



Labultima
Process Technologies Pvt. Ltd.



**SPRAY DRYER
TEHNOLOGY**

ENGINEERING DIVISION

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Spray Dryer

Introduction:

- Spray Drying is a continuous, quick, efficient process for drying of clear solutions / emulsions / agglomeration / suspension under controlled variable parameters with best produce repeatability results to achieve desired analytical / physical properties of produce.
- Spray drying can be co-current / counter current.
- The spray drying can be with air as drying media or with inert gas as drying media, categorized as Open Loop Spray Drier or Closed Loop Spray Drier respectively.
- For continuous operations of Lab spray dryer the standard unit with mono bag filter can be replaced with auto-dedusting multi-bag filter.

Lab Models:

LU222 (Advance Table Top Lab Spray Dryer)



Lu228 (Plug-In Lab Spray Dryer)



Applications

- Pharmaceuticals API / Onco / Steroids / Hormones / Formulations
- Prebiotics / Probiotics
- Nutraceuticals
- Healthcare / Cosmetics
- Milk / Milk Derivatives
- Natural or Synthetic Flavors / Fragrances
- Specialty Chemicals
- Foods
- Ceramics
- Polymers
- Metallic dispersion
- Wax based products
- Pyrolysis
- Nano particle generation

Consistency

- In general, the particle size distribution of the acquired powders is sharp and consistent, due to easy control and reproducibility of the drying properties.
- Spray dried powders exhibit high flowability, high solubility and dispersibility, allowing for facile transport, storage and subsequent processing.

High Purity & Easy Cleaning

- Cleaning of all spray dryer components is straightforward and can be completed in just a short amount of time. Impurities and cross-contaminations can be avoided reliably.
- Automated WIP, CIP and SIP systems can be applied to spray dryers without difficulty.

Advantages

- For conversion of crystalline form to amorphous form.
- For getting desired particle size distribution & bulk density
- For best reproducibility / repeatability results
- For avoiding oxidation of product under drying
- For encapsulation of core materials.
- For generating the heat sensitive / UV sensitive produce
- Continuous process
- Best yields
- Best operational costs
- Best payback period
- Best compatible for scale up to pilot / plant production spray driers

No Heat Detorioration

- On account of the comparably high drying speed and the short residence times, even heat-sensitive materials such as pharmaceuticals or foodstuff and dairy may be dried without difficulty using spray dryers.
- If a rather slow rise in temperature of the spray mist droplets is required, also counter-current flow systems are feasible.

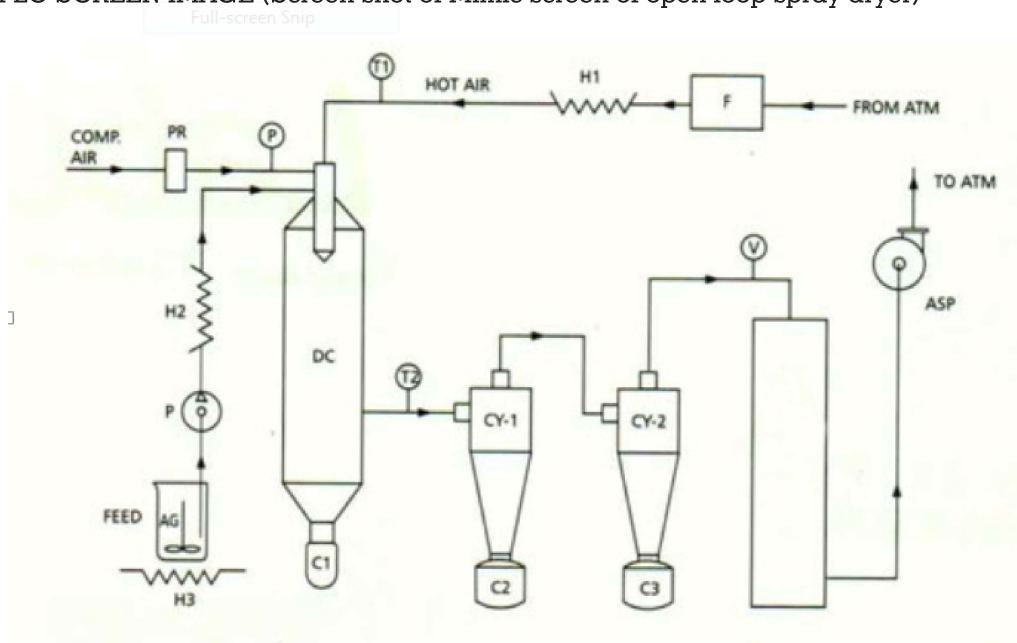
Inflammable Solvents

- For water-based feeds the drying media is filtered air in an open system. For inflammable or in any other way hazardous feeds, nitrogen in a closed loop dryer is used.
- This way, also all solvent is recovered and may be reused.

