FLUID AIR

Experts in Solid Dosage Technology

A Division of *Spraying Systems Co.*®

POLARDRY® MODEL 0.1

Electrostatic Spray Dryer

CLEAN. COMPACT. COOL.

The patented PolarDry® Model 0.1 is a portable PLC-controlled once-through design intended for small-scale feasibility tests. This GMP-designed machine is specifically sized to fit in most lab and fume hoods. Model 0.1 uses the innovative electrostatic spray drying nozzle as the standard – consistent with the PolarDry product line.

FEATURES:

- Compact
- cGMP design
- Compliant construction
- Autoclavable for sterile application
- Electrostatic, low-temperature spray drying
- Batch Architect™ PLC controls with datalogging
- Flexible with optional high-temperature spray drying
- Safe – small enough to fit in most lab fume or containment hoods

PROCESS SCALABILITY

PolarDry® was designed around a complete line of patented machines that share similar process characteristics and key features.

MODEL 032

MODEL 004

MODEL 001

POLARDRY BENEFITS:

- No heat degradation
- Low volatile loss
- No oxidation
- Superior microencapsulation
- Controlled agglomeration
- 75% lower operating temperatures
- Single-step process to finished powder

POLARDRY® MODEL 0.1 ELECTROSTATIC SPRAY DRYER SPECIFICATIONS

GENERAL		DRYING GAS PERFORMANCE	
Application	cGMP	Drying Gas	Nitrogen
Control System	Batch Architect™ with 7" Touchscreen	Max. Inlet Temperature	160°C - 200°C**
Overall Dimensions	30.25" H x 31.25" W x 22" D (0.77m H x 0.80m W x 0.56m D)	Min. Inlet Dew Point Temp.	20°C
Collection Volume	0.25 Liters	Nozzle Pump Type	Peristaltic
CAPACITY		**QUALITY CRITICAL SENSORS**	
Nozzle Type	Electrostatic, Two Fluid*	Drying Gas Flow	Drying Gas Temperature
Minimum Evaporation Rate	0.1 Kg/hr, 100 g/hr	Outlet Temperature	Atomizing Gas Pressure Transducer
UTILITY REQUIREMENTS			
Electric		230VAC/1PH/50-60Hz/10/5 A	
Compressed Nitrogen at 20°C		15 SCFM @ 100 PSI, 690 kPA @ 26 NM3/hr	
Exhaust		1-1/2" Sanitary Connection	

**High Temperature Option *Optional

Dimensions and specifications subject to change. Please contact Fluid Air for the latest product dimensions and specifications.

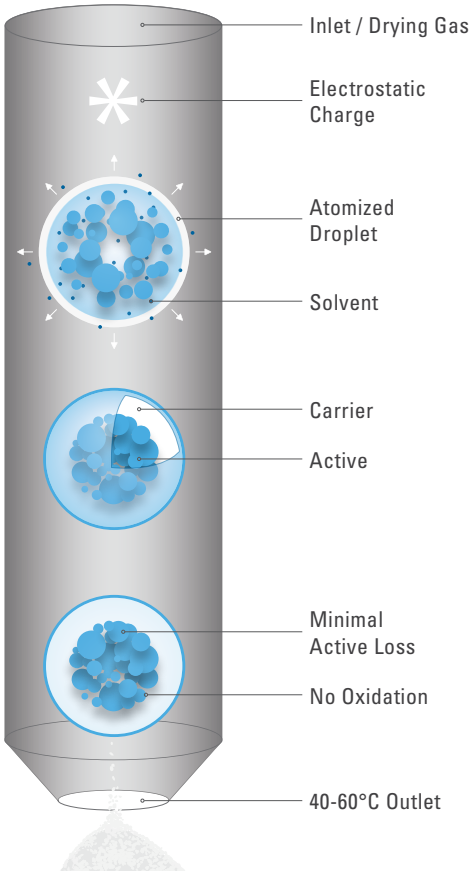
HOW DOES ELECTROSTATIC SPRAY DRYING WORK?

In microencapsulation, each emulsion component has differing polarities. The solvent and carrier, being the most polar of the group, will have the largest electric dipole moment. The active, being less polar, will have a smaller dipole. The solvent molecules will repel each other and the solid particles. This will force the solvent and carrier to migrate to the outer surface of the droplet, while the active will remain at the center.

Driving the solvent to the outer surface creates the ideal drying condition, leading to a near perfect encapsulation of the active without the use of high evaporation temperatures.

Although the above applies to emulsions, a similar stratification of solid/solvent feedstock also occurs resulting in 75% lower operating temperatures compared to traditional spray dryers' (250°C) requirement.

SINGLE-STEP PROCESS TO FINISHED POWDER



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