Application Note
Mini Spray Dryer B-290

Milk (whole)

1. General Information

Type of application	Food, Natural products
Type of application	Spray drying
Applied device	BUCHI Mini Spray Dryer B-190
Recommended device	BUCHI Mini Spray Dryer B-290

2. Sample preparation

Sample concentration	50 %
Solvent	Water
Carrier	-
Filmogen	-

3. Spray drying parameters

Inlet temperature	130°C
Outlet temperature	90°C
Gas spray flow	600 L/h
Yield	60-80 % very good

4. Additional Information

Remarks	Whole milk. Aspirator power ca. 88%, whole milk concentrated to 50% (necessary)
Customer / Company	Büchi Labortechnik AG
Date	5/21/1979

The given process parameters are used as starting values for process optimization and give an indication if the material can be spray dried or not.

Application Note
Mini Spray Dryer B-290

Milk powder

1. General Information

Type of application	Food, Natural product
Type of application	Spray drying
Applied device	BUCHI Mini Spray Dryer B-290
Recommended device	BUCHI Mini Spray Dryer B-290

2. Sample preparation

Sample concentration	Skim and full-cream milk 41.2%
Solvent	Water
Carrier , Filmogen	-

3. Spray drying parameters

Inlet temperature	120 and 200°C
Outlet temperature	80 and 125°C
Pump rate	8 ml/min
Gas spray flow	440 l/h
Drying gas flow	38 m3/h
Nozzle diameter	0.5 mm

4. Results

Particle size	12 - 17 micron (120°C), 18 - 30 micron (200°C)
Morphology	spherical smooth (200C°), shrivelled (120°C)
Yield	-
Encapsulation efficiency	-

5. Additional Information

Remarks	Influence of surface fat coverage (particle stickiness) to control the powder stickiness
Reference	The effect of surface composition on the functional properties of milk powders. Journal of Food Engineering, Vol. 77, No. 4, p. 919-925 (2006)

The given process parameters are used as starting values for process optimization and give an indication if the material can be spray dried or not.