

## LABORATORY ATOMIZATION



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

REFERENCE: MP314S

- 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.

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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:

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