LABORATORY ATOMIZATION

REFERENCE : MP314S

Non contractual photo

SERVICE : 400 V / 50 HZ / THREE PHASE: 7 KW COMPRESSED AIR 6 BAR: 5NM3 / H EVACUATION OF FINES OUTSIDE THE LABORATORY.
DIMENSIONS : 1,95 M X 0,7 M X 2,6 M

WEIGHT : 150KG

- Industrial instrumentation
- Borosilicate glass construction (304 stainless steel optional).
- Rigid process piping

The solution of a product in a solvent (water) is dehydrated to obtain the product as a powdery solid.
The solution is injected through an atomization nozzle which generates a mist formed of very small droplets.
A very hot air stream makes it possible to evaporate the solvent forming the droplets and to entrain the solid in a cyclone.
This allows the solid particles formed to separate from the drying air which escapes outside the pilot.
The solid is recovered at the foot of the cyclone in a suitable reserve.

Experimental parameters studies following :

- Study of the atomization of a solution.
- Influence of the heating temperature of the drying air.
- Influence of drying air flow.
- Influence of the atomizing air flow.
- Influence of the feed rate of the product.
- Thermal balances.
- Material balance.

Technical specifications :

- Food bottle.
- Peristaltic pump supplying the variable flow solution.
- Centrifugal air dryer with adjustable flow rate steel.
- Stainless steel hot air supply duct with variable heating resistor e 6000 W.
- Borosilicate glass atomization chamber (stainless steel optional) with borosilicate glass receiving jar.
- Atomising nozzle with air supply and timed unclogging system with cyclic air supply.
- Air separation cyclone - borosilicate glass solid (stainless steel optional) with borosilicate glass solid receiving jar.
- Evacuation of fines with cleanable filter.
- Supply air flow measurement by hot wire probe.
- Measurement and adjustment of atomizing air supply flow (nozzle supply) by float flowmeter and integrated control valve.
- Solenoid valve for cleaning the spray nozzle.
- Safety thermostat of the air heating resistor.
- Relative humidity measurement by two hygrometric probes at the entrance and exit of drying air with multi-channel digital indicator.
- Control and control cabinet, IP55, equipped with emergency stop, operating buttons and the following interfaces:

- - Digital drying airflow indicator with active low alarm.
- - Digital indicator of the temperature of the atomization chamber by probe type Pt100 ?.
- - Digital regulator of drying air temperature.
- - Electronic speed controller of the drying air fan.
- - Electronic speed controller of the feed pump.
- - Electronic timer for unclogging the atomization nozzle