Spray dryer can be used for Spray Chilling / Congealing / Prilling at molten feeds by using cold air instead of hot air.

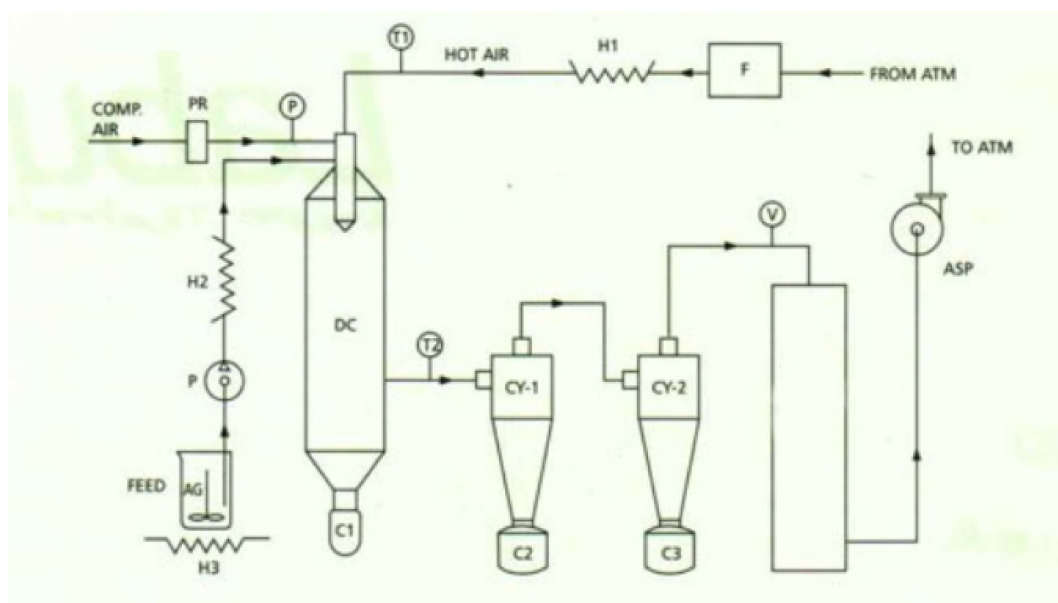
SPRAY DRYER OPEN LOOP

PLC SCREEN IMAGE (Screen shot of Mimic screen of open loop spray dryer)



SPRAY DRYER CLOSE LOOP

PLC SCREEN IMAGE (Screen shot of Mimic screen of close loop spray dryer)



Sr. No.	Details	Model No.	Capacity Kg of water evaporation /hr
1	Lab Spray Drier	LU 222 advanced LU 228 advanced (Plug-In)	1.0 kg/hr. 1.0 kg/hr.
2	Kilo Lab Spray Drier	SD /KL-2.5 (Open/Closed Loop) SD /KL - 3 (Open/Closed Loop)	2.5 kg/hr. 3.0 kg/hr.
3	Pilot Spray Drier	SD/PI - 5 (Open/Closed Loop) SD/PI - 10 (Open/Closed Loop)	5.0 kg/hr. 10.0 kg/hr.
4	Plant Spray Drier	SD /PL - 15 (Open/Closed Loop) SD /PL - 20 (Open/Closed Loop) SD /PL - 25 (Open/Closed Loop) SD /PL - 50 (Open/Closed Loop) SD /PL - 100 (Open/Closed Loop) SD /PL - 250 (Open Loop) SD /PL - 300 (Open Loop) SD /PL - 500 (Open Loop) SD /PL - 1000 (Open Loop)	15 kg/hr. 20 kg/hr. 25 kg/hr. ss50 kg/hr. 100 kg/hr. 250 kg/hr. 300 kg/hr. 500 kg/hr. 1000 kg/hr.