

SMALL PARTICLE COATING
Scale-Up to 18" Unit

By

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A series of tests was initiated to determine the particle size distribution of a product coated for taste masking. This product is a fine powder and had been successfully coated in the 4”/6” Wurster column, but it was necessary to establish the scale-up of this product into the 18” Wurster unit.

The coating solution was prepared as follows:

Ethocel 10 cps	60 g/L
Propylene glycol	6 g/L
Acetone	100 ml/L
Methylene chloride	qs 1 L

Enough of the above polymer solution was prepared to coat batches of 24 and 30 kilograms of the powder. (-60)

Run 760802-1 was made in the 18” Wurster column with the 8”/12” partition at 3/8” and the deflector in place. Four-foot filters (9) were used with the pulse set at 100 psi. Plate insert W618-6 was used with an airflow of approximately 560 cfm. The process air was heated to 150 degrees F. A Schlick 942/2.2 nozzle was used at 80 psi. The coating solution was applied at 350ml/min.

Run 760804-1 was essentially a duplicate of the above run except the application rate was 500 ml/min.

Run 760805-1 was the same as 760802-1 except the rate was 500 ml/min, the starting material was not screened minus 60 mesh, but was screened minus 40 after 30 minutes of coating, and the airflow was decreased to approximately 470 cfm near the end of the run.

All the runs went quite well. The particle size distribution for each is on the attached chart.

Run No. Time +30 -30+40 -40+60 -60+80 -80+100 -100+120 -120

760802-1	Control 1	---	---	Trace	19.0%	27.1%	15.6%	38.3%
760802-1	100	.1%	.1%	2.4%	23.0%	27.0%	13.9%	33.3%
760802-1	240	.3%	.1%	8.6%	31.9%	27.4%	12.8%	20.2%
760802-1	330	.3%	.1%	11.6%	30.9%	24.3%	13.9%	18.9%
Screened - 40								
760802-1	640	.1%	.6%	26.1%	27.5%	17.2%	10.9%	17.6%
760804-1	Control 1	---	---	Trace	19.0%	27.1%	15.6%	38.3%
760804-1	60	.2%	.3%	11.4%	26.3%	16.8%	16.5%	28.6%
760804-1	150	.4%	1.6%	26.0%	27.0%	15.6%	9.7%	19.5%
760804-1	210	1.0%	4.3%	35.1%	24.1%	13.1%	9.2%	13.3%
760804-1	330	1.4%	4.7%	42.9%	20.2%	11.8%	7.4%	11.4%
760804-1	486	3.7%	11.5%	43.9%	20.0%	9.6%	5.3%	6.0%
760805-1	Control 15 min.	4.0%	4.1%	26.2%	16.5%	8.2%	5.2%	35.6%
760805-1	Dry Run	1.3%	3.1%	15.5%	15.1%	7.8%	5.3%	51.8%
760805-1	30	1.5%	4.7%	25.4%	18.0%	8.6%	6.1%	35.6%
760805-1	122	.1%	2.1%	36.6%	18.6%	11.6%	8.1%	22.8%
760805-1	303	.4%	3.7%	35.7%	16.5%	11.2%	6.5%	26.0%
760805-1	490	.6%	8.2%	45.4%	18.8%	11.1%	6.6%	9.3%