dryer features good safety and easy operations as it adopts closed cycle of nitrogen (or other inert gas), a safe gas, to keep the entire system in a closed state, and on-line monitoring of oxygen concentration such that the system would power off automatically and alarm when the oxygen concentration has reached 2.5% (which can be preset by the user as needed).

The combination of closed nitrogen cycle and full solvent recovery allows treatment of flammable and toxic solvents and drying of readily oxidizable material. In addition, the low boiling points of organic solvents allow low temperature drying of the material subject to heat denaturation.

Solution to difficulty to dry organic solvents:

While organic solvents are generally flammable and explosive, an explosion-proof, Inert loop spray dryer allows the materials to circulate in a closed drying system and prevents the organic solvent gas from coming in contact with the outside air, thus ensuring safe operations.

Solution to difficulty to dry oxidizable material

Taking advantage of the antioxidant property of inert gas, this technology allows the materials to be dried and transmitted in an antioxidant environment in the closed circulation system isolated from oxygen, which ensures quality of the drying process for readily oxidizable material.

Solution to toxic gases pollution from raw materials

While some materials or solvents may produce toxic gases when vaporized, a mini spray dryer with closed cycle of inert gas would keep these toxic gases in the closed system and allow them to be collected in subsequent processes, thus reducing environmental pollution, which is favorable for environmental protection.

Easy to use:

PLC automatic control, One-click boot. Color Touch Screen, Fast setup & cleaning times Scale up to pilot or industrial scale possible.

Visible process due to glass assembly Adjustable particle size (1 - 25 microns)

Two Fluid Nozzle with SUS316L stainless steel:

The stainless steel spray assembly consists of an inner tube for the liquid sample leading to a small diameter jet. An outer tube directs compressed air to the nozzle. All units are supplied with 0.7mm jets, other sizes are available as accessories. The spray assembly incorporates an automatic de-blocking device that prevents the jet nozzle from becoming blocked, the de-blocking needle is activated by an integral compressor. De-blocking is sometimes necessary with materials which may solidify or when large particles in suspension cause blockages in the jet.

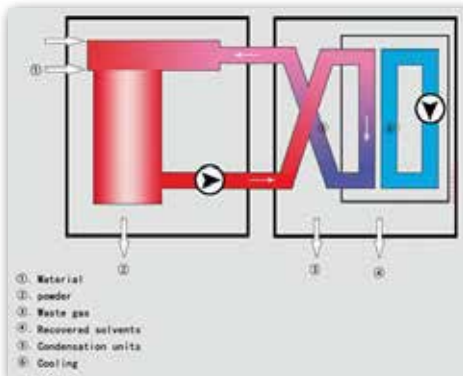
Areas of application:

SD-15A mini Spray dryer can be used in a wide range of applications where the production of a free-flowing powder sample is required. This technique has successfully processed materials in the following areas:

- Beverages • Flavours & Colourings
- Milk & Egg Products • Plant & Vegetable Extracts
- Pharmaceuticals • Heat Sensitive Materials
- Plastics • Polymers and Resins • Perfumes
- Ceramics & Advanced Materials
- Soaps & Detergents • Blood • Dyestuffs
- Foodstuffs • Adhesives • Oxides • Textiles
- Bones, Teeth & Tooth Amalgam and many others.

Principle:

To safely spray dry inflammable solvents, a new operating principle is employed which uses a combination of the Spray Dryer SD-15A and the Inert Loop to provide a closed loop circulation under inert conditions. The absence of oxygen prevents the formation of an ignitable mixture. At the same time, the solvent contained in the gas stream is cooled and consequently condensed. The regenerated flow is then returned again to the spray dryer.



The following solvents have been tested and can be used without reservation:

- Methanol • Ethanol • Toluene • Hexane • Acetone • Ethylacetate • Dichloromethane.
- Additional DLSB recommended.

Controls & Functionality:

SD-15A mini spray dryer is designed to ensure that all functions are simple to select and adjust, to quickly achieve the optimum conditions for spray drying. The operator can control the following functions:

- Inlet Temperature
- Gasflow Volume
- Pump Speed
- De-blocker Frequency.



SPRAY DRYER

Scale Spray Dryer

Model	SD-15A
Power	5000W
Voltage	220V, 50/60 Hz
Min. outlet temperature	40°C
Evaporating capacity	1500ml/h
Airflow	0-330m ³ /h
Max. Inlet temperature	200°C
Heater power	3500W
Temperature precision	±1°C
Nozzle jet	0.7mm standard/(0.5/0.75/1.0/1.5/2.0mm available)
Nozzle type	Two fluid nozzle
Possible particle size range	1-25µm
Mean Residence time	1.0-1.5 sec.
Operation mode	Automatic/Manual
Max. Sample feed	1500ml/h
Minimum sample volume	30ml
Spray chamber material	SUS 304 Stainless Steel
Cyclone separator material	SUS 304 Stainless Steel
Receiving tank material	SUS 304 Stainless Steel
Body material	SUS 304 Stainless Steel
Seal of cyclone/cylinder	Silicone
Gas Type	N ₂ (for Solvent) or Compressed air (for aqueous)
Dimensions	1050x1000x1650mm
Weight	210kg
Display	7-Inch LCD display for Heat, Spray, Pump, Air pressure, de-blocker frequency
Inert loop (for organic solvents)	Yes